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3.3.1 Number of research papers published per teacher in the Journals as notified on UGC CARE list during the 2023

Sr. No.	Title of Paper	Name of the Author/s	Name of Journal
1	Electrical Drives Using Model Predictive Controller Strategies	Suraj R. Karpe ,S.A. Deokar, U.B. Shinde	Journal of Control and Instrumentation Engineering
2	Review on Audit of Electric Vehicle Battery Lifecycle	Suraj R. Karpe,Ulhas B. Shinde, A. N. Mudiraj,M.G.Aush, N. N. Nikam	Journal of Control and Instrumentation Engineering
3	Teachers Role in Outcome Based Education	Syed Sumera Ali	International Journal MC Engineering Themes (MCET)
4	MLP-WOA Convolution Neural Network based Prediction of Plant Disease Using Deep Learning: A Review	Kaniz, Syed Sumera Ali, A.T.Jadhav, D.L.Bhuyar	Journal of Emerging Technologies and Innovative Research (JETIR)
5	Arduino Based Wearable Device for Child Safety	Archana Kalyanrao Kale, Syed Sumera Ali and U.B. Shinde	International Journal of Innovations in Engineering Research and Technology(IJIERT)
6	A Review on Real Time Hand Gesture Recognition with Speech Conversion using LSTM model	Anjali Anil Yadgire, Syed Sumera Ali, A. T. Jadhav, D.L. Bhuyar	Journal of Xidian University
7	Self-Driving Car Using Deep Learning and Convolutional Neural Network: A Review	Rupali Mohan Gaikwad, Ulhas B.Shinde, Dr Syed Sumera Ali, Prof A.T.	Journal of Xidian University

		Jadhav and D.L.Bhuyar,	
8	Investigation of Linear Dynamic Analysis and Duc-tile Design of High Rise Structure as per Revised Indian Code	K. R. Kale, s. s. manal, m. s. Bankar	Journal For Research in Applied Science and Engineering Technology
9	Seismic Performance Evaluation of Reinforced Concrete Structures With Aerated Asbestos Cement Block Masonry Infill Walls: A Comprehensive Review	Dinesh M. Pandit, Mrs. Amruta Shete	International Journal for Science and Advanced Research in Technology
10	English Handwritten Character Recognition Based on Ensembled Machine Learning	Zanwar Shrinivas, Bhosale Yogesh, Bhuyar Devendra, Zakee Ahmed, Shinde Ulhas, Narote Sandipan	Journal of Institute of Engineers India Series B
11	Herding Exploring Algorithm With Light Gradient Boosting Machine Classifier for Effective Prediction of Heart Diseases	Girish S Bhavekar, Agam Das Goswami,	International Journal of Swarm Intelligence Research
12	Travel-Hunt-Based Deep CNN Classifier: A Nature-Inspired Optimization Model for Heart Disease Prediction	Girish S Bhavekar, Agam Das Goswami,	IETE Journal of Research
13	Experimental Analysis of Heart Disease Prediction Using Machine Learning with Emphasis on Hyper Parameter Tuning and Recursive Feature Elimination.	Snehal Bankatrao Shinde, Kankipati Lahari, Keerthika Chowdary Garimella, Vicharapu Sowmya Sree, Nileshchandra K Pikle, Girish S Bhavekar, Pradnya Borkar, Sagarkumar Badhiye, Mukesh	International Journal of Intelligent Engineering & Systems

		Raghuwanshi	
14	Optimization and ANFIS-based modeling of two step FSSW process parameters on tensile strength for triple-sheet joining of aluminum alloy.	Kumar S, Maurya M, Sharma T, Kumar A, Jambhale S	Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science.
15	Text Document Categorization and Semantic Text Analytics: A Neural Network Approach	Nihar ranjan Sunil Kale Vilas Gaikwad Komal Gandle	Grenze International Journal of Engineering and Technology
16	Study of the effect of PCM process parameters on geometry type, Ra, depth of etch, undercut comparing FeCl3 and CuCl2 etchants on Monel 400	Deepakkumar Patil, Shrikant Thorat, Mudigonda Sadaiah	Advances in Materials and Processing Technologies
17	Enhancing early action prediction in video through temporal composition of subactions	Ashwini S. Gavali & Sangeeta.N. Kakarwal	Springer Link

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2023-1

Journal of Control and Instrumentation Engineering (e-ISSN: 2582-3000)

Electrical Drives Using Model Predic Strategies

Suraj R. Karpe

S.A. Deokar

U.B. Shinde

Keywords: Electrical motors, 15-level H-Bridge inverter

Abstract

High-level control techniques in power gadgets incorporate Predictive controller of current (PC CONTROL) and Predictive controller of torque (PT CONTROL). It is simple to include system restrictions. There is no need for the weighting component. Together with the PT CONTROL and PC controller systems, the SRM method is the most practicable direct control technique since it doesn't require a modulator and offers 10% to 30% more power than an induction motor. With the same current, an induction motor can only generate between 70 and 90 per cent of the force generated by an SRM due to its lagging power factor. When compared to the PT CONTROL and PC controller method employing an induction motor and a 15-level H-bridge multilevel inverter, the SRM approach reduces THD in torque, speed, and stator current by 23 per cent. The transistors are only swapped when necessary to maintain the limits of flux and torque, which minimizes switching losses. To improve the efficiency of a multilevel inverter, semiconductor switches are switched in a specific pattern. In contrast to the PT CONTROL and PC controller approaches using a 2-level voltage source inverter, the fifteen-level H-bridge multilevel inverter employed in this study, coupled with SRM and IM, gives outstanding torque and flux responses and achieves stable and robust operation. This unique strategy quickly caught the interest of academics due to its simple method.

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Journal of Control and Instrumentation Engineering (e-ISSN: 2582-3000)

Review on Audit of Electric Vehicle B

Suraj R. Karpe

Ulhas B. Shinde

A. N. Mudiraj

M.G.Aush

N. N. Nikam

Keywords: Battery, Battery electric vehicle, Battery fabricating material, Hybrid electric vehicle, Internal combustion engine, Plug-in hybrid electric vehicle

Abstract

The review article's goal is to look into the main problems with electrical automobiles. The issue with the battery after usage in electric vehicles needs specific attention. Thus, attention must be paid to battery manufacture and waste management. The capacity of the grid will be impacted by the increased electricity energy consumption caused by the deployment of electric vehicles. To compare power generation and electricity, it is necessary to comprehend the worldwide case. Within the next few years, electrified vehicles are bound to turn into the fundamental part of the vehicle field. Therefore, the charging foundation ought to be created at a similar time. Among this foundation, photovoltaic-assisted charging stations are gaining popularity due to increased ecological consciousness, cost reduction, and an increase in the effectiveness of PV modules. This review paper discussed the oldest type of rechargeable battery, lead-acid battery to the recently commonly used battery, which is the latest technology of battery, lithium-ion battery. For electric vehicles, there is a sharp growth in the need for batteries with high capacity and low density. In proportion, waste will rise, and then the need for total battery disposal will arise to prevent significant hazards and save the human race. Reviewing and evaluating the battery performance or efficiency is the main goal of this research.

2023-3

Medicon open access

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Teachers Role in Outcome-Based Education

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The Outcome-based Education (OBE) introduce in the United States since 1994. Many countries started onwards for universities also implementing in public schools system since 2008.

In Outcome-based education, teachers are the facilitators, rather than lecturers. In OBE teachers guide students through learning, hands-on, curricular activities & interactions to guide student engagement with new study material. Also motivate & encourage the application of developing knowledge and skills through the students.

In Outcome-based education, teachers are the facilitators, rather than lecturers. In OBE teachers guide students through learning, hands-on, curricular activities & interactions to guide student engagement with new study material. Also motivate & encourage the application of developing knowledge and skills through the students.

Introduction

OBE is education where the students are expected to know, be able to do, that is, students must be able to have skills and knowledge when they leave the school /institute/university.

Many schools/institute/university are getting benefited through OBE system are....

- Clarity among the teachers and students.
- Flexibility and freedom of learning in their own ways.
- Flexibility and freedom of teaching.
- Every student has the choice that is more than one method of learning.
- No comparison among the students. Every student has their own talent, skills & different target.
- Students have complete involvement & responsibility for their goals.
- Instead of becoming Topper, encouraging students to acquire better grades.
- OBE can help teachers design curricula and keep an observation on student's growth at every stage.
- Today every Schools/University/institutions willing to implement OBE.

The world has changed from traditional teaching to outcome-based learning. Teaching & learning enhancement with outcome-based education (OBE) gives excellent results.

OBE is a student-centered learning model. Teachers need to guide and support in any way necessary, this can use to facilitate students learning.

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JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
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MLP-WOA Convolution Neural Network based Prediction of Plant Disease Using Deep Learning: A Review

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Abstract: Tomatoes, globally recognized as a valuable agricultural commodity, are susceptible to various diseases, necessitating early and precise identification. Recent research has embraced deep learning (DL) models for automating tomato leaf disease detection. However, many existing methods rely on computationally intensive single DL architectures, contributing to classification complexity. This study introduces an innovative pipeline for tomato leaf disease identification, leveraging three compact convolutional neural networks (CNNs). Employing transfer learning, deep features are extracted from the final CNN layer, fostering condensed, high-level representations. Following this, these features are consolidated, and a hybrid feature selection method is employed to curate a comprehensive yet more concise feature set. The proposed pipeline enhances efficiency, offering a promising solution for tomato crop protection.

Index Terms **- Deep learning, tomato leaf disease classification, smart agriculture, precision agriculture, feature selection, transfer learning**

I. INTRODUCTION

Agriculture has long been the backbone of income generation for a significant portion of African and Asian countries. However, the widespread commercialization of agriculture has had profound environmental implications. Early detection is pivotal in preventing the spread of diseases among crops, which can result in substantial economic losses. The consequences of plant diseases span from minor crop issues to the devastation of entire plantations, significantly impacting the agricultural economy.

Tomatoes, being among of the substantial and widely consumed crops globally, play a crucial role in agricultural production. With worldwide tomato production exceeding 180 millionmetric tons and exports valued at USD 8.81 billion, it is disheartening to note that tomato production is declining due to susceptibility to various diseases. Tomato leaf diseases, in particular, contribute significantly to crop loss and economic hardships for farmers. Detecting these diseases in tomatoes is intimately linked to the financial well-being of the agricultural sector. Conventional methods for disease detection often involve manual inspections of afflicted leaves based on visual cues or chemical analyses of affected areas. These methods are not only time-consuming but are also prone to human error. The situation is exacerbated by the lack of professional expertise among farmers and a shortage of agricultural experts who can identify diseases in remote areas, hindering overall agricultural productivity. Neglecting this issue poses a and substantial losses for tomato production stakeholders. The adoption of automated tools and techniques and identification could offer solutions to these challenges.

Inspired by the success of (AI) technologies, including traditional and the latest deep learning (DL) methods across various domains, AI has been increasingly utilized to automate the detection and identification of tomato leaf diseases in precision

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REVIEW ON CHILD SAFETY WEARABLE DEVICE USING ARDUINO

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ABSTRACT
The main objective of this system is to provide the safety to child which is lost in major crowded area. Now a day, Childs are not secured they are facing many issues regarding their security. There are number of security systems for the child security purpose. In order to overcome such problems the child safety wearable system is implemented. This system is not required any expensive technology and it is user friendly for both educated and uneducated people. There are many wearable devices are available in the market to track the child using wi-fi and Bluetooth but the wi-fi and Bluetooth are the unreliable medium for the communication between parent and child. In this system we use the text SMS as a mode of communication between parent and child there is minimum chances of failing communication as compared to wi-fi and Bluetooth. It also includes SOS light and BUZZER to provide security to the child in real time situations and it helps to parents to check the condition of child using android application.

Keywords: Temperature, SOS light, child safety, SMS based.

INTRODUCTION
The purpose of this system is to provide the security to child using wearable devices. Now a day the child getting lost in the major crowed areas, this is the main motivation for the safety of children. Most of the wearable devices are available in the market and focused on providing the location, activity, temperature etc. these details of the child to the parents through wi-fi and Bluetooth, these are very unreliable sources to transfer the information to parents. Therefore, in this project we use the SMS as the mode of communication between parent and child's wearable device, as this has fewer chances of failing compared to wi-fi and Bluetooth. The proposed system focuses on the key aspect that the lost child can be helped by the people around the child and can play a significant role in the child's safety until returned to the parents. The platform of this project will be running on Arduino microcontroller board based on the ATmega 328p and functions of sending and receiving SMS connecting to the internet which is provided by the GSM shield. Also, additional modules employed which will provide the current location of the child to parent via SMS. The second measure added is SOS Light indicator that will be programmed with Arduino UNO board to display the SOS signal using Morse code. Therefore, the wearable device proposed will be communicating with the parent via SMS, which would ensure that there is a secure communication link.

Statement of Problem
- To design and implement a child safety wearable device using wireless technology which is a smart device.

2023-6

Journal of Xidian University DOI:10.37896/jxu17.11/077 ISSN No:1001-2400

A Review on Real Time Hand Gesture Recognition with Speech Conversion using LSTM model

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Abstract

Effective communication is a fundamental human need, allowing people to connect and interact with one another. However, individuals with speech or hearing disorders, such as the mute and deaf, often rely on visual communication. These specially-abled individuals depend on sign language to convey their thoughts and feelings. Unfortunately, those without visual or hearing impairments may struggle to communicate with them due to a lack of sign language education. Sign language has proven to be a valuable means of expression for these individuals, and it bridges the communication gap. To establish two-way communication between specially-abled people and the general public, there is a pressing need for the development of a system capable of translating gestures into text and speech. Vision-based technology for hand gesture recognition plays a crucial role in human-computer interaction. Technologies like gesture recognition offer the potential to create a framework that can interpret sign language and gestures, converting them into text and speech. Hand gestures, which can convey complex ideas through unique shapes and finger positions, hold great promise for human-machine interaction. The key stages involved in designing such a system encompass tracking, segmentation, gesture acquisition, feature extraction, gesture recognition, and the conversion of these gestures into speech.

I. INTRODUCTION

A critical use of gesture recognition lies in the detection of sign language. Presently, gesture recognition technologies can be categorized into two main types: sensor-based and vision-based. In sensor-based methods, data gloves or motion sensors are employed to capture gesture data, allowing for the fine details of gestures to be recorded. However, this approach necessitates the wearing of a data-capturing glove with embedded sensors, making it a cumbersome device to carry. This method impacts the signer's natural signing ability and reduces user convenience. On the other hand, vision-based methods utilize image processing for a more user-friendly experience. Cameras are used to capture images without the need for additional devices. This method involves analyzing image attributes such as color and texture, which are essential for interpreting gestures. While the vision-based approach is more straightforward, it is

2023-7

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Self-Driving Car Using Deep Learning and Convolutional Neural Network: A Review

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Abstract

When a vehicle is on the road, traditionally, there's always a human driver in control of the steering wheel. However, the realm of driverless technology has been under development and testing by universities, institutions, and companies for quite some time. The notion of a car without a human driver can initially invoke skepticism, leading many to be cautious about embracing it. In this paper, we delve into the concept of an autonomous, robotically controlled driving vehicle. Our project incorporates several critical features, including mapping, tracking, and local planning. Through these features, we have successfully developed a vehicle capable of autonomously executing essential maneuvers such as lane changes, parking, and U-turns. Our innovative approach involves the utilization of obstacle and curb detection methods, a road vehicle tracker, and the ability to assess various traffic situations. This comprehensive framework ensures the creation of a robust autonomous self-driving car. Our system excels in executing proper parking procedures, navigating lane changes, and autonomously performing U-turns, all thanks to the integration of obstacle detection, curb detection, and vehicle tracking technologies.

Keywords: Parallel calculations, distributed calculations, synchronous, critical sections, Neural Networks, HSV filters, ranger finder (LIDAR), 3D Radar, 3D map, sockets, TCP/IP, Google Maps, Artificial Intelligence.

I. INTRODUCTION

The quest for autonomous vehicles, often referred to as self-driving cars, represents a remarkable intersection of cutting-edge technology, artificial intelligence, and automotive engineering. This paper, titled "Self-Driving Car Using Deep Learning," embarks on a journey into the heart of this transformative field. In recent years, self-driving cars have garnered immense attention due to their potential to revolutionize transportation, enhance road safety,

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Certificate

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Investigation of Linear Dynamic Analysis and Duc-tile Design of High Rise Structure as per Revised Indian Code

by

Mr. Keshav Raghunath Kale

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Good luck for your future endeavors

By

Editor in Chief, iJRASET

2023-5

2023-9

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Seismic Performance Evaluation of Reinforced Concrete Structures With Aerated Asbestos Cement Block Masonry Infill Walls: A Comprehensive Review

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Abstract- *The evaluation of the relevant literature takes into account a number of studies that are connected to the progressive collapse analysis of various kinds of buildings. Particular attention is paid to situations that include seismic activities, masonry infill walls, and column removal. In these research, computer models, software tools like as ETABS, and experimental investigations are used to determine how structures behave in the face of extraordinary occurrences like earthquakes and explosions. The objective of the study is to study the AAC blocks used in RCC building. The findings of these research provide important new insights that may be used to strengthen the resistance of buildings to progressive collapse and to make them safer overall. This article provides a complete summary of the research that has been done in this sector by taking into consideration a number of aspects, including seismic loads, infill walls, and column removal.*

Keywords- Seismic evaluation, Reinforced concrete, structures RCC structures, Aerated asbestos cement (AAC) block, RCC

I. INTRODUCTION

Progressive collapse could be a scenario wherever native failure of a primary structural element ends up in the collapse of neighboring members that, in turn, ends up in further collapse. Explosive loading became a major drawback that has got to be addressed very often. Progressive collapse happens once a structure has its loading pattern or boundary conditions modified such structural parts are loaded on far side their capability and fail. The abnormal loads initiate the progressive collapse. Modern building style and construction practices enable done to create lighter and additional optimize structural systems with significantly lower over design characteristics. Damage to the assets, loss of life and social panic are factors that need to be reduced if the threat of terrorist action

Cannot be stopped. Planning the structures to be totally blast and seismic resistant is not a sensible and economically possible. But current engineering and field knowledge will enhance the new and existing building to mitigate the results of an explosions and seismic activities. In this research work progressive collapse analysis on high rise building is performed and its validation in accordance with seismic and blast loading. Response of RCC frame structure under blast and seismic loading is analysed and DCR of low rise, medium rise and high rise building for blast and seismic loading is find out. Time history analysis is done in Staadpro to analyses the different parameters in progressive collapse.

1.2 Autoclaved aerated concrete AAC

AAC is a high-quality lightweight, load-bearing and extremely well insulating building material produced as standard blocks, mega blocks or panels.AAC has already successfully been used in Europe since early last century and is now among the mostly used wall building materials in Europe with rapidly growing market shares in many countries, especially in Asia, America and CIS.AAC is also known as ALC (Autoclaved Lightweight Concrete), Aircrete, Airstone, Thermostone, Gas Concrete, Cellular Concrete, Porous Concrete and under many brand names like Ytong® or Hebel®, HplusH® or Porit®.

AAC is the material of choice for building applications, such as residential, commercial, industrial and agricultural buildings, hotels, schools and hospitals, etc., - an excellent building material for all climatic conditions. It is used for all walls, external or internal, loadbearing or non-loadbearing walls, basement walls, infill walls to framed structures, party walls, fire break walls, etc.

1.2.1 AAC blocks and panels

- AAC the cost saver for builders and home owners: high economy - increased comfort and functionality
- large size - low weight
- good workability
- perfect thermal insulation: 6 to10 times better than regular concrete = heat and aircon saver

English Handwritten Character Recognition Based on Ensembled Machine Learning

Original Contribution Published: 24 September 2023

Volume 104, pages 1053–1067, (2023) Cite this article

Journal of The Institution of Engineers (India): Series B

Aims and scope

Submit manuscript

Shrinivas R. Zanwar, Yogesh H. Bhosale, Devendra L. Bhuyar, Zakee Ahmed, Ulhas B. Shinde & Sandipann P. Narote

Abstract

In recent days there are many advancements in optical character recognition (OCR), still, handwritten character recognition remains a challenge due to practices of realizing characters in many ambiguous forms. Currently, multiple algorithms based on deep learning can recognize a character in different languages like English, Devanagari, Chinese, etc. Existing methods have claimed to have an accuracy rate of up to 99%. However, this accuracy is justified only for documents that are printed with fine text, but for degraded image data, these algorithms could not translate handwritten text into a recognized text with satisfactory performance. This work presents a state-of-the-art Novel Naive Propagation (NNP) Classification algorithm along with Harmonized

2023-11

Herding Exploring Algorithm With Light Gradient Boosting Machine Classifier for Effective Prediction of Heart Diseases

Girish S. Bhavekar, Agam Das Goswami

Source Title: International Journal of Swarm Intelligence Research (IJSIR) (/journal/international-journal-swarm-intelligence-research/1149) 13(1)

Pages: 22
DOI: 10.4018/IJSIR.302609

Abstract

Coronary heart diseases act as life threatening diseases. Prediction of these coronary diseases at an early time with higher rate of accuracy could be an effective solution for this problem. In places where the availability of medicos is low, the automatic prediction model plays an important role in saving the lives of many people. To enhance the prediction model, this paper proposed a HEOA-based LightGBM classifier for forecasting the coronary heart diseases. The preprocessing is performed using data imputation, which uplifts the features of the data and the formation of feature vector strengthens the process by adding supreme features. The significance of the research is proved by effectively tuning the parameters, which optimize the time period [illegible] achieve an accuracy rate of 93.064%, specificity rate of 95.618%, and sensitivity rate of 91.038%.

Article Preview

1. Introduction

Top

The oxygen-rich blood is pumped to the full body constantly through the network of arteries and veins, which dignify the predominant responsibility of the heart, and any interruption caused to this process can be termed coronary disease (Rani, *et al.*, 2021). Coronary heart disease is a deadly disorder, which makes the life of the individual fatal (Sarath, 2017; Banu & Gomathy, 2014; Krishnaiah, 2014). The researchers highlight that the people affected with heart disease, particularly heart attacks, fail to survive. Such disease has occurred in the male of middle age or old age people when contrasted with females, and the augmenting rate of cardiovascular diseases leads to higher mortality rates, which in turn causes a significant burden to the worldwide healthcare systems (Shaji, 2019; Trevisan, *et al.*, 2020; Yadav & Pal, 2020). The delighted fact is that the possibility of an occurring heart attack on children will be comparatively lesser than the older adults https://www.ahajournals.org/doi/full/10.1161/01.cir.99.9.1165 (https://www.ahajournals.org/doi/full/10.1161/01.cir.99.9.1165) (Subhadra & Vikas, 2019; Ghosh, *et al.*, 2021). Heart diseases can be classified into various types: videlicet coronary heart disease, otherwise called Atherosclerosis, congenital heart anomaly, arrhythmia is also known as cardiac dysrhythmia, and so on and the patient agonizing from this deadly disease have copious symptoms, the symptoms are as follows chest pain, deep sweating, staggering sensations and the major cause behind the heart disease is occurred due to smoking, high blood pressure,

2023-12

37 Views | 0 CrossRef citations to date | 0 Altmetric

Published online: 28 May 2023

Research Article

Travel-Hunt-Based Deep CNN Classifier: A Nature-Inspired Optimization Model for Heart Disease Prediction

Girish S. Bhavekar & Agam Das Goswami

Cite this article https://doi.org/10.1080/03772063.2023.2215736 Check for updates

Abstract

Diagnosing the health condition of heart disease patients using deep learning methods has gained more insights into the healthcare sector and when concerned about the modality of diagnosis, parameters corresponding to the functioning of the heart are considered. Even though there are various methods for predicting heart disease, deep learning methods provide adequate accuracy with less computational time. Hence, a novel method called a travel-hunt-DCNN classifier is proposed in this research. The importance of this research depends on the travel-hunt algorithm, which tunes the hyperparameters in the classifier on the poaching and hunting

2023-13

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Experimental Analysis of Heart Disease Prediction Using Machine Learning with Emphasis on Hyper Parameter Tuning and Recursive Feature Elimination

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Abstract: Cardiovascular disease is any illness that makes the heart work less well. Researchers are working on making smart systems that can correctly detect heart conditions from electronic health data using machine learning algorithms. This is because heart conditions can be very serious. In this study, data from patients and key clinical factors are used to identify cardiovascular disease using machine learning. The main goal of the suggested model is to improve the accuracy and reliability of predicting cardiac disease by focusing on parameter tuning, ensemble methods, and recursive feature removal approaches. Our methods for making predictions included logistic regression, decision trees, K-nearest neighbour (KNN), support vector machine (SVM), naive bayes (NB) machine learning (ML) approaches, ensemble technique approaches, and artificial neural networks (ANN) with stress on regularisation. Compared to the other ways, it was found that using a KNN model gave the most accurate results for the model. A number of factors, such as accuracy, precision, memory, and F1-score, were used to judge the models. The KNN model is the most accurate, at 97.8%.

Keywords: Cardiovascular disease, Hyper parameter tuning, Machine learning, Artificial neural network, Recursive feature elimination.

1. Introduction

The heart is a vital organ. It controls blood circulation. Cardiac abnormalities can cause bodily pain. Heart disease is any condition that impairs heart function. Today, heart disease kills most people. Tobacco, alcohol, a high-fat diet, and inactivity increase the risk of cardiovascular disease. According to the World health organization (WHO), heart disease kills approximately 10 million people a year. Preventing heart disease requires a healthy lifestyle and early detection. Diagnosis and therapy are the main concerns of modern healthcare. Heart disease is the largest preventable cause of death worldwide. Illness detection determines illness treatment. The proposed approach detects cardiac issues early to avoid negative effects. The application of machine learning in healthcare settings is now receiving a lot of attention due to the fact that it has the potential to enhance both knowledge and, as a result, patient outcomes. Through ML, the accurate detection of a broad variety of illnesses has been made easier tension due to the fact that it has the potential to enhance both knowledge and, as a result, patient outcomes. Through ML, the accurate detection of a broad variety of illnesses has been made easier. Future research supported by powerful and numerous machine learning calculations has the potential to make it possible to accurately forecast the progression of infection and treat patients. The field of health care creates a flood of data concerning

2023-15

GRENZE Scientific Society

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Text Document Categorization and Semantic Text Analytics: A Neural Network Approach

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***Abstract*—The nature of data that is being produced on a daily basis is vast and most amount of this data is in unstructured format. Hence, it is necessary to organize this data into different categories such that meaningful knowledge can be derived from such large volumes of data. The proposed methodology consists of a feature selection component and then using a neural network classifier. The neural network system is trained against a large variety and of text document so that it can correctly predict the type of document presented as input. A machine learning algorithm is designed to select terms that will serve as basis to differentiate between various categories of topics. The algorithm will also analyze synonyms so that redundant type of information is kept under a same label.**

***Index Terms*— Text document classification, text categorization, neural network, text mining, text analytics, NLP.**

I. Introduction

This study includes diversified domains like data mining, text mining, NLP (Natural Language Processing) and neural network. Text mining or text analytics can be defined as the process of obtaining actionable knowledge or productive information from common unstructured text[9]. Statistical analysis of data generally results in such highly-valued information. A neural network, in most simple terms can be defined as a machine which is programmed to imitate functions of human brain and nervous system. A neural network system is used to generate an approximation or predict the output when the nature of inputs is large and unknown[8]. Natural language processing is an approach towards human-computer interaction through the understanding of human languages by the machine. The input to the text-document classifier will be in natural language form, hence this topic is an integral part of this study.

An artificial neural network consists of single layer and multi-layered architecture. A common architecture is a 3-layer architecture[7]. This basic architecture of a 3 layer neural network is shown in figure 1.1. The first layer consists of input neurons that provide inputs to the network required to calculate the required operations. The second layer also known as middle layer is generally a hidden layer, the neurons communicate with each other in this layer to transform the given input into the desired output. The last layer is an output layer with neurons that return the calculated results. Input is transformed into output on the basis of two categories of rules: 1) Activity rules and 2) Learning rules. Activity rules define the behavioral changes of

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Abstract

In this paper, a potential technique is used to weld three sheets of AA 6082 through a two-step friction stir spot welding (TSFSSW). The optimal settings of the process parameters, namely, the rotational speed of the tool, dwell time, and plunge depth during welding have been analyzed. Taguchi's L9 orthogonal array and ANOVA method is used to get proper material flow, appropriate heat conduction and the stir zone expansion, which helps in preparing sound joint. Microstructural tool analysis and fractography are performed by employing optical microscopy and Scanning Electron Microscopy (SEM). The tool was analyzed before and after use for heat effect along with the observation of the fracture behavior of the joint. To analyze the residual stresses developed in the joint, the XRD analysis is also carried out. The maximum tensile strength of 94.51 MPa was obtained under optimal parameters of the rotational speed of 1200 rpm, dwell time of 10 s, and plunge depth of 2.9 mm. The results of the ANFIS model revealed that a minor difference between experimental and model values (95.62) confirms the validation of the experiment. The resulting experimental findings of the ANFIS model were compared with other similar work done by researchers previously.

DUP

2023-16

Research Article

Study of the effect of PCM process parameters on geometry type, Ra, depth of etch, undercut comparing FeCl3 and CuCl2 etchants on Monel 400

Deepakkumar Patil, Shrikant Thorat & Mudigonda Sadaiah

Accepted 16 Apr 2023, Published online: 24 Apr 2023

Cite this article https://doi.org/10.1080/2374068X.2023.2205668 Check for updates

ABSTRACT

The study mainly focuses on geometrical topographies in photochemical machining (PCM) of Monel 400, using two etchants cupric chloride ($CuCl_2$) and ferric chloride ($FeCl_3$). The experiments were carried out at different etchant concentrations (including a number of chloride ions and weight) and temperatures. A comparative study was carried out on the responses such as depth of etch, undercut, surface

Enhancing early action prediction in videos through temporal composition of sub-actions

Published: 18 March 2024

(2024) Cite this article

Multimedia Tools and Applications

Aims and scope

Submit manuscript

Ashwini S. Gavali & Sangeeta.N. Kakarwal

Abstract

Early Action Prediction (EAP) in videos aims at forecasting the action labels from partially observed videos. It is crucial in various applications, including video surveillance, driverless cars, human-robot interaction, and patient activity monitoring. EAP becomes challenging when visual similarity exists between two actions or when one action appears as a subpart of another, leading to interrelated actions. To address this, we propose a novel approach for the early prediction of visually similar and interrelated actions. Our method involves representing each high-level action as temporal compositions of sub-actions, breaking down complex actions into sequences of smaller, more basic, and distinct "local actions." Furthermore, we construct a dictionary where each original action class serves as a key, with corresponding values representing sequences of possible constituent local actions. The proposed method comprises of two-level classifier namely base classifier and

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3.3.1 Number of research papers published per teacher in the Journals as notified on UGC CARE list during the 2022

Sr. No.	Title of Paper	Name of the Author/s	Name of Journal
1	Copy-Move Forgery Detection and Localization Using Novel Technique	Preeti Kale, Vijayshree A. More , Ulhas B. Shinde	Mathematical Statistician and Engineering Applications
2	Arduino Based Wearable Device for Child Safety	Archana Kalyanrao Kale, Syed Sumera Ali and U.B. Shinde	Journal of Xidian University
3	Research Paper on Smart Urban Agriculture Using Hydroponic System	Syed Sumera Ali, Ankita Gaikwad, Vaishnavi Dube, Dipti Gaikwad & Dipti Chavan	Gis science journal
4	Effectiveness of Cone Angle on Surface Pressure Distribution along Slant Length of a Cone at Hypersonic Mach Numbers	Javed Shaikh, Krishna Kumar, Sher A. Khan	Journal of Advanced Research in Fluid Mechanics and Thermal Sciences
5	Analytical and Numerical Simulation of Surface Pressure of an Oscillating Wedge at Hypersonic Mach Numbers and Application of Taguchi's Method	Shamitha, Asha Crasta, Sher Afghan Khan	Journal of Advanced Research in Applied Sciences and Engineering Technology
6	Computational Analysis of Surface Pressure Distribution over a 2D wedge in the Supersonic and Hypersonic Regimes	Javed Shaikh, Krishna Kumar, Sher A. Khan	Fluid Dynamics and Material Processing
7	Numerical Simulation of Surface Pressure of a Wedge at Supersonic Mach	Shamitha, Asha Crasta,	Journal of Advanced Research in Applied

	numbers and Application of Design of Experiments	Sher Afghan Khan	Mechanics
8	Effect of Jaggery on the Properties of Concrete a review	Sayali Panditrao Bende, Manoj P. Wagh	GRD Journal for Engineering
9	Effect of Jaggery on the Properties of Concrete	Sayali Panditrao Bende, Manoj P. Wagh	International Journal for Research in Applied Science & Engineering Technology
10	comparative study of mass regular and irregular building	Rohit Suryabhan Gunjal	International Journal of Management, Technology And Engineering
11	A hybrid model for heart disease prediction using recurrent neural network and long short term memory	Girish S Bhavekar, Agam Das Goswami,	International Journal of Information Technology
12	Electrocardiogram signal classification using VGGNet: a neural network based classification model	Agam Das Goswami, Girish S Bhavekar	International Journal of Information Technology
13	Wader hunt optimization based UNET model for change detection in satellite images	Chafle Pratiksha Vasantrao, Neha Gupta	International Journal of Information Technology
14	Context aware human activity prediction in videos using Hand-Centric features and Dynamic programming based prediction algorithm	Ashwini S Gavali, S.N.Kakarwal	Journal of Integrated Science and Technology
15	Forecasting novel COVID-19 confirmed cases in India using Machine Learning Methods	Saroj Date, Sachin Deshmukh	International Journal of Computer Sciences and Engineering

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16	A comprehensive review on intents, intention mining and intention classification	Saroj Date	International Journal of Science and Research
17	Convolutional Neural Network-VGG16 for Road Extraction from Remotely Sensed Images	Prajakta Ganakwar, Saroj Date	International Journal for Research in Applied Science and Engineering Technology
18	Multi-response optimization of friction stir spot welded joint with grey relational analysis.	Sachin Jambhale, Sudhir Kumar, Sanjeev Kumar	Materials Today: Proceedings
19	Experimental Investigation and Parametric Optimization of AA6063/AA6351 Alloys Bimetallic Prepared by Vacuum-Assisted Lost Foam Compound Casting Process	Rajender Kumar Tayal, Sudhir Kumar, Arindam Mondal, Sachin Jambhale	International Journal of Metalcasting
20	Review on Strengthening and Retrofitting of RCC and Masonry Bridge Structure with Analytical Modelling of Sensor Data for the Durability of Bridge Structure	Datta P. Khade, Kavita K. Pathak, A.P. Wadekar	Trends in Transport Engineering and Applications
21	Study of seismic and wind effect on multi-storey R.C.C building using ETABS	Dhanshri S.Patil, Simran M. Patil, Anuja K. Ugale	International Research Journal of Engineering and Technology (IRJET)

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MATHEMATICAL STATISTICIAN AND

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2022 - 16

Copy-Move Forgery Detection and Localization Using Novel Technique

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Abstract

Nowadays, Image Forgery is the most extensively exploited security vulnerability in real-time applications. It necessitates the approach to discover such vulnerabilities using computer vision mechanisms. The Copy-Move Forgery has commonly appeared the image forgery in multimedia applications. Several Copy-Move Forgery methods have already been proposed for forgery detection and localization. The majority of the approaches fell short of achieving maximal precision with correct forgery localization. Other techniques have suffered from a significant computation burden. To end this, we proposed novel image forgery detection and localization framework. The proposed framework is called GFGIF (Guided Filtering with Geometric Invariant Features) for robust and accurate forgery detection and its localization. The GFGIF consists of two phases such as forgery detection and forgery localization. For forgery detection, we pre-processed the input image using a guided filter and then decomposed it into non-overlapping blocks. The Geometric Invariant features are extracted from each block. Using Euclidean Distance measure, we first discovered the candidate blocks and then detected the forgery blocks. Localization of forged blocks efficiently is another challenge for further analysis purposes. We accurately localize the forged objects in the image using the detected forged blocks. The simulation results show the efficiency and robustness of the proposed model compared to state-of-art methods.

PDF

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REVIEW ON CHILD SAFETY WEARABLE DEVICE USING ARDUINO

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ABSTRACT
The main objective of this system is to provide the safety to child which is lost in major crowded area. Now a day, Childs are not secured they are facing many issues regarding their security. There are number of security systems for the child security purpose. In order to overcome such problems the child safety wearable system is implemented. This system is not required any expensive technology and it is user friendly for both educated and uneducated people. There are many wearable devices are available in the market to track the child using wi-fi and Bluetooth but the wi-fi and Bluetooth are the unreliable medium for the communication between parent and child. In this system we use the text SMS as a mode of communication between parent and child there is minimum chances of failing communication as compared to wi-fi and Bluetooth. It also includes SOS light and BUZZER to provide security to the child in real time situations and it helps to parents to check the condition of child using android application.

Keywords: Temperature, SOS light, child safety, SMS based.

TRODUCTION
The purpose of this system is to provide the security to child using wearable devices. Now a day the child getting lost in the major crowed areas, this is the main motivation for the safety of children. Most of the wearable devices are available in the market and focused on providing the location, activity, temperature etc. these details of the child to the parents through wi-fi and Bluetooth, these are very unreliable sources to transfer the information to parents. Therefore, in this project we use the SMS as the mode of communication between parent and child's wearable device, as this has fewer chances of failing compared to wi-fi and Bluetooth. The proposed system focuses on the key aspect that the lost child can be helped by the people around the child and can play a significant role in the child's safety until returned to the parents. The platform of this project will be running on Arduino microcontroller board based on the ATmega 328p and functions of sending and receiving SMS connecting to the internet which is provided by the GSM shield. Also, additional modules employed which will provide the current location of the child to parent via SMS. The second measure added is SOS Light indicator that will be programmed with Arduino UNO board to display the SOS signal using Morse code. Therefore, the wearable device proposed will be communicating with the parent via SMS, which would ensure that there is a secure communication link.

Statement of Problem
- To design and implement a child safety wearable device using wireless technology which is a smart device.

2022-18

Smart Urban Agriculture Using Hydroponic System

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Abstract : *The objective behind this paper is to build the innovative design for the smart cities by sensors for many applications in urban agriculture using a hydroponic system, based on the recent & creative design methodology. In the beginning, the customer demand, availability, and design constraints are summarized according to existing measuring parameters. All the measuring parameters in one module (All in One Approach) concept was a challenging task. Supply & demand is another challenge. By keeping in mind market availability planned. After that market survey & system requirements in hardware /software were obtained. At last, new designs are obtained through the smart sensors.*

Keywords: **Smart Sensors, Urban Agricultural, pH value, Hydroponic system, ATMEGA 328P**

1. Introduction

In India major source of income is the agriculture sector and almost 75% of people depend on agriculture, most of the irrigation systems use traditional methods which are operated manually. Two scarce and valuable resources of irrigation that is water and energy are not efficiently utilized by the current irrigation system. Today advanced society has turned into a digital world through the contribution of technology, now we are leaving in such an era where technology is studied to improve our lifestyle. Hence to make life simpler and more convenient Smart Watering System had been introduced. This is one type of model for controlling irrigation & facilitates to support millions of people.

A smart watering system can be defined as the science of the artificial application of water to the soil depending on the soil moisture content. With the advent of open-source Arduino boards along with the moisture sensor, it is viable to create devices that can monitor the soil moisture content and accordingly irrigate the fields or the landscape when needed.

This is the proposed system makes use of microcontroller ATMEGA328P on Arduino Uno platform and IOT which enables farmers to remotely monitor the status of water level in the soil by knowing the sensor values thereby, making the farmer's work much easier as they can concentrate on other farm activities.

What is Hydroponics ?

- Hydroponics: hydro = water, phonics = work

It is a method of growing plants using mineral nutrient solutions, in water without soil. Hydroponics is an agriculture sector in which plants grow without soil. Hydroponics market covers by vegetable type, by distribution channel, by

2022-19

Document details - Effectiveness of Cone Angle on Surface Pressure Distribution along Slant Length of a Cone at Hypersonic Mach Numbers

Journal of Advanced Research in Fluid Mechanics and Thermal Sciences

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Effectiveness of Cone Angle on Surface Pressure Distribution along Slant Length of a Cone at Hypersonic Mach Numbers(Article)(Open Access)

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Abstract

In the present study, the prime attention is to numerically simulate the surface pressure distribution over the slant length of the cone at the various Mach numbers and for the considerable range of semi-cone angles. The Computational Fluid Dynamics (CFD) analysis is used to simulate the surface pressure distribution numerically. The hypersonic Mach numbers, semi-cone angle, and various locations along the slant length of a cone are considered parameters for this research work. The Mach numbers (M) considered for the research work are 5, 7, 9, 11, 13, and 15. The cone angle (θ) from 5° to 25° is considered. The results of pressure (P/P_s) are recorded at various locations (x/L) along the slant length of the cone as 0.1 to 1. The pressure distribution results are obtained by CFD analysis and compared with the analytical results available in the literature for Mach number 5. The findings obtained by CFD analysis and analytical results show good agreement. In this investigation, it is observed that the Mach number, cone angle, and slant length of the cone are the highly influential parameters for the surface pressure distribution. The pressure distribution over the slant length of the cone increases with an increase in the Mach number and the semi-cone angle.

Author keywords

Cone | hypersonic flow | surface pressure

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Document details - Analytical and Numerical Simulation of Surface Pressure of an Oscillating Wedge at Hypersonic Mach Numbers and Application of Taguchi's Method

Journal of Advanced Research in Applied Sciences and Engineering Technology

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Analytical and Numerical Simulation of Surface Pressure of an Oscillating Wedge a /personic Mach Numbers and Application of Taguchi's Method(Article) (C ,en Access)

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Abstract

This paper aims to estimate the surface pressure of a wedge at hypersonic Mach numbers at a considerable angle of incidence. The Ghosh similitude, corresponding strip theory, and piston theory are used to determine the pressure distribution analytically, and the results are compared to those of the CFD analysis. The theory is valid when the shock wave is attached to the leading edge of the nose of the wedge. Pressure on the windward surface was considered in the analysis. The pressure on the Lee surface is neglected. The condition for the validity of the theory is that the Mach number M2 behind the shock wave is greater than 2.5. The parameters taken into account for the study are the wedge angle and Mach number. The range of wedge angle considered is from 5 to 25 degrees and the Mach number considered is from 5 to 15. The analytical and the CFD results are in good agreement. The findings indicate that the parameters like wedge angle and Mach number are influential parameters that influence the wedge surface static pressure. The surface static pressure rises with an increase in Mach number and wedge angle.

Author keywords

Hypersonic | Mach number | Wedge angle

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Document details - Computational Analysis of Surface Pressure Distribution over a 2DWedge in the Supersonic and Hypersonic Flow Regimes

Fluid Dynamics and Materials Processing

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Computational Analysis of Surface Pressure Distribution over a 2DWedge in the S rsonic and Hypersonic Flow Regimes(Article)(Open Access)

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Abstract

The complex fluid-dynamic instabilities and shock waves occurring along the surface of a two-dimensional wedge at high values of the Mach number are studied here through numerical solution of the governing equations. Moreover, a regression model is implemented to determine the pressure distribution for various Mach numbers and angles of incidence. The Mach number spans the interval from 1.5 to 12. The wedge angles (θ) are from 5° to 25°. The pressure ratio (P2/P1) is reported at various locations (x/L) along the 2D wedge. The results of the numerical simulations are compared with the regression model showing good agreement.

Author keywords

CFD analysis | Mach number | supersonic | wedge angle

Indexed keywords

Engineering controlled terms: Aerodynamics | Computational fluid dynamics | Hypersonic flow | Numerical models | Pressure distribution | Regression analysis | Shock waves

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Document details - Numerical Simulation of Surface Pressure of a Wedge at Supersonic Mach Numbers and Application of Design of Experiments

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Numerical Simulation of Surface Pressure of a Wedge at Supersonic Mach Numbers and Application of Design of Experiments(Article)(Open Access)

Shamitha, Crasta, A., Pathan, K.A., Khan, S.A.

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Abstract

This paper aims to numerically simulate the flow field for wedge, cone, and ogives. Usually, wedge shapes are used as a stabilizing surface for supersonic projectiles like rockets, missiles, and planes in defense applications. Wedge-shaped or delta wings are often the principal wing used for the stability of supersonic aircraft/missiles. The main goal of the current study is to estimate the pressure at the wedge-shaped plane's/missiles nose at different Mach numbers and incidence angles. Analytical pressure distribution is determined using the strip and piston theory. Later the outcomes from the numerical simulations are compared with the results obtained analytically. The analytical and CFD findings matching is very good. The findings demonstrate that the Mach number and wedge angle are the variables that influence the deviation of static pressure. The static pressure on the surface of the wedge grows with the rise in the semi-vertex angle of the wedge angle and the Mach number. This increase in the surface pressure ratio is linear for the increase in Mach number as well as the semi-vertex angle of the wedge. However, the magnitude of increase with the Mach numbers is not the same as what it was for low Mach numbers. The enhancement in the pressure decreases with the Mach numbers.

Author keywords

CFD analysis | supersonic | wedge angle

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Effect of Jaggery on the Properties of Concrete

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Abstract: ***Concrete is a composite material used because all imaginable design structures are made of concrete. The report emphasizes that using locally available materials such as jaggery may improve concrete features. The test was completed to test the quality properties of the concrete using Jaggery as a mixer in the creation of the concrete. These types of blends are often used as part of unusual cases such as large wharves and long piles. Four different levels of admixtures (Jaggery) were selected for testing as 0.5%, 1%, 2%, 2.5%, 3%, 3.5%, 4%, 4.5% and 5% by weight of cement by M25 grade, mix design concrete. Finally, it was thought that the performance and compressive strength of the concrete were improved when Jaggery mixtures were pplied to the concrete mix.***

Keywords: Jaggery, Concrete, Consistency, Setting Time, Slump Value., Compaction Factor, Compression, Scanning Electron Microscopy

I. INTRODUCTION

Cement concrete is the utilized material nowadays and in effect broadly utilized as a part of more prominent amounts than some other man-made materials of development in the field of Civil Engineering. The times of incredible Engineering advancement and the expected request of future social orders have required the need to use the mechanical waste and results to accomplish a high economy. Next to each other some methods for the safe transfer of such a material which can cause natural contamination is found. Understanding that the waste and side-effect of the sugar industry may found a reasonable admixture with cement and other restricting materials. It can substantiate itself in the field of development material examination, especially for the main sugar delivering countries of the third world like India, Ghana, and so forth. In such nations, sugar ventures are broadly conveyed all through the length and expansiveness making the crude material effectively accessible. Perceiving the need, a progression of investigations were led to think about the impact of Molasses on concrete, which is one of the four sorts of misuse by the sugar industry. Retarders are utilized as a part of the concrete piece to enhance the setting time and to expand the temperature of the creation with various sorts of admixtures. Utilization of these admixtures will diminish the isolation and dying. Sugar is a starch, a substance made out of carbon, oxygen, and hydrogen. Jaggery is produced using the result of a sugar stick. In this way, both are valuable to clude as an admixture in the concrete creation.

A. The Objective of this Project is as Follows

The purpose of this study is to determine how jaggery affects visual structures. To improve concrete features such as performance and compressive strength a mixture such as a jaggery is added to the concrete. Jaggery increases efficiency, durability, and compression strength as your volume in the concrete mix increases. After adding jaggery to the concrete the hydration process is reduced and therefore the drying time of the concrete is increased. The hydration process is an exothermic process in which heat is extracted from concrete mixed with concrete sets. This hydration process takes games between water and other concrete ingredients. Cement plays a very important role in concrete. Consumption of cement in all fields is increasing day by day. The main purpose of this paper is to improve the current concrete structures by adding jaggery as a mixture to the concrete in part. As jaggery is readily available and natural materials that make buildings more environmentally friendly and environmentally friendly. Jaggery does not produce a negative effect on the environment and keeps the environment clean and healthy. Water in concrete helps to improve the performance of concrete but its strength is reduced. That is why it is necessary to use mixtures that increase the performance of concrete but do not reduce the strength of concrete. Under normal weather conditions, the cement lays and hardens when water is added to it. To get the right concrete strength you need to set it right by taking the right time to drain the water. Sometimes due to weather conditions, the concrete mix gets delayed in its drainage process and arrives late, and does not get the proper power so that cracks and other problems can occur in the buildings. So that there is a need to use retarders in the concrete to lay the concrete properly and to get the right strength.

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Effect of Jaggery on the Properties of Concrete

Sayali Panditrao Bende[1], Manoj P. Wagh[2]
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[2]Professor and Dean Academics, Department of Civil, Dr. Vithalrao Vikhe Patil College of Engineering, Ahmednagar, Maharashtra, India -414111

Abstract: ***Concrete is a composite material used because all imaginable design structures are made of concrete. The report emphasizes that using locally available materials such as jaggery may improve concrete features. The test was completed to test the quality properties of the concrete using Jaggery as a mixer in the creation of the concrete. These types of blends are often used as part of unusual cases such as large wharves and long piles. Four different levels of admixtures (Jaggery) were selected for testing as 0.5%, 1%, 2%, 2.5%, 3%, 3.5%, 4%, 4.5% and 5% by weight of cement by M25 grade, mix design concrete. Finally, it was thought that the performance and compressive strength of the concrete were improved when Jaggery mixtures were applied to the concrete mix.***

Keywords: Jaggery, Concrete, Consistency, Setting Time, Slump Value., Compaction Factor, Compression, Scanning Electron Microscopy

I. INTRODUCTION

Cement concrete is the utilized material nowadays and in effect broadly utilized as a part of more prominent amounts than some other man-made materials of development in the field of Civil Engineering. The times of incredible Engineering advancement and the expected request of future social orders have required the need to use the mechanical waste and results to accomplish a high economy. Next to each other some methods for the safe transfer of such a material which can cause natural contamination is found. Understanding that the waste and side-effect of the sugar industry may found a reasonable admixture with cement and other restricting materials. It can substantiate itself in the field of development material examination, especially for the main sugar delivering countries of the third world like India, Ghana, and so forth. In such nations, sugar ventures are broadly conveyed all through the length and expansiveness making the crude material effectively accessible. Perceiving the need, a progression of investigations were led to think about the impact of Molasses on concrete, which is one of the four sorts of misuse by the sugar industry. Retarders are utilized as a part of the concrete piece to enhance the setting time and to expand the temperature of the creation with various sorts of admixtures. Utilization of these admixtures will diminish the isolation and dying. Sugar is a starch, a substance made out of carbon, oxygen, and hydrogen. Jaggery is produced using the result of a sugar stick. In this way, both are valuable to include as an admixture in the concrete creation.

A. The Objective of this Project is as Follows

The purpose of this study is to determine how jaggery affects visual structures. To improve concrete features such as performance and compressive strength a mixture such as a jaggery is added to the concrete. Jaggery increases efficiency, durability, and compression strength as your volume in the concrete mix increases. After adding jaggery to the concrete the hydration process is reduced and therefore the drying time of the concrete is increased. The hydration process is an exothermic process in which heat is extracted from concrete mixed with concrete sets. This hydration process takes games between water and other concrete ingredients. Cement plays a very important role in concrete. Consumption of cement in all fields is increasing day by day. The main purpose of this paper is to improve the current concrete structures by adding jaggery as a mixture to the concrete in part. As jaggery is readily available and natural materials that make buildings more environmentally friendly and environmentally friendly. Jaggery does not produce a negative effect on the environment and keeps the environment clean and healthy. Water in concrete helps to improve the performance of concrete but its strength is reduced. That is why it is necessary to use mixtures that increase the performance of concrete but do not reduce the strength of concrete. Under normal weather conditions, the cement lays and hardens when water is added to it. To get the right concrete strength you need to set it right by taking the right time to drain the water. Sometimes due to weather conditions, the concrete mix gets delayed in its drainage process and arrives late, and does not get the proper power so that cracks and other problems can occur in the buildings. So that there is a need to use retarders in the concrete to lay the concrete properly and to get the right strength.

2022 - 25

International Journal of Management, Technology And Engineering ISSN NO : 2249-7455

COMPARATIVE STUDY OF MASS REGULAR AND IRREGULAR BUILDING

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ABSTRACT

With increase in population day by day requirement of more houses is also increases. For this problem engineers are came up with the idea of tall buildings. High rise buildings are designed to resist earthquake force.

Vertically regular buildings are much more stable and do provide resistance to seismic forces as they same stiffness, mass, strength and geometry throughout. But when it comes to the irregular building its resistance towards seismic forces decreases and hence its stability also decreases. Mass irregularity is considered when the seismic weight of a storey differs by 200 percent of the adjacent story.

In this thesis a comparative study of the seismic analysis of the 30 storey mass regular and irregular building is carried out by using Pushover Analysis in ETABS software.

Keywords: *ETABS, Irregularity, Seismic, Stiffness*

1. INTRODUCTION:

Earthquake is the naturally occurring seismic activity in which surface of the earth shakes causing damage to the environment. Seismicity depends on the size, type and frequency of the earthquake. We can trace the magnitude of the earthquake by using a device called as seismometer. When magnitude of the earthquake is below 3 it is less damaging in nature but when it reaches to 7 or above it is devastating in nature as it results in the form of landslides, tsunami or even volcanic eruption and causes a lot of damage.

Many studies are carried out on the stability of the building when seismic force is applied on it to overcome the problems and damages occurred to the structure and hence to the living bodies. Also with increase in the aesthetics of the building irregularities increases and hence to overcome this problem this study is carried out.

2022-26

A hybrid model for heart disease prediction using recurrent neural network and long short term memory

Original Research Published: 21 February 2022

Volume 14, pages 1781–1789, (2022) Cite this article

International Journal of Information Technology

Aims and scope

Submit manuscript

Girish S. Bhavekar & Agam Das Goswami

Abstract

Cardiac and cardiovascular diseases are among the most prevalent and dangerous ailments that influence human health. The detection of cardiac disease in its early stages by the use of early-stage symptoms is a major problem in today's environment. As a result, there is a demand for a technology that can identify cardiac disease in a non-invasive manner while also being less expensive. In this research we have developed a hybrid deep learning methodology for the categorization of cardiac disease. Classifying synthetic data using RNN and LSTM hybrid approaches has been done using different cross-validations. The system's performance also be evaluated using a variety of machine learning methods and soft computing approaches. During the classification process,

Electrocardiogram signal classification using VGGNet: a neural network based classification model

Original Research Published: 09 September 2022

Volume 15, pages 119–128, (2023) Cite this article

International Journal of Information Technology

Aims and scope

Submit manuscript

Agam Das Goswami, Girish S. Bhavekar & Pratiksha V. Chafle

Abstract

Classifying electrocardiogram (ECG) signals into different heart disease classes requires a series of computationally complex signal processing models. According to the standardization of ECG equipment, pre-processing and filtering steps are redundant, as combined, these are built into the capturing device itself to design a highly accurate ECG classification system. Feature extraction, selection, classification, and post-processing operations must be combined to be executed with utmost efficiency. In this research, a novel ensemble-based classification model that combines the efficiency of convolutional neural networks (CNN) with linear & bio-inspired classifiers like random forests (RF), support vector classifier (SVC), and k-nearest neighbor (kNN) classifier is proposed. This

Wader hunt optimization based UNET model for change detection in satellite images

Original Article Published: 04 March 2023

Volume 15, pages 1611–1623, (2023) Cite this article

International Journal of Information Technology

Aims and scope

Submit manuscript

Chafle Pratiksha Vasantrao & Neha Gupta

Abstract

Change detection is essential for understanding the human and natural relationship. Rapid urbanization leads to ecosystem imbalance. The change detection using the remote sensing image helps in the mapping of forest and non-forest areas, and several other detection techniques. Several kinds of research are developed for change detection; still, accurate detection is challenging. Hence, this research introduces a novel hybrid optimization-based change detection approach. Initially, the satellite image is pre-processed to remove artefacts from the image. Then the essential features are extracted through seven vegetation indexes Normalized Difference Vegetation Index (NDVI), Simple Ratio (SR), Soil-Adjusted Vegetation Index (SAVI), Weighted Difference Vegetation Index (WDVI), Global Environmental Monitoring Index (GEMI), Modified

2022-29

J. Integr. Sci. Technol. 2022, 10(1), 11-17 Article

Integrated Science

Journal of Integrated
SCIENCE & TECHNOLOGY

Context aware human activity prediction in videos using Hand-Centric features and Dynamic programming based prediction algorithm

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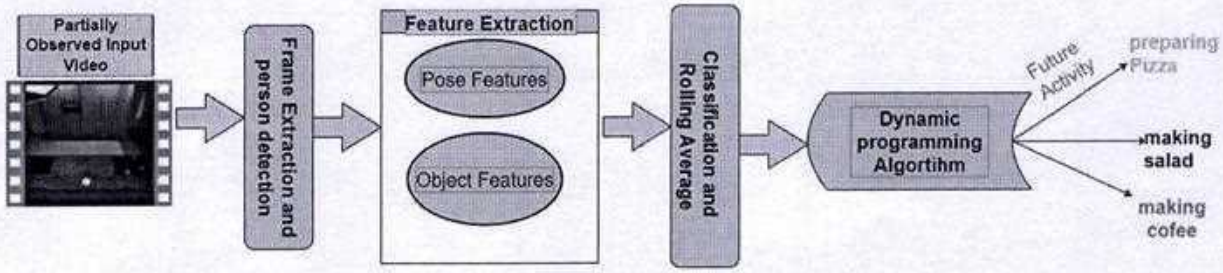
ABSTRACT



Activity prediction in videos deals with predicting human activity before it is fully observed. This work presents a context-aware activity prediction approach that can predict long-duration complex human activities from partially observed video. Here, we consider human poses and interacting objects as a context for activity prediction. The major challenges of context-aware activity predictions are to consider different interacting objects and to differentiate visually similar activity classes, such as cutting a tomato and cutting an apple. This article explores the use of hand-centric features for predicting human activity, consisting of various human-object interactions. A Dynamic Programming Based Activity Prediction Algorithm (DPAPA) is proposed for finding the future activity label based on observed actions. The proposed DPAPA algorithm does not employ Markovian dependencies or hierarchical representation of activities and hence is well suited for predicting human activities, which are often non-Markovian and non-hierarchical. We evaluate results on the MPPI Cooking activity dataset, which consists of complex and long-duration activities.

Keywords: context-aware, Activity prediction, Hand-centric features, Interactional object, Dynamic programming

TRODUCTION

Surveillance cameras are employed everywhere in today's environment to ensure security. Such surveillance systems generate large amounts of video data on a daily basis, but due to a lack of time and human resources, the majority of the data/videos are not adequately analysed. When a criminal case is reported, these recordings are evaluated and analysed by humans, which takes a long time and requires a lot of focus to watch these movies properly. When a criminal incident is discovered in video, the investigative team begins looking for the perpetrator. Arresting a criminal after he has fled the crime scene is time-consuming work.

To address the aforementioned difficulty, several researchers have concentrated on recognizing human activity in videos, and considerable results have been reported in human activity recognition[1]. However, such after-the-fact classification is ineffective in time-critical situations, such as finding the perpetrator after he has fled the crime scene.

The system should predict human intent in advance, allowing for the avoidance of potentially risky behaviour in advance[2]. The goal of this work is to develop a machine vision-based system that can predict and localize suspicious human actions in real-time, as well as leverage previous and current observations to forecast future activity intentions.

A long-term human activity that lasts a long time is made up of a series of actions. This paper refers to action as a specific single movement, while **activity** is a sequence of a variety of **actions**. For example, making a sandwich is an activity that is made up of a series of actions such as cutting tomatoes, carrots, bread, grating butter, and so on. We call this complete activity a **"global activity"**

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2022-30

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Research Paper Vol.8, Issue.6, June 2020 E-ISSN: 2347-2693

Forecasting novel COVID-19 confirmed cases in India using Machine Learning Methods

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Received: 26/May/2020, Accepted: 20/June/2020, Published: 30/June/2020

Abstract— Nowadays, there is a very adverse impact on economic, cultural, social and almost all fields in the world because of Covid-19. The Covid-19 term is described as -'CO' for corona, 'VI' for virus, and 'D' for disease. It is an infectious disease caused by severe acute respiratory syndrome which is transmitted through respiratory droplets and contact routes. Since December 2019, corona-virus disease (COVID-19) has out-broke from the country China. Till now, more than 78, 23, 289 people are infected and more than 4 Lakhs of deaths have been caused worldwide. Unfortunately, the number of infections and deaths are still increasing rapidly which has put the world in a different state. Artificial Intelligence can play a key role to infection forecasting in national and provincial levels in many countries. The objective of this study is to use machine learning methods to forecast the number of cases for the next 2 weeks, i.e. till 30th June 2020. The data was collected from 22nd January to 15th June 2020 by nationally recognized sources. The data file contains the cumulative count of confirmed, death and recovered cases of COVID-19 from different countries from the date 22nd January 2020.In this study, the outbreak of this disease has been analyzed for India till 15th June 2020 and predictions have been made for the number of cases for the next two weeks.

Keywords—Covid-19, Corona, Corona Virus, Machine Learning, Forecasting, Artificial Intelligence, time series forecasting

I. INTRODUCTION

On 31st December 2019, the novel Corona virus, known as COVID-19 was reported in Wuhan, China for the very first time. Corona viruses are the infectious virus which has adverse affect on the respiratory system of humans. The symptoms of COVID-19 may or may not be visual in infected individual, therefore the spread rate can be faster. Till now, effective and well-tested vaccine against CoVID-19 has not been invented, only precautions are the safety measures. Though the continuous efforts are going on , the virus has managed to spread in most of the territories in the world and World Health Organization (WHO) has announced COVID-19 as Pandemic. Most of the countries in the world are working cooperatively and openly to bring this situation under control.

Data scientists and data mining researchers can play an important role during these types of situations. They can integrate the related data and technology to better understand the virus and its characteristics, which can help in taking right decisions and concrete plan of actions.
As per the daily situation report of WHO, as on 15th June 2020 the COVID-19 transmission scenario reports 78,23,289 confirmed cases with 4,31,541 deaths globally.

Data mining is a technology, developing with database as well as artificial intelligence. It is a processing procedure of extracting credible and effective novel techniques and understandable patterns from the database [1]. Artificial intelligence (AI) is a field of programming building which gives PCs an ability to learn without being unequivocally modified [2]. AI models can be used for estimating and predicting spread rate, so AI is one of the beneficial tools to fight against pandemic like COVID-19.

The forecasting analysis is done by using the algorithms like ANN and time-series [3]. In this paper we are using, time-series algorithm. According to K. Krishna Rani Samal et al., approaches like SARIMA and Prophet can be used for forecasting based on historical data. They concluded that both the SARIMA and prophet model provides a good quality of accuracy. However, the best approach is the prophet model on log transformation which has the least minimum RMSE, MSE value [4]. This model is developed by Facebook, available in python and R. The main contribution of this research paper is forecasting of COVID-19 for the next two weeks i.e. till 30th June 2020 using Prophet Model. In this study, the data was analyzed from 22nd January 2020 to 15th June 2020.

2022-31
International Journal of Science and Research (IJSR)
ISSN: 2319-7064
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A Comprehensive Review on Intents, Intention Mining and Intention Classification

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Abstract: ***The aim of this work is to conduct a literature review about Intents, Intention Mining and Intent Classification. Now a days, Intention Mining is widely used in the Information Systems Engineering field. This paper mainly focuses and discusses on the literature review algorithms, models and tools used in Intention Mining. We hope that this information will be useful for developing models to retrieve intentions from the traces of activities and developing various intention mining techniques, which will allow identifying the gaps between the prescribed processes and the actual processes of a business.***

Keywords: Intent, Intentions, Intention Mining, Intent Classifications, Intent Mining Algorithms, process models, Process Mining, BERT, Map Miner Method (MMM), event logs, Hidden Markov Models

1. Introduction

In today's digital world, we can't really think of much without the concept of 'mining'. It plays a very crucial role in computer sciences and it is the pillar of technological development.

Mining is the process of extracting patterns in large data sets involving methods at the intersection of Statistics, Machine Learning and Database Systems. It is an interdisciplinary subfield of computer sciences and statistics. The overall goal is to extract information from large datasets with the help of some intelligent methods and transform the information into a comprehensible structure for further use. Broadly, the mining concept is classified as Data Mining and Process Mining. When we read about these mining types, we come across many terms like Sentiment Analysis, Opinion Mining, Emotion Classification, Intention Mining etc.

This paper mainly focuses on the concept called as Intention Mining or Intent mining. The idea of Intention Mining has been introduced in the Ph.D. thesis of Dr. Ghazaleh Khodabandelou in 2014.

What are Intents?
Let's take one example to showcase the word 'Intent'.

E.g. Consider following statement:
"I want to visit the wonderful Ajanta Ellora Caves."

The sentiment classification focuses on positive feeling (adjective- "wonderful")

The intention classification puts a stress on the author's intended future action or goal i.e. going to visit the specified place.

So, nowadays, not only the sentiments, but intents behind the sentiments are being used in Data Mining. Intention Mining has grabbed lots of attention by recent researchers.

The main goal of this review paper is to discuss the work done by Dr. Ghazaleh Khodabandelou in the field of Intention Mining.

Rest of the paper is organized as follows, Section II contains the related work carried out in the area of Intention Mining by Dr. Ghazaleh Khodabandelou and Section III discusses about how all other researchers are contributing to this field. Finally, section IV concludes the paper.

2. Literature Survey

The notion of 'Intention Mining' has been presented in the Ph.D. thesis of Dr. Ghazaleh Khodabandelou in the year 2014. She has received the Ph.D. degree in the field of Artificial Intelligence from 'The University of Paris 1 Pantheon-Sorbonne' located in Paris, in which she introduced the Intention Mining concept.

Her thesis is about a novel approach of process mining, called Map Miner Method (MMM). This method is designed to automate the construction of intentional process models from traces. MMM uses Hidden Markov Models to model the relationship between users' activities and the strategies (i.e., the different ways to fulfill the intentions). The method also includes some specific algorithms developed to infer users' intentions and construct intentional process model (Map) respectively. MMM models the intentions as an oriented graph (with different levels of granularity) in order to have a better understanding of the human way of thinking.

Intention Mining:

Following section gives a systematic review about the work done by Dr. Ghazaleh Khodabandelou, in order to contribute the new concept called as 'Intention Mining'.

1) Supervised Intentional Process Models Discovery using Hidden Markov Models [1]
Since several decades, discovering process models is a subject of interest in the Information System (IS) community.

2022-32

Convolutional Neural Network-VGG16 for Road Extraction from Remotely Sensed Images

Saroj Date

2020, International Journal for Research in Applied Science & Engineering Technology (IJRASET)

2022-33

ScienceDirect

Materials Today: Proceedings

Volume 27, Part 2, 2020, Pages 1900-1908

Multi-response optimization of friction stir spot welded joint with grey relational analysis

Sachin Jambhale [a], Sudhir Kumar [b], Sanjeev Kumar [c]

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https://doi.org/10.1016/j.matpr.2020.03.830

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Abstract

This study presents Taguchi grey based optimization of process parameters such as tool tilt angle, tool rotational speed, dwell time and tool pin profile and their effect on lap shear strength and microhardness of AA6082-T6 and AA6061-T6 friction stir spot welded joint. Taguchi's L_{27} orthogonal array design is used for maximizing both responses. Analysis of variance was performed to find the effect on individual parameter on both responses. The joints were metallurgically characterized through scanning electron microscopy, optical microscopy and X ray diffraction. Microstructures and residual stresses at weld region were analyzed. An optimum combination of parameters was determined as tool tilt angle at level 3 (2^0), tool rotational speed at level 3 (2125 rpm), dwell time at level 3 (15 s) and tool pin profile at level 1 (Cylindrical Threaded). Finer and uniform grain structure at stir zone improves the tensile shear strength and microhardness of welded joints.

Introduction

Nowadays, the manufacturing sectors are concentrating on developing products, which would deliver high performance. As an ideal material of choice, applications of aluminium covers span from everyday products to cutting edge technologies [1]. Combining light weight and high strength, aluminum can be made ideal for most extreme applications [2]. Automakers turn to alternative materials and myriad new technologies with an intension to achieve vehicle design objectives, boost fuel economy, meet emission targets, enhance efficiency and improve safety. This is achieved by down-weighting the automobiles instead of downsizing or increasing cost [3]. Since, we are in a multi-material world, there is need for triggering innovations and advanced joining technologies for mixed material designs of aluminum and other materials [4]. Resistance spot welding is considered the most economical process and widely used in automobile industries for joining different material combinations. Recently, FSSW has received considerable attention from the auto industry. Mazda Motor Corporation first introduced Friction stir spot welding (FSSW), the invention of FSW was done at TWI, where first patent on FSW was issued in 1991 [5]. FSSW technologies are emerging in industries for joining and processing of softer alloys [6]. Researchers are working in this area to improve the quality of welds for joining various combinations of materials [7].

Section snippets

2022 - 34

Experimental Investigation and Parametric Optimization of AA6063/AA6351 Alloys Bimetallic Prepared by Vacuum-Assisted Lost Foam Compound Casting Process

Published: 09 July 2019

Volume 14, pages 243–256, (2020) Cite this article

International Journal of Metalcasting

Aims and scope

Submit manuscript

Rajender Kumar Tayal, Sudhir Kumar, Arindam Mondal & Sachin Jambhale

Abstract

Aluminum alloys, AA6063 and AA6351, were joined together by vacuum-assisted lost foam compound casting process. The process was executed by considering three process parameters: pouring temperature, vacuum pressure and size of sand particles. Experiments were designed by using L_9 orthogonal array. Microstructure and mechanism of joint interface formation were analyzed. Mechanical properties, viz., shear stress, microhardness and impact strength of joint interface, were measured experimentally, and process parameters were optimized by using the Taguchi method. The results indicated that a uniform and defect-free joint interface between AA6063 and

Trends in Transport Engineering and Applications

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Review on Strengthening & Retrofitting of RCC & Masonry Bridge Structure with Analytical Modelling of Sensor Data for the Durability of Bridge Structure

Datta P. Khade, Kavita K. Pathak, A.P. Wadekar

Abstract

In later a long time, monstrous advancement in Structural Health Monitoring (SHM) of bridges makes a difference address the life span and unwavering quality of bridge structure at differentiating stages of their benefit life. This article gives a point-by-point understanding of bridge observing, and it centers on sensors utilized and all sorts of harm location (strain, Displacement, acceleration, and temperature) concurring to bridge nature (scour, suspender failure, disconnection of bolt and cables, etc.) and natural debasement beneath inactive and energetic stacking. This paper presents data approximately different strategies, approaches, case considers, progressed innovations, real-time tests, stimulated models, information securing, and prescient investigation. Future scope and inquire about too talked about the execution of SHM in bridges. The most point of this inquire about is to help analysts in way better understanding the observing mechanism in bridges. There is a genuine concern regarding the deterioration of bridge substructures across the state of Wisconsin. *Concrete, steel and timber individuals all require particular repair strategies which not as it were address the genuine causes of disintegration, but secure the part from future damage. Utilizing repair procedures that just address the impact of the disintegration has demonstrated expensive and questionable. Understanding the relationship between fetched and service life of cutting-edge repair strategies can offer assistance support engineers make educated decisions that will maximize adequacy. Progressed video deflectometer utilizing effectively enlightened Driven targets is proposed for inaccessible, real-time estimation of bridge deflection. The system configuration, fundamental principal, and measuring methods of the video deflectometer are to begin with depicted. To address the challenge of inaccessible and exact avoidance estimation of huge building structures without being influenced by surrounding light, the novel thought of dynamic imaging, which combines high-brightness monochromatic Driven targets with coupled bandpass channel. At that point, to look at the estimation exactness of the proposed progressed video deflectometer in open air situations, vertical movements of a Driven target with precisely-controlled interpretations were measured and compared with endorsed values. At long last, by following six Driven targets mounted on the bridge, the created video deflectometer was connected for field, inaccessible, and multipoint diversion estimation of the Wuhan Yangtze Waterway Bridge, one of the foremost prestigious and most publicized developments in China, amid its schedule security assessment tests. Since the proposed video deflectometer utilizing effectively enlightened Driven targets offers conspicuous merits of farther, contactless, real-time, and multipoint deflectionmeasurement with strong routine against surrounding light changes, it has awesome potential within the schedule security assessment of different bridges and other large-scale designing structures.*

Keywords

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Study of Seismic and Wind Effect on Multi-Storey R.C.C. Building using ETABS

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Abstract - *Nowadays, there are wide range of complicated and irregular structures that are analyzed and designed to resist the earthquake and wind load. This structures can be analyzed and designed by varied softwares like ETABS, STAAD Pro, TEKLA etc. Structural analysis is a branch that involves in determination of behavior of structures so as to predict the esponses of various structural parts due to loading. Each structure is subjected to either one or combination of loads like gravity load, earthquake load and wind load. ETABS stands for Extended 3 Dimensional Analysis of Building System. ETABS software could be used for analysis of static, dynamic, linear and non-linear, etc. responses of structure and design of structures. In the present paper, effect of height of building on base shear, lateral force generated due to earthquake and wind load is evaluated using ETABS software. The study includes modelling and analysis of building by using ETABS software, and comparing wind load and earthquake load at different storeys. From the analysis, the minimum height of building at that the wind load dominates over earthquake load is discerned.*

***Key Words*: ETABS, STAAD Pro, TEKLA, Gravity load, Structural analysis, Base shear, Lateral force**

1.INTRODUCTION

ıll building structures have various structural components like slabs, beams, columns and foundation. All these components are analyzed for different combination of loads and are designed to resists these loads without failure for its intended life. There are mainly two types of loads coming on structure are vertical load and horizontal/lateral load. Vertical load consists of dead load and live load whereas lateral load consist of wind and earthquake load. Both wind and earthquake loads are dynamically applied loads. Earthquake/ seismic load are the acceleration produced in structure during earthquakes. There are various methods of computing earthquake forces like seismic co-efficient method, time-history method, etc. Other type of lateral force is wind load. Wind is a mass of air that moves in a horizontal direction from an area of high pressure to an area of low pressure. High winds generate great pressure against the surface of structure and can be destructive. This intensity of pressure is wind load. Structures which comes under seismic zones or are subjected to wind pressure are analysed for this loads also along with normal dead load and live load and shear force and bending moment on each component is evaluated. Nowadays, structures are analysed and designed by using various software Like ETABS, STAAD PRO, TEKLA, etc. due to its advantages like accuracy, time saving etc. and thus proves to be economical.

ETABS is the abbreviation of "Extended 3D Analysis of building System. ETABS is a product of Computer and structures, Inc. and is globally used for structural analysis and design of various types of structures. ETABS enables 3D object modelling, visualization tools, linear and non-linear analysis, static and dynamic analysis, sophisticated design for various types of materials. Thus ETABS is an integrated software package for design which ranges from simple 2D frames to modern high rise buildings. In this report, an irregular building is analyzed at different storeys. In these effects of building on base shear, lateral forces generated due to earthquake load and wind load is evaluated using ETABS software. This study includes modelling of building using ETABS software. Then building is analyzed by considering following loads:

1) Dead load 2) Live load 3) Earthquake load 4) Wind load

By considering different load combination the base shear, shear forces and bending moment coming on the structure are evaluated at various storeys. Results of wind load and earthquake load are compared at various heights. The minimum height of building at which the wind load dominates over earthquake load is found out.

1.1 Objectives

1. The main objective of this study is to analyse a residential building for earthquake and wind loads by using ETABS software.
2. Comparison of wind and earthquake load which are obtained from ETABS software at various storeys.
3. Determination of the minimum height at which wind load becomes dominant over earthquake load.

2. LITERATURE REVIEW

1. **Baldev Prajapati et.al (2013) -** "Study of Seismic and Wind Effect on Multi-storey R.C.C, Steel and Composite Building." In this paper, analysis and design of symmetric high rise (G+30) of RCC, steel and composite building under the effect of wind and earthquake load is analysed and designed using the

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3.3.1 Number of research papers published per teacher in the Journals as notified on UGC CARE list during the 2021

Sr. No.	Title of Paper	Name of the Author/s	Name of Journal
1	Analysis and prediction of active infection cases for Covid-19 virus in India, Italy and USA	Deepak B Pachpatte, Gajanan S Solanke and Haribhau L Tidke	Stochastic Modeling and Applications
2	Modelling for outbreak of swine flu using fractional derivative	Gajanan S Solanke, Deepak B Pachpatte	Stochastic Modeling and Applications
3	Applications of Triple Laplace Transformation to Volterra Integro Partial Differential Equation	Pradip Bhadane, Kirtiwant P. Ghadle and Abhijeet B. Adhe	Turkish Journal of Computer and Mathematics Education
4	Improved Performance of Direct Torque Control with PMSM compared to DTC with Induction Motor	Suraj R Karpe , Ulhas B Shinde, Sanjay A Deokar	Turkish Journal of Computer and Mathematics Education
5	A review: environmental monitoring applications using wireless sensor technology	Akshay D. Deshmukh, Ulhas B. shinde, Krishna M. Biradar	International Journal of Innovation in Engineering, Research and Technology [IJIERT]
6	Hybrid optimization and effectual classification for high recognitions in OCR systems	U.B. Shinde, S.R.Zanwar, S.P Narote, A.S. Narote	International Journal of Advance Scientific Research and Engineering Trends
7	Improving leaf disease detection and localization accuracy using bio inspired machine learning	Bhavana Nerkar, S N talbar	Applied Computer Vision and Image Processing

8	Fusing convolutional neural networks to improve the accuracy of plant leaf disease classification	Bhavana Nerkar, S N Talbar	current journal of applied science and technology
9	Review on a mobile greenhouse environment monitoring system based on the internet of things	Vijaya Uttamrao Sasemahal , U. B. Shinde,, A. T. Jadhav	International journal of Scientific Research in Engineering & Management (IJSREM)
10	Character Segmentation and Recognition of Marathi Language	B. R. Guru, Saurabh Ravindra Nikam, D. L. Bhuyar	International Journal for Research in Applied Science & Engineering Technology (IJRASET)
11	MLP-WOA Neural Network Based Automated Grading of Fruits & Vegetable Quality Detection for Food Industry using Artificial Intelligence Techniques (Computer Vision - Image Recognition)	Syed Sumera Ershad Ali,Sayyad Ajij D	Jpournal Springer Book Chapter : Applications of Artificial Intelligence in Engineering
12	AI-Based Smart Innovation in Food Quality Inspection for Smart City	Syed Sumera Ershad Ali, Sayyad Ajij D	Journal Springer Book Chapter (Smart Innovation, Systems and Technologies)
13	TV Reliability Testing, Monitoring and controlling using IoT	Shraddha Shrikant Kulkarni ,D.L.Bhuyar, Syed Sumera Ali	International Journal of Scientific Research in Engineering and Management

14	Research paper on Implementation of Reliability Testing, Monitoring and controlling using IoT in LEDTV	Shraddha Shrikant Kulkarni , D.L.Bhuyar, Syed Sumera Ali	Journal of Emerging Technologies and Innovative Research (JETIR)
15	IOT Based Smart Agricultural Monitoring System	Syeda Sumera Ali, U.B.Shinde & Syeda Fasiha Fatema	International Journal of Innovations in Engineering Research and Technology(IJIERT),
16	Review on IOT Threats, Vulnerabilities & Challenges of Incident Response Using Embedded System,	Vaishnavi Rajeshsingh Thakur, A.M.Rawate,Syeda Sumera Ali	International Journal of Innovations in Engineering Research and Technology(IJIERT),
17	Websites of Top-Ranked Indian Higher Education Institutions: A Webometric Analysis	Santosh Dnyanobarao Kadam, Bhusawar Shankar Chandrakant	Library Philosophy and Practice
18	An Analysis of Citation Pattern	Santosh Dnyanobarao Kadam, Bhusawar Shankar Chandrakant	Webology
19	Research Productivity of Agricultural Faculty Members with Special Reference to Maharashtra, India: A Scientometric Study	Santosh Dnyanobarao Kadam, Bhusawar Shankar Chandrakant	Library Philosophy and Practice
20	Websites of Indian Agricultural and Horticulture Universities: a webometric analysis	Santosh Dnyanobarao Kadam, Bhusawar Shankar Chandrakant	World Digital Libraries-An international journal
21	Study on analysis of kerf width variation in WEDM of insulating	Babasaheb D. Shinde, Raju	Materials and Manufacturing

	zirconia	S. Pawade	Processes
22	Analytical and Computational Analysis of Pressure at the Nose of a 2D Wedge in High Speed Flow	Javed Shaikh, Krishna Kumar, Sher A. Khan	Advances in Aircraft and Spacecraft Science
23	An investigation of boat-tail helmet to reduce drag	Sher A. Khan, Aadil N. Shaikh, Arsalan A. Pathan and Shahnawaz A. Khan	Advances in Aircraft and Spacecraft Science
24	Minimization of Effluent Produced by Electrical Industry	C. P. Thosar, Komal Ajabrao Gadekar , Gayatri Mahadu Mete, Shubham Sanjiy Dhok Saurabh Narayan Sase, Snehal Anil Marathe.	Journal of Industrial Safety Engineering
25	Multi reservoir Optimization for Maximization of Releases for Hydropower generation considering Environmental Flow	Pushpak D.Dabhade and D.G.Regulwar	International Journal of Water Resources and Protection, Scientific Research
26	Design and Construction of Synthetic Box	Nimase Sujata Bhaga,Bende Sayali Panditrao, Dhavale Swapnil Namdeo, Shelake Pratiksha Bhagvat, Sangale Kirti Machhindra, Lande Ankita Manoj	JournalNX
27	Voice recognition based device control system using smartphone app	SR Zanwar, NS Vaidya, JN Mohite	International journal of advance scientific research and engineering trends
28	Smart Energy Management System Using Non-intrusive Load	Deshpande Riya, Hire	Springer Nature

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	Monitoring	Shubham, Zakee Ahmed	Computer Science
29	Characterization and Optimization of Flat Friction Stir Spot Welding of Triple Sheet Dissimilar Aluminium Alloy Joints	Jambhale, S., Kumar, S. & Kumar, S	Silicon
30	Tensile behavior and fractography of friction stir spot welded joints of AA 6082-T6 alloy.	Sudhir Kumar, Sachin Jambhale, Manish Maurya, Sanjeev Kumar, Saurabh Pandey	Journal of Engg. Research

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ANALYSIS AND PREDICTION OF ACTIVE INFECTION CASES FOR COVID-19 VIRUS IN INDIA, ITALY AND USA

DEEPAK B. PACHPATTE, GAJANAN S. SOLANKE* AND HARIBHAU L. TIDKE

ABSTRACT. The main objective of this paper is to analyze the spread of COVID-19 active infection cases in three countries India, Italy and United States Of America(USA). The actual observed data for from March 01, 2020 to May 09, 2020 in the interval of ten days is taken and compared with data obtained from the basic SIR mathematical model. The actual observed data is taken from available on World Health organization and Ministry of health and family welfare Government of India websites. The spread of infection factor β is obtained from calculation and compared with the actual data. The basic reproduction ratio R_0 and number of infections, are predicated for subsequent values in the interval of ten days.

1. Introduction

In the year 1927 SIR model for mathematical modeling of epidemics was introduced by W. O. Kermack, A. G. McKendrick see[9]. Since then many mathematicians, biologists and medical professionals have developed and studied models on various types of infectious diseases. The model is formulated for the infectious diseases which helps in predicting the infections in population. Study of model will help in eradication or control of the disease. Basic information of Epidemiology and various models can be found in [4, 3, 6, 10, 15].

Recently the outbreak of corona virus in China have studied by the authors [1, 12]. Forecast and Analysis of spread of Covid 19 virus in various countries such as China, France, Italy etc. have been done in [13, 8, 14]. For study of Covid-19 outbreak for eight countries authors in [2] has used data driven approach.

As the Covid-19 virus is spreading all over the world since December 2019, in this paper we have analyzed the growth of the Covid-19 virus over seventy days from first week March 2020 to second week of May 2020 in the interval of ten days. In this we have done analysis of data by using SIR Model for various countries and comparison is done for the spread of number of infections during certain period.

2. Preliminaries

According to World Health Organization (WHO) and Ministry of health and family welfare [11, 16] Corona viruses are large number of viruses causing the illness. In humans Corona viruses causes respiratory infections such as Middle East Respiratory Syndrome(MERS) and Severe Acute Respiratory Syndrome (SARS).

2010 *Mathematics Subject Classification.* 34D05, 92D30.
Key words and phrases. Epidemic model, SIR, COVID-19, Pandemic .

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MODELLING FOR OUTBREAK OF SWINE FLU USING FRACTIONAL DERIVATIVE

GAJANAN S. SOLANKE AND DEEPAK B. PACHPATTE

ABSTRACT. The main purpose of this paper is to study the outbreak of swine flu using fractional order calculus definition. Boundedness of solution of the system is obtained. Stability properties of solution are also studied. This helps in future prediction of outbreaks.

1. Introduction

The study of infectious data began in 17th century [10]. To describe the transmission of diseases, the useful basic compartmental models are contained in a sequence of few papers by W. Kermack and A. McKendrick [19, 20, 21]. These are few papers which describes epidemic models [10]. Since then many researchers have used these models to study the infectious diseases, which are useful to future prediction in infection and outbreak of various diseases.

Authors in [2, 3, 4, 15, 24] have discussed global properties such as positivity, boundedness, local stability and global stability of SIR, SEIR, SIRS and SEIRS models. In [22], authors have discussed an epidemic model and backward bifurcation with treatment. In [9] authors have divided total population into ten partitions and they discussed their positivity, boundedness and stability of that model. In [1] discussed Lyapunov functions for classical models such as SIR, SIRS and SIS. Some authors [5, 6, 12, 14] have discussed mathematical models with fractional order derivative and they have studied their properties, such as positivity, boundedness, stability, equilibrium points and some had given the numerical simulation. Global dynamics for a class of disease and various properties of SEIRS models with general non-linear incidence have studied in[23].

In 2009 due to swine flu pandemic 11- 21 percent population i.e. nearly 1.4 billion peoples contracted with illness [28]. 18449 lab-confirmed deaths reported to the WHO, but actually it may be 284,000 deaths [30]. Swine flu is due to H1N1 virus, it has common symptoms as cough, weakness, fever, sore throat, chills and body aches. The first case of H1N1 was reported on may 16, 2009 in hyderabad. WHO declared pandemic on 10th August 2010.[28, 27, 29]

Some models are developed on this H1N1 virus [7, 11, 16, 18, 26], in which authors have discussed about symptomatic, asymptomatic, infections, equilibria,

2000 *Mathematics Subject Classification.* Primary 26A33, 34A30, 00A71; Secondary 92-10, 34D20, 37M05.

Key words and phrases. Mathematical Model, swine flu, fractional calculus, stability.

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Research Article

Applications of Triple Laplace Transformation to Volterra Integro Partial Differential Equation

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Abstract: Present study is associated with verifying convergence property of Triple Laplace transform (TLT). In this work the new theorem is proposed to verify the convergence. The TLT is applied on the function and the result is verified with standard result and TLT is also applied to verify solution of Volterra-integro partial differential Equation (VIPDE) under certain initial conditions and the result obtained are found comparable with standard.

Key words: Triple Laplace Transform (TLT), Convergence, Volterra Integral Partial Differential Equation (VIPDE).

1. Introduction

Partial differential equations (PDEs) play a very important role in the real life problems (**Widder, 2005**), but PDEs are much harder to solve than ordinary differential equations. There are many PDEs like Wave equations, Heat equation, Laplace equation and Integro differential equations etc **(Gupta et al. , 2013),[Rogers], [Wazwaz, 2010]**. Integro differential equations have many applications in Engineering, Physics, Chemistry and Mathematics. Particularly Volterra – integro is one of the important differential equations which play the role in nuclear reactions , circuit analysis, glass forming process, nano hydrodynamics etc.

There are many methods used for solution of VIPDEs. For example Volterra – integro differential Equation has been solved by He's Homotopy Perturbation Method **(Shhed, 2005)** and **Moghadam** used the differential transforms, **Fahim et al.** used sinc-collocation method and **Abdul-Majid Wazwaz** used combined Laplace transform–Adomian decomposition method.

The Laplace transformation is a very useful and effective technique for solving such type of partial differential equations with initial and boundary value problems and mainly utilized in engineering purposes for system modeling in which a large differential equation must be solved, which was introduced by Laplace in 1782 by **Widder.**

In 2008 **Adam Kilicman** extended the Laplace transform to the concept of double Laplace transform . This concept has been successfully used for solving some kind of differential equations **(Eltayeb et al. 2013)(M. Idrees, 2018),(Ozel, 2012)**. Recently in 2013, **Abdon Atangana** also extended the double Laplace transform to the concept of triple Laplace transform and this new concept of triple Laplace transform, also works very effectively for solving such kind of partial differential equation involving triple integrals by **(Elzaki, 2019), (Khan et al. , 2020),(Khan et al. , 2018), (Mousa et al. , 2019).**

The main aim of this research work is to extend the concepts of triple Laplace transform and to solve Volterra-integro partial differential equations using triple Laplace transformation.

2. Basic Definition and Theorems

Definition 2.1 ***Laplace Transform*** *: The Laplace transform denoted by the operator* $L(.)$ *defined by the integral Equation.*

$$L[f(t)] = F(S) = \int_0^\infty f(t)e^{-st}dt, 0 \le t < \infty$$

Definition 2.2 ***Triple Laplace Transform****: Let f(x,y,t) be a continuous function that can be expressed as convergent infinite series , then triple Laplace transform of f(x,y,t) is defined as*

$$L[f(x,y,t)] = F(\sigma,\rho,\delta) = \int_0^\infty \int_0^\infty \int_0^\infty e^{-\sigma x-\rho y-\delta t} f(x,y,t)dxdydt \quad (1)$$

Where $x, y, t > 0$ and σ, ρ, δ are Laplace variables and

2021-38

Improved Performance of Direct Torque Control with PMSM comp Induction Motor

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Abstract: For induction motor torque control, direct torque control is becoming the industry st switching loss minimization technique for improved Direct Torque Control (DTC) of permaner in order to increase the drive system's steady-state and dynamic results. Direct torque contr inverter-supplied PMSM is a simple scheme that requires little computation time, can be imple and is unaffected by parameter variations. In theory, the motor terminal voltages and currents are torque of the motor. A voltage vector is chosen to restrict the flux and torque errors within th bands based on the instantaneous torque and stator flux magnitude errors, as well as estim electromagnetic torque, rotor speed, and stator current of DTC with PMSM and DTC with IM using Total Harmonic Distortion (THD) in this article. As compared to DTC with IM, DTC wit percent in torque, speed, and stator current [21]. Switching Losses Minimization Technique by this article. Since transistors are only switched when necessary to maintain torque and flux switching losses are minimised, resulting in increased efficiency and lower losses. Matlab SI confirmed direct torque regulation with PMSM and IM.

Keywords: Direct torque control, PMSM, induction motor, torque ripple minimization

1. Introduction

In the area of AC drives for induction motors, Direct Torque Control (DTC) has be the last decade. Takahashi [1] first proposed this control technique in 1986, and Dep 1988. Despite this, only one major manufacturer has a DTC-based industrial applicati 1995 [5]. The key benefit of DTC is the high performance (decoupled control stator flu response, and robustness) obtained, as well as the scheme's simplicity (coordinate t block and current regulation block not require). The traditional voltage source inverte has two switches per leg, with the load connected to either the upper or lower line of th to as a two-level VSI. However, the maximum voltage that can be handled by quick For high power and voltage applications, a series link is needed, which neces Furthermore, the dV/dt is extremely high, resulting in significant electromagnetic in winding insulation tension. Multilevel inverters are a new form of inverter that can re traditional low-cost two-level VSI [5]. Over the last decade, DTC drive has emerged a well-known Vector Control of Induction Machines. Its key feature is that it provid results that are as accurate as classical but with many advantages due to its simpler co implies, DTC (Direct Torque Control) is characterised by directly controlled flux and controlled stator voltage and current. In contrast to traditional vector-controlled d

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A REVIEW: ENVIRONMENTAL MONITORING APPLICATIONS USING WIRELESS SENSOR TECHNOLOGY

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ABSTRACT
With a broad research on wireless sensor technology, the sensor network has proven its significance in today's modernizing world. In this paper a wireless sensor network system is proposed with open source hardware and software platform i.e Raspberry pi microcomputer which act as a base station, zigbee and a graphical user interface for user friendly application. This system is highly effective both in terms of number of sensors and the type of the sensors. This system provides low cost and feasible solution in the area of environmental monitoring application. A detail review of how actually this system will work and the expected outcome based on theoretical basis are presented in this paper. Raspberry pi is cheap, small, hackable computer linux board. Comparative analysis shows that the performances with wireless sensor nodes using raspberry pi has more successful usage in sensor network domain and remains inexpensive throughout.

INDEX TERMS – Wireless sensor network(WSN), Zigbee, Environmental Monitoring, Raspberry Pi, Sensor node, Graphical User Interface(GUI).

INTRODUCTION

Wireless sensor networks(WSNs) has emerged as an popular field for the development of environmental monitoring and other applications at different location [1].Wireless sensor network consist of sensor nodes which are used to detect or sense the data. With the combination of various hardware platforms i.e Raspberry Pi which has been presented in this paper, an efficient and cost effective monitoring system can be implemented [2]. Wireless sensor network based monitoring system can be used for from simple information mining to the collection of the complex internet based system. An open source hardware and software based linux board i.e Raspberry Pi is used as an base station with the sensor nodes [3]. The main goal of this research is to design an environmental monitoring system which can measure the physical parameters using sensor nodes. Some of the parameter which could be monitored

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Hybrid Optimization And Effectual Classification For High Recognitions In OCR Systems

Shrinivas R Zanwar, Ulhas B Shinde, Abhilasha S Narote & Sandipann P Narote

Journal of The Institution of Engineers (India): Series B
102, 969–977 (2021)

Abstract

Optical character recognition (OCR) is the development of mining text from an appearance. The key purpose of these recognitions is to achieve high editing from various docs or images. In a more reliable approach, OCR also deals with the detection of words to reserve a structure of the various large documents. It is noticed that most of the investigators put much efforts to achieve a high recognition rate with low error rates probability for an English character recognition, but failed due at the process of feature extraction. So, the proposed technique is focused on this problem of feature extraction and feature vector selection process. In

Applied Computer Vision and Image Processing pp 257–271

Improving Leaf Disease Detection and Localization Accuracy Using Bio-Inspired Machine Learning

Bhavana Nerkar ✉ & Sanjay Talbar

Conference paper | First Online: 29 July 2020

Part of the book series: Advances in Intelligent Systems and Computing ((AISC,volume 1155))

Abstract

Disease detection and localization from leaf imagery have found its way into various applications of leaf-based image processing. These applications include, but are not limited to, yield improvement, re-fertilization, disease spread detection, etc. This process requires careful selection of segmentation, feature extraction, feature selection, classification, and post-processing algorithms which should work in tandem for

2021 - 42

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Fusing Convolutional Neural Networks to Improve the Accuracy of Plant Leaf Disease Classification

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Authors' contributions

This work was carried out in collaboration between both authors. Author BN managed the literature searches, designed the study, performed the statistical analysis and wrote the protocol. Author ST designed the methodology, managed the analyses of the study. Both authors read and approved the final manuscript.

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Original Research Article

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ABSTRACT

Aims: This text aims to improve the accuracy of plant leaf disease detection using a fused convolutional neural network architecture
Study Design: In this study, propose a hybrid CNN architecture, that adds a bio-inspired layer to the existing CNN architecture in order to improve the accuracy and reduce the delay needed for leaf disease classification.
Place and Duration of Study: National institute of electronics and information technology Aurangabad, between June 2018 and September 2020.
Methodology: Convolutional neural networks (CNNs) have become a de-facto technique for classification of multi-dimensional data. Activation functions like rectified linear unit (ReLU), softmax, sigmoid, etc. have proven to be highly effective when doing so. Moreover, standard CNN architectures like AlexNet, VGGNet, Google net, etc. further assist this process by providing standard and highly effective network layer arrangements. But these architectures are limited by the speed due to high number of calculations needed to train and test the network. Moreover, as the number of classes increase, there is a reduction in validation and testing accuracy for the networks.

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In order to remove these drawbacks, hybrid CNN architecture, that adds a bio-inspired layer to the existing CNN architecture in order to improve the accuracy and speed of leaf classification.

2021 - 43

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A MOBILE GREENHOUSE ENVIRONMENT MONITORING SYSTEM ON THE INTERNET OF THINGS

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Abstract*: The system proposed in this paper is an advanced result for covering the downfall conditions at a particular place and make the information visible anywhere in the world. The technology behind this is Internet of Goods (IoT), which is an advanced and effective result for connecting the goods to the internet and to connect the entire world of goods in a network. Also goods might be whatever like electronic contraptions, sensors and automotive electronic outfit. The system deals with monitoring and controlling the environmental conditions like temperature, relative humidity and CO position with sensors and shoot the information to the web runner and also compass the sensor data as graphical statistics. The data streamlined from the enforced system can be accessible in the internet from anywhere in the world.

Keywords: Arduino, Internet of Effects (IoT) Bedded Computing System; Arduino Software, ESP8266, lux detector, dht 11, air detector.

I. INTRODUCTION

IOT and Arduino grounded Greenhouse Environment Monitoring and controlling design use four detectors to descry the Temperature, Light, Moisture and in the Greenhouse. Temperature Detector is used to descry the temperature inside the hothouse. Reading from the detector is transferred to the microcontroller. The microcontroller is connected to different relays. One of the relays is connected to a blower. However, the microcontroller would shoot signals to turn ON the Addict, If the temperature is above or below the threshold value.

Light Detector is used to descry the quantum of sun inside the hothouse. Reading from the detector is transferred to the microcontroller. However, the microcontroller would shoot signals to turn ON the relay which would, in real- time, If the Sun is above the threshold value. For rally purposes, we've connected a DC motor to replicate a Shade. Also, the Moisture detector is used to descry the moisture value and the Soil humidity detector (two examinations dug in the soil) is used to descry the soil moisture. However, the microcontroller would turn on the cracker to drop the moisture and will open the water outlet to increase the humidity in the soil, if the moisture value detected by the detector is above the threshold value OR if the soil humidity reduces. For rally purposes, we've connected a DC motor in place of cracker and water outlet. At the same time, data regarding these parameters are transferred to the IOT module (ESP8266). The data transferred to the IOT is transferred at regular intervals irrespective of any threshold mismatch plant. ESP8266 is a chip used for connecting micro-controllers to the Wi-Fi network and make TCP/ IP connections and shoot data. Data, which is tasted by these detectors, is also transferred to the IOT.

There-requisite for this design is that the Wi-Fi module should be connected to a Wi-Fi zone or a hotspot.

This design is also enforced without the IOT module.

II. LITERATURE SURVEY

The temperature foretelling model espoused the discrimination time series model to break the influence of seasonal periodicity in the temperature vaticination process. The data analysis showed that the system effectively realized the feather- light and mobility of the data accession outstation. The relative error of temperature monitoring was lower than4.96, and the relative error of temperature vaticination was lower than 3 (5). The methodology proposed in the paper applies artificial intelligence (AI) ways to the modeling and control of some climate variables within a hothouse. The nonlinear physical sensations governing the dynamics of temperature and moisture in similar systems are, in fact, delicate to model and control using traditional ways. The paper proposes a frame for the development of soft computing-rested regulators in ultramodern glasshouses (6).

In recent times, a wireless detector network (WSN) fashion was vastly applied in the field of husbandry, which detects, senses, and collects information of colorful surroundings or objects in the network area, and at the same time sends and receives data through wireless and tone-organizingmulti- hop routing links. Due to the complexity of the agrarian terrain and colorful factors like walls, downfall condition, structure, accouterments, and the layout of installation husbandry that all affect the WSN communication quality, wireless detector networks acclimatize diversely to the agrarian terrain. Therefore, how to achieve voguish networking to different agrarian terrain conditions, minimize the cost and energy consumption, and ameliorate the performance of the network transmission turn out to be the vital issue in the studying of agrarian wireless detector networks (7).

The work is executed for remote monitoring and control of hothouse parameters with the help of detectors and GSM communication. It

2021 - 41

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Character Segmentation and Recognition of Marathi Language

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***Abstract:** In this paper Segmentation is one the most important process which decides the success of character recognition ...shion. Segmentation is used to putrefy an image of a sequence of characters into sub images of individual symbols by segmenting lines and words. In segmentation image is partitioned into multiple corridor. With respect to the segmentation of handwritten words into characters it's a critical task because of complexity of structural features and kinds in writing styles. Due to this without segmentation these touching characters, it's delicate to fete the individual characters, hence arises the need for segmentation of touching characters in a word. Then we consider Marathi words and Marathi Numbers for segmentation. The algorithm is use for Segmentation of lines and also characters. The segmented characters are also stores in result variable. First it Separate the lines and also it Separate the characters from the input image. This procedure is repeated till end of train.*

***Keywords:** Image Segmentation, Handwritten Marathi Characters, Marathi Numbers, OCR.*

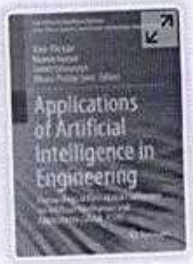
I. INTRODUCTION

The Indian Devanagari character segmentation and recognition system, which de fines the ability of a machine to analyze and identify the script characters is implemented here. Over the last few decades, machine reading has grown day by day. Recognition Optical character recognition in image processing and artificial intelligence has become one of the most successful applications of technology. Its classification based on two major factors: acquisition of data process and the type of text type (Noise reduced). The goal state is to fetch the character of Marathi language into digital form after identification. The basic Character set of Marathi language is called as Aksharas. Samyuktaksharas is the joint character word of Marathi language. The Samyuktaksharas consists of ...owels, consonants and joint characters. The character set of Marathi language contains of 34 consonants and 12 vowels in addition ... 14 vowel modifiers. Besides consonants and vowels, it also contains modifiers called Kana, a slating line placed at the top of character and Matra's which are placed at left or right part of the character. The half character increases complexity of script and lower modifier too. The Marathi language writing style is from left to right. The segmentation of character is an operation of decomposing image into sub image. There after several operations like preprocessing feature extraction, and its respective classification is done. Technology of Marathi language character recognition had been led to more transform development.

The various researches had been implemented on Marathi language character recognition. Image of written document in Marathi language fed as an input image and the editable file taken as output has been implemented. The structure of the script was used in the proposed scheme for segmentation with a homogenous set of features for recognition, which are computationally simple for extracting. Final recognition performed by Support Vector Machine (SVM) classifiers [1]. Patterns orientate segmentation technique for optical character recognition that contributes to document structure analysis. An extended form of pattern oriented segmentation is considered. An efficient and computationally focused method for segmenting character and graphics part of scanned images based on textural cues is used. It segmented 530 M. S. Khanderão and S. Ruikar using vertical and horizontal projection whereas convex hull technique for feature extraction used [2].

The data set is maintained for preparation and character classification. Data base created by performing standard operations like preprocessing, feature extraction, and distribution of Training set and Testing set. The Deep Convolution Neural Network trains the training set and accuracy evaluated from Testing set [3].

To perform high accuracy for recognition neural network is implemented in the system. The hidden layer and output layer each consist of 33 neurons [4, 5]. The combination classifier used for classification to solve classification problem. The combination of various networks is having more advantage as compare to individual one [6].



Applications of Artificial Intelligence in Engineering pp 539–561

MLP-WOA Neural Network-Based Automated Grading of Fruits and Vegetable Quality Detection for Food Industry Using Artificial Intelligence Techniques (Computer Vision—Image Recognition)

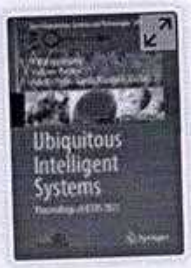
Syed Sumera Ershad Ali & Sayyad Ajij Dildar

Conference paper | First Online: 11 May 2021

Part of the book series: Algorithms for Intelligent Systems ((AIS))

Abstract

In recent days, quality estimation in the processing of post-harvest plays a major role in creating high-quality food products. It is necessary to grade as well as sort food depends upon their quality. The machine system utilizes the methods for quality inspection and also grading has increased more



Ubiquitous Intelligent Systems pp 85–106

AI-Based Automated Fruits and Vegetables Quality Inspection for Smart Cities

Syed Sumera Ali & Sayyad Ajij Dildar

Conference paper | First Online: 09 October 2021

Part of the book series: Smart Innovation, Systems and Technologies ((SIST,volume 243))

Abstract

The adoption of a technology in the food industry is currently occurring with artificial intelligence [AI]. This COVID-19-induced crisis has caused some disruption in selling the food to customers. It is increasingly apparent that, food system was "anti-fragile." Home cooking, meal-kit movement, home delivery, met shops, canteens, etc., all these get shutdown in this pandemic. With automated, the food supply digital technologies like robots, AR, VR,

2021-47

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TV Reliability Testing, Monitoring and controlling using IoT

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Abstract
Present world is world of internet. Considering the concept of existing IoT system, in this paper we will try to explain the Industrial IoT system. IoT is a combination of communication system and embedded system which connects hardware devices to the network or internet. The recent trend in the industries, also known as the Industrial Internet of Things (IoT), is the Industrial Internet. Industrial IoT empowers industrial engineering to create smart machines with detection, analyse, control and monitor with the help of combination of communication system and embedded system. The main aim of this paper is to summarize importance of Industrial IoT which will control as well as monitor industrial processes. Industrial IoT and is the future of industries.

1. Introduction

The 'Internet of Things' comprised of the network of devices such as home appliances, vehicles and other items embedded with electronics, software, sensors, actuators and connectivity which enables these things connect and exchange data. The term 'Thing' in 'Internet of Things' is having wide meaning. For example, a thing within the IoT can be a person with a implanted heart monitor, a pet with biochip transponder, a vehicle that has built-in sensors to alert the user if tire pressure is low or any other natural or artificial object that an IP address can be assigned to, thus gaining the ability to transfer data over a network.

Because of this, it creates very chances to integrate the physical world to the computer or similar systems directly, which is beneficial in efficiency, economy and easing human efforts.

The purpose of the Industrial IoT is not to replace human or human work, but to enhance and optimize it. One of the greatest advantages of Industrial IoT has seen as reduced human errors and manual labour, thus improves overall efficiency so that both money and time both can be saved. Here again the aim is to increase the automation level at domestic and commercial levels. In future, IIoT is likely to implement more unified device protocols and architectures that will allow electronics machines to communicate seamlessly and thereby enhance interoperability.

The Industrial IoT and Consumer IoT are two different concepts, though there's some similarity between the two. Consumer IoT devices can be from smartwatches to smart home devices (and light bulbs, fans and door locks etc.), and even shoes or clothes. Fundamentally the core idea of the consumer IoT is, however,

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Implementation of Reliability Testing, Monitoring and controlling using IoT in LEDTV

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Abstract

Considering the concept of existing IoT system, in this paper author have tried to implement the Industrial IoT system. Internet of Things is a system that combines communication system and embedded system together to connect hardware devices to the network or internet. The recent trend in the industries, also known as the Industrial Internet of Things (IoT), is the Industrial Internet, that uses internet/ industrial cloud and internet connected devices to industrial machines in processes. Industrial IoT empowers industrial engineering to create smart machines with detection, analyse, control and monitor with the help of IoT. The main aim of this paper is to implement Industrial IoT that controls as well as monitor industrial processes such as TV reliability testing which is a part of industrial processes. The parameters that are given in form of commands to industrial devices is ON/ OFF and ON/OFF cycle counts. Parameters that are monitored are TV's screen light and further if fault occurs it is communicated to testing person as Device fault occurred and Fault Occurrence Time.

1. Introduction

1.1 Introduction:

The Internet of things comprised of physical objects that are embedded with home automation devices, sensors, actuators, processing ability, software, and other technologies that connects and exchange data with other devices and systems over the Internet or other communications networks. Just like the existing system of Internet of Things in general, the Industrial IoT covers industries and its many applications. Author is focusing on the optimization of operational efficiency, automation with the use of embedded electronics and communication systems. Industrial Internet of Things opens doors for plenty of opportunities in enhancing automation, optimization, intelligent manufacturing and smart industry, detection, analyse, control and monitor industrial machines. The more mature goal of industrial IoT is digital transformation.

The purpose of the Industrial IoT is not to replace human or human work, but to enhance and optimize automation level in industries. One of the greatest advantages of Industrial IoT has seen as reduced human errors and man work, thus enhances overall efficiency. With improved efficiency industry can achieve both money and time optimization.

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IOT BASED SMART AGRICULTURAL MONITORING SYSTEM

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ABSTRACT
Agriculture is one of the important sectors contributing to the Indian economy. Agriculture sector is providing the work to more than 60% people in India. With developments in electronics and the microcontroller based systems, many applications are developed by the researchers and designers to perform the agriculture operations. Internet of Things (IoT) has opened doors of opportunities to design agriculture systems with accuracy of performing task. Arduino based systems are reliable and can be used widely for agriculture applications. Authors have proposed the implementation of Arduino based IoT system for agriculture monitoring. The parameters monitored are moisture, humidity, temperature, flow etc. The hardware prototype is developed by the authors and the system is found suitable to develop for Indian agriculture sector.

Keywords: IoT, Sensors, Wi-Fi module, ZCD, Optical Isolator, TSOP Receiver, IR Remote, etc.

INTRODUCTION
iculture sector is one of the major contributors to Indian economy with 18% share and growing further with the technological reforms. The growing economies like India are looking forward for the growth in the sector in coming years with improvements in effectiveness of processes. Many people living in the cities can do the farming with IoT based systems [1].
The agriculture sector affects the Indian economy to great extent. Automation with IoT enabled technology can enhance the performance of the agriculture sector [2]. Drones are commonly used now days for surveillance. Crop monitoring can help in making decisions about the operations to be performed in farm [3]. Smart agriculture systems are needed to more extend in order to enhance per hector cultivation of the crop [4]. Farming related operations such as cultivation, processing, transportation, storage and sale are to be made smart with technology to enhance the earnings of farmers [5].
Traditional methods in farming are not so efficient and most of them are manually performed and has the scope for reforms [6]. The sector is developing with application of technology, IoT enabled pumps are now days used by many farmers [7]. The moisture of the soil according to the type of crop needs to be maintained in order to get maximum turnover for agriculture [8]. The proposed system is capable to handle the challenges in farming. The smart system for crop monitoring and control is the need of time. With IoT technology the cost of such system will be less and it can be implemented on field. Authors have developed the prototype for agriculture monitoring system. The results obtained from monitoring system are presented in this paper and found suitable.

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REVIEW ON IOT BASED THREATS, VULNERABILITIES & CHALLENGES OF INCIDENT RESPONSE USING EMBEDDED SYSTEM FOR SENSOR NODES

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ABSTRACT
The Internet of Things (IoT) is the technology innovation of the century and will forever impact how future generations communicate, work, and handle personal day-to-day tasks. IoT devices streamline processes and often automate everyday household tasks. Despite all the hype and added benefits to their uses, they continue to be the spotlight of recent breaches, privacy concerns, and security vulnerabilities and incidents. The purpose of this study is to shed light on the current threat landscape as it relates to the Internet of Things (IoT) while addressing the reasons why IoT devices are prime targets for attack.Additionally, the study examines the challenges of network defenders, incident responders, and forensic examiners face when investigating incidents.The study found IoT devices are plagued by many software and hardware vulnerabilities, most of which are examined and researched heavily by the Open Web Application Security Project (OWASP). Solutions include providing education to consumers on the risks and mitigations associated some of the more common vulnerabilities. Device manufacturers havea role to play in securing devices before they are released to the general market. Solutions to the challenges faced by Incident Responders and Computer Forensics examiners includes preparation before the incident or crime occurs. Proposed solutions include creating investigative and analytical procedures applying specifically to the Internet of Things. Including understanding eir internal makeup, where data is stored, and to whom data is transferred. Answering each of these questions provides potential sources of evidence usedto paint an overall picture of the root cause of incidents and events.

Keywords: Cybersecurity, Professor Michael Sanchez, IoT, Internet of Things, Challenges,Incident Response Process, IoT Forensics

INTRODUCTION
The Internet of Things (IoT) is an emerging paradigm shift in the use of the web from communicating with end-user devices to connecting physical objects by themselves In this paradigm, many objects of daily use around us will be embedded with smart sensorsand computational resources and will be connected to networks in one form or another. Wireless sensor network technologies and modern embedded computing systems will be developed to meet this new emerging paradigm A wireless sensor network (WSN) is a network of sensor nodes that detect and record environmental data and send them to a sink node. The sink node further processes received data and communicates with outer nodes. The sensor nodes are resource-constrained devices with limited storage and processing capabilities. The Internet Protocol (IP) is a heavyweight protocol that is considered inadequate for the sensor nodes Therefore, a conventional WSN is a non-IP network, where each sensor node only communicates with neighboring nodes or the sink node.
Therefore, a conventional WSN is a non-IP network, where each sensor node only communicates with neighboring nodes or the sink node. However, with the emergence of IoT, the use of IP in resource-constrained WSNs has been requested. In light of this demand, IP version 6 (IPv6) over low-power personal area networks (6LoWPANs) has been standardized. With the advance of 6LoWPAN, it becomes possible to use IP in a

2021 - 51

Websites of Top-Ranked Indian Higher Education Institutions: A Webometric Analysis

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Abstract

This paper explores a webometric study of the top25 institutions in India as ranked by the National Institutional Ranking Framework (NIRF), a nodal ranking agency of the Ministry of Human Resource Development (MHRD), Government of India. Efforts were made to establish a sort of ranking among these institutions' websites by applying various webometric indicators, the important ones being web impact factor, WISER index, Alexa traffic rank, search engine optimisation, the security rank of website, the number of social media followers, and external backlinks. Indian Institute of Technology, Indore, ranked first regarding web impact factor (WIF) (8.678343949), whereas Indian Institute of Technology, Roorkee ranked first regarding search engine optimisation. Eleven institutions' (44 percent) websites had very strong security ranks. Anna University, Chennai, ranked first in Alexa traffic rank, with a loading time of 0.693 seconds, and was followed by the University of Delhi, Delhi, and Indian Institute of Technology, Hyderabad. University of Delhi, Delhi, ranked first in the WISER index, with a value of 23.8984, and was followed by Bharathiar University, Coimbatore, and Jamia Millia Islamia, New Delhi.

Keywords: **Webometric, Web Impact Factor (WIF), Alexa Ranking, WISER Value, NIRF, Search Engine Optimisation, Security Rank, Social Media Followers**

Introduction

In this era of globalisation, which considerably affects higher education, institutions are highly concerned with their position in ranking lists prepared by various national and international agencies. Every year, lists of top-ranked Indian higher education institutions are published by different private agencies according to their own surveys. Since 2015, the National Institutional Ranking Framework (NIRF) has been publishing the list of the top 100 Indian higher education institutions based on broad parameters such as teaching, learning, and resources, research and professional practices, graduation outcomes, outreach and inclusivity, and perception. The Indian higher education system is one of the largest education systems in the world, and according to the All India Survey on Higher Education,

 2021-52

Webology: An Analysis of Citation Pattern

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Abstract

Efforts were made to analyze 5807 citations of Webology published during 2004 to 2019. The citations were classified on the basis of type of material which clearly indicates that periodicals and web resources were the most popular type of resources used by the authors for writing research papers. The study found that out of 5807 citations 2580 citations were authored by the single author and single authorship pattern was found as the most popular authorship pattern among the authors. The study founds the two oldest citations were from the books which were published before 1900. The findings of the study show the notable change in the use of type of resources being used for writing the research papers. The results of the study shoes that use the of periodicals and web resources for writing research papers was increased from 1951 and onward. The study also presented the list of the twenty five highly cited journals, ten highly cited authors, fifteen highly cited web links and five highly cited books.

Keywords

SoMa, Pla, Sch.

Introduction

Citation Analysis is an important statistical technique that is used to evaluate the quantitative growth of a specific discipline in a particular direction by arranging the citations in a systematic rank or order. Citation Analysis is used to analyze the structure and growth of the particular subject in specific direction, author effectiveness and publication trend. Haridasan and Kulshreshta (2007) elaborated that Citation Analysis as a statistical technique to identify the core documents in a particular subject or discipline.

2021 - 53

Research Productivity of Agricultural Faculty Members with Special Reference to Maharashtra, India: A Scientometric Study

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Abstract

The study presented in this paper has examined the research productivity, for the period 2004–2019, of four agricultural universities located in the Indian state of Maharashtra. The 4,120 research publications of these agricultural universities, as reflected in the publications-related output of the Indian Citation Index, were analysed to ascertain the growth and patterns in agricultural research. This study presented, among other things, the year-wise distribution of research productivity, co authorship index, and collaborative index, degree of collaboration, most prolific authors and top-ranked sources preferred by the agricultural faculty members for publishing their research output. It was found that there was no consistency in the growth of research productivity of the four agricultural universities. Dr. Panjabrao Deshmukh Agricultural University, Akola and Mahatma Phule Agricultural University, Rahuri contributed to more than 70 percent of the total research output. The co-authorship pattern was found to be more popular among the agricultural faculty members as 64 percent of the total research output was in the form of three- or four-author studies, whereas single-author studies comprised only 1.21 percent of the total research output. Ghorade, R.B. from Dr. Panjabrao Deshmukh Agricultural University, Akola was found to be the most productive author with 47 publications. Annals of Plant Physiology, Journal of Soils and Crops and Trends in Bio Sciences were found to be the most preferred journals. The collaborative index of 3.55 in 2004 increased to 3.86 in 2019. The average degree of collaboration was 0.99, and the average modified collaboration coefficient was 0.69. The research article was found to be the most preferred type of research document among the agricultural faculty members as against a conference paper, report or short communication. Dr. Panjabrao Deshmukh Agricultural University, Akola and Mahatma Phule Agricultural University, Rahuri received the highest number of citations for their research publications during the said period of the study.

Keywords: Agriculture, Agricultural Universities, Research Productivity, Scientometrics, Co-Authorship Index, Degree of Collaboration, Collaboration Coefficient, Modified Collaboration Coefficient

54

Websites of Indian Agricultural and Horticulture Universities: a webometric analysis

Article type: Research Article

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Abstract: The article discusses a webometric study, carried out on websites of 51 Indian agriculture and horticulture universities. The aim of the study was to rank these 51 websites on the ground of their web impact factor (WIF). The study was conducted using eight Boolean search statement methods and Google Search Engine to collect data from each university website. The major assessment criteria applied for this study were WIF, rich files, Google Scholar data, WISER (web indicators for scientific, technological, and innovation research) value, and Alexa Traffic Ranking. In terms of WIF, Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut, was ranked first, followed by Dr Balasaheb Sawant Kokan Krishi Vidyapeeth, Dapoli, and third position was secured by Rani Laxmi Bai Central Agricultural University, Jhansi. The Central Agriculture University, Imphal was adjudged first in the number of rich files. The Tamil Nadu Agricultural University, Coimbatore, ranked first in the light of Alexa Traffic Ranking. Central Agricultural University, Imphal with a WISER index value of 19.75358, scored first in WISER ranking, whereas Sher-e-Kashmir University of Agricultural Science and Technology, Jammu was the at the 20th position, with a WISER value of 11.46.

Keywords: Webometric, Web impact factor, Alexa ranking, WISER value, Agriculture university, Horticulture university

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Research Article

Study on analysis of kerf width variation in WEDM of insulating zirconia

Babasaheb Shinde & Raju Pawade

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ABSTRACT

The shaping of the electrically insulating ceramic component in post sintered state has always been a difficulty in developing ceramic applications. Wire electrical discharge machining is an ascertained option to produce near net shape products in conductive materials. When it comes to insulating ceramics, sustaining the threshold electrical conductivity comes into the picture. This paper explores the feasibility of wire electrical discharge machining of Y_2O_3 stabilized ZrO_2 with graphite powder additive mixed distilled water to replace the kerosene. In this research, the assisting electrode method has been employed to provide electrical conductivity to the work material to have initial electrical contact. Sparking initiates at assisting electrode coating and further conservation of electrical contact leads to

Document details - Analytical and computational analysis of pressure at the nose of a 2D wedge in high speed flow

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Analytical and computational analysis of pressure at the nose of a 2D wedge in high speed flow(Article)

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Abstract

Supersonic projectiles like rockets, missiles, or aircraft find various applications in the field of defense. The shape of the wings is mainly designed as wedge shape or delta wings for supersonic vehicles. The study of supersonic flows over the wedges and flat plate delta wings around the large scale of incidence angle is considered in the supersonic projectile. In the present paper, the prime attention is to study the pressure at the nose of the plane wedge over the various Mach number and the various angles of incidence. Ghosh piston theory is used to obtain the pressure distribution analytically, and the results are compared with CFD analysis results. Thewedge angle and Mach number are the parameters considered for the research work. The range of wedge angle is 50 to 250, and Mach number is 1.5 to 4.0 are considered for the current research work. The analytical results show excellent agreement with the CFD results. The results show that both the parameters wedge angle and Mach number are influential parameters to vary the static pressure. The static pressure increases with an increase in Mach number and wedge angle. © 2022 Techno-Press, Ltd.

Author keywords

Cfd analysis | Supersonic | Wedge angle

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An investigation of boat-tail helmet to reduce drag(Article)

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Abstract

A helmet is a kind of shielding equipment used to shield the head from fatal injuries. The helmet experiences drag while moving at a certain velocity. The total drag on the helmet increases with an increase in velocity. The drag force at high velocity has a significant effect on the rider's neck and may result in cervical spondylosis. Now a day's neck pain, neck sprain, spondylosis have become significant issues related to the human body. The reduction of drag on the helmet will be a boon for society, which will reduce the force on the neck. The decrease in drag is an essential field of study. The drag force can be reduced by various methods like coating on the surface, modifying the helmet's shape, etc. The study's purpose is to decrease drag on the helmet by improving the helmet's shape. The CFD analysis is carried out to find the best profile of the helmet and fineness ratio of the boat-tailed helmet to minimize drag. The CFD results are validated with the wind tunnel laboratory outcomes. Based on the findings, a considerable reduction in the drag is accomplished at the velocity of 32.5 m/s © 2021. Techno-Press, Ltd

Author keywords

Boat-tail Cfd Drag Helmet

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Minimization of Effluent Produced by Electrical Industry

Gayatri Mahadu Mete, Snehal Anil Marathe, Saurabh Narayan Sase, Komal Ajabrao Gadekar, Shubham Sanjay Dhok, Charudatta Prakash Thosar

Abstract

There are two fundamental reasons of effluent viz. prevention pollution and thereby protecting the environmental and protecting the public health by safe guarding waste supplies and preventing the spread of water borne diseases. When untreated industrial waste water is discharge it will contaminate the natural water body i.e., river, lake with hazardous chemicals. It is absolutely necessary to study the characteristic of industrial waste water, to ensure its safe disposal. These studies will help in determination the degree the type of treatment required to given waste water this avoid the pollution of sources of its disposal. Effluent produced from electronics industry is from pre-treatment of galvanized steel surface prior to the application of powder coating. Company having an In-house facility of 10 tank process for phosphating of panel for purpose of degreasing, oxidation, and oil removal. The waste water treatment plant it has been designed with Electrocoagulation treatment unit.

Keywords: Prevention, diseases, waste water, hazardous, pollution, disposal, electrocoagulation treatment unit.

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Multi-Reservoir Optimization for Maximization of Releases for Hydropower Generation Considering Environmental Flow

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Abstract

Water is the soul of the world. It is the most important element for the survival of humans, animals, birds, plants and all other living things on earth. Water is essential for the beginning of life as well as regular availability of water ensuring the survival, growth and overall nourishment. Thus, proper planning and use of reservoir water are essential for all. To tackle this issue different optimization techniques underline their need and importance in the reservoir operations. In the present study, multi-reservoir optimization model is developed using Python programing language considering the objective of maximization of total annual release for hydropower generation. Model is applied to 3 reservoirs from Godavari River basin from Maharashtra state India. Water essential for conservation of environment has also been made available in river as environmental flow as per the recommendations of Central Water Commission (CWC) India. Developed optimization model provides optimal monthly operation policies.

Keywords

Optimization, Multi-Reservoir, Reservoir Operation, Environmental Flow, Linear Programming

1. Introduction

Availability of rainfall has declined due to climate change in recent times and so the emphasis is on storing more water in reservoirs. Through this storage, man is only engaged in his own development, but the water required for the biodiversity and the nature as a whole, which grows and depends on the river water, is not available. An example of this is the river bed that dries up during the

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Design and Construction of Synthetic Box

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Abstract - Plastic bottles are generally used for the consumption purpose may be it is solid, liquid, or gaseous material. We all know that the plastic is non-decomposable material and if it gets decompose it takes 1000 of years. While bio-degradation it eases toxic fumes which is very harmful to the environment. So we are using plastic bottles in our construction. We are filling these plastic bottles by the fly ash with very proper compaction and replacing bricks in the construction by these bottles.

***Key Words*: Plastic bottles, fly-ash, compaction, non-decomposable, toxic fumes.**

INTRODUCTION

Our project name is 'Design and construction of synthetic box' here synthetic refers to the plastic and box refers to the four walled structure. We have constructed toilet by using the plastic bottles and fly ash and therefore we named this structure as ' Synthetic Box'

1.1 General

Plastic bottles and fly ash these both are the waste products and we are using these in our construction very effectively and efficiently in our project. Plastic material is gets decomposed under very few circumstances. It may get recycled but only upto 30% and remaining 70% goes under the landfill and affect the subsoil very badly. So in our project by using plastic bottles we are trying to keep 100% of the waste out of the landfill. This construction of toilet by using plastic bottles and fly ash is also called as 'Plastic bottles green house' or 'Plastic bottles green building'. We are not just solving the environmental problembut also trying to reduce the pollution.

2. METHODOLOGY

In this project we are trying to use 3R principle. As we all knows what is 3R principle. Reduce, Reuse and Recycle. In this project we used recyclable material like PET bottles and industrial waste as a filling material to reduce demand of natural resources. In a traditional construction bricks are use which required more quantity of natural resources and at the process of manufactuing of brick high emission of carbon dioxide are produce which is more hazardous to environment. To face this problem we determine solution by using PET bottles and fly ash as filling material.

Construction of synthetic box -

1. Selection of project site.
2. Site clearance.
3. Collection of materials.
4. Filling of bottles.
5. Material testing.
6. Excavation soak pit and footing.
7. Construction of synthetic box.

Cost Estimation –

Compressive strength of materials –

We have tested various sample on CTM the result are as below. From result we have concluded that fly ash have efficient compressive strength. So we have closed fly ash as a construction material.

Table -1: Compressive Strength Of Materials

Sr. no	Materials	Compressive strength(N/mm^2)
1	Natural sand	12
2	Soil	10
3	Artificial sand	9
4	Brick crush	11
5	Fly ash	10
6	Brick	15

Comparison of different types of construction-

Here we have given the cost required for the construction of toilet by using various construction material and we have found that brick construction is much more costlier than the hollow block construction and bottle construction. We have use bottles as construction material because it reduces cost 50% than the brick construction.

Table -2: Cost Comparison

Sr. no	Materials	Approximately cost
1	Brick construction	25000
2	Hollow block construction	21000
3	Bottles construction	12420

Advantages –

1. Low cost
2. Non brittle
3. Absorb abrupt shock loads
4. Bio-climatic

2021-62

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VOICE RECOGNITION BASED DEVICE CONTROL SYSTEM USING SMARTPHONE APP

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Abstract:- This paper illustrates a non-traditional approach to system control focused on speech recognition using mobile apps and MATLAB. In all ways, life is becoming simple and simple with advancement in technology. New research is currently going on in every field to boost device efficiency and to make work simpler than previous ones. Automatic systems are favored over manual systems in today's world. One of them is speech recognition based interface control. It consists of a Wi-Fi control board, a relay circuit and a Smartphone app. This allows devices to be operated by users by just sitting in one position. A significant advantage of this method is the control of machines, i.e. making them on and off as per user requirements. This user can save as well as discourage excessive use of energy by using it. Device access is restricted to a single user, so that protection is not compromised.

Keywords-*Node MCU, speech recognition, device control, automation*

I INTRODUCTION

In every field of science until now, speech recognition technology has played an important role and it also has future aspects of speaker vigor, context and surrounding noise elimination promises to achieve system effectiveness. In speech recognition, the machine detects and responds to voice commands accordingly. There is hand-free access and control of different equipment due to the use of voice as data. There is another factor that is now playing an important role in the development of technology, along with speech recognition. The internet has played a major and central role in this system. We know the Internet has made it easy to connect to any corner of the globe. Together with other consumer electronic equipment such as fan, light & heater, it is voice operated door lock. This operates door lock and other devices remotely with voice from anywhere. To operate, an android app is created. Voice is transmitted through the cloud server. The Android app has a password. The cellular phone acts as a controller. Device status is first indicated in the Android app, whether it is in ON condition or OFF condition. The status of all devices is also shown on the PC (cloud server)

This project is created by taking into account the end user. Without getting another work hamper, devices can be operated from anywhere. Technology for speech recognition is something that has been dreamt of and worked on for decades. User-to-user applications can vary. There are many applications, especially for domestic use. One of them is speech recognition based interface control. The aim of this paper is to create an application based on speech recognition that enables users to use words or commands to turn on or off appliances or devices such as fans, lamps and heaters. These commands are listed in the program and one is fixed. If users or customers want to change these commands, they can alter them by simply changing program of the system.

II. RELATED WORK

2.1 Voice To Text Conversion Method

The key factor considered in this prototype is Home Automation. The microcomputer uses a timer and a voice to control various electronic devices at home. The timer option uses a timer to monitor the operation, while the voice option uses oral voice signals to control the system. In this, voice commands are first converted to text using the VTC method (voice to text converter) and the output is provided to the receiver to control the ON and OFF switching of home devices.

2.2 SMS Over GSM Network Method

GSM-based appliance control is used when users are far from home. Using SMS sent over the GSM network is done remotely. In this system implementation, AT commands are

Smart Energy Management System Using Non-intrusive Load Monitoring

Original Research Published: 30 December 2021

Volume 3, article number 117, (2022) Cite this article

SN Computer Science

Aims and scope

Submit manuscript

Riya Deshpande, Shubhankar Hire & Zakee Ahmed Mohammed

Abstract

Energy Management is a problem faced by many around the world. The ever-rising demand for energy is putting a strain on the worldwide resources. Additionally, during the pandemic, it was observed that there was a lot of discrepancy in the electricity bills. To do our part in addressing the issue, the combination of Internet of Things (IoT) and Machine Learning (ML) has been used in creating a solution which will help measure, monitor and visualize daily energy consumption of a household. Additionally, using the concept of Non-Intrusive Load Monitoring (NILM), a single hardware setup can be used to measure the energy consumption of each appliance in the household. This hardware setup with the use of certain ML algorithms like Factorial Hidden Markov Model (FHMM) and Combinatorial Optimization (CO) disaggregates the combined household energy readings to device specific values. These values then get sent to a cloud database

Characterization and Optimization of Flat Friction Stir Spot Welding of Triple Sheet Dissimilar Aluminium Alloy Joints

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Silicon

Aims and scope

Submit manuscript

Sachin Jambhale, Sudhir Kumar & Sanjeev Kumar

Abstract

The method of flat friction stir spot welding (FFSSW) was used to investigate the tensile behavior of three thin dissimilar aluminium alloys (Two sheets of AA6082-T6 and one sheet of AA6061-T6). Tool with probe and a probe less tool is used in this two-step process of joining. Experiments were conducted at various tool tilt angles (TTA), tool rotational speeds (TRS), dwell time (DT) and Tool plunge depths (TPD). The quality welds were produced at optimized process parameters (TTA 2^0, TRS 2125 rpm, DT 15 s and TPD 0.1 mm). Elimination of protuberance and reduction of keyhole in the joint is achieved for improving bonding length. Micrographs of joints were examined using optical microscopy and scanning electron microscopy (SEM). The complete bonding with finer grains at stir zone (SZ) improved the strength of FFSSW joint. Energy-dispersive X-

Journal of Engg. Research Vol.10 No. (3B) pp. 124-144 DOI: 10.36909/jer.10265

Evaluation of shear force and fractography of friction stir spot welded joints of AA 6082-T6 alloy

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ABSTRACT

This experimental work investigates the tensile behavior of friction stir spot welded joints from 3 mm thick aluminum alloy AA6082-T6 sheets. Taguchi L_9 orthogonal array was used for process parameters, tool rotational speed (TRS), dwell time (DT), and shoulder diameter (SD), with consideration of three levels. Friction stir spot welding (FSSW) was performed on vertical milling machine. Tensile shear test was conducted on universal testing machine (UTM) to find out the tensile shear failure load (TSFL). The optimal combinations of parameters were at ol rotational speed of 2,000 rpm, dwell time of 15 seconds, and tool shoulder diameter of 16 mm. Tool rotational speed had a substantial effect on tensile shear strength of FSSW joint. Scanning electron microscopy (SEM) tests revealed that the changes in microstructure in different zones of FSSW joint were observed. Tensile shear specimen was analyzed using SEM to observe the behavior of fracture surfaces. Significant ductility in the fracture surface was evident in the fractography. In this article, attention is focused on the influence of joining parameters on the mechanical behavior of the friction stir spot weld under the tensile shear load condition.

Keywords: Fractography; Friction stir spot welding (FSSW); Heat affected zone (HAZ); Scanning electron microscopy (SEM); Thermo-mechanically affected zone (TMAZ).

INTRODUCTION

Aluminum is a key enabler in helping auto and defence industry to meet the significantly rising fuel efficiency standards and emissions goals. Downweighting and downsizing of the vehicles were involved in early 1980s to encourage the economy of fuel and to maximize the efficiency. The downsizing of vehicles is associated with increased risk of fatal injury for occupants. Aluminium and its alloys have significant potential to decrease the weight of vehicle components. Higher strength to weight ratios, better fracture toughness, significantly increased life, economical reasons, performance, affordability, aesthetics, technological advancements, and government

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3.3.1 Number of research papers published per teacher in the Journals as notified on UGC CARE list during the 2020

Sr. No.	Title of Paper	Name of the Author/s	Name of Journal
1	Women empowerment in india: a historical perspective and prospects	Vaishali deepak kokate	International journal of advance scientific research and engineering trends
2	Steady-state temperature analysis to 2d elasticity and thermo-elasticity problems for inhomogeneous solids in half-plane	Kirtiwant P. Ghadle and Abhijeet B. Adhe	Journal of Korean Society for Industrial and Applied Mathematics
3	Voltage Control SEPIC Converter Fed Induction Motor Drive	Shital Bakal,S.M.Shinde	ICAIAEE-2020
4	A review-industrial protections of transformer using arduino with gsm and iot system	Manisha Y. Nikwade, Sumera Ali, Ulhas B. Shinde	International Research Journal of Modernization in Engineering Technology and Science
5	ResNet based Lung Nodules Detection from Computed Tomography Images	Mahender Nakrani, Ganesh Sable, U. B. Shinde	International Journal of Innovative Technology and Exploring Engineering (IJITEE)
6	Feature Extraction Methods for Handwritten Character Recognition	Devendra L. Bhuyar and Sandipann P. Narote Shrinivas R. Zanwar, Nagesh S. Vaidya	International Journal of Advanced Science and Technology
7	A Novel Method for Real Time Bio-Medical Signal Transmission	Kureshi A.K 3 Bhuyar D L,	International Journal of Advanced Science and

	& Monitoring for Medical Healthcare	Shinde U.B	Technology
8	Overview of IOT Based Smart Agricultural Monitoring System	Syeda Sumera Ali, U.B.Shinde & Syeda Fasiha Fatema	Journal of Xidian University
9	Design of an IOT Based Energy Monitoring System and Home Automation	Sumera Ali ,Shaikh Sana Shafee, A. M. Rawate	Journal of Emerging Technologies and Innovative Research (JETIR)
10	Overview of IoT Based Garbage Bin Monitoring System	Sumera Ali ,Shaikh Sana Shafee1, A. M. Rawate	Journal of Xidian University
11	Implementation of IOT based water Management system	Sumera Ali, Shamal Sanjay Kharat, D.L.Bhuyar	Journal of Xidian University
12	Overview of IOT based Water Management system, Novature Publications	Sumera Ali, Shamal Sanjay Kharat, D.L.Bhuyar,	International Journal of Innovations in Engineering Research & Technology [IJIERT]
13	Design of IOT Based Energy Monitoring System and Home Automation	Sumera Ali, Ketaki Sudame, A.M.Rawate	Journal of Emerging Technologies and Innovative Research (JETIR)
14	Review on Design of IOT Based Energy Monitoring System and Home Automation	Sumera Ali, Ketaki Sudame, A.M.Rawate	Journal of Emerging Technologies and Innovative Research (JETIR)
15	Industrial Protection of Transformer using Arduino with GSM & IOT System	Sumera Ali ,Manisha Nikwade , Ulahas B.Shinde	International Research Journal of Engineering and Technology (IRJET)

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16	A Review on Smart Cane for Blind People	Syed Sumera Ali, Varsha Subhudhi, Ulahas B.Shinde	Journal of Emerging Technologies and Innovative Research (JETIR)
17	Feature extraction in retinal images using automated methods	P. R. Wankhede and K. B. Khanchandani	International Journal of Scientific and Technology Research
18	Automated Microaneurysms Detection from Retinal Fundus Images using Pixel Intensity Rank Transform	P. R. Wankhede and K. B. Khanchandani	Biomedical and Pharmacology Journal
19	The Impact and Importance of Statistics in Data Science	Nitin Tawar, Pallavi Pawan Gupta	International Journal of Computer Application
20	Recent Trends in Library and Information Science Research: with Special Reference to India	santosh dnyanobarao kadam, Bhusawar Shankar Chandrakant	International Journal of Library Science and Research
21	Re-building university library services in covid 19 crisis	santosh dnyanobarao kadam, bhusawar shankar chandrakant	International Journal of Library Science and Research
22	Experimental Investigation of Turning Process for Machining Al-HE 9 under Dry Condition	B.M Netake, S. K. Biradar2, M. D. Jawed3	international journal for research & development in technology
23	Study on Analysis of Plasma Resistance Variation in WEDM of Insulating Zirconia	Babasaheb D. Shinde, Raju S. Pawade	Materials and Manufacturing Processes
24	An Investigation of Three-Way Catalytic Converter for Various Inlet Cone Angles Using CFD	Sohel Khalil Shaikh, ZakirIlahi Chaudhary, B. G. Marlpalle, and Sher Afghan Khan	CFD Letters

25	CFD Analysis of an Automobile Catalytic Converter to Obtain Flow Uniformity and to Minimize Pressure Drop across the Monolith	Sohel Khalil Shaikh, ZakirIlahi Chaudhary, and Sher Afghan Khan	CFD Letters
26	Design of waste water treatment plant for CSMSS CSCOE AURANGABAD	C. P. Thosar, Sagar Kailas Ghodke, Somesh Bhagaji Dafal , Vaibhav Rameshwar Mali, Pooja Dattatray Bhapkar, Swapnali Suresh Bhosle	International Journal Of Innovative Research In Science, Engineering And Technology
27	Case Study of 161 MLD Sewage Treatment Plant Kanchanwadhi, Aurangabad, Maharashtra	C. P. Thosar, Komal Ajabrao Gadekar , Gayatri Mahadu Mete, Shubham Sanjiy Dhok , Saurabh Narayan Sase , Snehal Anil Marathe , Ranjeet Suresh Deshmukh, Sajid Husain	International Journal for Research in Applied Science And Engineering Technology
28	Treatment Of Waste Water Produsd By Electronic Industry By Electrocogulation Process	C. P. Thosar, Gayatri Mahadu Mete , Snehal Anil Marathe , Saurabh Narayan Sase , Komal Ajabrao Gadekar, Shubham Sanjiv Dhok	International Journal Of Engineering Science And Computing
29	A review on high strength fibre reinforced concrete deep beam	Dnyaneshwar B. Mohite, Abhijeet P. Wadekar	JASC: Journal of Applied Science and Computations
30	Mechanical behavior of diagonal cracks in high strength fibre reinforced concrete deep beam	Dnyaneshwar B. Mohite, Abhijeet P. Wadekar	Journal of Xidian University
31	Study of geosynthetic	Mir Sohail Ali	Parishodh Journal

	reinforcement in soft soil		
32	Enhancement of UCS value by adding hairs in soil	Prasad Sonar, Uday Parhad, Ankita Patil, Shital Sonawane, Sukanya Kale, Vitthal Sarode	International Research Journal of Engineering and Technology
33	Replacement Of Sand By Copper Slag	Prasad Sonar, Mir Sohail Ali Rushikesh Rajendraprasad Bhangdiya	International Journal of Scientific Research in Engineering and Management
34	A Hybrid Approach to Improve the Clipping Technique of PAPR Reduction in OFDM	Zakee,Ahmed, Ajij Sayyad	International Journal of Interdisciplinary Innovative Research&Development (IJIIRD), Vol. 04 Issue 02 2020
35	A Symbol Scrambling and Limiting Approach to Improve the Selective Mapping Technique of PAPR Reduction in OFDM	Zakee,Ahmed, Ajij Sayyad	International Journal of Information Technology and Electrical Engg (ITEE), Volume 9, Issue 4, Aug 2020
36	Development of an Improved Peak-to-Average-Power Ratio Reduction Technique and its Comprehensive Evaluation with admired Techniques in OFDM"	Zakee,Ahmed, Ajij Sayyad	International Journal of Information Technology and Electrical Engineering (ITEE)
37	Maturity Detection of Tomatoes Using Deep Learning	Sahil Mutha, Akshat Shah, Zakee Ahmed	Springer Nature Computer Science
38	Convolutional Neural Network-VGG16 for Road Extraction from	Prajakta Ganakwar, Saroj Date	International Journal of Computer Sciences and

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	Remotely Sensed Images		Engineering
39	Designing of a Novel Framework for Marathi Natural Language Processing: MR-LIWC2015 intention classification	Prajakta Ganakwar1, Ms. Saroj Date	International Journal of Science and Research

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WOMEN EMPOWERMENT IN INDIA: A HISTORICAL PERSPECTIVE AND PROSPECTS

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Abstract: Scholars believe that in ancient India, the women enjoyed equal status with men in all fields of life. However, some others hold contrasting views. Works by ancient Indian grammarians such as Patanjali and Katyayana suggest that women were educated in the early Vedic period. Rigvedic verses suggest that the woman married at a mature age and was probably free to select her husband. Scriptures such as Rigveda and Upanishads mention several women sages and seers, notably Gargi and Maitreyi. Some kingdoms in the ancient India had traditions such as *Nagarvadhu* 'bride of the city'. Women competed to win the coveted title of the *Nagarvadhu*. Amrapali is the most famous example of a *Nagarvadhu*.

Keywords: *Empowerment, Smriti, Bhakti Movement, Shariat, Women Reservation Bill application*

According to studies, women enjoyed equal status and rights during the early Vedic period. However, later (approximately 500 B.C.), the status of women began to decline with the *Smritis (Manusmriti)* and with the Islamic invasion of Babur and the Mughal empire and later Christianity curtailing women's freedom and rights. Although reformatory movements such as Jainism allowed women to be admitted to the religious order. The women in India faced confinement and restrictions. The practice of child marriages is believed to have started from around sixth century.

The Indian woman's position in the society further deteriorated during the medieval period when *Sati*, child marriages and a ban on widow remarriages became part of social life in India. The Muslim conquest in the Indian subcontinent brought the *purdah* practice in the Indian society. Among the Rajputs of Rajasthan, the *Jauhar* was practised. In some parts of India, the *Devadasis* or the temple women were sexually exploited. Polygamy was widely practiced especially among Hindu Kshatriya rulers. In many Muslim families, women were restricted to Zenana areas. In spite of these conditions, some women excelled in the fields of politics, literature, education and religion. Razia Sultana became the only woman monarch to have ever ruled Delhi. The Gond queen Durgavati ruled for fifteen years, before she lost her life in a battle with Mughal emperor Akbar's general Asaf Khan in 1564. Chand Bibi defended Ahmednagar against the mighty Mughal forces of Akbar in 1590s. Jehangir's wife Nurjehan effectively wielded imperial power and was recognized as the real force behind the Mughal throne. The Mughal princesses Jahanara and Zebunnissa were well-known poets and also influenced the ruling administration Shivaji's mother, Jijabai was deputed as queen regent because of her ability as a warrior and an administrator. In South India, many women administered villages, towns, divisions and heralded social and religious institutions.

The Bhakti movements tried to restore women's status and questioned some of the forms of oppression. Mirabai, a saint-poet, was one of the most important Bhakti movement figures. Some other female saint-poets from this period include Akka Mahadevi, Janabai and Lal Ded. Bhakti sects within Hinduism such as the Mahanubhav, Varkari and many others were principle movements within the Hindu fold to openly advocate social justice and equality between men and women. Shortly after the Bhakti movement, Guru Nanak, the first Guru of Sikhs also preached the message of equality between men and women. He advocated that women be allowed to lead religious assemblies; to perform and lead congregational hymn singing called Kirtan or Bhajan; become members of religious

2020-67

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STEADY-STATE TEMPERATURE ANALYSIS TO 2D ELASTICITY AND THERMO-ELASTICITY PROBLEMS FOR INHOMOGENEOUS SOLIDS IN HALF-PLANE

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ABSTRACT. The concept of temperature distribution in inhomogeneous semi-infinite solids is examined by making use of direct integration method. The analysis is done on the solution of the in-plane steady state heat conduction problem under certain boundary conditions. The method of direct integration has been employed, which is then reduced to Volterra integral equation of second kind, produces the explicit form analytical solution. Using resolvent- kernel algorithm, the governing equation is solved to get present solution. The temperature distribution obtained and calculated numerically and the relation with distribution of heat flux generated by internal heat source is shown graphically.

1. INTRODUCTION

The distribution of temperature is subjected to known temperature and/or heat flux conditions on the surface of solids. Steady-state heat conduction is happens when the heat conduction is constant, so that the special distribution of temperatures in the inhomogeneous solid does not change any further. The interest of researchers to study the analytical solution for elasticity and thermo-elasticity problems has grown very fast due to wide applications to real world. In particular, the models and methodologies which admit the dependence of material properties on inhomogeneous materials developed recently. Among various inhomogeneous materials, functionally graded materials (FGM) have attracted researchers in the past years, whose properties vary continuously from one surface to another. Except for few particular cases, it is impossible to get the analytical solution. To overcome this difficulty, some simplifications were employed.

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2020 – 68

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VOLTAGE CONTROLLED SEPIC CONVERT INDUCTION MOTOR DRIVE

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Abstract—In current era hasty progression of power semiconductor devices is amplified extensive succession for applications i.e., industrial, along with several others. The harmonics deformation formed by converter has being too stern concern to consistent operation for system. And also, a customary technique with rectifier has unfavorable penalty with complementary losses. This paper explains investigation of SEPIC converter for enhancement in quality of power with PFC supplied to induction motor. The recommended scheme offered reduction for THD by using PI system through voltage follower scheme. A performance for designed converter is simulated at MATLAB, providing enhanced quality to power at AC supply.

Keywords- SEPIC, DCM, DBR, PWM

1. Introduction

Nowadays, a DC – DC converters are commonly used universally. These are engaged for power supplies, lightning, industrial applications. These are also applied as power converter to photovoltaic power systems, as suggested in [1]

Novel scheme with SEPIC is intended for DCM to supply of arc welding gives intrinsic PFC with diminish in losses of conduction and augmentation for efficiency provided THD at 5.36% [3] [2]

The authors has designed higher frequency converters to link output for bridge towards load for achieving high PF, and complex frequency isolation along with compacted size provided THD around 8.25% [2] [3]

In [4] authors explored performance of Solar Energy Transformation System proposed to sustain grid power and augmentation power quality by employing H bridge, multilevel, inverter and SIMO SEPIC Converter offers lower THD about 1.65%.

Another author suggested a new scheme employing a multilevel inverter which is grid connected along with isolated SEPIC for Solar PV scheme concludes reduced switching devices with maximum voltage level and flexible power processing and regulation too.[5]

Another approach by some author [6] has been adopted ZVS and PFC using bridgeless converter operating in both DCM and CCM, provided improved power factor and efficiency.

DC-DC converters gives elevated efficiency, speedy dynamic response. These can also be used for voltage regulations and to produce DC.

In paper, SEPIC is employed for analysis performance. Its topology is investigated and result analysis provided their aptness for augmentation in PF and decrements in THD leading to power quality improvement.

2. Converter Study

Fig.1 reveals block illustration for preferred converter scheme consisting DBR, supplied with AC, converter, along with load furthermore control circuitry.

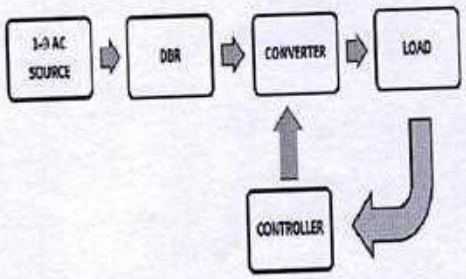

Fig.1. Block Diagram for Anticipated Converter Scheme

In topology an AC is supplied to DBR, that adapts AC into DC. which is fed to particular converter. With crucial control scheme PWM pulse are supplied to trigger switch of converter. There may be any converter like SEPIC, zeta etc.

I. Proposed Scheme

The proposed system used for Induction motor drive with SEPIC converter working for voltage follower approach depicted in Fig. 2.

Single phase DBR followed by SEPIC converter is commissioned for regulation of DC voltage along with enhancements of PF along with power quality across AC mains. Switch is functioned at particular switching frequency given effectual control with condensed component rating. MOSFET of appropriate rating has employed in converter for higher frequency operation however IGBTs are engaged at VSI for lower frequency function.

2020-69

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A REVIEW-INDUSTRIAL PROTECTIONS OF TRANSFORMER USING ARDUINO WITH GSM AND IOT SYSTEM

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ABSTRACT

Transformers are the foremost important devise within the facility. Therefore, the continual operation is incredibly necessary. Permanently protection should create for transformers. Differential protection technique we are able to use to guard the transformers. During this project, we have got used relay driver mechanism with GSM 800 module. The GSM and IOT are synchronized with Arduino microcontroller. Arduino UNO microcontroller is extremely high speed and low cost device with more accuracy.

A recent huge interest in Machine to Machine communication is thought because the Internet of Things (IOT), to permit the chance for autonomous system to use Internet for data exchanging. This work presents design fault detection of transformer and record key operation indictors of a dispersion transformer like load current, voltage.

KEYWORDS: Transformer, Toroidal Current Transformer, Arduino Uno, LCD, Relay IOT System, GSM 800 module.

I. INTRODUCTION

A monitoring system which monitor the operation state. the event of the current research work on the transformer monitoring has been presented by Alessandro Ferrero for protection of transformer monitoring system required. If the rise in temperature rises beyond the desirable max. temperature, the monitoring system will protect the distribution transformer by problems. In power system transformer is most vital link. Transformer is static device which has step- and step-down types, which transforms electricity from one circuit to different circuit. It's totally enclosed to shield from atmospheric dirt & dust. In transformer chances of occurring faults are very rare but these rare faults are very dangerous so we've got disconnected the transformer from system. The chance of occurrence of faults hence automatic protection is required. Internal faults are those within the protected portion of the transformer. These faults are often between phase to phase and it should occur in phase to ground. Faults occurs in transformer due temperature rise .it provides minor damage. Faults include with none connection in conducting path, sparking, and small arcing. With the assistance of IOT we are able to gate quick information and with the assistance of relay tripping we are able to improve transformer life.

Current Transformer (CT):

The C.T. is act as current sensor which place series with the load. Basic function of current transformer is to step down and calculate the current. C.T load of 330 Ω is connected on secondary winding of C.T. Then AC signal rectification done DC analog signal is transferred to the analog pin of Arduino Board Platforms analog pin.Toroidal Current Transformers (CT's) we are often using for monitoring current Toroidal Current Transformer – These don't contain a primary . Instead, the load that carries this flowing within the network is threaded through a window or hole within the toroidal transformer. Some current transformers have a "split core" which allows it to be opened, installed, and closed, without disconnecting the circuit to which they are

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ResNet based Lung Nodules Detection from Computed Tomography Images

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Abstract: ***Lung cancer have become one of the major threat to human kind over few years. The survival rate of the patient depends mainly on the stage of cancer when it was detected with early stage detection increases survival rate significantly. Many computer aided detection systems were proposed to assist radiologist in detecting lung nodules efficiently. After the success of deep learning neural network in object classification problem, researchers started adopting it for different tasks in medical image processing and hence in lung nodule detection systems. Hence, a lung nodule detection method using ResNet in CT images is proposed. The proposed method consists of two stages, the pre-processing stage and nodule detection stage. The proposed technique uses morphological operations for segmentation of lungs and convolutional neural network for detection of lung nodules. This method is developed with an aim to provide second opinion to radiologists and reduce their workload. LIDC (Lung Image Database Consortium) dataset which contains 1010 CT patients images of chest regions are taken for experimentation. The model was able to achieve top-5 accuracy of 95.24% on test dataset.***

Keywords: Lung Nodules, Convolutional Neural Network, Deep Learning, Nodule detection.

I. INTRODUCTION

An estimated 18 million cancer cases were registered in 2018 throughout the world out of which 9.6 million patients deaths was estimated as noted in World Health Organization's (WHO) and Lancet reinforced Report [1]. Lung and breast cancers top the list of all types of cancers diagnosed in 2018 with 12.3% of the total number of patients in each category. Among them, Lung cancer is estimated to claim one in every five deaths due to cancers and tops the mortalities list.

In general, the abnormal development of cells inside the lung region is called as pulmonary nodule or lung nodules. These nodules are detected by radiologist with the help of non - invasive imaging processes like computed tomography (CT) scans, where nodules result in a radiographic opacity.

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To assist radiologist with this task many computer – aided - diagnosis (CAD) systems that automatically detects lung nodules are developed.

The objective of this research work is to detect potential lung nodule using Deep convolutional neural network. The aim is to develop 2D convolutional neural network based on ResNet for lung nodules detection. The CAD system will be able to detect the presence of a nodule (including tiny nodule < 3 mm in diameter for early stage cancers) from a 512 x 512 pixels 2D lung CT scan. The slice of CT scan along with lung nodule is shown in figure 1. The CAD system developed will consists of two stages, lung scan preprocessing and Nodule candidate's detection.

II. LITERATURE SURVEY

Finding exact location of possible nodules in the lungs is called nodule detection. A location is a set or range of points in (x,y) coordinates in a 2D plane of a slice in which the nodules lies. Our aim is to find these locations. After the success of deep convolutional neural networks (DCNN) AlexNet [12] in image classification challenge which was developed by Alex Krizhevsky, researchers started to use DCNNs for various different computer vision tasks. These DCNNs are in general referred as "deep learning". Deep learning architecture also found great success in medical imaging applications and so many CAD systems for detecting lung nodules also were developed using deep learning architecture. In [2] a framework with 2D convolutional neural network (CNN) for automated pulmonary nodule detection was proposed. A Faster R- CNN was used with two region proposal networks followed by a deconvolutional layer to detect nodule candidates. False positive reduction is done by three models along with boosting architecture based on 2D CNN. The results are fused to vote out final classification result. A fast and fully-automated end-to-end system was proposed in [4] that can efficiently segment lung nodule contours from raw thoracic CT scans. This system had four modules which are candidate nodule detection with Faster regional-CNN (R-CNN), candidate merging module, false positive (FP) reduction module with CNN, and nodule segmentation module with customized fully convolutional neural network (FCN). The nodule detection accuracy achieved with this method was 91.4% and 94.6% with an average of 1 and 4 false positives (FPs) per scan. A 2D DCNN is used in [6] was able to detect 60.1% of all the nodules with average of 2.1 false positive per scan. In Hamidian et al. [5] a 3D DCNN is implemented with sensitivity of 80% and 22.4 false positives per scan.

2020-71

International Journal of Advanced Science and Technology

Feature Extraction Methods for Handwritten Character Recognition

Shrinivas R. Zanwar, Nagesh S. Vaidya, Devendra L. Bhuyar, Sandipann P. Narote

Abstract

Optical character recognition is the newest technology in the last decade in the area of image processing, pattern recognition and machine learning. There is very much scope to develop a machine to recognize handwritten English character efficiently, because of writing styles of everyone different in size, measurement, slats etc. The problem in recognition is focused with feature extraction methods and classifiers. This paper addressed for extraction of features with help of blind source separation process as independent component analysis. The Particle swarm optimization (PSO) and firefly algorithms (FFA) are applied separately for instant selection process. Due to distributed neighborhood pixel of an image, the PSO gives better recognition rates, but take large time for execution, whereas FFA has less recognition rate but it used high speed of selection. It is part of the Content Based Image Retrieval (CBIR) program that solves the delinquent image search in huge data collection. Particle swarm optimization and firefly algorithms are impl0.emented for feature vector selection. It is observed that the PSO gives better recognition levels due to scattered neighborhood pixels of an image.

2020-72

A Novel Method for Real Time Bio-Medical Signal Transmission & Monitoring for Medical Healthcare

Bhuyar D L, Dr.Shinde U.B, Dr.Kureshi A.K

Abstract

India has need to access a specialist care and advice in rural and remote areas. Wireless communication System aims to fill up this gap. It is no longer required for the doctor to be physically present at the hospital center, as is the case with most of the existing telemedicine systems. One of the most widely used methods to test the human health condition is to measure his/her ECG. We will design and built a ECG monitoring system that can measure user's ECG using wireless communication. Tele-medicine is the use for medical information Transmission from one place to another via E-media. Tele-medicine is a new technology which Addition of telecommunication and information Science for medical Monitoring purposes. It gives a new Path when the distance between the doctor & patient is significantly too far. In rural area in India this type of research system will work efficiently

Keywords: ECG, Heart Rate, Method of Monitoring, Need & Significance, Proposed Architecture

73
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OVERVIEW OF IOT BASED AGRICULTURE MONITORING SYSTEM

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ABSTRACT
The Indian agriculture sector is contributing 18% to the GDP. About 50% of Indian workforce has got an employment through agriculture and allied sector. Indian economy is dependent on agriculture sector since many decades and the contribution of the sector always important for the development of India. In ancient days the conventional farming was the only method implemented in India. With development of India in last few decades and availability of the technology at affordable cost has opened up the doors of opportunities for Indian agriculture sector. Internet of things (IoT) technology being simple and with availability of the open source hardware and software is contributing for the smart management of the farming activities. This paper presents the overview of agriculture monitoring by means IoT based systems.

KEYWORDS: IoT, Sensors, Wi-Fi module, ZCD, Optical Isolator, TSOP Receiver, IR Remote, etc.

INTRODUCTION
India, being a country of farmers mainly focuses on the improvements in the cultivation and the methods of farming. Indian agriculture sector has growth of 2% for the year 2019-20 as compared to 5.1% of 2018-19. In the recent budget Rs. 2.83 Lac Cr is allocated to the agriculture and the allied fields. The Indian agriculture sector despite of the several uncertainties and the environmental challenges is improving in terms of the farming methodologies implemented. The country is mainly depended on the agriculture and allied sector for employment.

The uncertain rainfall and floods are the reasons behind less production of the various agriculture products on the other hand the sector is also affected due to less water availability if many regions of country. Despite of these challenges there are many examples in the country where the farmers have broken the records of per hector production every year.

Indian farmers are becoming smart, although the percentage is less but now a days farmer have started implementing the smart systems for better results. The technology is developed to control the utilisation of resources and improving the per hector cultivation.

Farmers are facing the situation where the effects of atmospheric conditions are severe on the crop. On the other hand the improper planning of the type of crop to be cultivated may lead to the low returns from market. Many of the farmers are illiterate, and Indian Government is guiding them in order to understand the farming operations for improvement in the cultivation of crop. Government now a days also providing the soil card for the farmers, it helps in understanding the situation of soil and the type of crop for which the soil is most suitable.

The Smart systems for monitoring the crop and soil help the farmer to enhance the cultivation. The IoT based system can be implemented to monitor the crop and soil in order to control the use of resources depending upon the requirement.

Design of an IOT Based Energy Monitoring System and Home Automation

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Abstract: In the most of the developing countries, the effort of collecting electricity utility meter reading and detecting illegal usage of electricity is a very difficult and time consuming task which requires a lot of human resources. Energy monitoring system using Internet of Things (IOT) present an efficient and cost-effective way to transfer the information of energy consumed by the consumer wirelessly. Aim of this study is to measure electricity consumption in the household and generate its bill automatically using IOT and telemetric communication techniques. In this paper, the use of GSM module provides a feature of notification through SMS. One can easily access the meter working through web page that we designed. Current reading with cost can be seen on web page. Automatic ON & OFF of meter is possible. In addition to this in this project home automation will also be done using IOT technology.

K ords – IoT (Internet of Things), GSM, Energy Monitoring system, Home Automation

1. INTRODUCTION

1.1. INTERNET OF THINGS (IOT)

The Internet of Things (IoT) is becoming more widely used technology nowadays. It is often used to refer to the growing network for connected devices, or "things", that are capable of exchange data over on a low bandwidth network. IoT is being used in various areas, such as automotive industry, logistics, healthcare, smart grid and smart cities.

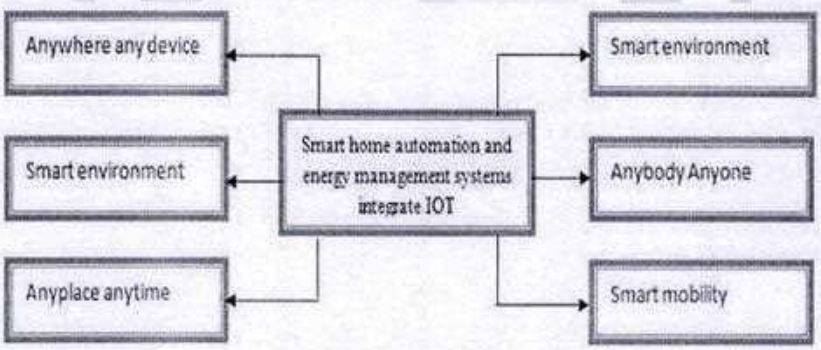

figure 1.1.1. relation with various phases

The figure (1.1.1) shows the various advantages of the internet of things like the different methods for connecting our devices and appliance to the internet from any place anywhere in this world and integrating this connectivity with our home and the devices connected. IOT technology is the connection of various networks in embedded devices used in the everyday life integrated into the Internet. It aims to automate the operation of different domains such as home appliances, health care systems, security and surveillance systems, industrial systems, transportation systems, military systems, electrical systems, and many others. In order to achieve a fully automated process, devices in the different domains must be equipped with micro-controllers, transceivers, and protocols to facilitate and standardize their communication with each other and with external entities.

2. LITERATURE REVIEW:

Nowadays, electricity consumption has become one of the basic needs in every sector. Thus to improve the efficiency of all electrical appliances and to reduce wastage of electricity is one of the challenges faced by the world. The objective is to develop load monitoring and controlling system for electric appliances to reduce energy consumption and energy usage in an efficient way.

IOT based energy monitoring system is designed based on three major objectives. They are :-

1. To provide automated load energy reading over an immediate basis.
2. To use the electricity in an optimized manner.
3. Reduce the power wastage

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2020-75

IoT Based Garbage Bin Monitoring System

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Abstract— **India is a second highest population country in the world, and it is a developing nation. It is our responsibility to keep our surrounding clean. In our society, we can see the overloaded garbage bins, which makes unhealthy environment. It leads to spread serious diseases in people living in that area. To solve this problem we are introducing an IoT Based Garbage Bin Monitoring System. The corporation workers can easily handle this system, because it is an IoT based system. This paper gives an idea about a Garbage Bin Monitoring System, which is IoT Based. In this given system, we use sensors inside a garbage bin to detect the level of garbage inside the bin. It also measures the humidity, temperature, and detects the presence of hazardous gases in the bins. The system is useful in every area such as rural, urban, corporate sector, hospitals, and industrial areas.**

Keywords— **NodeMCU, Blynk App, Garbage bin, Gas Sensor, Humidity Sensor, IoT, Ultrasonic Sensor, WiFi Module.**

I. Introduction

Nowadays many systems are in use to maintain cleanliness in society. People are also contributing in "SWACCH BHARAT ABHIYAAN". This new system is to notify the corporation workers to empty the garbage bins on real time basis.

This system is an IoT Based Garbage Bin Monitoring System to help maintain cleanliness in the country. As we see, in our surrounding, garbage bins are overloaded leaded to an unhygienic atmosphere, it leaves foul smell and spread serious diseases.

To overcome this situation we introduce a Garbage Bin Monitoring System, which is IoT Based. In this given system, we use sensors inside a garbage bin to detect the level of garbage inside the bin. It also measures the humidity, temperature, and detects the presence of hazardous gases in the bins.

These sensors are interfaced with NodeMCU. Sensors like Ultrasonic sensor, Humidity sensor, Gas sensor are used to observe the real time status of garbage bin on Blynk App with the help of the Wi-Fi module.

The given system detects hazardous gases, measures temperature, humidity and level of garbage bins. Therefore, helping the corporation workers manage the garbage bin system effectively.

II. Problem Identification

We can see the problem of garbage monitoring on a daily basis in our surrounding area. We've broken down the problems into three categories:

1. Overflow of garbage: Due to lack of knowledge about how frequently a garbage bin in a particular area gets filled, overflow of garbage easily takes place. The overflow of garbage is unpleasant as well as unhealthy.
2. Inflammable material in garbage bin: When people carelessly dispose used batteries and cigarette butts in the garbage bin, chances of fire increases. Fire is hazardous, and the smoke adds to the pollution.
3. Diseases: During humid climate, the garbage decomposes at a faster rate and produces a foul smell. This foul smell is unpleasant for the surrounding. This garbage becomes a breeding ground for the insects which can cause malaria or dengue fever in the area.

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OVERVIEW OF IOT BASED WATER MANAGEMENT SYSTEM

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ABSTRACT:

18% of world's population lives in India. On the other hand the usable water availability is less as compared with the population in India. Around 4 % of world's usable water is present in India. The water is basic need of human being. India is facing issues with uneven distribution of rainfall and on the other hand the need of water for drinking and other day to day activities is unavoidable. The available water is not used in proper amount and hence many times the water is wasted. It is also observed that, the drainage water is mixing with the sources of clean water and contaminating it. Due to improper drainage system the present clean water is also wasted. The utilisation pattern of water is varying with the region, type of crops in the farm, and the industrial utilisation. It is necessary to control the wastage of water and it is necessary to develop the disciplined water utilisation habits amongst the people. Authors have presented the IoT based water management system in this paper.

KEYWORDS: Water management, Internet of things, sensors, motors, etc.

INTRODUCTION:

The average annual rainfall in Maharashtra is around 6000 mm. The rainfall pattern is not distributed equally over all regions in India. The rain water storage facility is not proper so that the water can be utilised for drinking purpose. On the other hand the use of water is also improper. Many people, organisation and Industries are working for developing the awareness about saving the water. Indian government is also spreading awareness with Save the Water initiative. Still the efforts made are need to be improved in order to fulfil the need of water for growing population of India.

IoT in water management is opening the opportunities for proper utilisation of water resources. The tap water available needs to be checked for the quality. Maintaining the quality of water is a challenge, on the other hand preserving the water and minimizing the use of water is another area need to be addressed.

This paper presents an IOT device which help to manage and plan the uses of water the system can easily monitor and installed for long purpose the current scenario of water management system is the MNC supplies water to commercial homes, apartments Industries after 3 to 4 days so people try to store water for daily needs for next few days but in that case we don't know how much water consume or usage by Homes or

Design of an IOT Based Energy Monitoring System and Home Automation

78

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Abstract: In the most of the developing countries, the effort of collecting electricity utility meter reading and detecting illegal usage of electricity is a very difficult and time consuming task which requires a lot of human resources. Energy monitoring system using Internet of Things (IOT) present an efficient and cost-effective way to transfer the information of energy consumed by the consumer wirelessly. Aim of this study is to measure electricity consumption in the household and generate its bill automatically using IOT and telemetric communication techniques. In this paper, the use of GSM module provides a feature of notification through SMS. One can easily access the meter working through web page that we designed. Current reading with cost can be seen on web page. Automatic ON & OFF of meter is possible. In addition to this in this project home automation will also be done using IOT technology.

Keywords – IoT (Internet of Things), GSM, Energy Monitoring system, Home Automation

1. INTRODUCTION

1.1. INTERNET OF THINGS (IOT)

The Internet of Things (IoT) is becoming more widely used technology nowadays. It is often used to refer to the growing network for connected devices, or "things", that are capable of exchange data over on a low bandwidth network. IoT is being used in various areas, such as automotive industry, logistics, healthcare, smart grid and smart cities.

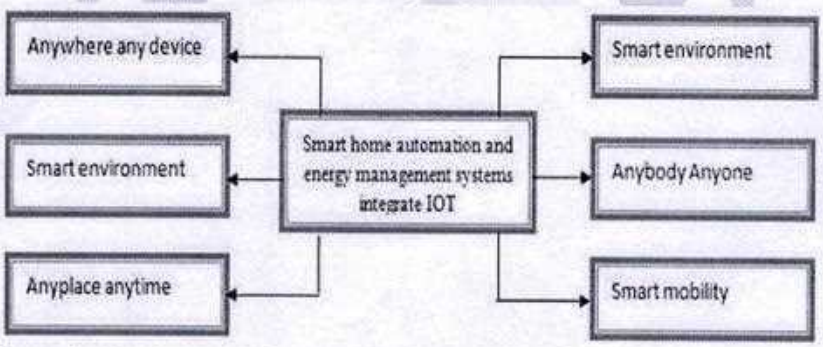

figure 1.1.1. relation with various phases

The figure (1.1.1) shows the various advantages of the internet of things like the different methods for connecting our devices and appliance to the internet from any place anywhere in this world and integrating this connectivity with our home and the devices connected. IOT technology is the connection of various networks in embedded devices used in the everyday life integrated into the Internet. It aims to automate the operation of different domains such as home appliances, health care systems, security and surveillance systems, industrial systems, transportation systems, military systems, electrical systems, and many others. In order to achieve a fully automated process, devices in the different domains must be equipped with micro-controllers, transceivers, and protocols to facilitate and standardize their communication with each other and with external entities.

2. LITERATURE REVIEW:

Nowadays, electricity consumption has become one of the basic needs in every sector. Thus to improve the efficiency of all electrical appliances and to reduce wastage of electricity is one of the challenges faced by the world. The objective is to develop load monitoring and controlling system for electric appliances to reduce energy consumption and energy usage in an efficient way.

IOT based energy monitoring system is designed based on three major objectives. They are :-

1. To provide automated load energy reading over an immediate basis.
2. To use the electricity in an optimized manner.
3. Reduce the power wastage.

In the present billing system the distribution companies are unable to keep track of the changing maximum demand of consumers. The consumer is facing problems like receiving due bills for bills that have already been paid as well as poor reliability of electricity supply and quality even if bills are paid regularly. The remedy for all these problems is to keep track of the consumers load on timely

Review on Design of IOT Based Energy Monitoring System and Home Automation

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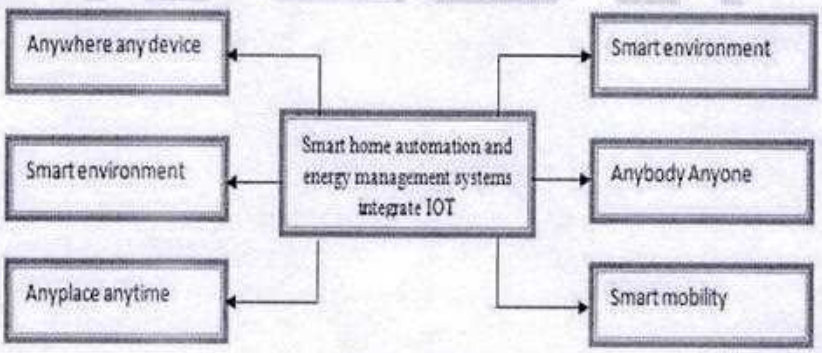

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A REVIEW-INDUSTRIAL PROTECTIONS OF TRANSFORMER USING ARDUINO WITH GSM AND IOT SYSTEM

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ABSTRACT

Transformers are the foremost important devise within the facility. Therefore, the continual operation is incredibly necessary. Permanently protection should create for transformers. Differential protection technique we are able to use to guard the transformers. During this project, we have got used relay driver mechanism with GSM 800 module. The GSM and IOT are synchronized with Arduino microcontroller. Arduino UNO microcontroller is extremely high speed and low cost device with more accuracy.

A recent huge interest in Machine to Machine communication is thought because the Internet of Things (IOT), to permit the chance for autonomous system to use Internet for data exchanging. This work presents design fault detection of transformer and record key operation indictors of a dispersion transformer like load current, voltage.

KEYWORDS: Transformer, Toroidal Current Transformer, Arduino Uno, LCD, Relay IOT System, GSM 800 module.

I. INTRODUCTION

A monitoring system which monitor the operation state. the event of the current research work on the transformer monitoring has been presented by Alessandro Ferrero for protection of transformer monitoring system required. If the rise in temperature rises beyond the desirable max. temperature, the monitoring system will protect the distribution transformer by problems. In power system transformer is most vital link. Transformer is static device which has step- and step-down types, which transforms electricity from one circuit to different circuit. It's totally enclosed to shield from atmospheric dirt & dust. In transformer chances of occurring faults are very rare but these rare faults are very dangerous so we've got disconnected the transformer from system. The chance of occurrence of faults hence automatic protection is required. Internal faults are those within the protected portion of the transformer. These faults are often between phase to phase and it should occur in phase to ground. Faults occurs in transformer due temperature rise .it provides minor damage. Faults include with none connection in conducting path, sparking, and small arcing. With the assistance of IOT we are able to gate quick information and with the assistance of relay tripping we are able to improve transformer life.

Current Transformer (CT):

The C.T. is act as current sensor which place series with the load. Basic function of current transformer is to step down and calculate the current. C.T load of 330 Ω is connected on secondary winding of C.T. Then AC signal rectification done DC analog signal is transferred to the analog pin of Arduino Board Platforms analog pin.Toroidal Current Transformers (CT's) we are often using for monitoring current Toroidal Current Transformer – These don't contain a primary . Instead, the load that carries this flowing within the network is threaded through a window or hole within the toroidal transformer. Some current transformers have a "split core" which allows it to be opened, installed, and closed, without disconnecting the circuit to which they are attached CT are generally wont to measure the high value of current. It's necessary for defence and control the

2020-21

A Review on Smart Cane for Blind People

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Abstract

Today technology is growing to a greater extent, however there is no cost effective device for visually impaired people. Any individual with limited or no sight is at a disadvantage in today's society. The loss of vision can be extremely detrimental to one's safety and mobility. Throughout the world, there are approximately 39 million individuals who are totally blind plus an additional 284 million who are visually impaired[1]. The Eyes for the Blind team aims to assist these individuals by developing a modified blind cane to help them commute with a greater sense of security. By developing such a product, our team plans to accomplish four objectives: Increase the safety of visually impaired or blind individuals; Provide individuals with limited or no vision a greater sense of security; Promote ility of the user; Develop a device that is reliable, affordable and simple to use[1].

Introduction

There are about 253 million people live with vision impairment, 36 million are blind and 217 million have moderate to severe vision impairment. 81% of people who are blind are aged 50 years and above (WHO estimation). The number of visually impaired people are expected to grow in the future due to various reasons. As a result, there is a need for a cost effective system that can be used by blind people in order to walk easily and comfortably. It is necessary that a smart solution is proposed for the blind people so that they can use this in their daily life.Recently there has been a lot of electronic travel aids designed to help the blind people to navigate safely and independently. To identify the position and location of the blind person, those solutions rely on GPS technology. Such system is suitable to be used in outdoors to trace the exact location of the blind people whenever there is any emergency occurs. This location is traced in the forms of coordinates. On the other hand, to enhance the means that assist blind persons to navigate quickly and safelyin an unfamiliar environment, various projects were introduced using different technologies like Radio-frequency identification(RFID),GPS, Ultrasonic, Laser and GSM [2,3,4].

Literature survey

A deal of research has been performed to improve autonomy of visually impaired people and specially their ability to explore the environment. Wearable systems have been developed based on new technologies: laser, sonar [8] or stereo camera[10] vision for environment sensing and using audio or tactile stimuli for user feedback[8]. Some early examples about those systems can be illustrated by the C-5 Laser Cane[14] based on optical triangulation to detect obstacles up to a range of 3.5 m ahead[4]. It requires environment scanning and provides information on one nearest obstacle at a time by means of acoustic feedback. The laser system measures the distance to the obstacle and a sound tone proportional to this distance is played. This system developed in the 70's is the precursor of a large series of devices trying to remove the cane of the blind user. More recent development using stereoscopic cameras coupled with a laser pointer and audio system have been developed at the University of Verona. One of the main interests here consists in the translation of the 3D visual information into relevant stereoscopic audio stimuli. The sound generated on ear phones simulates a distant noise source according to the position of the obstacle[3].

Development of an Intelligent Guide-Stick for the Blind 2001 IEEESung Jae Kang1, Young

Feature Extraction In Retinal Images Using Automated Methods

P. R. Wankhede, K. B. Khanchandani

Abstract— Accurate information of retinal features such as blood vessels, optic disc, and macula helps ophthalmologists for early detection of ocular diseases like diabetic retinopathy and diabetic maculopathy. In this paper, we presented computer aided automated methods for feature extraction in retinal images. Proposed automated methods consist of pre-processing, blood vessels extraction, optic disc segmentation and macula region segmentation. Initially, pre-processing is performed using shade correction and top-hat transformation for enhancement of dark anatomical structures such as blood vessels and macula/fovea region. A novel graph cut method is used to extract blood vessels. Then template based matching and morphological operations are used for detection and extraction of optic disc. Finally, post processing is used for detection of macula in retinal images. Publically available datasets are used for evaluation of proposed automated methods. Experimental results are compared with state-of-art results. Performance analysis of automated methods show that accurate extraction is done by proposed methods. The proposed automated methods will help in finding lesion features and early diagnosis of retinal diseases.

Index Terms— Computer aided diagnosis, blood vessels segmentation, optic disc detection, diabetic retinopathy, graph cut analysis, template matching, Feature extraction.

1 Introduction

Diabetic retinopathy (DR) is a frequent microvascular complication of diabetes mellitus. DR is rare in children in their age years. In study 0**Error! Reference source not found.** observed that DR may develop in almost 85% of patients with diabetes for more than 25 years whereas Diabetic maculopathy is present in 15% of patients with diabetes for more than 15 years. When diabetes detected in patients one third of them are diagnosed with mild retinopathy and diabetic maculopathy can occur in nearly 25% of patients. DR can develop in 80% patients with type II diabetes after 15 to 20 years [2]. Screening is an effective way for early detection of ocular diseases. Automated ophthalmic screening programs can save national health care budget by few hundred millions of dollar. In US, automated screening programs can save 400 million USD per year [3]. In developing countries like India, this huge amount of budget savings will have significant impact on national economy and development of country [4]. Digital screening of DR results in generation of large number of retinal images to be manually analyzed by an ophthalmologist. Sometime these images are unevenly or non-uniformly illuminated. This often leads to observer fatigue and increase in the time taken for diagnosis. In automatic eye screening programs, the localization and segmentation of anatomical landmarks (Fig.1) such as blood vessels, OD, fovea and macula in retinal images help to detect the presence of diseases [5]. Blood vessels usually have small curvatures and look like anti-parallel pairs. Since the vessels have lower reflectance compared to the other retinal surfaces, they appear darker relative to the background [6]. The blood vessels information can be used in grading severity of disease or as a part of the process of automated diagnosis of diseases like age related macular degeneration and glaucoma [7] and diabetic retinopathy [8]. Blood vessels act as a landmark for localizing other features of retinal images as optic disc [9], [10][11] and the fovea [12]. The blood vessels also used for benchmark for feature point selection for retinal image registration.

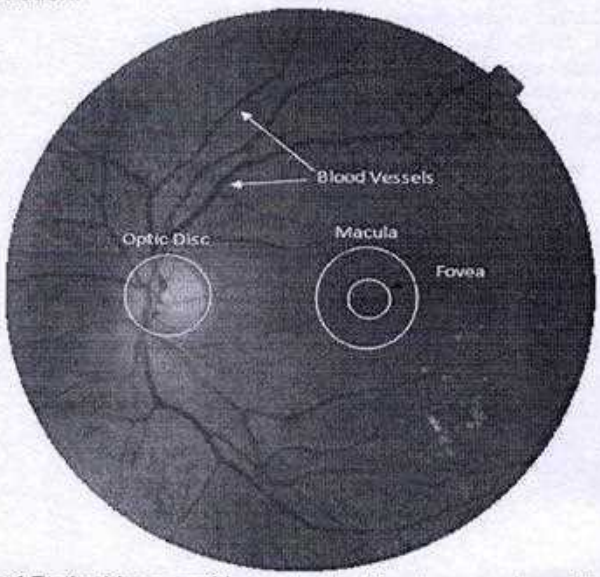

Fig 1 Retinal image with anatomical features such as blood vessels, optic disc, macula and fovea

The OD in a healthy retinal image usually appears as a bright yellowish and elliptical object marked by dark surface vessels. In the presence of diseases in OD, neovascularization occurs from DR or cup size change due to glaucoma. Automated detection of optic disc (OD) is important for early detection of glaucoma. Disc size, neuro-retinal rim and cup area features are used for the assessment of glaucoma [13]. OD consist of cup and vessel origin (VO). The VO position is an important reference point for detecting the macula, and thereby grading macular pathologies such as diabetic maculopathy, macular edema and macular ischemia [14]. Also, automated OD detection plays an important role in developing automated "diagnosis expert systems" for diabetic retinopathy (DR), as its segmentation is a key component to correctly identify other bright features in the images such as the bright lesions (hard exudates or cotton-wool spots). Besides the position of the OD, the VO seed point is another important feature of a fundus image that is needed for vessel tracking methods to

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2020 – 83

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Automated Microaneurysms Detection from Retinal Fundus Images using Pixel Intensity Rank Transform

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Abstract

Computer aided design is in demand for diabetic retinopathy screening systems. Microaneurysms are the first observations as sign of Non-prolific diabetic retinopathy. Number of microaneurysms in retinal image helps to find severity of diabetic retinopathy. This paper presents a method to detect microaneurysms in retinal fundus images. Non illuminated and varying field of view images preprocess initially, so that non lesion and lesion features can be clearly visible for proper detection. Then negative pixel intensity rank transform (PIRT) is used to find smooth regions and edges in retinal images. In next step, optic disc and blood vessels are subtracted from rank transform image. Finally true microneurysms candidates are selected using histogram thresholding. The proposed method is evaluated on publicly available datasets DIARETDB1 and E-optha MA. The performance parameters sensitivity, specificity, and accuracy achieved are 98.79%, 83.33%, and 97.75% respectively for DIARETDB1 database and 94.59%, 96.56% and 95.80% respectively for E-optha MA database. The results show that proposed method is able to detect microaneurysms efficiently in retinal images for diagnosis of diabetic retinopathy.

Keywords

Computer Aided Diagnosis; Image Enhancement; Image Segmentation; Microaneurysm; Rank Transform; Retinal Image

Introduction

Diabetic retinopathy (DR) is one of the ocular diseases with highest number of patients. As per the report [1] of Indian Optometry Federation (IOF) published in the year 2010, an estimated 500 million people of India's population of 1.25 billion require vision correction through spectacles, contact lenses or refractive surgery to be able to perform and functioning normal in their routine life. More than 26 million people are blind or vision impaired due to different ocular diseases. It is painful to note that 133 million people, including 11 million children, are blind or vision impaired simply due to lack of an eye examination facilities. The main reason is inadequate number of professionally trained optometrists in India. Only less than 50% of current requirement of optometrists are available to provide necessary vision care to all the people of the country.

Screening is an effective way for early detection of ocular diseases. Fundus cameras are used to acquire retinal image for detection and assessment of ocular diseases. These retinal images contain normal (optic disc, blood vessels and fovea) and pathological features (microaneurysms and exudates). Microaneurysms are the first sign of presence of proliferative diabetic retinopathy (NPDR). Microaneurysms count can decide the severity of DR. Figure 1 show the microaneurysm patches in retinal image.

2020_84

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The Impact and Importance of Statistics in Data Science

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ABSTRACT
With the massive amount of data pouring in, the data science has become one of the most challenging yet promising field to deal with such tremendous quantity of data and bring out the quality information out for strategic business decisions. The way to data science begins with collection of huge amount of data which should be managed enough to start processing on it to analyze it. The statistics plays a vital role from molding data into the required format to final presentation of results to make it easy for the operations to be carried out on data almost in every step of data science.

In this paper, we give a manifestation of how important the statistics is to provide the necessary tools and methods to handle data to provide deep insights into the data and how useful statistics is for quantification and analysis of data. We will discuss various tools and techniques of statistics used in data science beginning from measures of dispersion to advanced tools for visualization of results to be able to understand the role and importance of statistical approaches in data processing and analysis.

General Terms
Data Science, Statistics, Algorithms, Hypotheses Testing

Keywords
Inferential Analysis, Mean, Median, Mode, Null hypotheses, p-value

1. INTRODUCTION
The data science is an advanced branch of science and engineering which combines the areas of mathematics, statistics, computer science, informatics, management and research. In 1996, for the first time, the term Data Science was included in the title of a statistical conference (International Federation of Classification Societies (IFCS) "Data Science, classification, and related methods")[2]. The data science term was coined by statisticians but the branches of computer science and informatics are given more importance in this world of increasing data. In 1977, the International Association for Statistical Computing (IASC) was established whose objective was to combine traditional statistical methodology, modern computer technology, and the knowledge of domain experts in order to convert data into information and knowledge. [4] In 1989, Gregory Piatetsky-Shapiro organized and chaired the first Knowledge Discovery in Databases (KDD) workshop.

In 1995, it became the annual ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD).[2] Statistics provides the tools and techniques to not only provide mathematical results but also provides the deeper insights into the unstructured complex data. As Josh Wills once said, "Data Scientist is a person who is better at statistics than any programmer and better at programming than any statistician."[8] As the need of statistics was realized in dealing with data and uncertainty, statistical learning was evolved. We understand the crucial role of statistics in the basic to advanced concepts of data science. This paper aims at stating the importance of statistics in data science.

2. BASIC STATISTICS AND TERMINOLOGY
Statistics is used to deal with collecting, pre-processing analyzing, interpreting and visualizing data. Any field of study which includes data will involve statistics in use to some or more extent. The data science is no exception. It deals with an enormous amount of data so statistics plays a key role in giving a proper form to the data before being fed to the algorithms before further analysis. It also helps in getting detailed insight into the data.

2.1 Terminology in Statistics
Population is the total set of data of a specified type or group under consideration.

A **Sample** is a subset of the Population taken to reduce the data quantity keeping the quality.

A **Variable** is any feature, characteristics, number, or quantity/ quality value that can be measured or counted.

A **statistical Parameter or population parameter** is a characteristic of the population or it is a quantity that is used to index a class of probability distributions. For example, the mean, median, etc of a population.

2.2 Types of Data
The data can be classified into two types:

1. Qualitative or Categorical Data

2. Quantitative or Numerical Data

In categorical data, there are two types. The first is nominal data which classifies data into distinct unordered classes or categories such as gender which can take two values i.e. M for male and F for female.[8]

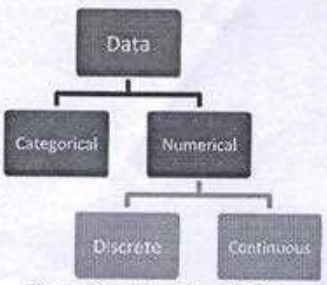

Fig. 1 Classification of Data

Library

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2020 – 85

RECENT TRENDS IN LIBRARY AND INFORMATION SCIENCE RESEARCH: WITH SPECIAL REFERENCE TO INDIA

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ABSTRACT

Efforts were made to find out the research trends in Library and Information Science in India in the last decade. Publication trend in the top five Indian LIS journals is analyzed with the help of 2414 articles published in the last decade. The 1288 LIS Ph.D thesis were analyzed according to their area of research. The results of the study show that the subjects Information Communication Technology, Information Science and bibliometrics/scientometrics/webometrics attracted more authors for writing the research papers. Where as user study, e-Resources and Information Communication Technology were the top ranking research areas chosen by the research scholars for their doctoral research. The subjects classification and cataloguing were the most ignored research areas.

KEYWORDS: Library, Information, Communication & Research Papers

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Original Article

INTRODUCTION

The foundation of LIS education in India goes back to 1911. Maharaja Sayajirao Gakewad of the Baroda State invited W. A. Borden to India for imparting professional LIS education and to develop the public library system of the state. Currently, the LIS education is imparted at various levels such as diploma, certificate, degree and research by Indian Universities and institutes.

Research is an important activity for the overall development of a particular discipline/subject. Dr. S. R. Rangnathan was the pioneer of the doctoral research in LIS in India. The foundation of LIS doctoral research in India goes back to 1952 when Delhi University started the first Ph.D course in LIS. Mr. D. B. Krishna Rao was the first registered candidate for Ph.D at Delhi University under the guidance of Dr.S . R. Rangnathan. His research topic was "Facet analysis and depth classification of Agriculture" and he awarded the Ph.D degree in 1957. The second Ph.D degree was awarded by the Panjab University, Chandigarh in 1977.

SELECTED REVIEW OF LITERATURE:

Some relevant studies which give the insight of the present study are mentioned here. **Khanchandani, Vanita (2019)** & **Khumbar, Debbarma & K. Praveen (2019)** presented the scenario of LIS education in India with types of courses offered by the LIS schools i.e. diploma, degree and research programs. The authors also discussed opportunities and challenges in LIS education. **Singh, Joginder (2018)** analyzed the scenario of the current LIS research trends in the North India. He concluded that the preferred topics of offered by the North India LIS schools includes users behavior, Web based resources, Information literacy, Digital libraries, Library Services, Cost effectiveness and Cost Benefit Analysis, Electronic resources, Collection development, Bibliometric study,

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2020 -86

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RE-BUILDING UNIVERSITY LIBRARY SERVICES IN COVID 19 CRISIS

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ABSTRACT

The critical situation of lockdown greatly affected the teaching learning process and the academic calendar of the higher education institutions. Library is considered as the important center in the learning process of higher education institutions. The paper attempts to suggest easy ways and means for the university libraries to deliver the best library services in the crucial period of Covid 19. The paper highlighted on the remote access of e-Resources, development of institutional repository, development of the library guides, development of separate library web page and the organization of short term online programs for the library users. With the help of Information Communication Technology, it is possible for the every university library to deliver the best library services to its users in the crucial situation of lockdown. The libraries should accept the challenge of lockdown as an opportunity to re build its services in more effective way.

KEYWORDS: Library Services, Universities, Information Communication & Teaching Learning Process

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Original Article

INTRODUCTION

The critical situation of lockdown has its great impact on the overall education system and especially on teaching learning process. The Higher Education system nowadays is suffering to a great extent due to Covid 19. However, the teachers are trying their best to cope up with this situation by organizing online teaching sessions. Library as a leaning resource center is expected to play a vital role in online teaching learning process and helps the students and teachers. The library should prepare itself for the best delivery of Web Based Library services. With the help of modern ICT tools and technologies, library services can be made available on 24 X 7 basis to its stake holders without any geographical restrictions. The traditional library services can be modified with the help of Information Technology and can easily be delivered to its end users in this crucial situation of Covid 19.

The libraries should accept the challenge of lockdown in a positive way to enhance the library services. However, this challenge should be accepted as an opportunity to provide the library services by more effective way and means. The web based library services may work as catalyst for the research activity at institution. The libraries should properly integrate ICT for the development of the modern library services. The well planned library services in this crucial period may be useful to increase the research productivity of the institution.

The proper implementation of ICT to the library services will definitely help to rebuild the library services. The libraries may adopt the following techniques for the best delivery of its services :

Remote Access of e-Resources

The e-Resources subscribed by the libraries have IP based access and due to this, they will not be available out of university premises. To cope up with this problem, the libraries should provide Remote Access of its subscribed

2020 - 87

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Experimental Investigation of Turning Process for Machining Al-HE 9 under Dry Condition

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Abstract –This paper investigates the turning of Al-HE 9 under dry condition. In this research work, the effects of three parameters, namely, cutting speed, feed and depth of cut were studied upon Material removal rate and Surface roughness. The objective was to study the effect of input parameter individually on the final outcome. Response surface methodology was used to design the experiments and the performance characteristics in turning operation were studied. The experimental result indicate that cutting speed is the most significant factor. At high values of cutting speed, material removal rate and surface roughness were found high.

Introduction

The formation of the BUE is a major problem under dry machining condition, but dry machining is always advisable because wet machining requires a large amount of electrical power for supplying cutting fluid and it provides an unhealthy environment also. Moreover, dry machining is very advantageous as it is economical, non-polluting to the atmosphere, not dangerous to health, and not harmful to the skin. Aluminium alloys are very abrasive in nature; therefore, surface roughness is major concern while machining. Aluminum and its alloy nowadays find frequent application in the automobile and aerospace industries .These alloys are very much popular due to their light weight, good mechanical and chemical properties. However, with its all qualities, there are some limitations; the formation of the BUE and the built-up layer on the rake surface affects the surface finish as well as tool life, during the machining of aluminum.

Researchers worked in area of turning to investigate effect of process parameters. **A. Palanisamya et al. (2018)** carried out optimization of CNC turning process for machining under dry environment. Ra was minimized and MRR was maximized through multi optimization technique [1]. **Wagner et al (2016)** used two different tools for comparison, so there is an adequacy in comparison. It was advised for using lubricant% cutting fluids, which definitely increase the machining cost. It also creates an unhealthy environment, so the economical point of view of dry machining is always advisable [2]. **K. Sharmila et.al (2014)** made attempt to find out the surface roughness of EN31steel material by using face turning method. In his research work he described an experimental design procedure and analysis of surface roughness by using RSM. He found that cutting speed is the most significant parameter that affects the surface roughness [3]. **Ashvin J. Makadia et.al (2013)** used Design of experiments to study the effect of the main turning parameters such as feed rate, tool nose radius, cutting speed and depth of cut on the surface roughness of AISI 410 steel. He developed mathematical prediction model of the surface roughness in terms of above parameters. The developed prediction equation shown that the feed rate is the main factor followed by tool nose radius influences the surface roughness. The surface roughness was found to increase with the increase in the feed and it decreased with increase in the tool nose radius [4]. **Narasimhulu Andriya, et. al (2012)** they have done machining on Ti6Al4V material. The experimental analysis was carried out using Response Surface Methodology (RSM). The detailed experiments under dry conditions using the PVD coated TiAlN tools. It has been found through design of experiments technique that linear model is best fitted for predicting feed force and surface roughness under dry cutting environment. Dry condition of machining was stated as economical option for machining aluminium alloy [5].

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Research Article

Study on analysis of plasma resistance variation in WEDM of insulating zirconia

Pawade Raju & Shinde Babasaheb

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ABSTRACT

Wire electrical discharge machining (WEDM) is a specialized electrothermal machining process capable of producing complex shapes with close tolerances irrespective of material hardness. Zirconia (ZrO_2) ceramic has higher fracture toughness and flexural strength which can be useful in a variety of applications, but the principle limiting factor is its electrical conductivity. Assisting electrode (AE) method is one of the methods to overcome the above limitation that serves the purpose without altering the basic properties of ceramic material. In the present research, the Zirconia (ZrO_2) is coated with a copper layer. The kerosene dielectric suggested in past literature for machining of insulating ceramics is replaced by the graphite additive mixed distilled water to provide an environment-friendly

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Document details - An investigation of three-way catalytic converter for various inlet cone angles using CFD

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An investigation of three-way catalytic converter for various inlet cone angles using CFD(Article)(Open Access)

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Abstract

Three-way catalytic converters are utilized to minimize exhaust emissions. The efficient working of catalytic converter depends upon the flow field developed inside the converter. Due to the prevailing stringent norms, such as Bharat stage-VI, it is essential to create and design a high performing converter having uniform flow distribution within the converter to meet these norms. An easy way to gain an almost sufficiently homogeneous stream circulation is to compose the diffuser inclination minimally and correspondingly to manufacture the cone angle length long enough. The objective of the study is to examine an automobile catalytic convertor to present a detail and comprehensive report on the key parameters affecting the flow uniformity inside the converter and thus attempting to achieve minimum pressure drop across the converter to reduce the backpressure. They are modifying the existing geometry of the catalytic converter to have more uniform flow within the convertor. The analysis had been carried out with varying diffuser angles-57.3, 52.3, and 45 degrees separately. Simulation program using computational fluid dynamics (CFD) software package STAR CCM + 11.02 was used. The monolith design with a 52.3° cone angle evaluated with computations provides an actual parabolic curve, which gives a laminar flow within the catalytic converter, which in turn will increase the conversion efficiency of the converter by 1.060 %. The pressure drop within the monolith is also reduced by 3.7 Pa. This accounts to be a reduction in backpressure up to 5%, thus reduces bra[illegible]cific fuel consumption of automobiles. The results are validated with the literature. The result shows the overall pressure drop augments with velocity. The temperature effect on light-off performance also studied. © 2020 PENERBIT AKADEMIA BARU-All rights reserved.

Author keywords

Automotive catalytic converter | Diffuser angle | Flow index | Monolith diameter | Pressure drop

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Document details - CFD analysis of an automobile catalytic converter to obtain flow uniformity and to minimize pressure drop across the monolith

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CFD analysis of an automobile catalytic converter to obtain flow uniformity and to minimize pressure drop across the monolith(Article)(Open Access)

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Abstract

The catalytic converter is a device which converts harmful exhaust gases from internal combustion engine into harmless gases. Global warming and air pollution are a buzz in today's scenario. Greenhouse gasses are responsible for global warming. Carbon dioxide, which contributes to being the single most significant greenhouse gasses emission, comes from the exhaust of an automobile. Catalytic converter plays a vital role in the reduction of such greenhouse gasses. The objective of the present study is to examine an automobile catalytic convertor to present a detail and comprehensive report on the key parameters affecting the flow uniformity inside the converter and thus attempting to achieve minimum pressure drop across the converter to reduce the backpressure. The catalytic converter geometry is modified to increase the conversion efficiency of the converter. The results reported in the latter part of this paper gives a good insight about the recirculation zones created in the base and also velocity and pressure plots to find a solution for uniform flow within the monolith and also achieved a reduction in pressure drop of 3.7 Pa.

Author keywords

Catalytic convertor | Engine back pressure | Flow uniformity | Recirculation zones

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Design of Waste Water Treatment Plant for CSMSS, CSCOE

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ABSTRACT: There are two fundamental reasons for treatment of waste water viz. prevention of pollution and there by protecting the environmental and protecting the public health by safeguarding water supplies and preventing the spread of water borne diseases. When
Untreated sewage is discharged sewage may be washed upon to the shore,near thepoint of disposal,where they decomposes and create fouls mell and bad odors. The discharged sewage will contaminate the natural body water i.e. river, lake etc with pathogenic bacteria. It is absolutely necessary to study the characteristics and behavior of sewage, to ensure its safe disposal. This study will help in determination the degree and type of treatment required to be given to given sewage,and this avoid the pollution of the source of its disposal. The present study involves thea nalysis of pH value, total solids, total suspended soils, hardness, acidity, alkalinity, chloride, chlorine, BOD and DO. The sampling of the domestic waste from CSMSS, CSCOE Aurangabad havean average data of the measured parameter. The average values of pH,Turbidity, DO,TDS,BOD,COD. A sewage treatment plant has been designed with treatment units, a bar screen,grit chamber, primary settling tank, secondary settling tank, sludge digester.

KEYWORDS: Characterization, sewage, treatment plant.

I. INTRODUCTION

is the branch of environmental engineering in which the basic principles of science and engineering are applied to the roblems of water pollution control. So, as an overview, this wastewater engineering includes wastewater treatment, sludge disposal and reuse, wastewater reclamation and reuse, effluent disposal and the role of engineer. Every community produces both solid and liquid wastes. The liquid waste is known as the wastewater. It may be defined as liquid wastes collected in a sewer system and conveyed to a treatment plant for processing.In view of their sources of generation it may be defined as a combination of the liquid or water carrying wastes removed from residences, institutions, commercial and industrial establishments together with ground water, surface water and storm water (may also be present).In most of the communities, storm runoff water is collected in a separate sewer system and conveyed to the nearest water course for disposal without treatment. Several large cities have a combined wastewater collection system where both storms as well as sanitary wastes are collected in the same pipe system.Storm wastewater means the wastes from rains or floods while sanitary or domestic waste water refers to liquid collected from residences, business buildings and institutions.

II.OBJECTIVES OF THE STUDY

The objectives of the study are:
Physical, chemical and biological characterization of domestic waste water samples from the kitchen effluent, toilets and the bathroom waste.
Comparison with the prescribed standard.
Design of the sewage treatment plant.

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Case Study of 161 MLD Sewage Treatment Plant Kanchanwadhi, Aurangabad, Maharashtra

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Abstract: ***Sewage treatment plant is a mainly designed and build to receive the waste water from various Domestic Source and remove material and damage water quality which affect public health and safety when discharge into water natural stream. Sewage is generated by various sources i.e. residential and institutional. It includes household waste liquid from toilets, flush water, baths, showers, kitchens, and sinks draining into sewers system. The separation and draining of household waste into the greywater and blackwater are becoming more common now days, after treatment of greywater being permitted for reuse for watering plants or recycled for flushing toilets. Municipal waste-water is the combination of liquid or water- carried wastes originating in the sanitary conveniences. Municipal waste-water is a combination of water and water- carried wastes originating from residential facilities and Institutions which contains various soluble and insoluble Organic and Inorganic pollutants. The present study comprises a comprehensive survey of the various methods and technologies currently used in waste-water treatment, with emphasis on municipal waste-water. The work area is 161 MLD STP Kanchanwadi, Aurangabad, The Project was awarded in 2014 to M/s. Khilari Infrastructure Pvt Ltd, and The STP was successfully completed and commissioned in 2017. The Operation & Maintenance of STP for next 10 Years is under the charge of M/s. Khilari infrastructure Pvt Ltd.***
The sewage of entire Aurangabad city area is collected through underground drainage network by gravity and collected to the Sewage Pumping Station at Golwadi which is approx. 2 kilometre from 161 MLD STP and Raw Sewage Collected at Golwadi SPS is pumped to inlet of 161 MLD STP by Pumping Machineries.
Keywords: sewage, Waste-water, gravity flow, treatment, sludge, parameter, pumping station.

I. INTRODUCTION

Sewage treatment is the process of removing hazardous contaminants from municipal waste-water, containing mainly in household sewage which is harmful for environmental and human health. Waste-water is divided in physical, chemical and biological characteristics. Physical parameters include colour, odour, temperature, and turbidity. A by-product of treated sewage is surplus activated sludge. The sludge has to undergo further sludge treatment before being suitable for disposal or application to land as a manure. Various types of STPs are introducing each day, according to the requirement and economic view. STP in Kanchanwadi is working on Sequential batch reactor (SBR), capacity of plant is 161MLD.

The Design of Wastewater Treatment Works is one of the most requested Document produced by the New England Interstate Water Pollution Control Commission. Sequential batch reactor (SBR) are becoming popular waste water treatment option in New England [redacted] across the country due to their ability to treat the varying flow rates and allow control flexibility. In addition, they have a small footprint and are comparatively less expensive to construct and maintain.

Untreated waste water generally contains high level of organics material, numerous pathogenic micro-organisms, as well as nutrients and toxic compounds. It is necessary to environmental and health hazards and must immediately be conveyed away from its manmade sources and treated appropriately before final disposals of treated sewage.

Fig.1.View of STP Kanchanwadi

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2020 - 93

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Treatment of Waste Water Produced by Electronic Industry by Electrocogulation Process

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Abstract:
There are two fundamentals reasons of waste water viz. prevention pollution and thereby protecting the environmental and protecting the public health by safe guarding waste supplies and preventing the spread of water born diseases. When untreated industrial waste water is discharge it will contaminate the natural water body i.e. river, lake with hazardous chemicals. It is absolutely necessary to study the characteristic of industrial waste water, to ensure its safe disposal. These study will help in determination the degree the type of treatment required to given waste water this avoid the pollution of sources of it disposal. Waste water produced from electronics industry is from pre-treatment process. Company having an In-house facility of 10 tank [redacted]cess for phospheting of panel for purpose of degreasing, oxidation and oil removation. The waste water treatment plant it has [redacted]n designed with Electrocoagulation treatment unit.

Keywords: Prevention, Diseases, waste water, Hazardous, Pollution, Disposal, Electrocoagulation treatment unit.

1. INTRODUCTION

During the last century huge amounts of industrial waste water was discharged in to rivers, lakes and coastal areas. This resulted in serious pollution problems and caused negatives effects to the ecosystem and human's life. Industrial wastewater treatment describes the processes used for treating waste water that is produced by industries as an undesirable by product. After treatment, the treated industrial water may be reused for domestic purpose i.e. gardening, flushing etc. For checking the quality of treated water physical and chemical impurities must be in permissible limit as per IS 10500:2017 i.e. colour, turbidity, temperature, odour, pH, total solids (suspended and dissolved), hardness, chemical oxygen d[redacted]and (COD) For complete treatment of waste water [redacted]ced by industry we adopted Electrocoagulation process. E[redacted]unit with aluminum electrodes at low value of current density is most economical process.

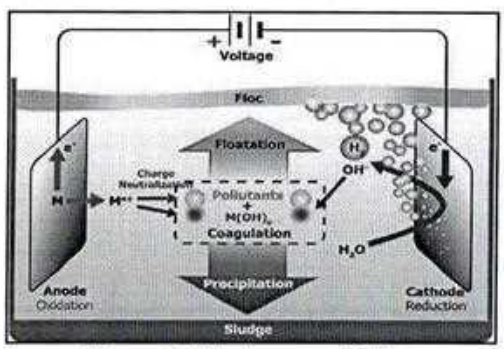

Figure.1. Electro coagulation

2. BACKGROUND

Tushar Prabhakar, Rohan S Gurav, (2019)- This paper is the extended study of previous paper "Powder coating industry Wastewater Characteristics and its effect on environment". This paper explains about the treatment of Powder Coating Industry waste water and the best possible treatment method and its parameters. Electrocoagulation method or technique is one of the promising techniques available for the treatment of this type of wastewater. The experiments were conducted with aluminum electrodes with various combinations of connections. Parameters such as pH, TDS, Colour, Turbidity, Phosphate and Chromate removal is showed using Aluminum electrode with the efficiency of 95.5% is found out. The electrical usage power required has also been calculated for the designed test treatment unit.

Gunatilake S. K. November – (2015), Methods for treating industrial wastewater containing heavy metals often involve technologies for reduction of toxicity in order to meet technology-based treatment standards. This article was focused on the recently developed and newly applicable various treatment processes for the removal of heavy metals from industrial wastewater. Physico-chemical removal processes such as; adsorption on new adsorbents, ionex change, membrane filtration, electro dialysis, reverse osmosis, ultra filtration and photo catalysis were discussed. Their advantages and drawbacks in application were evaluated. Biological treatments are eco friendly, best removal and low cost methods. Lot of bio adsorbents can be found in nature. Physical and other most common chemical methods are produced toxic sludge which is unable to settle within industries. Although chemical cost is high chemical treatments is one of the most suitable treatments for toxic inorganic compounds produced from various industries which cannot removed from any biological and physical techniques.

Ahmed Samir Naje (2015)- Contemplated Treatment Performance of Textile Wastewater Using Electrocoagulation (EC) Process under Combined Electrical Connection of Electrodes .In this paper The effect of a few working parameters, for example, bipolar anode component (Fe or Al), electrolysis time (RT), momentum power (I), pH, concoction bolster, between terminal separation (IED), and mixing speed (Mrpm) were analyzed.

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A REVIEW ON HIGH STRENGTH FIBRE REINFORCED CONCRETE DEEP BEAM

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Abstract

A behavior of reinforced concrete beam panels is influenced by several factors and has some restriction is in utilized in High rise buildings or any other concrete structures. An alternative for conventional beam is varing sizes beam cast in situ RCC beam panel to behave as deep beam in various locations of RC high rise building systems specially in parking area. Understanding the influence of factors involved on behavior and strength is needed. The factors to be discussed include; compressive strength of concrete, percentage of tension reinforcement, quantity and distribution of vertical and horizontal web reinforcement, aggregate interlock, shear span-to-depth ratio, distribution of loading, side cover, failure pattern and depth of beam as well as materials to be used. The influence of above parameters on the shear strength of reinforced concrete deep beams has been reviewed.

Keywords: *Deep beams, Shear strength, 3D panels steel wires, High strength fibre reinforced concrete.*

----------***----------

I. INTRODUCTION

A major challenge in every tall and high rise building construction is to achieve adequate column free space in the lowermost storey either for parking, Circulation or storage facility. And for overcome above problems deep beam can be used. A deep beam are members loaded on one face and supported on the opposite face so that compression struts can develop between the loads and the supports [50], and have either: (a) clear span, l_n, equal to or less than four times the overall members depth: or (b) regions with concentrated loads within twice the members depth from the face of supports. Basic use of deep beam is to achieve sufficient dwelling room size as per architectural design in the upper stories (without disturbing parking space); vertical element so-called floating column is endowed. Its terminal level rests on the transfer girder which acts as a point load. In view of ample shear strength, deep beams are primarily recommended as transfer girders. These members transfer loads through loading face to supports in the transverse direction. The deep horizontal members predominantly fail in shear rather than flexure. These beams are characterized with small span-to-depth ratio, if less than: [51] (a) 2.0 for a simply supported beam; and (b) 2.5 for a continuous beam. Pile caps, corbel, brackets, foundation walls and off-shore structures are few examples of RC deep beams. Web reinforcement plays a vital role in enhancing the shear capacity and mode of failure. It is

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MECHANICAL BEHAVIOR OF DIAGONAL CRACKS IN HIGH STRENGTH FIBRE REINFORCED CONCRETE DEEP BEAM

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Abstract: An investigation of the behavior of failure pattern and strength of 24 nos single span simply supported high strength fibre reinforced concrete deep beams having same depth to span ratio is reported. The investigations objectives were to study the effect of using various types steel fibres in high strength concrete deep beam for shear span to depth ratio on cracking shear, ultimate strength shear strength, mid span deflection and cracking width. The beams were casted for three types of steel fibres having different length to depth ration and were tested under two points distributed loads; based on observed behavior and strength an equation is presented for prediction the ultimate shear strength of deep beam.

I. Introduction

A beam shall be deemed to be deep beam when the ratio of effective span to overall depth is less than 1) 2.0 for simply supported beam and 2) 2.5 for a continuous beam [1]. And deep beams are members loaded on one face and supported on the opposite face so that compression trusts can developed between the loads and the supports [2]. It is used as load distributing structural elements such as transfer girder, pile caps, foundation walls and floor beams in high rise buildings. According to span to depth ratio, the strength of beam is usually controlled by shear rather than flexure if normal amounts of longitudinal reinforcements are used [3].

Test Programmed

In this investigation of 24 rectangular deep beams of simple spans ranging from 69 cm X 26 cm X 16 cm having the L/D ratios ranges 0.7 as per IS 456-2000 for limiting deflection in simply supported beam were tested over a constant span length centre to centre. The variable considered were the depth to span ratio and the type of loading. A detail summery of properties of the beams tested is given in Table 1. Crimped steel fibres, flat steel fibres and Hooked end steel fibres were used in deep beam with varying percentage.

As per the previous studies the behavior of deep beams is different from that of the more slender flexural members having relative large l/d ratios. This difference in behavior is mainly attributable to the significant effect of vertical normal stresses and shear deformation in the members [4].

Codes never give the exact analysis for reinforced concrete deep beams and use of steel fibres in concrete beams would still fibre in concrete

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Study of geosynthetic reinforcement in soft soil

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Abstract:

Improvement in load settlement behavior of soil involves enhancing the substantial properties of the soil in order to develop its strength, durability etc. by adding reinforcement. Load settlement generally occurs due to low bearing capacity, unavailability of hard strata, in case of soft soil is available. In this regard we need to improve load settlement behavior of soil. This can be possible by number of ways, such as Soil stabilization with cement, Soil stabilization with lime, Soil stabilization victimization hydrocarbon, and Chemical stabilization associated an innovative promising experience of stabilization by Geo textiles and Geo artificial fibers. Geotextiles have been effectively used for reinforcement of soils to recover the bearing capacity. Roads are arteries of a city and an increase in population increases traffic. Heavy traffic demands strong, smooth, durable and well-maintained road pavement and hence healthy and strengthened road network is essential for socioeconomic development of a country. Reinforcement of road pavement using various materials is in practice, geo-synthetics being popular among them. Geo-synthetics are synthetic products used to stabilize terrain. The focus of this study is on better understanding of natural and artificial Geotextiles for strengthening of sub grade soil. This project gives effect of reinforcement of Geotextiles on sub grade soil. Laboratory tests were performed to examine the engineering properties of soil. Samples of soil with diverse grading are chosen and tested lacking reinforcement. Material collection were takes place for further investigation.

Keywords: Geo-synthetic, Load settlement, Stabilization, Reinforcement.

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Enhancement of UCS value by adding hairs in soil

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Abstract – *Soil is very important in civil engineering construction. The poor engineering properties of the local soils may present many difficulties for construction and therefore need to improve their engineering properties. Stabilization techniques can be used to improve the properties of the soil. Soil stabilization improves various engineering properties. Ex: Bearing capacity, Compressibility, strength, various other properties of soil. In this study we increased UCS value of soil by adding human hairs in it. Partial replacement of soil is take place by replacing same out of hairs.*

Key Words: Soil, UCS, Hairs, Stabilization

1. INTRODUCTION

For any land-based structure, the foundation is very important and has to be strong to support the entire structure. In order for the foundation to be strong, the soil around it plays a very critical role. So, to work with soils, we need to have proper knowledge about their properties and factors which affect their behaviour. The process of soil stabilization helps to achieve the required properties in a soil needed for the construction work. From the beginning of construction work, the necessity of enhancing soil properties has come to the light. Ancient civilizations of the Chinese, Romans and Incas utilized various methods to improve soil strength etc., some of these methods were so effective that their buildings and roads still exist. In India, the modern era of soil stabilization began in early 1970's, with a general shortage of petroleum and aggregates, it became necessary for the engineers to look at means to improve soil other than replacing the poor soil at the building site. Soil stabilization was used but due to the use of obsolete methods and also due to the absence of proper technique, soil stabilization lost favour. In recent times, with the increase in the demand for infrastructure, raw materials and fuel, soil stabilization has started to take a new shape. With the availability of better research, materials and equipment, it is emerging as a popular and cost-effective method for soil improvement. Here, in this project, soil stabilization has been done with the help of randomly distributed fibres obtained from waste materials. The improvement in the unconfined compressive strength parameters has been stressed upon and comparative studies have been carried out using different types of fibres as well as different types of soils.

1.1 Aim of the study

To study the effect of inclusion of hairs in soil and to optimize the required percentage of fibre at which soil subgrade can give maximum unconfined compressive strength.

2. MATERIAL USED

1. Soil
2. Human Hairs
3. Water

Table -1: Properties of Hair

Property	Remark
Cross-Section	Circular
Diameter	10-100 μm
Length	5-50 mm
Elongation	1.5 times its dry weight
Tensile strength	Equal to Copper wire of similar diameter

3. UCS (UNCONFINED COMPRESSIVE STRENGTH)

Reference: IS 2720-10 (1991): Methods of test for soils, Part 10: Determination of unconfined compressive strength.

APPARATUS

1. Compression Device

The compression device may be any of the following Types:

a) Platform weighing scale equipped with a screw-jack activated yoke;
b) Hydraulic loading device;
c) Screw jack with a proving ring; and
d) Any other loading device. Al1 theses loading devices shall have sufficient capacity and strain control.

2. Proving Ring

The selection of the proving ring shall depend on the following: For relatively weak soil with qu less than 100 KPa (1 kgf/cms) load shall be measurable to 1 KPa. For soils with

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98

REPLACEMENT OF SAND BY COPPER SLAG

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Abstract - Sand is the most commonly used fine aggregate which occurs naturally. But there is scarcity of natural sand day by day. Hence there is a need to find any other material which can replace sand. So many researches were takes place to find alternative for the sand. In this paper we replaced sand by copper slag. Copper slag is one of the materials that is considered as a waste material which could have a promising future in construction industry as partial or full substitute of either cement or aggregates. It is a by-product obtained during the matte smelting and refining of copper. The different tests conducted in laboratories consists mixing of concrete in the laboratory by replacing Copper Slag as fine aggregate with proportions (by weight) of Copper Slag added to concrete mixtures were as follows: 0% (for the control mix), 10%, 20%, 30%, 40%, 50%, 60%, 75%, and 100%. Concrete samples were prepared and cured in the laboratory, and are tested, to evaluate the concrete fresh and harden properties like compressive strength and flexural strength requirements.

Key Words: Sand, Copper slag, Compressive strength, Flexural strength.

1. INTRODUCTION

In India, there is great demand of aggregates mainly from civil engineering industry for road and concrete constructions. But now days it is very difficult problem for available of fine aggregates. So researchers developed waste management strategies to apply for replacement of fine aggregates for specific need. Natural resources are depleting worldwide while at the same time the generated wastes from the industry are increasing substantially. Researcher and Engineers have come out with their own ideas to decrease or fully replace the use of river sand and use recent innovations such as M-Sand (manufactured sand), robot silica or sand, stone crusher dust, filtered sand, treated and sieved silt removed from reservoirs as well as dams besides sand from other water bodies. On the other hand, lack in required quality is the major limitation in some of the above materials. Now a day's sustainable infrastructural growth requires the alternative material that should satisfy technical requisites of fine aggregate as well as it should be available locally with large amount.

Copper Slag:

At present about 33 million tonnes of copper slag is generating annually worldwide among that India contributing 6 to 6.5 million tonnes. 50 % copper slag can be used as replacement of natural sand in to obtain mortar and concrete with required performance, strength and durability. In India a study has been carried out by the Central Road Research Institute (CRRI) shown that copper slag may be used as a partial replacement for river sand as fine aggregate in concrete up to 50 % in pavement concrete without any loss of compressive and flexural strength and such concretes shown about 20 % higher strength than that of conventional cement concrete of the same grade.

Copper slag is one of the materials that is considered as a waste material which could have a promising future in construction industry as partial or full substitute of either cement or aggregates. It is a byproduct obtained during the matte smelting and refining of copper. To produce every ton of copper, approximately 2.2–3.0 tons copper slag is generated as a by-product material. In Oman approximately 60,000 tons of copper slag is produced every year. Copper slag is a by-product material produced from the process of manufacturing copper. As the copper settles down in the smelter, it has a higher density, impurities stay in the top layer and then are transported to a water basin with a low temperature for solidification. The end product is a solid, hard material that goes to the crusher for further processing.

Granulated copper slag (or) copper slag which is a byproduct of metallurgical operations in Sterlite industries (India) Ltd. Tuticorin was used for the experimental investigation. For every tone of metal production, about 2.2 ton of waste slag is generated. Dumping or disposal of such huge quantities of slag cause environmental and space problems. During the past two decades, attempts have been made by several investigators and copper producing units all over the world to explore the possible utilization of copper slag. The physical and mechanical properties of granulated copper slag shows that it can be used to make products like coarse and fine aggregates, cement, fill, ballast, roofing granules, glass, tiles etc.

2. PHYSICAL AND CHEMICAL PROPERTIES OF COPPER SLAG

The slag is a black glassy and granular in nature and has a similar particle size range like sand which indicates that it could be tried as replacement for the sand in cementations mixture. The specific gravity of the slag is 3.68. The bulk density of granulated copper slag is varying between 1.70 to 1.90 g/cc which is almost similar to the bulk density of conventional fine aggregate. The hardness of the slag lies between 6 and 7 in MoH scale. This is almost equal to the hardness of gypsum. The pH of aqueous solution of aqueous extract as per IS 11127 varies from 6.6 to 7.2. The limiting water soluble chloride content as per IS 11127 is 11ppm. The slag is conforming to the above standards. The free moisture content present in slag was found to be less than 1%. The sieve analysis for copper slag infers that the gradation properties of fine aggregates at all the replacement levels are similar to the specification for sand zone II as per IS: 383. The chemical composition of slag is presented in Table 1. The presence of silica in slag is about 26% which is desirable since it is one of the constituents of the natural fine aggregate used to normal concreting operations. The presence of copper, alumina, sulphate in the slag were only traces and hence not harmful Properties of fine aggregates at all the replacement levels are

2020-99

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A Hybrid Approach to Improve the Clipping Technique of PAPR Reduction in OFDM

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ABSTRACT

The most vulnerable characteristics of Orthogonal Frequency Division Multiplexing (OFDM) signal is a High Peak to Average Power Ratio (PAPR). Being one of the used PHY standards, OFDM has broad scope in future wireless networks. PAPR directly affects the performance of OFDM based systems. Numerous authors have proposed plenty of methods of PAPR reductionsviz: interleaving (INT), Selective Mapping (SLM), Partial Transmit Sequence (PTS), and Many more. However, most of the method degrades Bit Error Rate (BER) performance or increases computational complexity. One of such least complexity method is Amplitude clipping and Filtering (ACF). Amplitude clipping is merely restricting the signal amplitude to not to exceed a threshold value. This threshold value is decided based on the minimum requirement of signal reconstruction. In this paper, we have proposed a technique where we have tested various threshold values of amplitude clipping ranging to hyper level, which is approximately very near to the average power of the OFDM signal. The OFDM signal is preprocessed before clipping it so that BER degrades as minimum as possible. Thus, by applying a modified least complexity PAPR reduction technique, we can get better PAPR and BER control. The OFDM signal is designed here is based on the 802.11a IEEE WLAN standard. The framework is designed to test the PAPR reduction algorithm using the LabVIEW tool. This framework fundamentally constructs the OFDM signal right from binary sequence to final OFDM baseband signal. The validation of this baseband signal done through a Wireless network Testbed of NI- USRP2922 Software Defined Radio Platform. The present paper illustrated all the modeling and implementation process, along with achieved results.

Keyword: OFDM, PAPR, IEEE802.11a, LabVIEW, NI-USRP

1. INTRODUCTION

In the context of signal design, an OFDM signal is simply a mapping of input complex constellation symbols onto the orthogonal set of subcarriers realized by IFFT. In addition to input complex constellation symbols, some symbols are intentionally added to serve synchronization (Reference Symbols), to deal with multipath effects (Cyclic Prefix) and to match with IFFT Size (Zero Padding) [1-5].

The Mathematical form of an OFDM [1-5] baseband signal is as depicted in Equation 1.

$$s_q(t) = \sum_{p=0}^{N-1} X_{p,q}\, \phi_p(t - qT) \qquad (1)$$

Where q is the OFDM symbol number
$X_{p,q} = [X_{0,q}, X_{1,q}, \ldots, X_{N-1,q}]$ are complex number symbols from a set of signal constellation points, $\{\Psi\}$.
Equation 1 can again simplify as

$$s_{r,q} = \frac{1}{\sqrt{N}} \sum_{p=0}^{N-1} X_{p,q} e^{j2\pi \frac{r}{N} p} \quad \begin{matrix} 0 \le r \le N-1 \\ 0 \le p \le N-1 \end{matrix} \qquad (2)$$

2020 - 100

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A Symbol Scrambling and Limiting Approach to Improve the Selective Mapping Technique of PAPR Reduction in OFDM

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ABSTRACT

The Orthogonal Frequency Division Multiplexing (OFDM), the most well-known PHY technique can be seen in almost all types of networks right from a short distance Personal Area Network (PAN) to a Wide Area Network or Metropolitan Area Network (WAN or MAN). Despite tens of advantages, it has one severe disadvantage, the High Peak to Average Power Ratio, which simply means a wide gap in between average power and peaks of a time-domain OFDM signal. Selective Mapping (SLM) is a of the identified prominent technique in PAPR reduction of OFDM. The major shortcoming of the SLM technique is high plexity in computation. To reduce further PAPR and to optimize the computational complexity, the present work, called *Symbol Scrambling and Limiting*, is presented. Here these issues are addressed by applying a reduced number of multiplications of input symbol and phase rotation vectors and applying amplitude limiting after that. With this approach, fewer multiplications have given reduced complexity of computation, and amplitude limiting has given more improved PAPR results. The OFDM signal is designed by following the PHY specifications of the IEEE WLAN 802.11anetwork standard using one of the state-of-the-art tools called LabVIEW.

Keywords: *OFDM, PAPR, SLM, LabVIEW, WLAN*

1. INTRODUCTION

1.1 OFDM

OFDM is a manner of modulation used for more traditional forms of digital data transmission. It utilizes many carriers called subcarriers, together to provide many advantages over plain modulation formats. OFDM can transmit the bulk of data ver Radio waves, and it is one of the most known prominent nulticarrier multiplexing accesses Technique. OFDM utilizes a frequency spectrum of almost 40-50% more than conventional FDM and has an excellent performance in the multipath fading channel. Figure 1 shows the basic principle of OFDM symbol formation is split of a frequency domain high-rate digitally modulation mapped data stream into several lower rate streams and transmitting them simultaneously on many these low-rate subcarriers by integrating them over a symbol period. These subcarriers are mutually orthogonal, which indicates a precise mathematical relationship amongst them, making them zero upon the cross product. If a replica image part of the symbol time-domain waveform is put at the start of the Symbol as the guard period, it effectively extends the length of the Symbol, while maintaining the orthogonality of the waveform. The guard period is then referred to as a cyclic prefix (CP). This concept is represented in Figure 1. Cyclic prefix helps the OFDM signal to deal with multipath effects in the channel [1-2].

Consider q OFDM symbol number each having N constellation point symbols, $X_{p,q} = [X_{0,q}, X_{1,q}, \ldots, X_{N-1,q}]$ these are complex number symbols from a set of signal constellation points, $\{\Psi\}$, the OFDM signal can be represented with equation 1

$$s_{r,q} = \frac{1}{\sqrt{N}} \sum_{p=0}^{N-1} X_{p,q} e^{j2\pi \frac{r}{N} p} \quad \begin{matrix} 0 \le r \le N-1 \\ 0 \le p \le N-1 \end{matrix} \qquad (1)$$

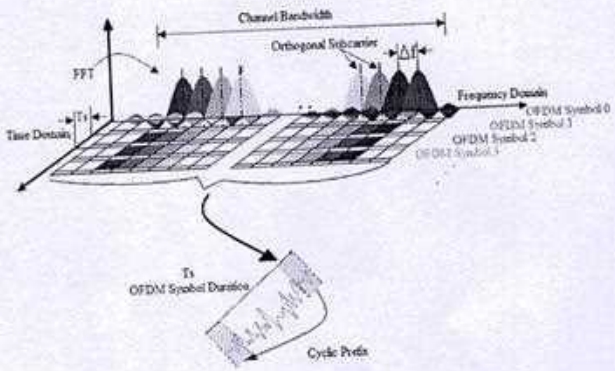

Figure-1: Basic principle of OFDM symbol formation

The $s_{r,q} = [s_{0,q}, s_{1,q}, \ldots, s_{N-1,q}]$ are carrier amplitudes associated with the OFDM symbol, which is a formal expression for IFFT, $\Im^{-1}\{X_{p,q}\}$. Equation 2 depicts an infinite sequence of OFDM symbols to be transmitted.

$$s(t) = \sum_{q=-\infty}^{\infty} s_q(t) = \sum_{q=-\infty}^{\infty} \sum_{p=0}^{N-1} X_{p,q} \phi_p(t - qT) \qquad (2)$$

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Development of an Improved Peak-to-Average-Power Ratio Reduction Technique and its Comprehensive Evaluation with admired Techniques in OFDM

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ABSTRACT

The high value of Peak to Average Power Ratio (PAPR) is one of the primary limitations of the Orthogonal Frequency Division Multiplexing (OFDM). The PAPR has a direct impact on the performance of the high-power amplifier (HPA) of the transmitter and the complexity of the ADC & DAC. Thus, reducing PAPR in the OFDM system will not only just improves the power efficiency of the transmitter but also enhances the speed of operation. The quintessence of high PAPR in OFDM can be estimated from the fact that for many decade researchers are finding the solution for reducing it, every time the PAPR reduction technique is getting improver but not the best. Recent advancement in computer system gives a strong base for fastest signal processing. Numerous PAPR reduction methodologies have been proposed and implemented so far but these methods have adverse effects such as increased Bit Error Rate (BER), increased computational complexity, added in-band, and out-of-band distortions. This gives a strong motivation to work further on the reduction of PAPR with the least BER, reduced computational complexity, and no in-band distortion or out-of-band radiation. In this paper, we have proposed a novel approach to reduce PAPR in OFDM inherited from partial transmit sequence (PTS), selective mapping (SLM), and amplitude clipping & filtering (ACF) methods. The evaluation of the proposed novel method is done with Complementary Cumulative Distribution Function (CCDF) and Eb/N0 statistical models. OFDM WLAN standard 802.11a is referred for transmitter and receiver design, Software Defined Radio NI-USRP2922 and LabVIEW tools have been used to validate the signal design.

Keywords: *OFDM, PAPR, LabVIEW, NI USRP2922, SDR*

1. INTRODUCTION:

1.1. The OFDM:

OFDM follows the fundamental principle of decomposing the high data rate stream into N lower data rate streams and then to transmit them simultaneously over many subcarriers. The sufficiently high value of N makes the individual bandwidth (W/N) of subcarriers narrower than the coherence bandwidth (B_c) of the channel. Consider q OFDM symbol number each having N constellation point symbols, $X_{p,q} = [X_{0,q}, X_{1,q},\ldots, X_{N-1,q}]$ these are complex number symbols from a set of signal constellation points, $\{\Psi\}$, the OFDM signal can be represented with *equation 1* [1-2].

$$s_{r,q} = \frac{1}{\sqrt{N}} \sum_{p=0}^{N-1} X_{p,q} e^{j2\pi \frac{r}{N} p} \quad \begin{matrix} 0 \le r \le N-1 \\ 0 \le p \le N-1 \end{matrix} \qquad (1)$$

The $s_{r,q} = [s_{0,q}, s_{1,q},\ldots, s_{N-1,q}]$ are carrier amplitudes associated with the OFDM symbol, which is a formal expression for IFFT, $\Im^{-1}\{X_{p,q}\}$. *Equation 2* depicts an infinite sequence of OFDM symbols to be transmitted [1].

$$s(t) = \sum_{q=-\infty}^{\infty} s_q(t) = \sum_{q=-\infty}^{\infty} \sum_{p=0}^{N-1} X_{p,q} \phi_p(t - qT) \qquad (2)$$

The OFDM uses three transmission principles, multi-rate, multi-symbol and multicarrier. As compare to Frequency Division Multiplication the OFDM preserves almost 50% of channel bandwidth. It distributes the data over a large number of subcarriers that are separated apart at orthogonal frequencies [3].

Figure 1 shows the fundamental principle of OFDM 4-QAM symbol formation from binary bits, and splitting of a frequency domain high-rate digitally modulation mapped data stream into several lower rate streams and transmitting them simultaneously on many of these low-rate subcarriers (SCs) by integrating them over a symbol period. These subcarriers are mutually orthogonal [2-3].

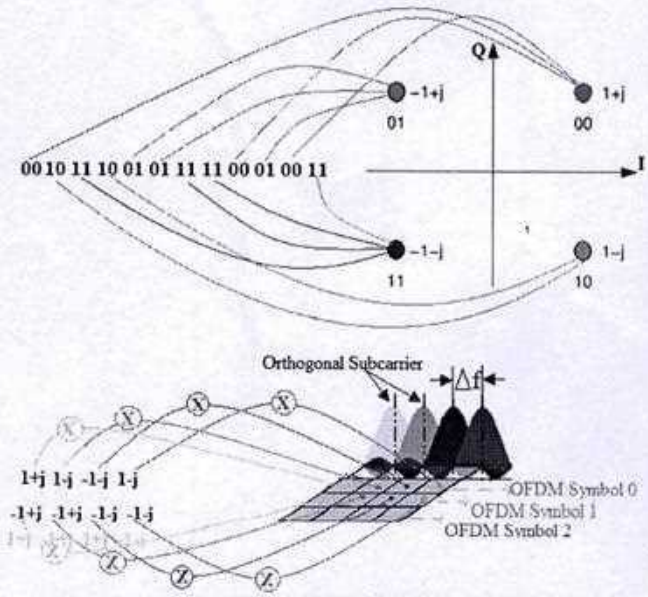

Figure-1: OFDM Symbol Formation for 4-QAM Scheme

1.2. Issue of High PAPR in OFDM

In an OFDM signal, several subcarriers get aligned together in the time domain; this may cause significant peaks or faded samples; this effect or phenomenon is measured in terms of the

2020 – 102

Maturity Detection of Tomatoes Using Deep Learning

Original Research Published: 03 September 2021

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SN Computer Science

Aims and scope

Submit manuscript

Sahil Amol Mutha, Akshat Mayur Shah & Mohammed Zakee Ahmed

Abstract

Agriculture 5.0 primarily constitutes the use of artificial intelligence and robotics as a hybrid technology that can automate a major portion of agriculture. Artificial intelligence will provide a cognitive skill to a computer to detect diseases that may occur in various eatables, such as fruits and vegetables, that can lead to a potential loss of crop. Also, the maturity that is the ripening status of these fruits and vegetables can be estimated to decide harvesting time. There are numerous ways to estimate the ripening status based on size, shape, texture, or color. Most of these features can be captured with images or video and decision-making is made possible by applying deep learning and artificial intelligence. After the decision-making stage, the fruit or vegetables can be plucked with a robotic arm. In this

https://link.springer.com/article/10.1007/s42979-021-00837-9

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OVERVIEW OF IOT BASED WATER MANAGEMENT SYSTEM

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ABSTRACT:

18% of world's population lives in India. On the other hand the usable water availability is less as compared with the population in India. Around 4 % of world's usable water is present in India. The water is basic need of human being. India is facing issues with uneven distribution of rainfall and on the other hand the need of water for drinking and other day to day activities is unavoidable. The available water is not used in proper amount and hence many times the water is wasted. It is also observed that, the drainage water is mixing with the sources of clean water and contaminating it. Due to improper drainage system the present clean water is also wasted. The utilisation pattern of water is varying with the region, type of crops in the farm, and the industrial utilisation. It is necessary to control the wastage of water and it is necessary to develop the disciplined water utilisation habits amongst the people. Authors have presented the IoT based water management system in this paper.

KEYWORDS: Water management, Internet of things, sensors, motors, etc.

INTRODUCTION:

The average annual rainfall in Maharashtra is around 6000 mm. The rainfall pattern is not distributed equally over all regions in India. The rain water storage facility is not proper so that the water can be utilised for drinking purpose. On the other hand the use of water is also improper. Many people, organisation and Industries are working for developing the awareness about saving the water. Indian government is also spreading awareness with Save the Water initiative. Still the efforts made are need to be improved in order to fulfil the need of water for growing population of India.

IoT in water management is opening the opportunities for proper utilisation of water resources. The tap water available needs to be checked for the quality. Maintaining the quality of water is a challenge, on the other hand preserving the water and minimizing the use of water is another area need to be addressed.

This paper presents an IOT device which help to manage and plan the uses of water the system can easily monitor and installed for long purpose the current scenario of water management system is the MNC supplies water to commercial homes, apartments Industries after 3 to 4 days so people try to store water for daily needs for next few days but in that case we don't know how much water consume or usage by Homes or

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3.3.1 Number of research papers published per teacher in the Journals as notified on UGC CARE list during the 2019

Sr. No.	Title of Paper	Name of the Author/s	Name of Journal
1	A fractional order differential equation model for tuberculosis	Gajanan S Solanke, Deepak B Pachpatte	AIP Conference Proceedings
2	Real Time Analysis and Simulation of Five Level Grid Connected H bridge Inverter using FPGA based Controller	Mithun.G.Aush, K. Vadiracharya	International Journal of Engineering and Advanced Technolog
3	Fuzzy Logic controller for MPPT of Photovoltaic System	Anil sansare, Ajinkya Dattarao Salpe	International Journal of Scientific Research in Engineering and Management (IJSREM)
4	Hardware Implementation of 15-Level Cascaded Multilevel Inverter Using PIC16F877A	Suraj R. Karpe, S A Deokar and A. M. Dixit	International Journal of Innovative Technology and Exploring Engineering, Elsevier Scopus Journal (IJITEE)
5	Electric Vechicle	Vishakha vishwanth jogdand, Sagar Bodkhe, Pruthviraj Chavan, Sanket Rathod, Ajay Awchar, Ravindra Totare	International Journal of Innovative Research in Science,Engineering and Technology
6	Dc to dc converters and its application for railway system- a review	Sachin kale, Nitin Bhasme	International Journal of Electrical Engineering & Technology (IJEET)
7	DC Feeder Voltage Control Strategy of Bidirectional DC to DC converter for Railway Traction	Sachin kale, Nitin Bhasme	International Journal of Recent Technology and Engineering (IJRTE)
8	Single Phase Power Factor Correction	Pawar P. B., Bhanwase B. H.	JASC: Journal of

	Using AC to DC Converter	Bhosale S. V., Nale S. A.	Applied Science and Computations
9	Wireless Vehicle Charging	Pawar P.B.	JASC: Journal of Applied Science and Computations
10	Review on: Fuzzy Module for Battery Charger and Contro	Salgar sandeep, Pawar Prashant	Journal of Applied Science and Computations
11	Efficient and Reliable Routing Algorithm for Mobile AdHoc Networks	Amit Rawte , Ulhas B. Shinde	J. Computaional and Theoretical Nanoscience
12	Feature Extraction Techniques Based on Swarm Intelligence in OCR	SR Zanwar, AS Narote, S.P. Narote	International Journal of Innovative Technology and Exploring Engineering (IJITEE)
13	A Comprehensive Survey On Soft Computing Based Optical Character Recognition Techniques	SR Zanwar, UB Shinde, AS Narote, SP Narote	International Journal of Scientific & Technology
14	IOT Based Smart Agriculture For Sugarcane	Kaveri S. Kamble, Mahender G. Nakrani, Devendra.L.Bhuyar	Journal of Emerging Technologies and Innovative Research
15	Face Recognition Using OpenCv Based On IoT for Smart Door	Akshay Dilip Deshmukh, Mahender Nakrani, D. L. Bhuyar, U. B. Shinde	Conference Paper Elsevier-SSRN
16	ECG Based Heart Disease Dignosis Using Machine Learning	Manisha M. Bhalkar, Devendra L. Bhuyar, Akshay T. Jadhav	Journal of Emerging Technologies and Innovative Research (JETIR)
17	An Efficient Quality Inspection of Food Products Using Neural Network Classification	Syed Sumera Ali, Syyad Ajij D.	Journal of Intelligent System (JYSIS)

18	Low Cost Smart Vehicle Design and Implementation	Nikita Sahebrao Jadhav A. M. Rawate	IJSRD - International Journal for Scientific Research & Development|
19	Review On Smart Vehicle Automation	Nikita Sahebrao Jadhav A. M. Rawate	IJSRD - International Journal for Scientific Research & Development|
20	Electronic System to Reduce Setup Time of Tube Mill Machine	J.N. Mohite	International Journal for scientific research & development
21	Automatic Attendance System using Arduino and GSM Module	J.N. Mohite	International Research Journal of Engineering and Technology (IRJET)
22	Assistive Wireless Technology Based Smart Cane For Blind People	Syed Sumera Ali, Varsha Subhudhi, Ulahas B.Shinde	International Journal & Magazine of Engineering, Technology , Management
23	CTSE- A Case study to en courage startups and skill development main engineering students	U. B. Shinde, Mahendra Sethi, Jaiprakash Shimpi, Pallavi Pawan Gupta	ssip annual.conference at edii gandhinagar
24	Study of Role and Issues of RFID in Stock Tracing System	Arjumand M Khan, Abdul Samad Shaikh, Pankaj Umate	international journal of research and analytical reviews
25	Enlarge Duct Length Optimization for Suddenly Expanded Flows	Prakash S. Dabeer and Sher A. Khan	Advances in Aircraft and Spacecraft Science.
26	An Investigation of Effect of Control Jets Location and Blowing Pressure Ratio to Control Base Pressure in Suddenly Expanded Flows	S. A. Khan and P. S. Dabeer	Journal of Thermal Engineering.

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27	Analysis of Parameters Affecting Thrust and Base Pressure in Suddenly Expanded Flow from Nozzle	Syed Ashfaq, Prakash S. Dabeer and S. A. Khan	Journal of Advanced Research in Fluid Mechanics and Thermal Sciences.
28	Effect of Nozzle Pressure Ratio and Control Jets Location to Control Base Pressure in Suddenly Expanded Flows	Prakash S. Dabeer, and S. A. Khan	Journal of Applied Fluid Mechanics, Iran.
29	Progressive Collapse Analysis of RC Building	Balaji Vinayak Ramtirthe, J. P. Patankar, S. V. Jadhav	International Journal of Water Resources and Protection, Scientific Research
30	Application Framework Development for Algorithm Design of PAPR Reduction in OFDM	Zakee Ahmed Ajij Sayyad	International Journal of Engineering and Advanced Technology (IJEAT)
31	EPOWT: A denoising technique of the electrocardiography signal transmission via 5G wireless communications	Devendra Laxman Bhuyar, Abdul Kadir Kureshi	Journal Metrics: Transactions on Emerging Telecommunications Technologies

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2019 - 103

RESEARCH ARTICLE | JANUARY 10 2019

A fractional order differential equation model for tuberculosis

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+ Author & Article Information

AIP Conference Proceedings 2061, 020007 (2019)

https://doi.org/10.1063/1.5086629

In this paper, we developed a mathematical model for tuberculosis. In this model, we obtained system of differential equations on fractional order. The results obtained in our model are verified with real data.

Topics

Mathematical modeling

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2019-104

Real time Analysis and Simulation of five level Grid Connected H-Bridge Inverter using FPGA Based Controller

Mithun G. Aush K. Vadiracharya

Abstract: ***In this paper FPGA based controller is developed for a cascaded 5-level H-bridge inverter inject active power to the grid through renewable sources. It reduces stress level on the different switches. Harmonic distortion and EMI in H-bridge Inverter cause by the different switching of power electronic devices. A capacitor, boost converter, three phase full bridge inverter and a filter add up to form a total five level inverter. The renewable energy source act as a input to the boost converter. The boost converter output is supplied to the capacitor which in turn is connected to the full bridge inverter. The switching action of the switches in five level H-bridge inverter is according to the controller action to give a five level AC voltage. The five level inverter output current is controlled to get the sinusoidal current in phase with the voltage of the utility in order to inject power in the grid. A prototype is developed so as to verify the performance of the cascaded five level H-bridge inverter with a grid connected renewable energy system. The results of the experiment show that the system gives the expected performance.***

Keywords: H bridge , Multilevel Inverter, DC-AC power

I. INTRODUCTION

Cascade H-bridge multilevel inverter have many advantages as compare to the different multilevel topologies found in the literature such as flying capacitor and diode clamped. Some of the important feathers of H Bridge Inverter are its modular structure, generation of low harmonics content which reduces the filtering requirement. The main aspect of the system integrated to grid is to generate the proper power factor as per the grid demand. Here a control strategy is proposed for a grid connected photovoltaic system with a five level H-bridge inverter. The proposed scheme has much advantage over the traditional system. In general two level inverter are used for the connection but it has a limitation in THD and voltage rise. The five level H-Bridge does not have this problem as it reduces the THD and DC capacitor add up the voltage for high power application. Multilevel Inverter technology is the one of the emerging technology in the field of medium voltage application. The figure 1 shows three phase cascade H- bridge multilevel inverter.

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Cascade Multilevel Inverter has a series connection of H-bridge Inverter with a separate DC source. As the number of level is increased in a multilevel inverter, the quality of output is improved in term of THD , which reduces the filter component size and cost. The remaining part of the paper is followed by mathematical modeling in section 2 then the control of three phase 5-level inverter in section 3.The simulation results and the real time implementation result is discussed in section 4 .The end section discuss the conclusion of the paper.

II. MATHEMATICAL MODELING OF GRID CONNECTED INVERTER

In this section, the mathematical model of the grid connected inverter is presented. The five level cascade inverter consist of two full bridge having 4 switching devices in each module. In each module full bridge will have 16 possible combination. Out of these 16 possible states, 4 inverter states will make bidirectional flow of current and the inverter output is fixed. Each modulecreates three different voltage levels in steps to get the AC output. The series combination gives us the five levels AC output of the inverter.

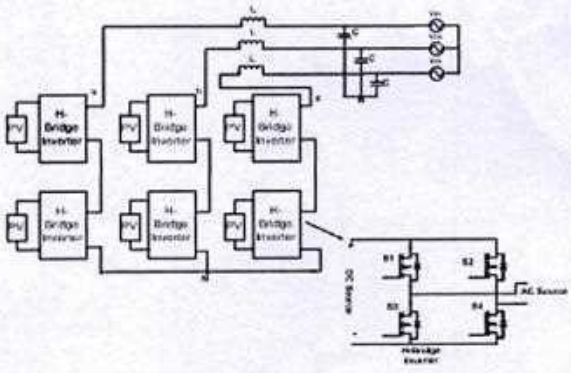

Fig.1. Grid Connected Five level H-bridge

Each voltage is determined by section of the PV plant. Here number of DC source.N_{DC}Required for good operation of the system is given by

$$N_{DC} = \frac{3}{2}(L_n - 1), \quad (1)$$

Where$L_n$represents the number of levels in phase voltage

$$L_n = 2S_{HB} + 1, \quad (2)$$

$S_{HB}$is the number of series connected H-bridge of each phase.

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Fuzzy Logic Controller for MPPT of Photovoltaic System

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Abstract - The solar energy is increasing the importance in the area of energy because it is free from dirt and stain; it is in pure form and is in large amount in the atmosphere. The science is improving day by day the PV system is also upgrading. The objective of the paper is to obtain the maximized power point tracing, to maximize the power output of the PV system for different irradiation and temperature, the MPPT technique is ed is the fuzzy logic.

Key Words: Fuzzy logic controller, MPPT

1. INTRODUCTION

The solar energy is playing a keen role in the area of renewable energy as seeing the need of energy; solar energy is the perfect option. The important part in the solar energy is to extract the maximum amount of solar energy in large amount; the only problem associated with it is low efficiency of the solar cell and deviation in its irradiance due to the atmosphere change. The only suitable path to overcome the low efficiency and deviated irradiance affecting output power is to use such a technique to maximize the output power point and keeping the power transfer at maximum level irrespective of the environmental condition.

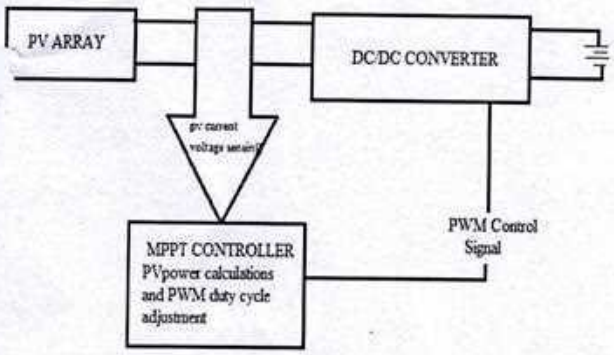

Fig 1: Diagram of PV System.

The above figure shows the PV system which is made of PV module, dc/dc converter and MPPT controller with battery, Number of solar modules are connected in series and parallel to form PV arrary.MPPT controller extract maximizes power to increase efficiency.[1,2,3]

2. PROBLEM ASSOCIATE

In Fig 2, the power curve of a PV panel is shown MPPT controller maintains the voltage V_{MPP} to that peak power P_{MPP} is achieved for specific isolation level and temperature current in increases as irradiance of sun increase.

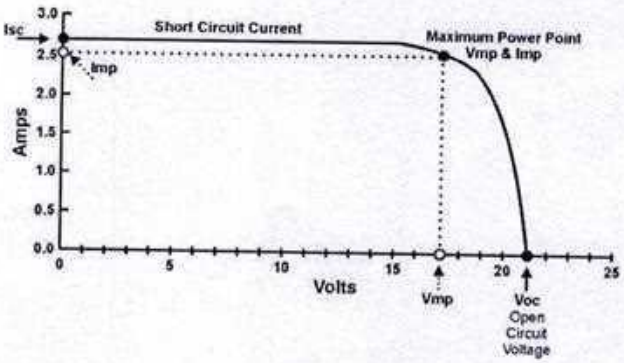

Fig 2: P-V vs. I-V curve characteristic

Various MPPT has different ways to calculate current imp voltage VMPP at maximizing power output for given temperature and isolation level

Many of the methods, temperature are assumed to be constant [1].

3. PERTURB AND OBSERVE TECHNIQUE

Mostly perturb and observe methods are observed in many papers Fig 3 shows increased voltage are the causes to increase power when a working point is on left of MPP and small power operating in right of MPP. One can see the increment in power, continuous perturbation operation should be same to attempt MPP once peak point is achieved reduction may take place in power for another perturbation.

The system oscillates about MPP when it is gained. Reduced size step makes attenuation in oscillations [4, 5].
This method is simple and easy to implement but the drawback is the operating point which toggle highly around peak point and cannot fix on the exact point.

4. MPPT USING FUZZY LOGIC CONTROLLER

The Fuzzy logic controller has the number of advantages. It is conceptually easy to understand. The mathematical concepts behind fuzzy reasoning are simple, flexible tolerant of imprecise data, it can model nonlinear functions of arbitrary complexity.

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2019 - 106

Hardware Implementation of 15-Level Cascaded Multilevel Inverter using Pic16f877a

Suraj R. Karpe, Sanjay A. Deokar, Arati M. Dixit

Abstract: ***Multilevel inverters can manufacture a high- power, high- voltage inverter with a multilevel structure to control the voltage of the device. A symmetrical multilevel cascaded standard inverter requires 'n' DC sources for' 2n+1' levels that require isolated DC sources for power conversions. The objective of this paper is to increase the number of levels by reducing the number of dc sources. The proposed scheme is to use a multilevel asymmetrical inverter with a separate DC power supply. The analysis is extended to the use of the single DC power source with the remaining ' n-1 ' DC source being a capacitor and simultaneously maintains the capacitor 's DC voltage level and selects a fundamental frequency switching pattern to produce an almost sinusoidal output. Matlab simulink simulation is performed to verify the performance of the Asymmetrical Multilevel Inverter using isolated Dc source. The results of simulation and hardware are presented and discussed in this paper.***

Keywords ***: MATLAB, Optimization Angle Control, Asymmetrical Multilevel Inverter, Symmetrical Multilevel Inverter***

I. INTRODUCTION

A multilevel inverter is an all the more dominant inverter that does likewise as an inverter, with the exception of in higher power circumstances. multilevel inverters are a powerful source that is frequently utilized in modern applications and can utilize sine or changed sine waves. Rather than utilizing a single converter to change over an AC current to a DC current, a multilevel inverter utilizes a scope of semiconductor control converters (typically a few) to produce higher voltage. While with an inverter can move vitality with the flip of one switch, with a multilevel inverter lip a few switches, each switch requiring a circuit. These various switches and circuits as a rule cost more multilevel inverters than inverters. multilevel inverters incorporate a scope of intensity semiconductors and dc voltage sources with voltages created by ventured waveforms [1]. The multilevel VSI incorporates yield voltages with decreased consonant contortion and lower electromagnetic impedance [2] contrasted with a two level voltage source inverter (VSI). Expanding the quantity of levels in the multilevel inverters implies that the yield voltages have more strides to make a staircase waveform that decreases consonant contortion. A more noteworthy number of levels, in any case, increment the quantity of gadgets to be controlled and the unpredictability of the control [3][4].

The multilevel inverter creates normal mode voltage, diminishes engine stress and avoids harm to the engine. multilevel inverters can draw low bending information current. The multilevel inverter can work at both essential and higher frequencies[5]. It ought to be noticed that the lower recurrence of exchanging brings about a lower exchanging misfortune and more prominent effectiveness [9][10]. Specific consonant evacuation system together with the multilevel topology brings about a low complete symphonious bending in the yield waveform without utilizing any channel circuit.

There are as of now three surely understood business topologies of multilevel voltage source inverters [4]. They are the multilevel neutral point clamped(NPC) inverter, the multilevel flying capacitor(FC) inverter and the multilevel cascaded H- bridge(CHB).In the CHB multilevel staggered inverter, arrangement associated H-connect cells with disengaged dc voltage sources associated with every cell are utilized [4]. Contrasted with other multilevel inverters, the fell multilevel control technique is simple since it requires no bracing diodes or massive capacitors. The CHB multilevel inverters can be isolated into two gatherings as indicated by the balanced and uneven topology of the dc voltage sources. The qualities for all dc voltage sources are equivalent in balanced topology. This component gives the topology great measured quality. Be that as it may, the quantity of exchanging gadgets is expanding quickly by expanding the voltage level of the yield. To build the quantity of yield voltage levels, no multi - level uneven sort switches are utilized. The dc voltage sources are chosen by the twofold and ternary proportions [8][9].

II. ASYMMETRICAL CASCADED MULTI LEVEL INVERTER

A multi- level cascade inverter is an electronic power gadget intended to integrate the ideal AC voltage from a few DC voltage levels. In a multi- level cascade even inverter with " n" no. We can acquire (2N+1) level from sources.

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Electric Vehicle

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ABSTRACT: Electrifying vehicles is seen by many as a possible solution to reduce environmental emissions and the dependence on fossil fuel. Unluckily most environmentally friendly energy storage systems, such as batteries, have less energy density compared to fossil fuel, which will have a negative impact on the vehicle range. A battery with enough capacity for long distance transports will therefore often imply a substantial increase in cost and weight, and reduced transport volume. An alternative would be to continuously transfer energy from the road to the vehicle both for propulsion and charging. A development of an electric vehicle would mean that the vehicle run on electricity using batteries to optimized for routes.

The final objective is to evaluate the technology to conductively transfer energy from the road to the vehicle based on cost, efficiency and feasibility.

KEYWORDS: Electric vehicle (EV), FAME [Faster Adaption and Manufacture of (Hybrid and) Electric Vehicles] Government of India.

I. INTRODUCTION

The era is, however, special in another optional area, namely the vehicle's type of fuel. The classical, conventional gasoline and diesel-powered cars are no longer the only consumer's options, while picking up a car on the market and the electricity is more in the game than ever before. It is certainly a nice gesture from an environmental perspective to decide for an eco-friendly driving machine, however, how expensive does it become to drive sustainably is another question. The consumers have the option of choosing fully electric zero tail-pipe emission vehicles, hybrid or even plug-in hybrid cars. Each mentioned one has then its own bright side, but there are dark sides as well.

An Electric vehicle is a battery operated vehicle that is very economical with low maintenance cost and free from pollution. Electric vehicle use the electrical technology of rechargeable battery that converts the electrical energy into mechanical energy. The battery of an electric vehicle can be charged easily using a power connection. An electric power-assist system may be added to almost any electric vehicle using chain drive, belt drive, hub motors or friction drive. India will have better progress on electric buses electric, rickshaws and two-wheelers over the next 10 years.The report believes that by 2040, EVs will constitute only 40 per cent of the total passenger vehicle fleet in India.

At the end of 2017, there were just 6,000 highway-capable electric cars on Indian roads, which is a minuscule number when compared to the overall numbers of total cars on Indian roads. There are some of problem in electric vehicle cost is high, lack of charging infrastructure availability, efficiency is low, and we cannot able to use long distance. But summarize all this problem government take some good effort. They launch some scheme for customer and manufacture due to this they inspire to shift EV.FAME India [Faster Adoption and Manufacture of (Hybrid and) Electric Vehicle] Scheme is an incentive scheme for the promotion of electric and hybrid vehicle in the country. Final objective of the scheme is to promote electric mobility and the scheme gives financial incentives for enhancing electric vehicle production and creation of electric transportation infrastructure.

2019-108

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DC TO DC CONVERTERS AND ITS APPLICATION FOR RAILWAY SYSTEM- A REVIEW

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ABSTRACT

In modern technologically advanced world, power electronic based converters are extensively used. Among them DC to DC converters are majorly used in transportation system because of its increased efficiency and regenerative system. The railway traction system is eco-friendly, pollution free and largely used transportation system in the world. A review of different types of DC-DC converter, isolated, non-isolated and its recent application in railway traction system is presented here. This paper also covers its key features such as high voltage conversion ratio, ripple factor, galvanic isolation and efficiency performance of DC to DC converters.

Keywords: Buck converter, Boost converter, Cuk converter, buck-boost converter, SEPIC converter, Flyback converter

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1. INTRODUCTION

In the early days of the railway invention, it is used to run on the coal. As technology developed with time new railway engines are developed which runs on petroleum oil such as petrol, diesel, etc. Now due to the increase in pollution and depleting sources of petroleum oil, there is a need of new invention in railway engines which will run on renewable energy along with electrical supply. The use of electricity for powering railway (locomotive) is known as the electric locomotive. In this electric locomotive system, railway engines are provided electricity from overhead lines. There are two types of electric locomotives, fully electrified locomotive system and hybrid locomotive system. In fully electrified locomotive system railway engines are totally dependent on power supply provided from overhead lines. This system does not have any backup supply in case of failure of electric lines. The hybrid system

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Convolutional Neural Network-VGG16 for Road Extraction from Remotely Sensed Images

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Abstract: ***This study is performed to analyze the use of VGG16 in providing and improving the road extraction from remote sensing images (RSIs). As you can see in the past few years deep CNN is widely used in various applications to detect patterns and to analyze them as well. VGG16 which is also known as oxfordNet is a convolutional neural network (CNN). VGG16 mainly serves the purpose of classification and detection of objects. U-Net is considered as one of the standard CNN architectures for image classification tasks. It is considered as a best network for fast and precise segmentation of images. In this paper, we address the issue of speed and size by proposing a compressed convolutional neural network model namely Residual Squeeze VGG16. Proposed model compresses the earlier very successful VGG16 network and further improves on following aspects: (1) small model size, (2) faster speed, (3) uses residual learning for faster convergence, better generalization, and solves the issue of degradation, (4) matches the recognition accuracy.***

Keywords: Road extraction, Remote sensing images, Convolutional neural Network (CNN), VGG16.

I. INTRODUCTION

In the domain of pattern recognition and remote sensing images (RSI) detecting a pattern or object has been vibrating topic of all the times. Airports, Roads, Forests, Buildings, and urban settlements are often been the area of interest in RSI, with Roads being highly used for the purpose of navigation on lands and maps. In recent years it has been applied in many domains, e.g., urban planning, Geographic Information (GIS) data updating, and traffic navigation. Since roads have obvious geographical features, they have regular shapes in object extraction [1,4], with stripe-like distribution, geometric shapes of fixed width, and interconnected network topologies. So, the main problems been faced while road detection are as follows: Diversity. There are various types of roads present in the world. For example, highways, urban trunk roads, and country roads, resulting in multiscale characteristics. Narrowness. In comparison with huge tall buildings roads appear narrow, likely to cause discontinuous extraction. Easily disturbed. Trees present on roads can easily obscured the texture of the road or can confused with rivers in remote sensing images which leads to feature variation in different imaging conditions. Therefore, extracting roads from remote sensing images automatically and precisely is rather tough work. The road network always have a standard geometrical morphology, but extraction of road network from satellite images is not so easy as road network are usually covered by ground objects likes trees, vehicles and shadows. Therefore the color and shape of the road are different at different areas [2]. In this proposed method, VGG16 is used for extracting roads from remote sensing images. And CNN as classifier and gives more accuracy hence it is used. Convolutional neural network (CNN), which is an extension of biologically inspired multi-layer perceptron's (MLPs) [10], is considered as an one of the efficient image feature extractor. CNN architecture includes number of convolution as well as pooling layers, which are followed by again fully connected layers. The convolution layers includes local filters, that are adjust during the training of the CNN architecture to exploit the strong spatial local correlation present in the input images. CNNs are considered to be a leading technique in image classification and that have state-of-the-art performance in various applications includes handwritten digit recognition, traffic signs classification [12], and 1000 classImage Net dataset classification and localization.[10] So, this study gives idea about a deep extraction technique which inspired from the existing efficient techniques. CNN-based road extraction system, adopting a two-stage road.

II. LITERATURE SURVEY

A convolutional neural network (CNN) is comprised of one or more convolutional layers (often with a subsampling step) and then followed by one or more fully connected layers as in a standard multilayer neural network. Layers in CNN operate on local input regions, which we called them receptive fields. Receptive fields, parameter sharing and spatial subsampling are characteristics of CNN. The lack ofdependence on prior knowledge is a major advantage for CNN. Because the high degree of invariance of image distortion, CNN features usually have a better performance than the human-designed features. Convolutional neural network is a type of feed-forward artificial neural network, which can extract features for visual recognition tasks automatically.

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Designing of a Novel Framework for Marathi Natural Language Processing: MR-LIWC2015

Saroj Date[1], Sachin N. Deshmukh[2], Ryan Boyd[3], Ashwini Ashokkumar[4], James W. Pennebaker[5]

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Abstract: The role of linguistic analysis in understanding human behaviour, emotions, and psychological states has gained significant prominence in various domains, including psychology, social sciences, and computational linguistics. The Linguistic Inquiry and Word Count (LIWC) is a widely used tool, developed by American social psychologist James W. Pennebaker and team of the University of Texas, Austin, enables automated linguistic analysis of text. This analysis provides insights into psychological and emotional dimensions. However, its applicability has been mainly restricted to English and a few other languages, limiting its usage in multilingual contexts. Originally developed in English, it has been adapted to several other languages like German, Dutch, Spanish, Chinese, Turkish, French, etc. However, this tool is not yet available for Marathi language- a major language spoken by people of Maharashtra, India. This paper presents a novel framework for the development and evaluation of a Marathi translation of the LIWC dictionary, aiming to expand its utility to the Marathi speaking population. The development process of Marathi version of LIWC is based on English LIWC-2015. The work is unique since it is the first LIWC translation for any Indian language. The development of Marathi version of LIWC includes several steps like initial translation and wildcard(*) expansion, dictionary expansion , linguistic analysis , wordlist development ,cultural adaptation ,wordlist validation process , refinement phase , equivalence research, addition of summary variables and wrap-up final dictionary in official LIWC format. The evaluation of the Marathi LIWC is conducted on a diverse dataset of Marathi text samples, encompassing social media posts, speech transcripts, blogs, short stories and book summaries. The performance of the translated dictionary is assessed based on its ability to accurately capture linguistic features, emotional tones, and psychological constructs present in the Marathi language. To evaluate the effectiveness of the Marathi LIWC, a diverse dataset of Marathi texts was analyzed using both the original English LIWC and the newly developed Marathi LIWC. The results of the evaluation demonstrate that the Marathi LIWC maintains its alignment with the original LIWC's underlying linguistic and psychological dimensions while catering to the specifics of the Marathi language. The translated dictionary exhibited promising reliability and validity in capturing linguistic and psychological features within Marathi texts.

Keywords: *English LIWC, LIWC, Marathi, Marathi LIWC, Marathi translation, NLP, Natural language processing, Sentiment analysis, translation, translation procedure, translation process*

1. Introduction

For the linguistic, psychological and emotional analysis of text data, Linguistic Inquiry and Word Count (LIWC) have proven to be a valuable lexical resource. It has gained popularity for its ability to assess psychological and emotional aspects by analyzing text samples. American social psychologist James W. Pennebaker and team of the University of Texas, Austin, developed this lexical resource called as LIWC for English language text analysis [1]. It is a widely-used resource that enables academicians and researchers to analyze written texts. The English version of LIWC has played a significant role in various fields, including psychology, social sciences, marketing, computational linguistics, and similar other fields. Originally developed in English, it has been translated to several other languages like German, Dutch, Spanish, Chinese, Turkish, and French. However, this tool is not yet available for Marathi language- a major language spoken by people of Maharashtra, India. This paper aims to describe the process of translation and evaluation of a Marathi version of LIWC-2015 , officially called as MR-LIWC2015 dictionary, which would enable researchers to analyze Marathi language texts. As analyzed from the literature survey, it is the first LIWC translation for any Indian language.

The rest of the paper is structured as follows. Related work describing LIWC construction to other languages is discussed in Section 2. Section 3 describes the detailed process of building a Marathi version of LIWC-2015 dictionary. Section 4 illustrates experimental work using

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2019 – 109

DC Feeder Voltage Control Strategy of Bidirectional DC to DC converter for Railway Traction

Sachin V. Kale, N. R. Bhasme

Abstract: ***The regenerative energy which is generated during the period of braking of railway traction increases voltage of DC feeder line which makes it crucial and important to consider. Regenerative energy storage system is one of the key solutions to use regenerative energy more effectively and efficiently. Super capacitor has advanced version of the conventional capacitor because of its instant charging and discharging, making it suitable to use as energy storage device for traction system. In this paper, operation of half bridge type bidirectional DC-DC converter for both running and braking operation of traction motor is modeled & simulated and performance analysis is carried out. During charging mode of supercapacitor this converter works as buck converter and during discharge works as boost converter to control the DC feeder voltage at appropriate levels.***

Keywords: ***bidirectional DC-DC converter, traction motor, supercapacitor.***

I. INTRODUCTION

All over the world, reduction of CO_2 emission for improving global environment is main concern for the researchers now a days. Earlier railways used petroleum as a fuel to run railway which emits harmful gases like CO_2, nitrogen into the atmosphere. In the year 1887 traction system is introduced in the railway. Due to use of traction system, requirement of petroleum is reduce resulting reduction of pollutant emission in atmosphere. This promoted, implementation of electric traction system which becomes more eco-friendly by using proper braking energy recovery system.[1]

In a traction system, a large amount of power is taken from the overhead lines, in order to operate it. In the traditional method, the regenerative energy is wasted in braking resistor in the form of heat. This power consumption also includes various losses and wastage of energy. In the last decades or more, there have been relentless efforts made in order to reduce direct power consumption and utilization of loss of energy or breaking energy again for powering management of traction system. Among the various methods, regenerative braking is more efficient. In this case, during braking region, motor acts as a generator and feed regenerative energy back to supply. In modern methods of regeneration, the bidirectional Dc to DC converter and energy storage system like battery, supercapacitor, flywheel and hydraulic devices are in use. Considering railways application conditions, frequent start up process have occurs only for several seconds and require higher power during that time. Therefore Supercapacitors and flywheels are becoming best options for regenerative energy storage systems. Super capacitor has a capacity of instant charging and discharging but it has disadvantage of having higher cost and low rated voltage capacity. Bidirectional DC to DC converter is connected between DC feeder and energy storage system. By the buck- boost operation, bidirectional converter could control the charging and discharging operations of supercapacitor. During the braking, braking energy will be stored in the supercapacitor by Bidirectional DC/DC converter which works as Buck converter and during acceleration process or reduction of feeder voltage, supercapacitor discharging through same converter which work as boost converter. [1]

II. SYSTEM DEVELOPMENT

The basic block diagram of DC feeder voltage control strategy of DC to DC converter using super capacitor for traction system as shown below Fig.1

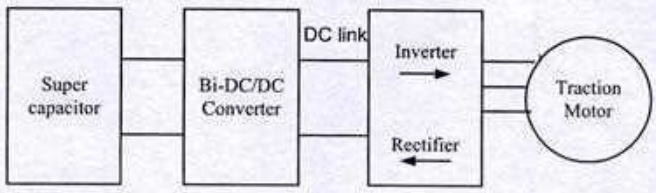

Fig. 1 Block diagram of traction system with Supercapacitor

Supercapacitor, DC feeder, Bidirectional DC to DC converter, inverter, rectifier and traction motor are main elements included in this system.

A. Bidirectional DC-DC Converter

The regenerative power which is generated by induction machine during the time of braking. increased DC feeder voltage.

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Single Phase Power Factor Correction Using AC to DC Converter

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Abstract—**Recently used electronic equipment for PCs, TVs and telecommunications Equipment requires some form of power conditioning, usually rectification, for its proper functioning. However, since they have non- linear input characteristics and are connected to the electricity distribution network, they produce a non- sinusoidal line.Current frequency components are produced that are multiple of the natural frequency, otherwise called line harmonics. With the ever- increasing demand for such equipment at a high rate, the current harmonics of the line have become an important problem. A number of international standards have been introduced, which limit the harmonic content of the line currentThis requires measures to reduce the current line harmonics, also known as Power Factor Correction– PFC.There are two types of correction techniques– passive correction of the power factor and active correction of the power factor. We tried to develop an active power factor correction method for improving the power factor in this thesis. In this work, the advantages of a boost converter are combined with the advantages of the average current mode control. The power factor corrector was designed using the UC3854. This integrated circuit had all the necessary circuits to control a power factor corrector and was designed to control the average current mode.**

Keywords — **Power Factor Correction, Power Factor, AC to DC Converter**

I. INTRODUCTION

230 V, 50 Hz, which has a proper sinusoidal shape, provides an ideal single phase supply for domestic use. The power system, however, has an impedance that limits the current flow mainly due to magnetic flux effects in substation transformers and transmission lines. This impedance can not be completely avoided or its effect can be nullified to a much lower level. This in turn results in the difference in voltage between the power supply station and the consumer point(voltage is lower at the consumer point). On the other hand, the growth of consumer electronics has led to an increase in electronic devices driven by the mains. These devices have circuits of mains rectification, which are the main cause of harmonic distortion.There would be many such devices and they would draw reactive power from the same supply phase, which would result in a large amount of reactive current flow and harmonics generation. Both of these affect the transmission system's power factor. The former relating to the impedance affects the displacement power factor while the latter one affects the distortion power factor of the system. Power factor reveals the electronic usage ratio which the household electronics consume, mainly focus on the degree of usage and waste. The better the power factor the better the power consumption and the lower the waste. Therefore, the power factor must always be improved by some means, and this project(Active Power Factor Correction) is an attempt in this field. In later stages of this report, it is explained how this method and its various advantages over its

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Wireless Vehicle Charging

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***Abstract*-- In this paper we are focusing on overviews novel technique for wireless charging system of electric vehicle in which verify the developed theory using battery charger application of electric vehicle. In electric vehicle charging of battery through charger and wire is inconvenient, hazardous and expensive. The existing gasoline and petrol engine technology vehicles are responsible for air, noise pollution as well as for greenhouse gases. The implemented wireless charging system of battery for Electric vehicle by inductive coupling method has been presented in this paper. The driving circuit is used between the transmitter coil & receiver coil where MOSFET is used for switching operation. The transmitter coil circuit is turn ON and OFF whenever the vehicle is present and absent respectively.**

***Keywords*— wireless power transfer; electrical vehicles; inductive power transfer; battery charging etc**

I. INTRODUCTION

The wireless power transfer can be used in electronic equipment in common use of charging. Consist of a Transmitter & The Receiver could serve as a replacement for wireless charging. This module use to transfer electric energy between transmitter circuit and receiver circuit. The transmitter circuit powered by 12V creates the alternating electromagnetic field by induction coil .The second induction coil takes power from electromagnetic field and convert it into electrical current that output 5V-600mA. The world suffers from many problems without electricity. In day to day life electric power is important in many applications such as mobile, laptop, camera, sensors, bionic implants, satellites and oil platforms. In 1891, Nikola Tesla has proposed an idea of witricity and he demonstrated the first wireless power transfer system for illumination. Sometimes connecting too many wires in small power sockets becomes inconvenient and hazardous. The First electric vehicle practically implemented by Thomas Parker in 1884.

II. LITERATURE SURVEY

LITERATURE REVIEW TABLE

Sr. No.	Title	Author	Year	Problem in Existing System	Solution on Existing system
I.	Problems in development in Li-ion Battery	Etacheri V,Elazari R,Salitra G	(2011)	Overheating of Battery	Using liquid coolant around battery.
II.	Living and mobility	Madawala UK,Haerri VV	(2008)	Mobility of transportation networks	Using micro-simulation model obtained travel time
III.	Survey of Wireless Power Transfer	T. Imura, Y. Hori	(2011)	Maximizing efficiency and air gap	Using equivalent circuit

2019-112

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Review on: Fuzzy Module for Battery Charger and Control

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Abstract — **In this paper we are focusing on review of utilization of solar energy for charging the dry battery. The fuzzy logic algorithm used in battery charging process improve the efficiency of battery charging process and enhances the battery life. A fuzzy module reads the real time battery voltage and current and fuzzy logically control the battery charging current, enhanced the energy efficiency and avoid our charger and less charger efficiency, realized efficient, fast and safe charging. The response showed smooth charging especially during critical phase of battery charging. The proposed battery charger with a fuzzy logic controller to improve the line power quality and deliver maximum allowable output power to the battery. The fuzzy control algorithm is implemented with the digital signal processor (DSP) to optimize a fuzzy rule-based system to produce the desired output.**

Keywords— **Dry Battery, Fuzzy Logic, PID Controller, PV Cells.**

I. INTRODUCTION

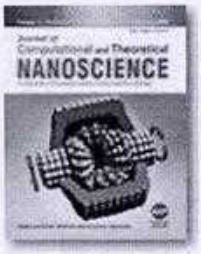
This task highlights utilization of solar energy for charging the dry battery. The fuzzy logic algorithm used in battery charging process improves the efficiency of battery charging process and enhances the battery life. A fuzzy module reads the real time battery voltage and current and fuzzy logically control the battery charging current, enhanced the energy efficiency and avoid our charger and less charger efficiency, realized efficient, fast and safe charging. The response showed smooth charging especially during critical phase of battery charging. The conventional battery charger experiences a highly distorted current harmonic waveform and low power factor. Thus, the proposed battery charger with a fuzzy logic controller to improve the line power quality and deliver maximum allowable output power to the battery. The fuzzy control algorithm is implemented with the digital signal processor (DSP) to optimize a fuzzy rule-based system to produce the desired output. The fuzzy logic algorithm used in battery charging process improves the efficiency of battery charging process and enhances the battery life. A fuzzy module reads the real time battery voltage and current and fuzzy logically control the battery charging current, enhanced the energy efficiency and avoid our charger and less charger efficiency, realized efficient, fast and safe charging. The response showed smooth charging especially during critical phase of battery charging. The proposed battery charger with a fuzzy logic controller to improve the line power quality and deliver maximum allowable output power to the battery.

II. AIM OF THE PROJECT

The aim of the project is to charge the battery as quick as possible in less time and in this FLC method, battery charges through solar plate, which means it is an good example of the renewable energy source, we can see that now in a day's how renewable energy going Important from the future point of view, so it is an very efficient and very quick time application, it also reduce time to charging process and also help to observation on battery to check that the battery is low or charged and we are implementing that to shut-off and shut-on automatically for the better safety when the battery gets charged and discharged.

III. LITERATURE REVIEW

This paper will discuss the research done on this subject till today. The table 1 below shows the summary of work on this subject which is done before. According to recent rising interest in intelligent control systems, it has been necessary to collect and classify these control systems and explain how their control techniques were developed. Despite the increase in the number of papers describing intelligent control techniques, understanding of the application of these techniques among the community of practice.



2019-113

Efficient and Reliable Routing Algorithm for Mobile Ad Hoc Networks

Authors: Rawate, Amit Madhav; Shinde, Ulhas B

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References
Citations
Supplementary Data

he Mobile Ad hoc Networks (MANETs) are collection of mobile nodes deployed randomly without any physical infrastructure. The seamless data communication is performed cooperatively from source mobile node to destination mobile nodes through the selected path. However, the route discovery, path selection, and data transmission phases poses the several challenges due to the reasons like random mobility of nodes, queue overflow at particular node, energy consumption etc. Since from last two decades, there are several routing algorithms proposed for the efficiency and reliability optimization for the MANETs. In this paper, we proposed the novel routing scheme to satisfy the requirements of quality of service (QoS) efficiency and Reliability for MANETs. This can be achieved by designing the route discovery and data transmission methods by considering the key parameters such as nodes mobility, bandwidth needs, and energy needs using the optimization method called Ant Bee Colony (ABC). The paths are selected based on these three parameters to perform the efficient and reliable data transmissions. Due to the drained energy and mobility of nodes, frequent routes breakup leads the unreliable and inefficient data transmissions in MANET, thus we designed this novel routing scheme in this paper. Additionally, the load balancing also plays the crucial role in path selection process. We computed the bandwidth requirements while selecting the path for data transmissions. The simulation results demonstrate the enhanced performance as compared to state-of-art methods.

Keywords: Ant Bee Colony; Bandwidth Requirements; Energy Level; Load Balancing; Mobility; Quality of Service; Reliability

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2019 -114

Feature Extraction Techniques Based on Swarm Intelligence in OCR

Shrinivas R. Zanwar, Abbhilasha S. Narote, Sandipann P. Narote

Abstract*: Optical Character Recognition is a most recent field in area of pattern recognition and machine learning in last decade. In this article, the suitable techniques are designated for better character recognition in document into machine readable form. It is belonging with Content Based Image Retrieval (CBIR) system, which solve the delinquent of searching images in huge dataset. The recognition technique of handwritten character is not developed efficiently till, because of variations in size, shape, style, slats etc. in writing skill of human being. To overcome such problems, the part of concentration is feature extraction and algorithm that take care of such variation. In this paper independent component analysis is used for extracting features. For feature vector selection particle swarm optimization and firefly algorithms are applied. It is observed that due to distributed neighborhood pixel of an image, the PSO gives better recognition rates.

Keywords* : Independent Component Analysis, Particle Swarm Optimization, Firefly Algorithm, Pattern Recognition.

I. INTRODUCTION

Generally, the recognition of characters and numbers is the easiest task for a human being as it compared with a machine or computer. So that, the improvement in digital computers and machine learning algorithms for the handwritten character recognition has been a very challenging exploration in image processing and pattern recognition. It is used in computer and text processing applications. The conversion of text image into editable word document occurs in offline handwriting recognition which is used in computer and text processing applications. Figure 1 shows generalized flow of Content Based Image Retrieval (CBIR) process. In general, it consists of various steps as mentioned in fig 1. It is also referred as Query by Image Content (QBIC). Most of the researchers have been worked on this process depend on pixel, but image retrieval process is still facing complications.

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There are lot of challenges in OCR system like poor handwriting, low quality of old documents, variation in shape and size, similar shaped characters have been overcome in the system. Optical character recognition is an area which covers artificial intelligence, deep learning, machine learning, and pattern recognition and computer vision. By performing processing steps in OCR, it can be drawn some attributes as text intensity, structure of text, font, character type, art effects, location etc. Recently, lot of algorithms are developed for character extraction in image [1]. To reduce classification complexity, shape decomposition based segmentation technique is used, it decompose compound character in to prominent shape components [2]. Also, it can be possible by enhanced Maximally Stable Extremal Regions (MSERs) supported by various preprocessing steps [3]. The novelty of work is focused on harmonization of feature extraction techniques. It give scope to improve feature extraction methods. Here, error rate probabilities are minimized and true rate recognition is improved by swarm intelligence algorithm. The scanned document extract various feature vectors with separate component and analyzed accordingly.

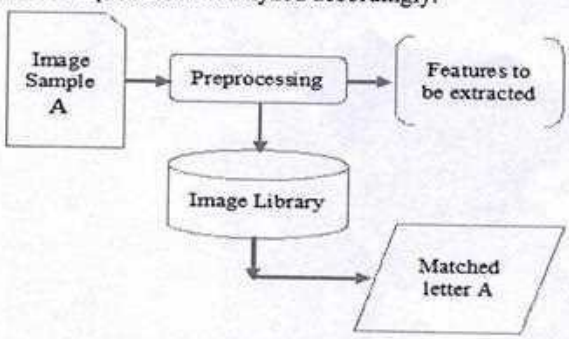

Fig. 1.Generalized Flow

Here, the paper is organized in various section as first part presents an introduction to OCR. In section II, related work is explained in detail. Dataset preparation and preprocessing steps are described in section III. Also, this section explicated ICA, PSO and FF algorithms for backpropagation neural network as classifier. Results and discussion is analysed and compared in next section IV. Finally, conclusion and summary justified in the last unit V.

II. RELATED WORK

In present situation, many of the researchers have proposed techniques for efficient character recognition in different languages. Nisha Sharma et. al. [4] used dataset, prepared by 40 people.

2019 — 115

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A Comprehensive Survey On Soft Computing Based Optical Character Recognition Techniques

Shrinivas R. Zanwar, Ulhas B. Shinde, Abhilasha S. Narote, Sandipann P. Narote

Abstract: Character recognition has been one of the most interesting and challenging research areas in field of image processing and pattern recognition in the recent years. This paper describes the techniques for better character recognition in document into machine readable form. Several techniques like OCR using Feature extraction and OCR using neural networks are reviewed in this paper. Before going to future research work, analyze and update recognition techniques in detail which are implemented previously. The purpose of this paper is to discuss various algorithms, techniques, processes, and achieve direction towards research work to improve the problems faced by existing systems to get more recognition rate.

Index Terms: Image processing, Pattern recognition, Preprocessing, Feature extraction, Feature selection, Classification, comparison.

1 INTRODUCTION

It is always the frontier area of research in the application of image processing as pattern recognition, document analysis, nage retrieval, artificial intelligence, machine learning and deep learning approaches. English script is the most widely used script in the world. In the field of OCRs, this script is the most mature as work on English script was started from the 1940s [1]. Here we are presenting the latest literature review on state of art methods. The character recognition is the process in which machine or computer understand the image of handwritten data and convert it into a particular character. There are two ways of character recognition (CR) i.e. online CR or offline CR as observed in Fig 1, which shows the classification of different character recognition systems. In Online character recognition, a data is prepared from a pressure sense of transducer at the time of the user is writing because of the successive movements of the pen are altered into an electronic signal having memory and can be analyzed easily by the computer. Commonly, magnetic character recognition (MCR) or optical character recognition (OCR) is to recognize handwritten as well as printed data. Similarly, offline character recognition includes the conversion of text into an image into letter codes. According to Suman Avdhesh Yadav et. al. [2], the off-line handwriting recognition is more difficult as compared to online recognition because of [redacted]erent people have different handwriting styles, variations in shapes, angles, size, thickness etc. Whereas, on-line handwriting text recognition (HTR) could be used as a more natural way of interaction in many interactive applications. There are many consequences in the improvement in errors rates in HTR, in which the information from the specific task allows to constrain the search and therefore to improve the HTR accuracy [5].

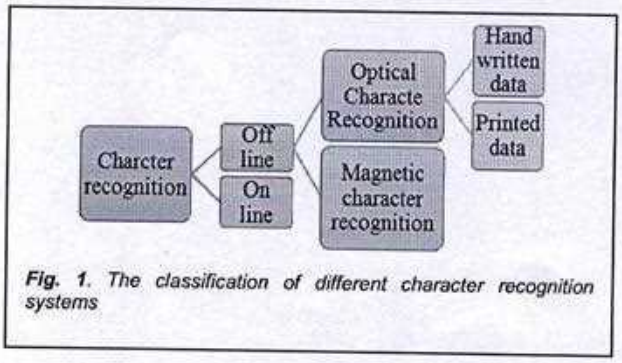

Fig. 1. The classification of different character recognition systems

Basically, there are the various steps involved in the character recognition system is explained by Nisha Sharma [3] in 2014, as data acquisition (input image character), preprocessing unit (remove noise, binarization, thinning, resize etc.), segmentation (isolation), feature extraction (extract the essential and differentiable characteristics), classification (decision making), post-processing (output image character) as shown in fig 2.

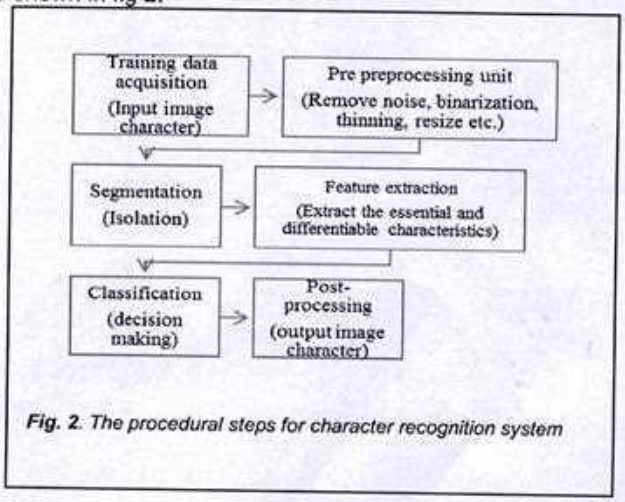

Fig. 2. The procedural steps for character recognition system

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2019 - 116

A Review On IOT Based Smart Agriculture For Sugarcane

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Abstract - Agriculture is practiced on a large scale in India and its contribution is also maximum in the Indian economy.The traditional farming practices like dependency on monsoon, poor infrastructure and less usage of technology has affected agricultural sector. In this paper we have proposed IOT based smart agriculture for sugarcane. Here soil and environment properties are sensed and periodically sent to agro-cloud through IOT. Agro-cloud storage is used to store continuously the details of soil and environmental parameters sensors data.Analysis on the agro-cloud data is done for fertilizer requirements. This model will help the farmer to take right decision is taken at right time and increase his yeild.

Index Terms - Cloud, IOT, Smart agricultural system, Wi-Fi, WSN.

I. INTRODUCTION

India has agriculture as its primary and main occupation. As per IBEF (Indian Brand Equity Foundation), 58% of people that are living in rural areas in India are dependent on agriculture. According to Central Statistics Office, agriculture contributes roughly and around 8% to the Gross Value Addition which is very significant contribution. Under such a situation lot of fresh water is used by agriculture uses 85% of available fresh water resources worldwide and this percentage will continue to dominate because of population growth and increased food demand.The evolving problem of global water crisis: The available fresh water is getting contaminated due to man-made activities like mixing of industrial waste with rivers etc. can harm the aquatic life.The system consists of microcontroller and sensors like soil ph sensor, soil moisture sensor, soil temperature sensor, air temperature and humidity sensor.Here IOT based smart agriculture system is proposed.The intention for approaching smart agriculture is to increase its agricultural productivity and its incomes. In the proposed system we are going to monitor real time parameters of soil and environment through various soil and environmental monitoring sensors. The data from these sensors are periodically sent to agro-cloud through IOT. Agro-cloud stores the details of these sensors and analysis is done on the stored agro-cloud data for proper management of fertilizer requirements etc. This model is useful to increase agricultural production.

II. LITERATURE SURVEY

In [1] authors have proposed a system in which soil and environmental properties are sensed and periodically sent to agro-cloud through IOT (Beagle black bone). Big data analysis is done for fertilizer requirements and best crop sequence analysis can be done. In [2] authors have studied and reviewed sensor technology and wireless network integration of IOT technology based on actual situation of agricultural system . They have proposed remote monitoring system and they have collected real time data of agricultural production and sms will be sent to the farmer and advises on weather pattern can be given.In [3] authors have proposed a system which monitors the environmental status and this is sent to agricultural monitoring server then the server sends data to user. The user analyse the data is below the specified value then necessary action will be taken.In [4] authors have proposed a system in which supply of water is needed when the farm is dry without human presence and thus avoiding water wastage in irrigation process. It also monitors the soil parameters like temperature, humidity and soil moisture level and helps to control remotely different operations of the field from anywhere anytime by mobile as well as web application.In [5] authors have published a paper which confers study of weather station and mobile data logging type monitoring. It's an application which consists of hardware through which a farmer can monitor and as well as control certain parameters of field. They also gave information regarding multi-devices, communication protocol, sensors and system which are used to monitor smart farming and algorithm used for such purposes.In [6] authors have proposed a system in which farmer can monitor and control all activities which are necessary during farming and be advised 24*7 from pre-farming to post-farming through mobile device. In [7] authors have proposed a low cost and low power IOT network for smart agriculture For monitoring soil moisture content use of an in house developed sensor is done. In [8] authors have developed a system which can monitor temperature, humidity, moisture and also movement of animals which may destroy the crops through sensors using Arduino board and SMS will be sent to the farmer. In [9] based on the information sent by the sensors authors have proposed a system which can estimate the quantity of water needed. For this two sensors are used for getting data to the base station and then it calculates the water quantity which is required for irrigation. In [10] For doing automation of various agriculture tasks, a GSM based smart agriculture system is proposed. Here automation is proposed by smart irrigator that moves on mechanical bridge slider arrangement. Through GSM module the smart irrigator receives signal from smart farm sensing system and sensed data is transferred to irrigator system to perform automatic actions.In [11] Intelligent farming system is proposed which consists of two parts namely sensor part and control part. Here focus is on control part which has two main subsystems they are watching and roofing subsystems. The system uses statistical data from

2019 - 117

International Conference on Sustainable Computing in Science, Technology & Management (SUSCOM-2019)

Face Recognition Using OpenCv Based On IoT for Smart Door

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SMTP
IMAP

ABSTRACT

Automated embedded systems have made a lot of progress in today's world. The significance of such system in applications like surveillance, private security has been proven to be very effective. This paper discusses a face recognition system which is designed and implemented for doors resulting in smart doors based on IoT. The paper intends to provide the information to the user using open source technology which comprises of OpenCV2, LBPH algorithm, SMTP, raspberry pi3,pi camera. The implementation area is categorized more on local level like home, offices and campus. The system provides real time face detection and recognition once the bell is triggered. The captured image is analyzed with the available database and if it is a match, the access is granted and door will open. On the contrary if the face did not match the captured image is then sent to the user mail using SMTP. The system will then wait for the response from user within stipulated time with appropriate message. The message is retrieved on raspberry pi using IMAP. Based on the retrieved message context either access will be granted or denied. The system is acting as a base station. The wireless communication is achieved using SMTP and IMAP. The aim of the system is to develop a real time face recognition model having low cost solutions in security.

Peer review under responsibility of International Conference on Sustainable Computing in Science, Technology and Management.

1. Introduction

As discussed above first task is face detection involves detecting a face from the image. A classifier is a program used for the process which identifies whether the image is positive (i.e face image) or negative (non-face image) (Wazwaz, Herbawi, Teeti & Hmeed 2018). In this paper we are adopting haar classifier which process image in gray scale. The haar classifier is pre-trained in the OpenCv bundle. The haar classifier file location should be in the directory where the main program file is stored. As this will be use later on for creating database directory containing sub directories that belongs to the face database. In this paper we are creating database sub-directories each will consist of 45 images of each person. The haar classifier extracts face image by making use of edge feature, line feature and centre-surround features. The haar is adopted for the system because of its high detection accuracy and low false positive rate. The last task is to identify the face, for this we are using recognizer named Local Binary Pattern Histograms (LBPH). The idea to use he LBPH is to avoid light effect if any and it find the local structure of image by comparing each pixel to the neighbouring pixel. One such conversion is shown in Fig.1 from (Sánchez López, Laura 2010). Once the image is fed to the system, the recognizer will generate histogram of that image which will be matched to the existing histogram. The person with the outmost matching result will be labelled in the output window.

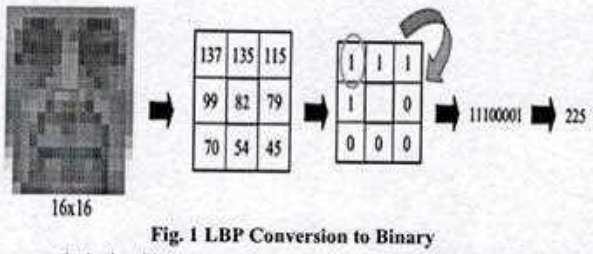

Fig. 1 LBP Conversion to Binary

In case of image is recognized the electromagnetic lock will get open through the action initiated by raspberry pi. If the image is not recognized then the captured image will be sent through raspberry pi using Gmail IMAP to the owner giving message in the subject as Intruder Alert. The response of the owner in the subject itself will be retrieved by raspberry pi within specified time. The message sent by the owner will decide to grant access or not. In this paper we are using open source hardware platform raspberry pi. The python programming language is used for raspberry pi. In this paper a low cost security system is designed which will provide real time recognition as well as authentication from the user. This paper is organized as follows: section 2 pro-

2019-118

ECG BASED HEART DISEASE DIGNOSIS USING MACHINE LEARNING

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Abstract: ECG play an important role to diagnose heart diseases. Monitoring patient with arrhythmia, predicts health condition of patient at very early stage. In this paper a low cost real time ECG acquisition done using three electrode ECG sensor. ECG sensor placed on body surface to detect QRS peak and output of ECG sensor is connected to AD8232 ECG module. Output of ECG module connected to ADC microcontroller IC. Further it is connected to raspberry pi for displaying peak output and detecting normal and arrhythmia ECG. Machine learning Libraries are used for detecting arrhythmic heart disease.

Index Terms **- ECG; Python Language; Diagnosis; Heart Rate.**

I. INTRODUCTION

According to the Centers for Disease Control (CDC), Heart disease is major health concern. Heart disease is the leading cause of death, it is major cause of abnormal deaths. ECG detect heart activity without any penetration or damage to the body. ECG data obtain from sensors contain lot of noise and having very low frequency. So we need to amplify and filter that signal to obtain relevant data. Heart Diseases are of different types which occur in different ways and affect the different parts of body. Heart Beats detect the heart condition of normal and abnormal person. If Electric pulses in heart that leads to heart beat do not work properly leads to Arrhythmias. These make the heart beat in a way it should not, whether that be too fast, too slowly, or too erratically. Heart beat rate varies with age. Normal heart rate of person is in between range of 60 to 100 BPM. Congenital heart defects related to person who born with abnormal heart Athletes have different criteria of heart rate that is in between 40 to 100 BPM, as they go through intense physical activity. On world Heart day of 2015. It is estimated that cardiovascular diseases, are the world's number one killers, claiming 17.5 million lives a year globally. Unhealthy lifestyle is major cause of heart diseases. So there is need of hour to create heart-healthy environment and heart-healthy choices to all individuals.

II. LITERATURE SURVEY

For instance Kusum Tara, Ajay Krishno Sarkar Dept. of Electrical and Electronic Engineering Rajshahi University of Engineering & Technology Rajshahi-6204, Bangladesh analyzed Real-time Monitoring of Heart Conditions via Electrocardiogram Processing at Different Lifestyle Situations. They designed the monitoring system that can produce and process the ECG signals within MATLAB tool. They detected QRS peak as QRS peak will be different at different lifestyle situation [1].

Another Researcher Yedhukrishna P and Ajai V Babu of Rajagiri School of Engineering and Technology Dept. Electronics and Communication Cochin, Kerala, India done portable ECG analysis. Heart being important function unit of body ECG monitoring algorithm was develop to nullify the error to detect R peak for arrhythmia analysis [2]. Hamza Djelouat, Hamza Baali, Abbes Amira, Faycal Bensaali College of Engineering Qatar University. The paper investigate the incorporation of SC (Compressive sensing) in IOT based ECG monitoring system. They detected abnormality of heart beat using different pattern recognition algorithms [3]. K Raj Mohan, Ilango Paramasivam, Subhashini Sathya Narayan. School of Information Technology & Engineering, VIT University, Vellore. Provided a critical survey on Prediction and Diagnosis of Cardio Vascular Disease. According to them 60% of world population is victim of heart diseases. The health care industry collects huge amount of data every day. But this data is not mined. Data mined techniques are used to get appropriate result. Main aim of this study is to detect causes of cardiovascular diseases and machine learning techniques are used for medical diagnosis [4].

Swathi. O. N, Ganesan. M, Lavanya. R, Department of Electronics and Communication Engineering, Amrita School of Engineering, Coimbatore, used R peak for detection and feature extraction for the Diagnosis of heart diseases. They detected the R peaks from denoised ECG signal with an accuracy of 97.56%. Signals are classified into normal and abnormal signals with 80% accuracy using support vector algorithm [5].

Akanksha Agrawal and Dhanashri H.Gawali NBN Sinhgad School of Engineering, Savitribai Phule Pune University, Pune India done Comparative Study of ECG Feature Extraction Methods. ECG detects electrical activity of heart by placing many electrodes on body. Hence obtaining appropriate method to extract features of ECG. The provided different methods for this purpose and done comparative study based on sensitivity, predictively and accuracy. Different methods are Adaptive threshold, Auto-regression (AR), Histogram approach, Wavelet transform, Independent Component Analysis (ICA) etc. The frequency of the ECG signal lies in the range of 0.05 to 100 Hz. and it has a dynamic range is of 1-10mV [6]. Lida Zhang, Zachary King,

2019 -119

Syed Sumera Ershad Ali* and Sayyad Ajij Dildar

An Efficient Quality Inspection of Food Products Using Neural Network Classification

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Abstract: Currently, there is a necessity for the expansion of precise, rapid, and intentional quality assurance with respect to the character of food and horticultural food items, because it is difficult to maintain and organize food products in an elevated quality and secure manner for the increasing population. In this article, we propose a procedure to resolve difficulties and to categorize food as either a broken or quality product. Therefore, the proposed process encompasses four segments, such as preprocessing, segmentation of broken division, feature extraction, and classification. At the first stage, the preprocessing method is used to remove all unnecessary noises. After that, modified region expansion-related segmentation is undertaken to segment the broken division of the food product. Then, feature extraction is used to remove the distinctive attributes of each food product to categorize their evaluation. Finally, the neural network classification procedure is used to examine the food quality. The proposed method is executed in the operational platform of MATLAB, and the consequences are examined by using obtainable methods.

Keywords: Histogram equalization, modified region growing segmentation, color histogram features, gray level co-variance matrix features, artificial neural network classifier, back-propagation algorithm.

1 Introduction

Quality is important for the satisfaction of the customer, more than providing supplementary products of an identical kind. The customer is one of the significant parts of product quality decision [8]. Also, quality can be distinguished as the summation of the entire attributes in the manufacture of products that are satisfactory to the customer [14]. Recently, importing countries are gradually increasing the quality of some products. It involves not only securing the domestic seafood market but also protecting the quality of food from other countries [15]. Exterior quality mainly indicates the direct sensory quality of agricultural products. Generally, the exterior quality of fruits and vegetables are estimated based on their color, texture, size, shape, and visual faults [2]. In food manufacturing companies, the supervisors are not only concerned about the amount of production and profits but are also subjectively aware of the eminence of their product, the exterior social surroundings, and the difficulties that farmers face in their agricultural tasks [16].

Food industries possess computerized visual examination systems to diminish function expenditure and augment product eminence control [5]. The augmented knowledge and complexity of customers produce enhanced eminence in consumer food products [9]. The proposed method in this study consists of image acquisition, image preprocessing, and image interpretation for image investigation, which directs to quantification and categorization of images [7, 11]. To meet the requirement of an increasing populace, technical expansion is progressively needed in the areas of agriculture and food [14]. In food product manufacture, color machine vision systems are used to evaluate the actual color of palm oil, fresh fruits, or beef; to recognize melanin spots in Atlantic salmon fillets; to evaluate the red color of grapefruit juice; to recognize the

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Low Cost Smart Vehicle Design and Implementation

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Abstract : *Automation in car is trending and became next generation in smart cars. This automation gives rider a comfortable and ease of driving as well as travelling experience. This given paper describes the details of designing and implementation of the low cost vehicle automation. This automation in any vehicle provides a customized feature which can connect vehicle through android application. GSM and GPS modules with few advanced sensors the vehicle get high level connectivity between android application and user or driver. This system also insures the vehicle security to owner of the car and driver too. The main aim to design such physical system which make driving safe, easy and comfortable.*

ıdexTerms GPS tracking system, GSM module, Sensors, android application

I. INTRODUCTION

In last few years, there are many on road accidents which occurs due restlessness of driver in crowded areas and on highways. To avoid such incident person who is driving must be relax and comfortable, also compatible with vehicle's features.

Improper driving and unfollowed traffic rules leads to affect human lives. Automation in vehicles overcome all difficulties and make driving efficient. This presented automated features in given vehicle minimises the efforts of driver and make driving comfortable and safe.

Fig -1: Google's autonomous car.

Various research and innovations are also going to overcome the driving related issues. Most famous vehicle manufacturing industries like Tesla and Nissan have already started working on automated and smart cars.

The concept of "smart driverless car" is innovated by 'Google', which is named as "Google's driverless car" which is also known as unmanned vehicle or autonomous cars. Highly automated cars are now in service in Europe, USA and many other foreign countries. Highly automated cars have fully customized features which also follows all the rules and regulation of driving safety measures and traffic.[1]

II. LITERATURE SURVEY

2.1 Smart vehicle automation [2]

In this paper different development and trends in automation of vehicle which can be collision controlled detection of vehicle. this paper explains the initiatives for automation in different level of Transportation system on vehicle level automation. it focuses on driver's comfort increase safety is the important factors while doing the automation.

2.2 Internet of Things (IoT) In The Smart Automotive Sector [3]

In this paper author has been explained and outlines all developments on IoT in Automotive sectors such as vehicle communication connected cars to the services as well as applications usages of IoT in intelligent transportation. Automotive supply chain management based on IoT is creatively described in given paper, this paper is also focus on the new and updating generation in the cars. Paper have described the connectivity of cars with other car through application and Smartphones, its focus is on the

121 - 2019

Review on Smart Vehicle Automation

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Abstract— This paper consists of a survey on different developments and emerging technologies vehicle automation. The various Technologies used to make driving vehicle with safety and comfortable. This paper also focuses on different motion and speed control system and usages of IoT in automotive system. Different emerging and new technologies of cars are also described in given paper.

Key words: Smart Roads, Smart Cars, IoT, Smart Structure and Motion Control, OBD, Driverless Cars, Electric Cars

I. INTRODUCTION

In Automated vehicles, at least some aspect of a safety-critical control function (e.g., steering, throttle, or braking) occurs without direct driver input. It has the potential to significantly impact our driving safety, personal mobility, energy consumption, operating efficiency, environmental sustainability, and land use. While research into automated vehicles and other aspects of automation are in the early stages, it is rapidly gaining attention around the world in all sectors of the economy. Developing and adopting varying levels of automation technologies offer tremendous possibilities for enhancing safety, mobility, and the environment, but also pose new technical and policy challenges. The U.S. Department of Transportation (USDOT) is already working closely with stakeholders to address these challenges and develop technology and systems to ensure the safety of automated vehicles; however, greater focus will be required as automated features are introduced into the nation's vehicles and transportation systems.

II. "GLOBAL STATUS REPORT ON ROAD SAFETY 2018" PREPARED BY WORLD HEALTH ORGANIZATION [1]

According to this report about road accidents, following [redacted]tistics are coming in to the pictures:

- Nearly 1.25 million people die in road crashes each year, on average 3,287 deaths a day.
- Nearly 1.25 million people die in road crashes each year, on average 3,287 deaths a day.
- An additional 20-50 million are injured or disabled.
- More than half of all road traffic deaths occur among young adults ages 15-44.
- Road traffic crashes rank as the 9th leading cause of death and account for 2.2% of all deaths globally.
- Road crashes are the leading cause of death among young people ages 15-29, and the second leading cause of death worldwide among young people ages 5-14.
- Each year nearly 400,000 people under 25 die on the world's roads, on average over 1,000 a day.
- Over 90% of all road fatalities occur in low and middle-income countries, which have less than half of the world's vehicles.
- Road crashes cost USD $518 billion globally, costing individual countries from 1-2% of their annual GDP.
- Road crashes cost low and middle-income countries USD $65 billion annually, exceeding the total amount received in developmental assistance.
- Unless action is taken, road traffic injuries are predicted to become the fifth leading cause of death by 2030.

III. SMART VEHICLE AUTOMATION [2]

In this paper different development and trends in automation of vehicle which can be collision controlled detection of vehicle. this paper explains the initiatives for automation in different level of Transportation system on vehicle level automation. it focuses on driver's comfort increase safety is the important factors while doing the automation.

This paper has review the recent trends of research on development of driving assist system, the focus was on collision warning and collision avoidance system and their impact on driver's comfort, safety and traffic flow the vehicle based system have few barriers to pass before they can be used widespread.

The advantages and disadvantages of such systems are not completely understood it, but the ways in which automatic collision control system can be improve the drivers comfort and different viewpoints of safety are discussed in given paper comfortable design required for longer headway between the vehicle.

IV. INTERNET OF THINGS (IOT) IN THE SMART AUTOMOTIVE SECTOR [3]

In this paper author has been explained and outlines all developments on IoT in Automotive sectors such as vehicle communication connected cars to the services as well as applications usages of IoT in intelligent transportation. Automotive supply chain management based on IoT is creatively described in given paper, this paper is also focus on the new and updating generation in the cars. Paper have described the connectivity of cars with other car through application and Smartphones, its focus is on the vehicle and smartphone intelligent interaction, onboard Diagnostic of predictive maintenance, safety through real-time driver monitor are explained in detail.

Vehicle to vehicle connectivity vehicle to infrastructure connectivity and vehicle to retail communication gives detail about the vehicle communication system in given paper. IoT and intelligent transportation is done by smart parking system as well as smart toll collection system and so on. In given paper electric cars, self-driving Cars and driverless cars are the upcoming and trending technologies in automotive sectors are also described in the proposed paper.

Electronic System to Reduce Setup Time of Tube Mill Machine

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Abstract— In Shree Tube Manufacturing Pvt. Ltd. there are different types of sizes for different sectors and there are huge number of set ups which are used for tube mill straightening, cutting and chamfering but all processes consumes more time. So we here we are going to create small automation system to reduce the time for set up. In this industry the parts of tube mill which need to be change as per client's requirement and also these parts are very heavy. Due to this the time required to change these part too much about 3-4hours.So we are here going reduce the setup time of tube mill machine by using microcontroller There are different types of sizes for different sectors we serve and hence there are huge number of set ups. In order to have flexibility in manufacturing the setup time at various stages needs to be reduced so that different variety can be served on a day to day basis The objective of this project is to reduce the time required during set up a tube mill. The Proposed systems will reduce the time and cost also easy to use. Due to this the time required to change these part too much about 3-4hours.So we are here going reduce the setup time of tube mill machine by using microcontroller.

Key words: Alphanumeric Keypad, Stepper Motor, Motor Driver, LCD Display, Ardunio Board

I. INTRODUCTION

In Shree Tube Manufacturing Pvt. Ltd. there are different types of sizes for different sectors and there are huge number of set ups which are used for tube mill straightening, cutting and chamfering but all processes consumes more time. So we here we are going to create small automation system to reduce the time for set up. In this industry the parts of tube mill which need to be change as per client's requirement and also these parts are very heavy. Due to this the time required to change these part too much about 3-4hours.So we are here going reduce the setup time of tube mill machine by using microcontroller. There are different types of sizes for different sectors we serve and hence there are huge number of set ups. In order to have flexibility in manufacturing the setup time at various stages needs to be reduced so that different variety can be served on a day to day basis. The objective of this project is to reduce the time required during set up a tube mill. The Proposed systems will reduce the time and cost also easy to use. Due to this the time required to change these part too much about 3-4hours.So we are here going reduce the setup time of tube mill machine by using microcontroller.

II. METHODOLOGY

A. Block Diagram

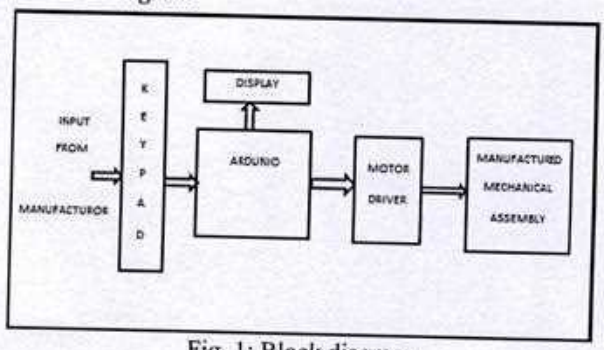
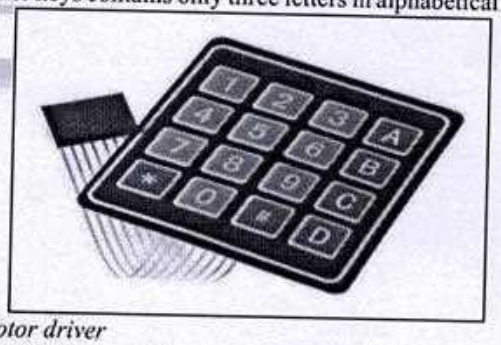


Fig. 1: Block diagram

1) Alphanumeric Keypad

An alphanumeric keypad is a keyboard it contains both numbers and letters on the same keys. Typically, they are also found on telephones and cellular phones. They can also appear on laptops, ATMs or any device where both numbers and letters which are equally necessary. On phones, the number "1" is typically devoid of any letters; where each of the other keys contains only three letters in alphabetical order.



2) Motor driver

A 12V battery is used as power supply for the motor. This connected to the regulator which gives 5V and is then supplied to the Ardunio that drives the motors. To drive a stepper motor, we need a motor driver called ULN2003. Each single driving motor can drive two motors.

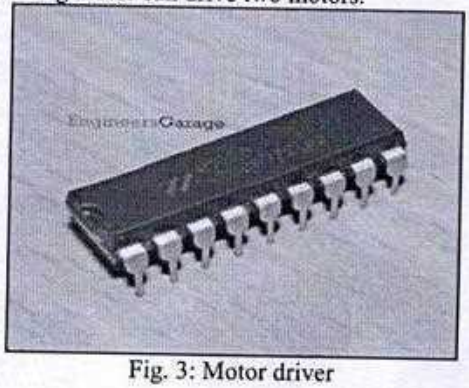


Fig. 3: Motor driver

2019 - 123

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Automatic Attendance System using Arduino and GSM Module

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Abstract – Perfect *attendance recording and management has become important in today's life as attendance and achievement go hand in hand. Attendance is one of the work ethics valued by employers. Generations in developing countries still use paper based Most of the educational institutions and government or attendance method for maintaining the attendance records. There is a need to replace these previous methods of attendance recording with biometric attendance system. The unique features of fingerprint make it ideal for use in attendance management systems. Besides being secure, Fingerprint based attendance system will also be user friendly. Fingerprint matching is widely used in forensics for to identify the perfect person. It can also be used in applications such as identity management and access control. This review incorporates the problems of attendance systems presently in use, working of a typical fingerprint based attendance system, study of different systems, their advantages, disadvantages and comparison based upon important parameters.*

Key Words: **Arduino uno, LCD16×2, GSM Module, fingerprint Module, Bluetooth, RTC Module**

1. INTRODUCTION:

In an educational system, the teachers call out the name of every student and mark the attendance. This causes time [redacted]age during lecture time. This becomes more and more [redacted]rtant where number of students in a class is very large. Managing the attendance data is also very difficult such a large group. The way is that the teacher will pass the attendance sheet around the class for the students to sign. This method has a major drawback because the students tend to answer or sign for their friends. In educational institutions, attendance and academic success are directly depends on each other. That's why a proper attendance management system is important. In developing countries, most of the educational institutions and government organizations still use paper-based attendance method to keep and save the attendance. Most employers value work attendance for their ethics. Biometrics is the popular technology used for automatic identification of a person based on biological characters such as fingerprint, iris, facial recognition, etc. The fingerprint verification system is commonly used biometric technique.

2: Methodology

Block Diagram

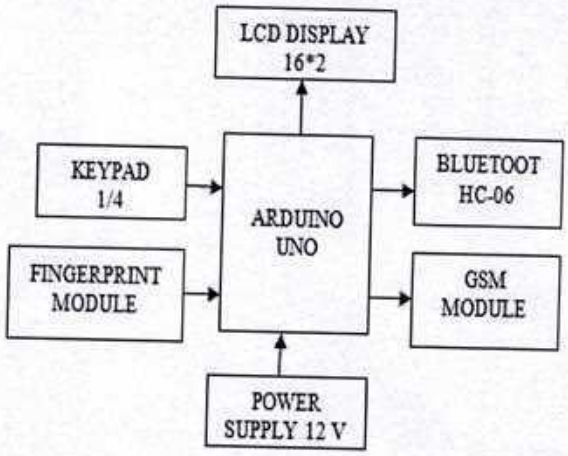

Fig-1: Automatic Attendance System Using Arduino and GSM Module

In the attendance tracking system it requires 12v power supply. When we give the power supply then circuit becomes on. There are four push to on buttons are provided for user entry. 2nd button is for increment, 3rd button is for decrement, and last 4th button is for Enter in The main menu and long press of 4th button to enter the options.

Here we use the thumb detector when a student's comes towards the system then he or she gives the thumb then R305A saves its thumb in memory. When a student comes to class then the thumb detector matches the thumb with pre-scanned thumb. When it matches then there are three options if we are adding a new person then we has to press 4th button. And if the thumb is already stored then press long press 4th button to enter the thumb prints. As soon as we press the 4th button then option on LCD we see. To scan thumb print press ENTER. Select one of the option then press Enter then immediately message on stored numbers send by using GSM.

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Assistive Wireless Technology Based Smart Cane for Blind People

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ABSTRACT

Smart stick system concept is devised to provide a smart electronic aid for blind people. Blind and visually impaired people find difficulties in detecting obstacles during walking in the street. The system is intended to provide artificial vision and object detection, real time assistance via GPS by making use of Raspberry Pi. The system consists of Ultrasonic sensors, Vibration Sensor, GPS module, GSM Module. Ultrasonic sensors are used for obstacle detection through the ultrasonic waves produced by it. Vibration sensors are used to forward and alarm when the blind person is in difficulty or he feels that he is lost. GPS module is used in this to get the current location information of the person, which location will be sent via Short Message Service (SMS) to the registered numbers using a GSM dule, on pressing of a switch whenever he feels he is tost. The aim of the overall system is to provide a low cost and efficient navigation and obstacle detection aid for blind which gives a sense of artificial vision by providing information about the environmental scenario of object around them, so that they can walk independently.

INTRODUCTION

There are several numbers of people around us which are visually impaired, and among them millions of people are blind and there are thousands of people those who are irreversibly blind [1]. For visually impaired people, performing daily activities is a difficult task since vision plays a central role in almost every activity of ours. The visually impaired people have to rely on their memory to find their belongings and may become irritated if someone replaced the object or it falls down occasionally. It is not possible to search an object in an unknown place or surroundings without having the eye sight. There can be found different technologies such as SONAR based, RFID based, and vision based technologies which was useful for the blind persons.

Smart Walking Stick helps the blind people in moving and allowing them to perform their work easily and comfortably [2]. In normal cane or stick, the detection of the obstacle is done by using the sensor. But it is not efficient in the case of a blind person Because the blind person can't able to know what type of things or objects come in front of him and what is the size of that object and how much far is he from that obstacle [3]. So it is difficult for a blind person to move from one place to another. But in the smart walking stick for blind, the output produces in the form of sound. The Stick measures the distance between the objects and Smart Walking Stick by using an Ultrasonic sensor. The main objective of this project is to design a walking stick which is very much useful for those people who are visually impaired and are often need help from others. It allows the user to walk freely and independently by detecting the obstacles.

Recently, much research effort have been focused on the design of Electronic Travel Aids (ETA) to aid the successful and free navigation of the blind. Also, high-

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2019-125

CTSE – A Case Study to Encourage Start-ups and Skill Development among Engineering Students

CTSE – A Case Study to Encourage Start-ups and Skill Development among Engineering Students

Sethi, Mahendra; Shinde, Ulhas B; Shimpi, Jaiprakash; Gupta, Pallavi
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Date: 2019-06-06

Abstract:

CSMSS Chh. Shahu College of Engineering was established in the year 2013 under the umbrella of Chh. Shahu Maharaj Shikshan Sanstha. During the first 2 years, it was analysed that more than 80% students are coming from rural background and they lack in soft and technical skills. The principal and management of institute decided to work on skill and entrepreneurship development for students. In July 2015, "Center for Technical Skills and Entrepreneurship (CTSE)" was established with the aim to design and develop industry-ready training programmes and promote entrepreneurship among students by taking up industrial/social problems as student projects, which can be commercialized. Faculty members of CTSE started exploring industries and various organizations for association. Two faculty members were sent to EDI Ahmedabad for faculty development programme on "Entrepreneurship Development". A strong connect is established with various academic institutions and industries. Till date 20 industry-ready training programmes are designed and developed, few of them are included as an open elective subject in the university curriculum. Four student start-ups are incubated and more than 10 projects have been implemented by students that has potential to be patented and commercialized. These projects grabbed various prizes at competitions, such as Bajaj Auto Bhartiya Yuva Shakti Trust (BABYST) Business Idea Competition, eYantra Ideas Competition, Mistubishi Electric Cup, Startup India Maharashtra Yatra, Avishkar Competition, etc. The rest of the case study summarizes success stories of start-ups incubated at CTSE and activities that helped to inculcate the entrepreneurial attitude among students.

2014 - 24

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COMPARATIVE STUDY OF RFID TAGS FOR METALLIC PRODUCTS IN INVENTORY TRACKING SYSTEM

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ABSTRACT:

It has always been challenging and critical to implement Radio Frequency Identification tags and technologies for inventory tracking for metallic product because of interference of metal on RFID signals, rough environment especially in presence of extreme moisture and high temperature in manufacturing units. A very extensive research and experiments are needed, to choose Radio Frequency Identification tags for metallic products in manufacturing. Therefore by comparing various RFID technologies, its features and performance we will try to find out availability and feasibility of Radio Frequency Identification Tags which are most suitable, cost effective and efficient for Metallic Products especially in harsh manufacturing environment.

This paper presents a comparative study where we will assess and compare various features and performance parameters of Radio Frequency Identification tags available in the world and review their technology, implementation, working efficiency and cost effectiveness in depth so as to get a clear understanding about tag's performance and feasibility on Metallic product. It will help in taking better decision in the selection of Radio Frequency Identification Tags for Metallic products for inventory tracking system.

Keywords: RFID; tags; inventory; tracking; metallic; traceability.

I. INTRODUCTION:

Recently, radio frequency identification technology has grown from complicated technology into mainstream applications which are used for faster handling of manufactured goods and various materials. Radio Frequency Identification Technology empowers identification from a distance, and unlike popular bar-code technology, it does so without keeping the product in a line of sight. RFID tags can contain large amount of product data than bar codes like unique IDs , manufacturer, type of product, batch no and even measure environmental factors like temperature, moister etc. Furthermore, Radio Frequency Identification systems can identify many different tags located in the same common area or premises without human assistance [1].

Radio Frequency Identification tags are mainly categorized into two types 1) Active Tag and 2) Passive Tag though there is also another type called Semi-Active Tag but it is scarcely referred. Active tag works on integrated battery energy source. It has its own power source which is usually integrated battery or sometime external power source. Therefore it is comparatively costlier than passive tag. On other hand passive tag receives its power from RFID reader. Hence cost wise it is cheaper than active tags. But it work in smaller range whereas active tag can work for larger area.

II. RFID TECHNOLOGY:

A Radio Frequency Identification system includes of tags (transponder) with an antenna, a reader (transceiver) with an antenna, and a host terminal. Figure 2 shows these components. The Radio Frequency Identification reader behaves as a receiver and transmitter and transmits an electromagnetic field that "wakes-up" the tag and supplies the power needed for the tag to operate [2].

A Radio Frequency Identification tag is a memory device that is portable and located on a chip that is covered by a protective shell and can be embedded in any other product or object which stores multiple information about the product. Tags has a small integrated circuit chip, along with an antenna, to enable it to receive and respond to radio frequency information from a Radio Frequency Identification reader. Radio Frequency Identification Tags can be categorized as Read-Only or RO, Write Once Read Many or WORM, and Read–Write or RW in which the storage capacity of their inbuilt memories differing from a couple of bits to thousands of bits. Radio Frequency Identification tags can be bifurcated into active tags

2019-127

Document details - Enlarge duct length optimization for suddenly expanded flows

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Enlarge duct length optimization for suddenly expanded flows(Article)

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Abstract

In many applications like the aircraft or the rockets/missiles, the flow from a nozzle needs to be expanded suddenly in an enlarged duct of larger diameter. The enlarged duct is provided after the nozzle to maximize the thrust created by the flow from the nozzle. When the fluid is suddenly expanded in an enlarged duct, the base pressure is generally lower than the atmospheric pressure, which results in base drag. The objective of this research work is to optimize the length to diameter (L/D) ratio of the enlarged duct using the CFD analysis in the flow field from the supersonic nozzle. The flow from the nozzle drained in an enlarged duct, the thrust, and the base pressure are studied. The Mach numbers for the study were 1.5, 2.0 and 2.5. The nozzle pressure ratios (NPR) of the study were 2, 5 and 8. The L/D ratios of the study were 0.5, 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10. Based on the results, it is concluded that the L/D ratio should be increased to an optimum value to reattach the flow to an enlarged duct and to increase the thrust. The supersonic suddenly expanded flow field is wave dominant, and the results cannot be generalized. The optimized L/D ratios for various combinations of flow and geometrical parameters are given in the conclusion section. © 2020.

Author keywords

oressure | Length to diameter ratio | Mach number | Nozzle pressure ratio | Thrust

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Publisher: Techno Press

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Document details - An investigation of effect of control jets location and blowing pressure ratio to control base pressure in suddenly expanded flows

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investigation of effect of control jets location and blowing pressure ratio to control base pressure in suddenly expanded flows(Article)(Open Access)

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Abstract

The drag force is an essential factor in any projectile, from road vehicles to rocket or aircraft. The total drag includes skin friction drag, wave drag, and base drag. The base drag is the drag due to low pressure in the base region of the projectile. In the case of suddenly expanded flows, due to the sudden expansion of flow from the nozzle into the enlarged duct, the low pressure is created in the base region of the enlarged tube, which results in base drag and hence overall thrust reduced. In this paper. Computational Fluid Dynamic (CFD) analysis is used to analyze the effect of secondary air blowing jets called control jets to control base pressure in the base region of suddenly enlarged duct. These control jets are placed at different Pitch Circle Diameters (PCD) on the base face of the enlarged pipe. The objective of this work is to increase the base pressure up to atmospheric pressure and hence reduces the base drag. Mach number 3.0 is considered for analysis. The CFD analysis is done for different combinations of Area Ratios (AR) (2. 5 and 8). Nozzle Pressure Ratios (NPR) (2, 5 and 8). and PCD (di. d2. and d3). Further analysis is done for different air blowing pressure ratios (BPR) to optimize ah* blowing pressure. The analysis results are plotted for different area ratios, nozzle pressure ratios, and PCD of control jets. By observing results, it c concluded that the base pressure is strongly influenced by AR. NPR. and PCD of control jets. The air blowing pressure should be optimum to save energy, and the optimum values can be selected from the results. © 2020.

Author keywords

Area ratio | Base pressure | Blowing pressure ratio | Mach number nozzle pressure ratlp

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Document details - Analysis of parameters affecting thrust and base pressure in suddenly expanded flow from nozzle

Journal of Advanced Research in Fluid Mechanics and Thermal Sciences

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Analysis of parameters affecting thrust and base pressure in suddenly expanded flow from nozzle(Article)

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Abstract

In the case of flow from the nozzle, the net thrust is the vital and critical consideration. The net thrust force is the difference of the thrust developed by the jet from the nozzle and the base drag. The pressure in the base area of a duct with the sudden expansion usually is lower than the ambient atmospheric pressure, which is responsible for creating a very high value of the base drag. It is essential to design an enlarged duct and selection of the suitable values of the flow parameters for efficient utilization of the fuel by producing the high thrust and low base drag. In this research paper, various combinations of parameters are analyzed using CFD analysis and by considering the Design of Experiments & ANOVA. The parameters considered for this research work are Nozzle Pressure Ratio (NPR), Length to Diameter Ratio (L/D), Mach number (M), Inlet temperature of air (T), and the Area Ratio (AR). Based on the results obtained during the present study, it is found that the base pressure and thrust created by the flow are dependent and functions of the following parameters, and they are the NPR, the Mach number, the area ratio of the duct (AR), and the L/D. The inlet temperature of the air does not have any significant ...on the base pressure as well as on the Thrust. © 2019 PENERBIT AKADEMIA BARU.

Author keywords

Base drag | Base pressure | CDF | Mach number | Thrust

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Effect of nozzle pressure ratio and control jets location to control base pressure in suddenly expanded flows(Article)(Open Access)

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Abstract

In this paper, computational fluid dynamic (CFD) analysis and experiments have been carried out to study the effect of nozzle pressure ratio, i.e. the ratio of inlet pressure to atmospheric pressure, and the pitch circle diameter of the control jets to regulate the base pressure. The variables considered for the analysis as well as the experiments are the nozzle pressure ratio (NPR), the Mach number (M) and the pitch circle diameter (PCD) of the control jets. The area ratio considered for the study is kept constant at 4.84 while thelength to diameter (L/D) ratio of an enlarged duct isset constant at 5. The inertia parameter considered for the study is Mach number. The Mach numbers considered for study are 1.5, 2.0, and 2.5. The nozzle pressure ratio considered for study are 2, 5 and 8. Three different pitch circle diameters of control jets considered for study are 13.1 mm, 16.2 mm and 19.3 mm. From the numerical simulations and the results of the experimental tests, it is found that the control jets are very beneficial to increase the base pressure at higher NPR when the jets issuing from the nozzles are under-expanded. The control jets were able to increase the base pressure value from 160% to 400% at nozzle pressure ratio 8. It is concluded that the parameter D_3 is the most effective pitch circle diameter of the control jets to increase the base pressure.

...r keywords

Base pressure | Mach number | Nozzle pressure ratio | PCD of control jets

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Progressive Collapse Analysis of RC Building

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Abstract - *In this study it is proposed to carry out the progressive collapse analysis of RC frame building by removing different column one at a time as per U.S. General Services Administration (GSA) guidelines. For the study 11 storey moment resistant RC building is considered. Building consists of 4x4 bay 5m in both direction and designed by the Indian code as a special moment frame. The building is modeled and analyzed for progressive collapse analysis using the structural analysis and design software ETAB 2015. As per GSA guidelines three column removal cases are studied, namely corner column, exterior column and interior column removal. For three cases the Demand Capacity Ratio (DCR) calculated for beams and columns and checked for the limitation criteria as per GSA. The obtained DCR values shows that columns are safe and beams not safe for progressive collapse and need to be reinforced additionally.*

***Key Words*: Progressive collapse, Demand capacity ratio, ETABS, Column Removal, Pushover Analysis.**

1.0 INTRODUCTION

A normal structural design of building consist of designing structural members for dead load, live load, wind load, earthquake load etc. and there load combinations as per IS [redacted]. Due to failure of one structural member load on the [redacted] members very close to it increases, those members in the closed region are going to fail if an increased load goes beyond the capacity of member. In this manner failure will transfer from one member to another which leads to collapse of whole structure. Such type of failure of structure is known as progressive collapse.

The design for mitigation of progressive collapse has been a hot topic in structural engineering due to an increased knowledge about blast and terrorist dangers.

Many other choices and suggestions have been proposed by many structural engineers and blast experts and with continued research more other alternatives are to be expected in the near future. The challenge exists in making decisions about the best solutions because of the built- in uniqueness that are to be met for each project. Also, there is little to no official design standards or guidelines available for engineers to follow to assist their decisions. Instead, the engineer must be competent in blast resistance and progressive collapse research in order to have a good understanding of what it takes to build a strong and healthy structure.

1.1 OBJECTIVES

Following are the objectives of work

- To understand the procedure of progressive collapse analysis of G+10 RC building in sudden column removal scenario.
- To check whether the RC building designed and detailed by Indian Standard codes for seismic loads provides any resistance to progressive collapse or not.
- To study the static linear and non linear static analysis method for RC building.

1.3 Acceptance Criteria

An examination of the linear static analysis will be done to identify the magnitudes and distribution of potential demands on primary and secondary structural elements for quantifying potential collapse areas. The magnitude and distribution of these demands will be indicated by Demand Capacity Ratio (DCR). Acceptance criteria for the primary and secondary structural components shall be determined as:

$$D.C.R.=Q_{UD}/Q_{CE} \quad (1)$$

where,

Q_{UD} = Acting force(demand) determined in the component or connection/joint (moment, axial force, shear and possible combined forces).

Q_{CE} = Expected ultimate, un-factored capacity of the component and /or connection or joint (moment, axial force, shear and possible combined forces).

Using the DCR criteria of linear static approach given in GSA guidelines, structural elements and connections that have DCR values that exceed the following allowable values are considered to be severally damaged or collapsed.

The allowable DCR values for primary and secondary structural components are:

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2019-132

Application Framework Development for Algorithm Design of PAPR Reduction in OFDM

Mohammed Zakee Ahmed, Ajij D. Sayyad

Abstract: ***Orthogonal Frequency Division Multiplexing (OFDM) is a well-built candidate for Physical Layer of 5G Communications as like it was there in 3G and 4G. With many advantages OFDM has some limitations like synchronization, Peak to Average Power Ratio (PAPR) etc. PAPR in OFDM remained the hot topic in PHY design of modern wireless communication systems since decades. Researchers are working to solve this problem with various approaches. Being one of the problem solvers team we realized that for a new researcher major effort goes into development of framework rather than actual PAPR algorithm. With this paper we tried to solve this issue by designing a simplified framework for developing, testing and measurement of PAPR of OFDM in Laboratory Virtual Instrumentation Engineering Workbench (LabVIEW) Platform. LabVIEW is a cutting edge, state of the art graphical programming environment which makes programming more simplified by adapting icons and connectors instead of text instructions, which makes computer programming language least complex, so that one can focus more on algorithm design rather than solving syntactical issues of the programming language. There are numerous applications of LabVIEW platform such as Instrumentation, image processing, digital signal processing, digital communication and many more. We have used core programming, signal processing and digital communication modules of LabVIEW for this research work. This paper has three sections, in section one, we explained need of framework, in second section we have explained detailed explanation of framework and its deployment and in the third section result and conclusion has been described..***

Keywords: PAPR, OFDM, 5G, LabVIEW, NI-USRP 2922

I. INTRODUCTION

OFDM is a strong, rugged and multipath fading tolerant modulation/multiplexing technique, which can easily be found in all type of networks including WPAN, WLAN and WMAN/WWAN. It has been adapted in several wireless standard deployments such as Digital Audio Broadcasting: DAB or EUREKA, also in DAB+, Digital Radio Mondale, HD Radio, T-DMB and ISDBTSB, Terrestrial Digital Video Broadcasting: DVB-T and ISDBT, Mobile TV: DVB-H, T-DMB and ISDB-T, Wireless PAN: ultra-wideband (UWB) IEEE 802.15.3a, Wireless LAN: IEEE 802.11a, g, n and HIPERLAN/2, Wireless MAN: broadband wireless access standard, IEEE 802.16e, the mobile broadband wireless access standard IEEE 802.20, [1] [2] 4G Long Term Evolution (LTE): Evolved UMTS, Terrestrial Radio Access (E-UTRA). And now it has been considered as a strong candidate for 5G mobile phone standards [3] [4].

OFDM can transmit bulk of data over Radio waves and it is one of the most known prominent multicarrier multiplexing accesses Technique [5]. Mathematically OFDM is expressed as equation (i)

$$x(t)=\sum_{k=0}^{N-1}X_k e^{j2\Pi kt/T} \qquad 0\le t\le T \qquad \text{(i)}$$

In proposed method the PAPR block at transmitter and receiver are isolated from other blocks and once a framework is designed, it may be developed exclusively. For framework, a wireless standard may be chosen or even more generalized framework can also be designed, where according to the wireless standard number of sub-carriers, zero padding, reference symbols, modulation scheme and other essentials can be chosen as per the need.

PAPR in OFDM:

The high PAPR shows up when a large number of subcarrier get summed-up together creating large peaks compared to single carrier systems [3]. It has noise like amplitude, with a very large dynamic range and it is more sensitive to carrier frequency offset and drift as compared to single carrier systems Mathematically it can be defined as follows in equation (ii) and (iii).

$$PAPR=\frac{\max|x(t)|^2}{E[|x(t)|^2]} \qquad \text{(ii)}$$

$$PAPR_{dB}=10\log_{10}(PAPR) \qquad \text{(iii)}$$

High PAPR increases power consumption of High Power Amplifier (HPA) of transmitter as the high peaks go into the saturation region of the HPA, making non-linearity in signal amplification. This creates in-band distortion and out-off-band distortion resulting increased BER at the receiver and spectral re-growth respectively. This effect not only increases the power consumption of HPA but also increases complexity at ADC and DAC [6] [7] [8]. Choosing wide band power amplifier increases cost of system and it will be waste of cost as high peak in signal is probable event may occur less frequently.

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Transactions on Emerging Telecommunications Technologies / Volume 31, Issue 3 / e3851

RESEARCH ARTICLE

EPOWT: A denoising technique of the electrocardiography signal transmission via 5G wireless communications

Devendra Laxman Bhuyar ✉, Abdul Kadir Kureshi

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Citations: 3

ABSTRACT

This article provides a thorough review of 5G wireless electrocardiography (ECG) communication for actual cardiac signal using both technical and clinical features for the purpose of recommending real-time observation. Major issue regarding this frame work is the distortion and smoothness of ECG signal for the cardiologist advice also it needs correct diagnosis at the proper time. Extensive 5G wireless simulated scenarios are used to supervise the compressed ECG signal on reception. An efficient ECG transmission protocol is a modern and consistent ECG transmission protocol which is used to retransmit the noise signals. Thus, we are filtering the ECG signals to improve the quality which may directly affects the medical diagnosis. Because, time and frequency indicators can be obtained by the wavelet analysis but majority of the error functions cannot be flexible to various signals because of the static transition curve of threshold. Hence, we proposed a new emperor penguin optimization (EPO) together with wavelet thresholding (EPOWT) method. Here, the EPOWT is estimated through the means of real-time ECG records. The outcomes of filtering process shows that the proposed EPOWT approach can achieve smooth threshold transition and soft thresholding bring the wavelet coefficient. EPOEPO algorithm is used to improve its flexibility to different signals. The EPOWT can generate an essential noise-free signal by balancing the smoothness and signal distortion filtering for transmission. The proposed method can attains 2.9 seconds delay during simulation. Thus, the 5G wireless channel parameter's functioning zone is simple to acquire.

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Approved by AICTE New Delhi, DTE (Govt. of Maharashtra) and affiliated to Dr. BATU, Lonere (Raigad). DTE Code: 2533

3.3.1 Number of research papers published per teacher in the Journals as notified on UGC CARE list during the 2018

Sr. No.	Title of Paper	Name of the Author/s	Name of Journal
1	Multi-function auto cleaner	Nitesh.N.Nikam, Dipesh Thakur;Chaitanya Harne, Navnath Thombre	International Journal of Mechanical And Production Engineering
2	Multi-tasking Auto cleaner	Nitesh.N.Nikam, Chaitanya Harne;Dipesh Thakur;Navnath Thombre;Shailesh Narule	International Research journal of Engineering and Technology
3	Instantaneous power theory based unified power quality conditioner(UPQC)	Sameer.S.Khalse	International Journal of Advance Scientific Research And Engineering Trends
4	Improvement of power quality using unified power quality conditioner with distributed generation	Sameer.S.Khalse	International Journal for Research In Engineering Application And Management
5	Switching Losses Minimization and Performance Improvement of PCC And PTC Methods of Model Predictive Direct Torque Control Drives with VSI	Suraj R. Karpe, Sadeokar and A. M. Dixit	International Journal of Emerging Technology and Innovative Research
6	Fault Detection Monitoring Controlling of Induction Motor Using Zigbee	Vishakh Jogdand, Tejas P. Borade, Vrushabh R Kambhuj, , Murumkar	International Journal of Advanced Research in Electrical, Electronics

		Prasad P	and Instrumentation Engineering
7	Solar tree	Vishakha Jogdand, Sanket Bolake, Akash Jadhav, Sushant Karale, Akash SankpaL	Resincap Journal of Science and Engineering
8	Feature Extraction of Degraded Devanagari Joint Words And Numerals Using Zernik Moment Feature extraction and Hybrid Feature extraction Methods for Recognition and conversion into editable form	Sushilkumar N. Holambe ,Ulhas B Shinde	Journal of Emerging Technologies and Innovative Research
9	An Improved Method to Remove Noise from Degraded Devanagari Script Scan Document	Sushilkumar N. Holambe, Ulhas B Shinde	International Journal of Computer Engineering & Technology (IJCET)
10	Wireless Sensors Network for Optimizing Industrial Operations	Vinod Wairagade , Mahendra Sethi , Ulhas Shinde	Open access International Journal of science and engineering
11	Review of Reliability and Load Balancing Optimization Routing Methods for Wireless Networks	Ulhas B. Shinde,Amit Rawate	International Journal of Advanced Scientific Research and Management
12	Review on IoT Based smart solar photovoltaic plant remote monitoring and control unit	N. S.Deshmukh, D. L. Bhuyar, A. T. Jadhav	International journal of advance scientific research and engineering trends
13	Review on IoT based smart solar photovoltaic plant remote monitoring	NS Deshmukh, D.L.	International Journal of Advance Scientific

	and control unit	Bhuyar, AT Jadhav	Research And Engineering Trends
14	TSA:Scaleble Machine Learning online Service for Big Data,Real time analysis using HDFS and python Jupyter Notebook	M.B.Shelke	International Journal for Research in Engineering Application & Management (IJREAM)
15	Comparative Study of Wear Behaviour of Thermal Spray Coating on 304 SS	A. S. Hajare	International journal of Innovations in Engineering and Technology
16	Influence of Expansion Level on Base Pressure and Reattachment Length	Prakash S. Dabeer and Sher Afghan Khan	CFD Letters
17	Investigation of Base Pressure Variations in Internal and External Suddenly Expanded Flows using CFD analysis	Prakash S. Dabeer and Sher Afghan Khan	CFD Letters
18	An Investigation to Control Base Pressure in Suddenly Expanded Flows	Prakash S. Dabeer and Sher Afghan Khan	International Review of Aerospace Engineering
19	Optimization of area ratio and thrust in suddenly expanded flow at supersonic Mach numbers	Prakash S. Dabeer and Sher Afghan Khan	Case Studies in Thermal Engineering, Elsevier
20	CFD Analysis of Human Powered Submarine to Minimize Drag	Sher Afghan Khan, M. A. Fatepurwala, P. S. Dabeer & Mughal Ahmed Ali Baig	International Journal of Mechanical and Production Engineering Research and Development

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21	Review on biodegradable concrete	M.R. Shelke	Journal of Structural Engineering and Management
22	Improvement of Ultimate Bearing Capcity of Black Cotton Soil By Using Murum Bed and Geo-Grid	Mir Sohail Ali	International Journal of Advance Scientific Research and Engineering Trends
23	Emerging Technique of Soil Reinforcement for Foundations: A Review	Mir Sohail Ali	International Journal for Research in Engineering Application & Management
24	Designing a Novel PTS Method to Reduce Peak to Average Power Ratio in OFDM	Zakee Ahmed, Ajij Sayyad	International Journal of Innovative Technology and Exploring Engineering

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2018-133

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MULTI FUNCTION AUTO CLEANER

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Abstract - Robots are intentionally used in automation sector to do simple task reliably with reducing human effort in less time. Clean surroundings by robot is become one of the basic requirements for human life, being widely used for domestic, small scale industries and Service sector. In multi-function auto cleaner, we propose a multi-tasking robot which deliver easy and time efficient cleaning of floor by reducing human effort. Several robotic cleaners are available in market but only few ones implement wet cleaning of floors that's why we provide this feature in this prototype with new mechanism. Its objective is to design and implement a multi-tasking cleaning robot prototype work automatically by using sensor and microcontroller and in a way to reduce the human effort. The cleaning (Dry/wet) are performed automatically with additional features like brushes, mopping mechanism, dirt container with air vacuum mechanism.

Indexterms - Arduino, Rolling mob, L298N driver IC, Creo4.0.

I. INTRODUCTION

Robots are employed to reduce the human interference and work automatically because robots are more efficient, precise and can do many task without getting tired. Robots are utilized in every possible field that's why it should use in cleaning purpose also with eco-friendly. The present scenario is that industries want to run in fully automated mode so the purpose of multi-function auto cleaner is design and implement a multi-tasking robot for cleaning environment. In this multi-function auto cleaner dry vacuum cleaning and wet cleaning is simultaneously done. Additionally it contain brushes, dirt container and new designed mopping mechanism with a water facility. This robot is work in two mode manual as well as auto. The automatic operation are controlled by Arduino controller is the brain of the robot. Ultra-sonic sensor make the robot automated and it detect obstacle which controlled by Arduino. The L298N driving circuit is to control two geared DC motor which assist the wheels of the robot. It can make a motor rotate in clockwise as well as in anticlockwise direction according to the control inputs given to it. The main objective of this prototype is to provide a new design of multi-tasking robot.

II. LITERATURE REVIEW

In traditional cleaning method different handmade instrument are used for cleaning the floor. From time to time technology come up and need to upgrade human task. In 2016 20% vacuuming robots are launched in this ratio is increased by 23 % in 2017. This surveydescriber's conventional floor cleaning machines requires electrical energy for its operation and they are not automated. The main focus to make this multi-function auto cleaner isbasically on a smart and suitable and new design of robot which can be used in many sectors like healthcare center, small hospitals, and educational areas and also for household use. The basic block shows operation of (Dry/ wet) cleaning with additional features of multi-function auto cleaner.

III. BLOCK DIAGRAM

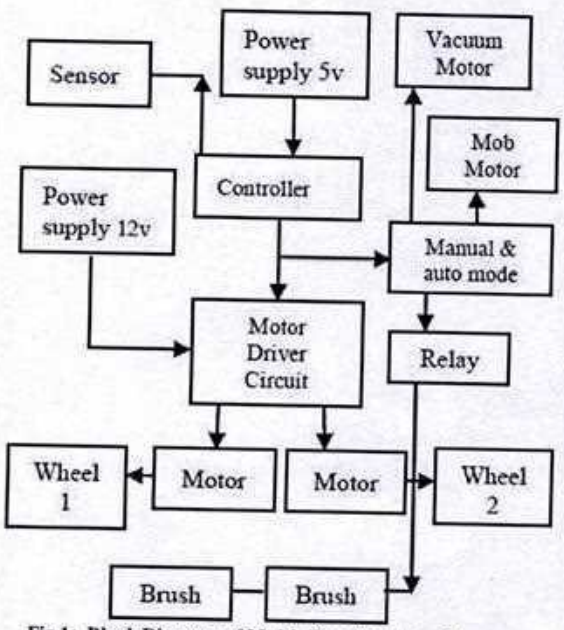

Fig 1: Block Diagram of Multi- Function Auto Cleaner.

IV. VACUUM CLEANER

In this robot vacuum cleaner is designed, for better results of suction steel blade for motor operation are used and it not break down. Shown in Figure.2
Vacuum cleaner is used to clean the floor dust. The major specialty of vacuum cleaner is that the pressure

2018-134

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Multi-Tasking Auto Cleaner

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[2]Assist. Professor Nitesh Nikam in electrical Engineering, CSMSS CSCOE, Kanchanwadi Aurangabad.

Abstract – *In present scenario automation getting attention, for that robot purposely used to do task reliably. It reduces human interference. Cleaning is an important factor for betterment of the nation. Assorted robots are available in market but in this system extra arrangement is given in which dry & wet cleaning is provided in single model. In multi-tasking auto cleaner the main purpose is to provide efficient and flexible cleaning within short time duration. Different types of automatic cleaning robots are used for many applications to reduce human efforts. our system consist an assembly of mechanical, electrical, electronic related controlling components like Arduino, sensors, motor drives etc.*

Key Words: Arduino, Mopping, L298N driver IC, Servo Motor, IR Sensor, Creo4.0

1. INTRODUCTION

Robotics is an inter-disciplinary branch of engineering and science that included the various branches. Robots are efficient, precise and can work continuously without getting tired. In every possible field robots can done the task reliably, it can be utilized for cleaning also.

The present scenario is that industries want to works on fully automated mode. It can be fulfil in sector of cleaning environment. Multi-tasking auto cleaner is design and implemented for eco- friendly use.

ilised for a dry and wet cleaning simultaneously. In this system it consist an additional features that is Brushes, Rolling Mob with water storage tank, Vacuum Cleaner. It can be operated in dual mode automatically & manually.

Automatic operation is done by Arduino using Ultra-sonic sensors which detects barrier. UV Sensor are placed on the servo motor to detect obstacle in 180o. The wheels are assist to two geared dc motors which controlled by L298N driver IC for changing the direction according to the control inputs given to it. The main purpose of this prototype is for multi-tasking and this system is modified for cleaning.

1.1 LITERATURE REVIEW

In Cleaning the technology gets upgraded as per human requirement, the changing trend & advance level of technology is also necessary. It is increased per year 3 – 5%. In 2017 this technology ratio got increased by 23 %. Multi-Tasking auto Cleaner is design to work properly with different mechanism. We focused on modifying method of floor cleaning system.

1.2 PROBLEM STATEMENT

Most of the people are not getting time because of their working schedule, so they don't have time for cleaning floors. Traditional cleaners consume more electricity for their operation just because of these reasons demand of auto cleaning system rises. To overcome this situations multi-tasking auto cleaner is provided & simultaneously electricity consumption reduces by making this system on DC operated.

2. SYSTEM METHODLOGY

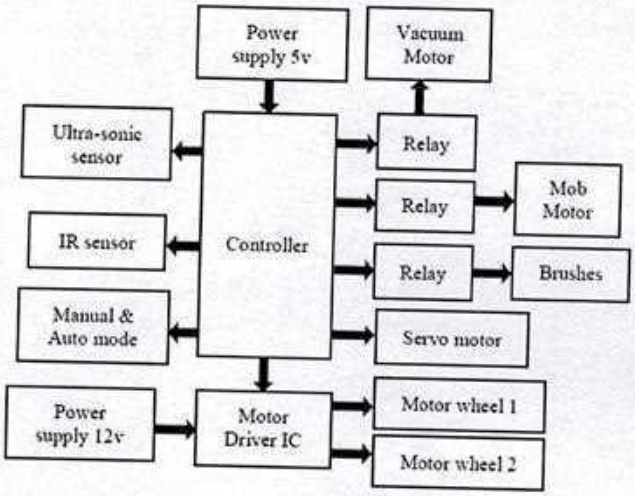

Fig -1: Block Diagram of Multi-Tasking Auto Cleaner.

2.1 VACUUM CLEANER

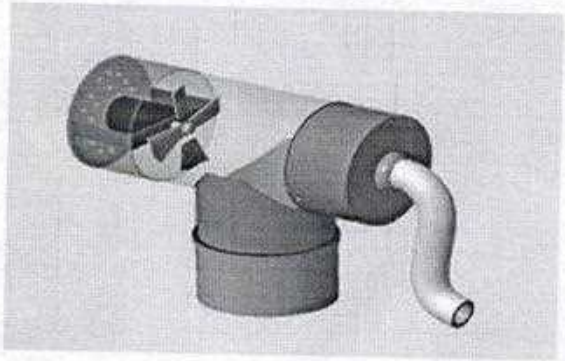

Fig -2: Vacuum Cleaner.

2018-135

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Instantaneous Power Theory Based Unified Power Quality Conditioner (UPQC)

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Abstract: This paper presents a novel control strategy for a 3-phase 3-wire Unified Power-Quality Conditioner (UPQC) based on the concepts of instantaneous active and reactive Power theory. The UPQCs is one of the major custom power solutions capable of mitigating the effect of supply voltage sags / swells, distortion, unbalance voltage at the point of common coupling (PCC) as well as load harmonics, unbalance load and reactive power requirement of load. Using this control strategy harmonic detection, reactive power compensation, voltage sag and swell have been simulated and the results are analyzed. The operation and capability of the proposed system was analyzed through simulations with MATLAB / SIMULINK

Keywords: Active filters, instantaneous power theory, power quality, Unified Power Quality Conditioner (UPQC)

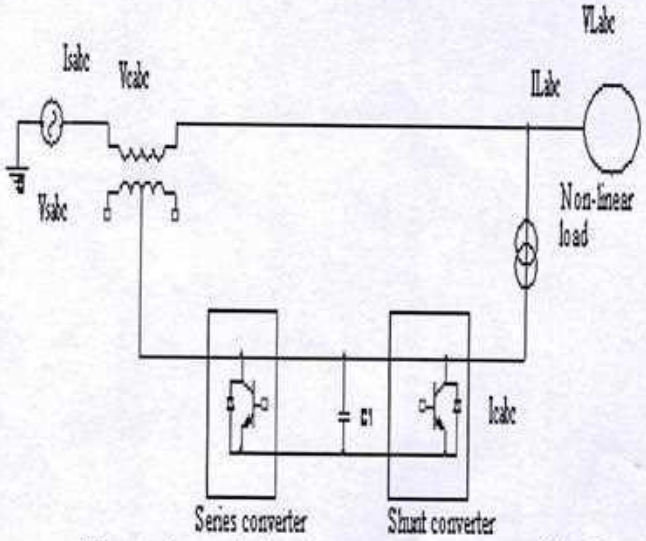
I INTRODUCTION

Today, Industry automation utilizes power electronic based power processing devices (variable voltage, variable frequency and current control) for getting higher efficiency, accurate controllability, faster response and compact size. But on the other side, due to the switching actions, these power electronics devices (SCR, MOSFET, BJT and IGBT) behave as non-linear loads and they draw non-sinusoidal and/or lagging/leading current from the supply resulting to poor displacement and distortion factors. Hence these power converters draw considerable reactive volt-amperes from the utility and inject harmonics in distribution networks. The harmonic current from these power converters flows through the line and due to the presence of source impedance of the power system it can cause voltage distortion (harmonic voltage) and excessive voltage drop and line losses [1], [2]. The distorted supply voltage results in malfunction of control, protection, and metering equipment used in other sensitive loads and industrial automation monitoring devices. Harmonic currents can also cause, unwanted system resonance with passive filters, overloading of power factor correcting capacitors, decrease in overall system efficiency due to increased line and machine losses, interference with communication and control signals, and saturation and overheating of distribution transformers and lines [2]. At the same time, an increase of sensitive loads involving digital electronics and complex process controllers requires a pure sinusoidal supply voltage for proper control and load operation.

This forces the industries to filter the harmonics and compensate the reactive power. The immediate and cheap solution is passive filters. But it has its own limitations such as harmonic resonance and harmonic amplification due to varying line impedance. In addition to this, the effectiveness of the passive filters is purely based on line and source impedance and load parameters, which is highly unpredictable.

The advancement in power electronic devices combined with the active filter technology has resulted in providing a suitable source for compensation for harmonics, reactive power, unbalance and/or neutral current in ac networks [2]. Active filters can be classified based on converter type, topology, and the number of phases. The converter type can be either Current Source Inverter (CSI) or Voltage Source Inverter (VSI) bridge structure. The topology is the way in which the CSI/VSI is connected to load or source, and can be connected in shunt [9], series, or a combination of both [1].

The third classification is based on the number of phases, such as two-wire (single phase) and three- or four-wire three-phase systems. Active filtering and the application of FACTS concepts in electric power transmission system then in to distribution systems has resulted in all the functionalities in a single compensating device called as UPQC[2]



The series and shunt converters connected back-to-back via a common DC link capacitor. Unlike the UPFC, here the series converter is connected to the supply side and shunt converter is connected the load side. This configuration has

2018-136

Improvement of Power Quality using Unified Power Quality Conditioner with Distributed Generation

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Abstract - Recently power quality has become more important issue. Now a day's power electronics based appliances are widely used in industries and in distribution system which creates more power quality problems. The power electronics based power conditioning devices can be an effective solution to improve power quality in power system. Unified Power Quality Conditioner (UPQC) is one of the custom power devices which are used to solve voltage and current related problems simultaneously. In this paper, combined operation of UPQC with Distributed Generation (DG) is discussed. This system integrated with wind energy is able to compensate voltage sag/swell, load current disturbances. Also proposed system is able to compensate voltage interruption and active power transfer to load and source in both interconnected and islanding mode and help to improve power quality. The operation of UPQC with DG has been evaluated through simulation studies using MATLAB/SIMULINK software.

Index Terms— Uninterruptible Power Supplies (UPS), Unified Power Quality Conditioner (UPQC), Distributed Generation (DG), Point of Common Coupling (PCC), Voltage Source Inverter (VSI), Distribution Static Compensator (DSTATCOM), Dynamic Voltage Restorer (DVR), Fast Fourier Transform (FFT).

I. INTRODUCTION

In electrical power system power electronics devices plays an important role. In distribution system it has three aspect first one is that introduces valuable industrial and domestic equipments, second one is that creates problems, third one is that help to solve problems. Now a day's modern semiconductor switching devices such as controlled rectifiers, Uninterruptible Power Supplies (UPS), arc furnaces etc. are widely used particularly in domestic and industrial loads.

ese non linear loads create power quality problems such as voltage sag, voltage swell, voltage interruption, voltage flickers, voltage spikes, harmonics etc. Such poor power quality causes increase in power losses and other remarkable abnormalities in distribution sides. Thus, it is very important to maintain a high standard of power quality. Earlier passive filters were used to solve power quality problems. However because of some limitations of passive filters, now a day's custom power devices are used to solve power quality problems in distribution side.

The compensating custom power devices are used for active filtering, load balancing, power factor improvement and voltage regulating (sag/swell).There are three types of custom power devices: Distribution Static Compensator (DSTAT-COM), Dynamic Voltage Restorer (DVR) and Unified Power Quality Conditioner (UPQC).

Unified Power Quality Conditioner (UPQC) is one of the custom power devices, which can solve voltage and current related problem simultaneously. This is connected before load to make load voltage distortion free and at the same time reactive current drawn from source should be compensated in such a way that the currents at source side would be in phase with supply voltage.

The interest in Distributed Generation (DG) has been increased rapidly. The world wide concern about environmental pollution and the energy shortage has led to the increasing interest in generation of renewable electrical energy. As Distribution Generation (DG) play very important role in power system and help to solve many problems that ac conventional power system has. There are several DGs such as PV system, fuel cell, wind turbine. Wind power has become fastest growing energy source among various renewable energy source. In this paper deals with combined operation of UPQC with wind energy and output of DG system is connected to DC bus of UPQC. The UPQC with DG help to compensate Voltage and current power quality problems and have give additional benefit by providing the power to load whenever voltage interruption occur with source side [1].

This paper discussed combined operation of UPQC with DG and this system is integrated with wind energy. The proposed system is able to compensate voltage sag/swell, load current disturbances. In addition to this it is able to compensate voltage interruption and active power transfer to load and source in both interconnected and islanding mode and help to improve power quality. The operation of UPQC with DG has been evaluated through simulation studies using MATLAB/SIMULINK software [2].

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Research Paper

Switching losses minimization and performance improvement of PCC and PTC methods of model predictive direct torque control drives with 15-level inverter

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Abstract

In power electronics, Predictive Current control (PCC) and Predictive Torque control (PTC) methods are advanced control strategy. To control an induction machine (IM), the Predictive Torque control (PTC) method evaluates the stator flux and electromagnetic torque in the cost function and Predictive Current control (PCC) (Cortés et al., 2008) considers the errors between the current reference and the measured current in the cost function. The switching vector selected for the use in IGBTs minimizes the error between the references and the predicted values. The system constraints can be easily included (Burtscher and Geyer, 2013; Geyer, 2013). The weighting factor is not necessary. The PCC and PTC method with 15-level H-bridge inverter using IM reduce 19% more THD in torque, speed, and stator current compared to the PTC and PCC methods with 2-level voltage source inverter compared to Wang et al. (2015). In this paper, switching losses minimization technique through THD minimization. Switching losses are minimized because the transistors are only switched when it is needed to keep torque and flux within their bounds. The switching pattern of semiconductor switches used to get better performance of multilevel inverter. This scheme decreases the switching loss and also increases the efficiency. In this paper, the PTC and PCC methods with 15-level H-bridge inverter using IM are carried out

l gives excellent torque and flux responses, robust, and stable operation achieved compared to the PTC and PCC methods with .evel voltage source inverter compared to Wang et al. (2015). This novel method attracted the researchers very quickly due to its straightforward algorithm and good performances both in steady and transient states (Wang et al., 2014).

Keywords: Electrical drives; Predictive Current control (PCC); Predictive Torque control (PTC); Induction motor; 15-level H-bridge inverter; Voltage source inverter (VSI)

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Fault Detection Monitoring Controlling of Induction Motor Using Zigbee

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ABSTRACT: Induction motor is an alternating current electric motor that is commonly utilized industrial and commercial plants worldwide. It is reported that almost 80% of motors used in industry for the transformation of electrical energy to mechanical energy are induction motors because of their economical, small size, ruggedness, reliability, low maintenance and operation cost. Induction motors are the primary workhorse used as industrial prime movers. Even though these induction motors are very reliable, they are exposed to environmental, duty and installation problems which make these motors subjected to various types of failures shortening the designed lifespan of motors. If detection of motor faults is not done at the early stage of development, it will contribute to the declination of performance and eventual failure of the motors may occur. Several traditional approaches have been taken to sustain the induction motors in good operating condition. One of them is the use of fixed time interval maintenance performed by maintenance engineers taking opportunity of slower production cycle to inspect and rectify the machinery.

KEYWORDS:(INDUCTION MOTOR,ZIGBEE,AURDINO,SENSORS)

I.INTRODUCTION

Fault detection and classification of electrical motors is important in order to avoid unpredicted breakdown of electrical motors. The inherent failures due to unavoidable electrical stresses in motors results in motors experiencing stator faults, rotor faults and unbalanced voltage faults. If these faults are not identified in the early stage, it may become unsuccessful to the operation of the motor. In this paper, the detection and classification of induction motor faults due to electrical related failure using Motor Current Signature Analysis (MCSA).Data collection of current signal of motors with different fault conditions is carried out by using laboratory experiments.

II. LITERATURE SURVEY

Single Phase and Three Phase Induction machines are very popular in industries because of their vast applications. Hence it becomes necessary to protect them against faults so as to ensure uninterrupted operation and functioning1 . Various parameter controlling and monitoring systems are there for other types of machine, but in case of induction machine the controlling and monitoring systems are not extensively used due to high cost of installation and physical constraints. So as to overcome the limitations in monitoring and controlling, Zigbee Based System is used which makes it costeffective and simple on the other hand2 . To start with, first we should know what Zigbee Protocol is. Zigbee is a wireless communication device like Bluetooth and Wireless Local Area Network (WLAN)3

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SOLAR TREE

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ABSTRACT

Now a days oil supply is decreasing therefore energy source are becoming limited throughout the world. The technology of using Bio fuel is an alternate solution of energy sources, but if we think that all the world's vehicles will be powered by bio fuel then the amount of land used for farming must be doubled. Demand for energy is increasing with each period, to fulfill the required demand we must have to concentrate on utilizing non-conventional sources of energy. Energy from the sun is the best alternatives among the renewable energy sources. Solar energy is becoming one of the important energy in the future as a great renewable energy source. This project focuses on the optimization of the electric energy production by photovoltaic cells through the development of an intelligent sun-tracking system. The developed tracking system is innovative in relation to usual sun tracking system available in the market. Solar tree has been designed to increase the power output by means fold by consuming solar energy. The solar tree consists of number of branches welded to a stem and each stem has a solar panel mounted on it. It adds up voltage in series and current in parallel connection.

Keywords

solar tree, photovoltaic cell, solar panel, sun-tracking system

1. INTRODUCTION

A large amount of energy is available within the core of sun. The energy that is received from sun in an hour in more than that is consumed by use in a year. If human is able to capture even 1% of total energy which sun delivers than one can cater the need of our race for decades efforts are continuously being made to capture as much energy as we can in order to store most of the energy which we are getting. Renewable energy solution are becoming increasingly popular photo-voltaic system are but one example .maximizing power output from solar system is desirable to increase efficiency. In order to maximize power output for solar panels, one need to keep the panels aligned with the sun. As such means of tacking the sun is required. This is a far more cost effective solution than purchasing additional solar panels. It has been estimated that yield from solar panels can be increased by 30 to 60 percent by utilizing a tracking system instead of stationary array.

Fossil fuels which today meet major part of the energy demand are being depleted quickly. World has started running out of oil and it is estimated that 80% of the world's supply will be consumed in our lifetimes. Coil supply may appear to the large but even this stock may not last longer than a few decades. Nuclear power has posed a number of problems and nuclear fusion is still a speculative technology. Thus we are forced to look for unconventional energy source such as geothermal, ocean tides, wind and sun. It is also hoped that this alternative energy source will be able to meet considerable part of the energy demand coming future. Among all the solar energy seems to hold out greatest promise for the mankind. It is free inexhaustible non-polluting and devoid of political control it is optimistically estimated that 50% of the world power requirement in the middle of 21st century will only come from solar energy.

2. WORKING

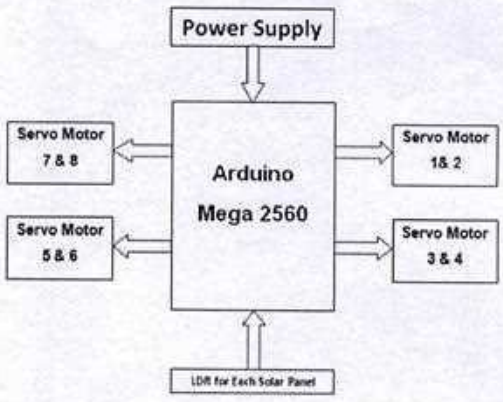

Fig.1. Automatic Sun Tracking System

Initially the solar panels are set at horizontal position. When sun rises the sun rays fall on the LDR. The LDR senses the light it produces the analog signals which are sent to ADC. The ADC converts the analog signals into digital format these digital signals are sent to PWM in the Arduino. The sets its

Feature Extraction of Degraded Devanagari Joint Words And Numerals Using Zernik Moment Feature extraction and Hybrid Feature extraction Methods for Recognition and conversion into editable form

2018-142

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Abstract
The feature extraction technique is projected in favor of corrupted Devnagari characters scan manuscript by bearing in mind the arrangement of Devnagari characters .So we encompass and too think about the abnormality of Devnagari lettering technique, ktaksha as well as figures. We be not eliminate shirorekha. It take apart the picture transcript credentials into outline, terms and ypescript Segmentation of tetchy or merged typescript of Devanagari characters is occasionally not easy due to interline gap or partly cover as well as blare. The algorithmic regulation worn at this time is meant for segmentation of join together Devanagari typescript addicted to its essential partial or complete consonants. Within our planned method, picture Binarzation meant for corrupted manuscript imagery have being employ area support segmentation. Initially, an RGB picture translate keen on gray picture after that picture strain be able to be completed on the source of Wiener filter and Gaussian filter..

Keywords
Devanagari lettering, Conjunct Script, Ocular Character Identification, Word Segmentation, Feature Extraction, Zernike moment, Hybrid Feature

1. Introduction
Ocular Character Identification is that the method of translating pictures of written, on paper transcript into a arrangement understood by equipment. The worlds in order of journalism, olden times, in addition to additional information be in hard-copy credentials. OCR method translate this in order by exchange the transcript on manuscript keen on electronic shape. Ocular Character Identification method is resourcefully urbanized for character detection of Non-Indian speech, since the complication of font is a minor quantity since judge against to Indian characters.
Resourceful Indian verbal communication OCR essentially depends ahead the preprocessing stage (word segmentation) pro improved identification of compound or conjunct font. Consequently, in general achievement velocity linked correctness of an ian lettering OCR method depends ahead on the accurate segmentation of typescript.
e necessary to verge the article picture consistently in arrange to take out valuable data in addition to create additional dispensation such while font identification and characteristic extraction, particularly for those deprived class manuscript figures with darkness, non-uniform enlightenment, little disparity, huge indication reliant clamor, wipe and blur..
The techniques of segmentation be generally classify as follows:

- Classical approach: During this method the segmentation be recognized through take out the distinctive feature of the font picture.
- Recognition based segmentation: During this method the picture as a entire is investigate pro apparatus so as to equal predefined module.
- Holistic approach: The methods seek to identify the expression the same as a entire.

Presently there are on the subject of fifty essential font in lettering. Within a expression, the vowel typescript frequently get modified form describe as modifiers. Consonant modifiers be too likely. The essential and complex typescript is linked through modifiers toward obtain novel form. Separately as of these the papers printed throughout this lettering demonstrate huge dissimilarity inside typescript features, variety drawing, and in font sizes. So line name shirorekha within Devanagari along with referred since caption. The adjacent font of a character extremely frequently feel from first to last the caption to shape a linked module.OCR be the most demanding area of explore in characters sample identification, text handing out, and picture dispensation. Devanagari writing be the the majority of ordinary speech recognized as Hindi within Indian province. The Devanagari lettering characteristic taking out have be a brave pro Hindi lettering OCR.

2. Literature Review

2018-143

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AN IMPROVED METHOD TO REMOVE NOISE FROM DEGRADED DEVANAGARI SCRIPT SCAN DOCUMENT

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ABSTRACT

In this paper a number of classical methodologies together with the recent works are considered for comparison and study of the concept of segmentation for both document and graphic images. we propose segmentation method for noisy document. The segmentation method is proposed for Devnagari document by considering the structure of Devnagari script .We have also consider the irregularities of Devnagari writing style ,Yuktaksha and numbers. We are not removing shirorekha. It separates the image text documents into lines, words and characters. We are getting 100% accuracy at line and word level but at character level it depend on the type of character, whether it is single ,Yuktakshar or triakshar.

Key words: Global binarization, Segmentation, Thresh holding, Feature Extraction, Devanagari.

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http://iaeme.com/Home/issue/IJCET?Volume=9&Issue=5

1. INTRODUCTION

There are many challenges addressed in handwritten document image binarization, such as faint characters, bleed-through, and large background ink stains. Usually, binarization methods cannot deal with all the degradation types effectively. Motivated by the low detection rate of faint characters in binarization of handwritten document images, a combination of a global and a local adaptive binarization method at connected component level is proposed in [4] that aims in an improved overall performance. Document image understanding and analysis means that transforms the information of a document in the from

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2018 - 144

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WIRELESS SENSORS NETWORK FOR OPTIMIZING INDUSTRIAL OPERATIONS

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Abstract: **The sensors were designed to be capable of detecting objects and its postion a few centimetres away from the end. They are also used as feedback devices in speed measuring devices. Proximity switches are electronic sensors. They normally have three electrical contacts. One contact for supply voltage , other for ground and third for output signal. In these sensors, no movable contact is switched. Instead, the output is either electrically connected to supply voltage or to ground. A drawback to older electric action organs was the large amount of wiring required for operation. With each signal cable being wired, the transmission cable could easily contain several hundred wires. The great number of wires required between the field input and controller output, the banks of relays and the organ itself, with each solenoid requiring its own signal wire, made the situation worse, especially if a wire was broken which made tracing the break very difficult. These problems increased with the size of the system, and it would not be unusual for a particular organ to contain over a hundred meters of wiring. This problem solved due to wireless transmission of signal. This is the younger of the two and could still be in the debugging and growth stages of its evolution. The main benefit of this type of connection is the comfort and convenience it provides. Another thing about wireless connections is that it doesn't have to originate within the small or large machine size. This resench collaborative makes the best effective use of sensors and wireless communication.**

Keywords: *Proximity switches, Wireless Sensor Networks, Industrial Operations.*

I INTRODUCTION

Automation is a technology that belongs to the application of mechanical, electrical, electronics and computer-based system use to control and operation the manufacturing system. Although the term mechanization is often used to refer to the simple replacement of human labour by machines, automation generally implies the integration of machines into a self-governing system. A drawback to older electric action organs was the large amount of wiring required for operation. With each stop tab and key being wired, the transmission cable could easily contain several hundred wires. The great number of wires required between the keyboards, the banks of relays and the organ itself, with each solenoid requiring its own signal wire, made the situation worse, especially if a wire was broken (this was particularly true with consoles located on lifts and/or turntables), which made tracing the break very difficult. These problems increased with the size of the instrument, and it would not be unusual for a particular organ to contain over a hundred miles of wiring.

Recently, different types of networks can be seen in every place in home, car, factories and companies. Furthermore, wireless sensor networks (WSN) are becoming more and more important for home and industrial applications, and the need to access these networks from other existing networks is continuously increasing. The benefit of WSN will be largest, if the exchange of data between WSN and other networks is bidirectional and happens in suitable time. In general SCADA systems are used to manage real-time data in industrial automation, where a gateway is used to exchange data between MOD-BUS/TCP and WSN and such gateways are available on the markets.

145 – 2018

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Optimization based Efficient Load Balancing Routing for Mobile Ad hoc Networks

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ABSTRACT *The effective load balancing for wireless communication always plays the significant role in optimizing the network performances. The congestion situations in Mobile Ad hoc Networks (MANETs) may leads to the QoS performance degradations due to the communication failures, node failures etc. For MANET, the situation becomes sever due dynamic behaviour of mobile nodes. Thus the load balancing at routing layer is essential for wireless communications. In the given paper we display the novel load balancing algorithm to enhance the routing QoS performance for MANET communications using the optimization algorithm called Ant Bee Colony (ABC). The ABC algorithm exploited to select the optimum node based on the parameters such as bandwidth requirements and energy requirements to prevent the congestion conditions on mobile nodes. This approach not only helps to keep the minimum routing overhead but also improves the QoS performance for different types of MANETs. The ABC approach designed to construct the optimum the way for the information transmission from the source hub to destination hub by assessing middle hubs according to the current necessities as far as required data transfer bandwidth and required energy level. The simulation comes about shows that the proposed routing protocol improves the general QoS execution when contrasted with existing AODV and DSR routing protocols.*

Keywords: *Load balancing, Ant bee colony, bandwidth requirements, energy level, quality of service, AODV*

Introduction

The MANET is widely used in recent days due to number of advantages such as wireless communications without need of any physical infrastructure, fast monitoring of required services etc. There different layers included for designing of MANETs. The main communication among mobile nodes is done using the routing methods. For such routing methods, the main challenge is to deal with dynamic nature of mobile nodes and changing topology [1]. For MANET, there are number of routing protocol are designed and developed for communication purpose. This kind of routing protocols in MANET required addressing the conventional limitations such as more energy consumption, more error rate, less bandwidth efficient. There are different types for routing protocols in MANETs [2]; they are categories according to the way of working and communication patterns. Basic classification comes under tow main categories such as multipath and unipath routing methods. As name indicating for multipath routing methods, there are multiple routes utilized for sending data from source node to destination node, whereas for unipath routing methods, only one route is constructed for transmitting data from source node to destination node [3].

As mobile nodes in MANET is frequently changing their position in network, there is possibilities of node failures, radio channel having dynamic characteristics, frequent links failure and construction is going on. The current route links may unavailable which is resulted into the current route is converted into invalid route [4]. The frequent routes failure leads the frequent route searching and finding for communication which resulting the extra routing overhead, increase delay for source to destination data communication is required. This problem is addressed by multipath routing methods in which multiple concurrent paths are provided for transmitting the data from source to destination. However, using the multipath routing solutions, the problem of QoS efficiency does completely resolves as multipath communications may leads to the excessive energy consumption, more routing overhead, and congestion in network. Therefore, designing routing protocol by considering the load balancing among the network communications is crucial for MANET routing protocols [5].

Load balancing routing method is best approach to address such problems in MANET. The term load balancing in routing is nothing but the technique of distributing current workload among multiple routing links in order to achieve the efficient resource utilization, increased average throughput, minimized end to end delay, extending the network lifetime, and keeping the less overhead on mobile nodes. The methods of load balancing are having below two important features: (1) *Asymmetric Load*: Here the communication data is mutually assigned to available paths in order to achieve the more share of workload as compared to others. (2) *Priority Activation*: As per the priority assigned to every path in communication, the workload is divided according to those priorities. Also, the load balancing term for routing is treated as

2018-146

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INTERNATIONAL JOURNAL OF ADVANCE SCIENTIFIC RESEARCH AND ENGINEERING TRENDS

Review on IoT Based Smart Solar Photovoltaic Plant Remote Monitoring and Control Unit

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Abstract— **The cost of renewable energy equipment's goes down globally with advancement of technologies encouraging massive scale solar photovoltaic ıstallations. IoT leads the work quicker and smarter to implement in advanced growing technologies. The main vision for writing this review is each and every solar photovoltaic solar array should be monitored to know its current status because monitoring is very important for performance evaluation as well as controlling panels to work in a very good condition. The performance, monitoring and maintenance of the plant will highly enhance by using the IoT based Technology for observing solar photovoltaic plant. This will facilitate preventive maintenance, historical analysis of the plant in addition to real time observance moreover as controlling solar panels and this will conjointly helps for power generation by setting the equipment to induce maximum sunlight automatically. Once there's decrease in intensity of light, solar panels automatically changes its direction to get maximum intensity of light that the lar energy conversion efficiency are going to be improved.**

Keywords: *Remote monitoring, IoT*

I INTRODUCTION

The growth of solar market is leaving some technology companies in search of a form of wireless monitoring for increasing numbers of solar plants. Solar arrays also have a higher level of sophistication, in terms of optimizing its performance, extending their active life and increasing its residual value. Unfortunately, the technology to do this does not come with the basic package – but it is an option. Until recently most of new array owners have not been offered, or taken advantage of these new monitoring options. However, the effectiveness, affordability and availability of these technologies are becoming much more attractive. Two types of sources are available for electrical power generation, one is conventional and another is non-conventional. Today to generate many of electrical power conventional sources like gas, coal, nuclear power generators are used, but some of these conventional source are polluting the environment while generate the electricity. That's why nuclear energy is non preferable because of its harmful radiation effect on the mankind. After few years conventional sources will not be sufficient enough to fulfil the energy requirements of the mankind. So most of the electrical power must be generated by non-conventional energy sources like solar, wind, etc. With the day by day reducing cost of PV power generation and further intensification of energy crisis, PV power generation technology obtains more and more application. For collecting detail information about solar photovoltaic plant and to know how they actually work I have visited to "India One" solar thermal power plant. It really helps me to think on various factors and issues related to solar power Plant.

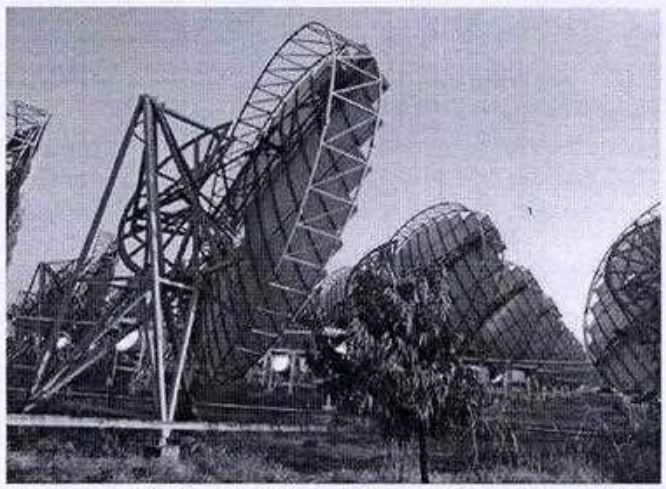

Figure 1: "India One" Solar Thermal Power Plant, Abu Road, Rajsthan

Power generation from the Solar Photovoltaic plants is variable due to changes in solar light intensity, temperature and other factors. Thus monitoring is essential, as we know local monitoring of solar power plant is very difficult hence monitoring remotely is essential. IoT (Internet of Things) approach will be taken for remote monitoring system for the solar photovoltaic power plant, which really envisions a near future where daily objects will be armed with raspberry pi

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AND ENGINEERING TRENDS 147

Review on IoT Based Smart Solar Photovoltaic Plant Remote Monitoring and Control Unit

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Abstract— **The cost of renewable energy equipment's goes down globally with advancement of technologies encouraging massive scale solar photovoltaic installations. IoT leads the work quicker and smarter to implement in advanced growing technologies. The main vision for writing this review is each and every solar photovoltaic solar array should be monitored to know its current status because monitoring is very important for performance evaluation as well as controlling panels to work in a very good condition. The performance, monitoring and maintenance of the plant will highly enhance by using the IoT based Technology for observing solar photovoltaic plant. This will facilitate preventive maintenance, historical analysis of the plant in addition to real time observance moreover as controlling solar panels and this will conjointly helps for power generation by setting the equipment to induce maximum sunlight automatically. Once there's decrease in intensity of light, solar panels automatically changes its direction to get maximum intensity of light that the solar energy conversion efficiency are going to be mproved.**

Keywords: *Remote monitoring, IoT*

I INTRODUCTION

The growth of solar market is leaving some technology companies in search of a form of wireless monitoring for increasing numbers of solar plants. Solar arrays also have a higher level of sophistication, in terms of optimizing its performance, extending their active life and increasing its residual value. Unfortunately, the technology to do this does not come with the basic package – but it is an option. Until recently most of new array owners have not been offered, or taken advantage of these new monitoring options. However, the effectiveness, affordability and availability of these technologies are becoming much more attractive. Two types of sources are available for electrical power generation, one is conventional and another is non-conventional. Today to generate many of electrical power conventional sources like gas, coal, nuclear power generators are used, but some of these conventional source are polluting the environment while generate the electricity. That's why nuclear energy is non preferable because of its harmful radiation effect on the mankind. After few years conventional sources will not be sufficient enough to fulfil the energy requirements of the mankind. So most of the electrical power must be generated by non-conventional energy sources like solar, wind, etc. With the day by day reducing cost of PV power generation and further intensification of energy crisis, PV power generation technology obtains more and more application. For collecting detail information about solar photovoltaic plant and to know how they actually work I have visited to "India One" solar thermal power plant. It really helps me to think on various factors and issues related to solar power Plant.

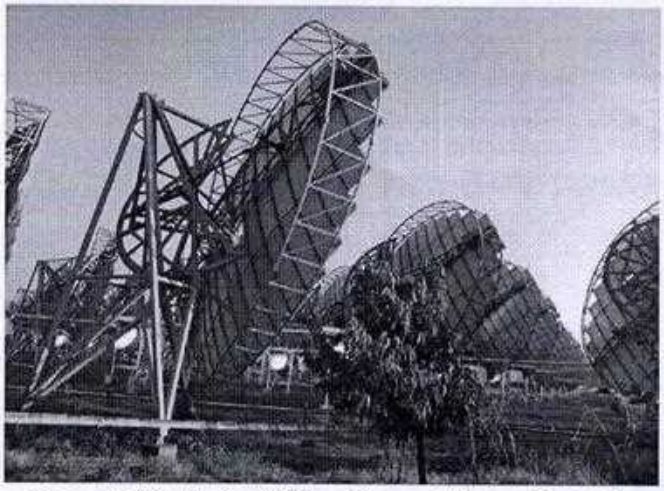

Figure 1: "India One" Solar Thermal Power Plant, Abu Road, Rajsthan

Power generation from the Solar Photovoltaic plants is variable due to changes in solar light intensity, temperature and other factors. Thus monitoring is essential, as we know local monitoring of solar power plant is very difficult hence monitoring remotely is essential. IoT (Internet of Things) approach will be taken for remote monitoring system for the solar photovoltaic power plant, which really envisions a near future where daily objects will be armed with raspberry pi

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TSA: Scalable Machine Learning Online Service for Big-Data Real Time Analyasis Using HDFS and Python Jupyter Notebook

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Abstract: **This work describes a proposal for developing and testing a scalable machine learning design ready to provide real time predictions or analytics as a service over domain-independent massive information, working on the top of Hadoop eco-system and providing real time analytics as a service through API. A systems implementing this design might offer company with on-demand tools facilitating the tasks of storing, analyzing, understanding and reacting to their information, either in batch or stream fashion; and will change into a valuable improvement for increasing the business performance and be a key market during this fast pace surroundings. So as to validate the proposed design, two systems are developed, every one providing classical machine-learning services in several domains: the primary one involves a recommender system for Internet advertisement, whereas the second consists in an exceedingly prediction system that learns from gamers' behavior and tries to predict future events comparable to purchases or churning. Associate analysis is done out on these systems, and results show however each services are able to offer quick responses even once variety of concurrent requests are created, and within the specific case of the second system, results clearly prove that computed predictions considerably outperform those obtained if random guess was used.**

Keywords: Big Data, HDFS, Representational state Transfer, Jupyter Notebook, and Sentimental Analysis.

I. INTRODUCTION

Each day, the amount of data and the number of changing data sources continue to grow. As companies are collecting ast amounts of data from the Internet, their own web sites, cial media channels, customer information, call center reports or financial transactions; the need for analytical tools able to leverage knowledge behind all these data is imperative. Even more important than this is the fact that this growth is going to increase exponentially in the future, as there are other emerging areas which are about to come such as Smart Cities and Internet of Things, where the number of potential devices capable of generating high volumes of data is going to be multiplied as a result of what is known as M2M (machine-to-machine interaction). All these incoming changes will require an adequate scaled infrastructure which allows storing, processing and responding to an increasing number of batch and stream requests.

This vast amount of information, if conveniently processed, can reveal relevant insights about each business. For instance, analysis of the former data may serve to predict the upcoming friendships or interests of a social network user suggest related products in which a customer may be interested to purchase or adapt the content and structure of an online course to better fit the students' needs. At this point it is where machine learning techniques can help to analyze big data sources and extract the important trends, links, rules or in other words: knowledge. This field has been studied since the first appearance of the Knowledge Discovery in Databases (KDD) concept, but depending on the data sources and the domains, different approaches and techniques were used, such as association, clustering, classification, prediction, sequential patterns identification, decision trees or, what is more usual, a hybrid approach resulting from a combination of these approaches. However, when a big data framework involves real-time analytics, specific software architecture is needed. Typically, a distinction is made when considering how this data is analyzed with regard to time constraints:

- Batch processing, where a set (typically a very big one) of data is processed to retrieve some statistics of other information. This processing is not required to happen in real-time, as the expected result is not needed within a strong time constraint. This processing is the most adequate for those machine learning techniques or algorithms that require running periodic training and updating processes.

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Volume 5, Issue 2, Part 2, 2018, Pages 6924-6933

Comparative study of wear behaviour of Thermal Spray HVOF coating on 304 SS

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Abstract

Thermal spray coatings are one of many methods for modification of part's surface properties. The technology is based on the principle of melting and acceleration of fine particles and their rapid solidification after impact on the substrate. Amongst all the techniques of thermal spray coatings, High-Velocity Oxy-Fuel process is widely used in various applications. In the present work, the coatings of tungsten carbide and chromium carbide sprayed by HVOF are studied. Both the coatings have same binder with equal percentage. The comparative study of these coating materials sprayed by same method has not observed in the available literature. The mechanical and structural characterizations were carried out with the help of Scanning Electron Microscope, Image Analyser, X-ray Diffractometer, Energy Dispersive Spectroscopy and Pin-on-disc wear testing machine. The results show that the wear rate of tungsten carbide coating is much lower than that of chromium carbide coating at different loads and room temperature. Thermal conductivity and the porosity of the coating material were found to have marked influence on the wear rate.

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Surface and coating technology (1998)

2018-151

Document details - Influence of expansion level on base pressure and reattachment length

CFD Letters

Volume 11, Issue 5, 2019, Pages 22-36

Influence of expansion level on base pressure and reattachment length(Article)

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Abstract

In high speed projectiles like rocket, the thrust is created by the convergent divergent nozzle. The flow from the nozzle is exhausted in the enlarged duct of larger diameter to maximize the thrust. When the flow from the nozzle is exhausted in the enlarged duct, the base pressure gets reduced and hence increases base drag. This paper numerically simulates and investigates the flow field and the effectiveness of the Nozzle Pressure Ratio (NPR) on the base pressure, development of the flow field in the enlarged duct, the location of reattachment point, and the reattachment length. The supersonic flow was generated by the C-D nozzle, and the same is exited in the enlarged duct of area ratio 4.84 (ratio of enlarged duct area to nozzle exit area). The base pressure and the wall pressure distribution along the enlarged duct length have been studied. The Mach numbers considered for CFD analysis are 1.5, 2.0 and 2.5. NPR and the L/D ratios of the study are from 2, 5, and 8. Based on the results it is concluded that with enhancement in NPR, the nozzle becomes under-expanded, the reattachment length is reduced and the base pressure tends to get reduced at all the parameters of the present investigation.

ıor keywords

Base pressure | Mach number | Nozzle pressure ratio | Supersonic flow

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Publisher: Penerbit Akademia Baru

Pathan, K.A.; Trinity College of Engineering and Research, Pune, Maharashtra, India;

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Document details - Investigation of base pressure variations in internal and external suddenly expanded flows using CFD analysis

CFD Letters

Volume 11, Issue 4, 2019, Pages 32-40

Investigation of base pressure variations in internal and external suddenly anded flows using CFD analysis(Article)

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Abstract

The Aerodynamic base drag because of negative pressure at the backward-facing step is a general obstacle connected with all the moving projectiles. The aerodynamic base drag is undesirable since its contribution to the cumulative drag is substantial. The study of pressure variations in the base region is of immense help for all moving projectiles. The experimental study of aerodynamic drag over missile/projectile in a wind tunnel has various disadvantages like a considerable amount of air supply is required to conduct the test, the support mechanism is required to hold the model in wind tunnel test section which creates disturbance in the flow field and introduce the errors in the measurements. In this research paper, the similarities of base pressure variations in internal and external flows are studied using computational fluid dynamics (CFD) analysis. The CFD analysis is carried out at Mach numbers from 0.1 to 3.0. From the results, it has been found that the flow field in the base region of internal and external suddenly expanded flows are nearly the same. The base pressure in external flow can be studied relatively easily by considering it as an internal flow for Mach numbers in the range of 0.1 to 0.4 and 1.4 to 3.0, except when the Mach number is close to unity.

Author keywords

Base drag | CFD | External flow | Internal flow

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Pathan, K.A.; Trinity College of Engineering and Research, Pune, Maharashtra, India;

Document details - An investigation to control base pressure in suddenly expanded flows

International Review of Aerospace Engineering

Volume 11, Issue 4, August 2018, Pages 162-169

An investigation to control base pressure in suddenly expanded flows(Article)

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[b]Department of Mechanical Engineering, Faculty of Engineering, IIUM, Kuala Lumpur, Malaysia

Abstract

In suddenly expanded flows, due to the abrupt expansion of the flow from a nozzle into an enlarged duct, the pressure reduces in the base region of the enlarged duct which increases the base drag. The techniques used to increase the base pressure are namely passive control technique and active control technique. In passive control technique the geometrical modifications are employed by providing splitter plates, ribs, cavities etc. while in active control technique the secondary control jets are provided in the base region of an enlarged duct to increase base pressure up to atmospheric pressure. The air blowing pressure from secondary control jets should be optimum. This paper presents the computational fluid dynamic (CFD) analysis to optimize blowing pressure ratio i.e. the ratio of inlet pressure of control jets to the atmospheric pressure, to increase base pressure up to atmospheric pressure in the base region of an enlarged duct. In the present study, CFD analysis was carried out for different air blowing pressure ratios to optimize it. Flow and geometry parameters considered for the analysis are Mach number, area ratio, nozzle pressure ratio and blowing pressure ratio. Mach numbers considered for analysis are 1.5, 2.0 and 2.5. Area ratios and nozzle pressure ratios considered for analysis are 2, 5 and 8. The CFD analysis is done for different combinations of Mach numbers, area ratios, and the nozzle pressure ratios by varying blowing pressure ratio from 2 to 8 in step of 1. Based on analysis results anyone can select optimum value of blowing pressure ratio at a given Mach number, area ratio and nozzle pressure ratio to increase base pressure nearly up to atmospheric pressurepressure.

Author keywords

Area ratio | Base pressure | Blowing pressure ratio | Mach number | Nozzle pressure ratio

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Cited by 50 documents

Jain, Y. , Kurkute, V. , Deshmukh, S.M.

The Influence of Plate Fin Heat Sink Orientation under Natural Convection on Thermal Performance: An Experimental and Numerical Study

(2024) Journal of Advanced Research in Fluid Mechanics and Thermal Sciences

Ridwan , Khan, S.A. , Ali, J.S.M.

Influence of Cavity on Base Pressure Manipulation in Suddenly Expanded Flow from Converging Diverging Nozzle for Area Ratio 5.29

(2024) Journal of Advanced Research in Fluid Mechanics and Thermal Sciences

Khalil, S.S.M. , Sahai, R.S.N. , Gulhane, N.P.

Experimental Investigation of Local Nusselt Profile Dissemination to Augment Heat Transfer under Air Jet Infringements for Industrial Applications

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Document details - Optimization of area ratio and thrust in suddenly expanded flow at supersonic Mach numbers

Case Studies in Thermal Engineering

Volume 12, September 2018, Pages 696-700

Optimization of area ratio and thrust in suddenly expanded flow at supersonic ch numbers(Article)(Open Access)

Pathan, K.A., Dabeer, P.S., Khan, S.A.

[a]Trinity College of Engineering and Research, Pune, India
[b]Mechanical Engineering Dept., Faculty of Engineering, International Islamic University Malaysia, Kuala Lumpur, Malaysia

Abstract

In this investigation the flow field has been computed by the numerical approach using Computational Fluid Dynamics (CFD) Analysis to investigate the efficacy of the supersonic Mach numbers due to the flow from supersonic nozzle exhausted in a larger circular duct and the corresponding thrust force created due assess the flow development in the circular pipe, its measurement and the magnitude. For this study the nozzles were modeled using academic licensed ANSYS Workbench software. The nozzles were modeled for the Mach numbers 1.5, 2.0 and 2.5. The flow from the nozzles was numerically simulated for nozzle pressure ratios (NPRs) in the range from 2 to 8, and the area ratios of the study were 2, 4, 6, 8 and 10. The simulation results were compared for geometrical and the kinematical parameters. The results indicate that the pressure in the base corner of enlarged duct is influenced by the level of expansion (i.e. Nozzle pressure ratio), inertia level (i.e. Mach number) at the nozzle exit and the relief available (i.e. area ratio) to the shear layer. If the maximum thrust is the aim then the optimum area ratios should be considered. Lower area ratio is not suitable for higher NPR and higher area ratio is not suitable for lower NPR. The higher area ratio provides more space to expand compressed air. Also, the lower area ratio will offer minimum base drag. The base drag is strongly influenced by the area ratio up to certain limit. If the area ratio is again ases then there is no effect of increase in the area ratio on the base drag and Thrust. As the Mach number increases for me Nozzle pressure ratio and the area ratio, the net thrust force also increases. From the obtained results the optimum area ratio can be selected to maximize thrust for a given Nozzle pressure ratio and Mach number. © 2018 The Authors.

Author keywords

Area ratio | Base drag | Mach number | Nozzle pressure ratio | Thrust

Indexed keywords

Engineering controlled terms: Aerodynamics | Compressed air | Computational fluid dynamics | Drag | Ducts | Mach number

Engineering uncontrolled terms: Ansys workbenches | Area ratios | Computational fluid dynamics analysis | Flow development | Nozzle pressure ratio | Numerical approaches | Supersonic nozzles | Thrust

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Document details - CFD analysis of human powered submarine to minimize drag

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CFD analysis of human powered submarine to minimize drag(Article) (Open Access)

Khan, S.A., Fatepurwala, M.A., Pathan, K.N., Dabeer, P.S., Baig, M.A.A.

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[c]Department of Mechanical Engineering, CMR Technical Campus, Hyderabad, Telangana, India

Abstract

This paper deals with finding the optimum fineness ratio, i.e. ratio of length to maximum diameter, of human-powered submarine of different shapes to reduce the drag force on the body using Computational Fluid Dynamics (CFD) analysis. These types of submarines are used in events like ISR and eISR. This paper focuses on finding the total drag force on submarine models with a constrained diameter and different fineness ratios. The analysis is done by using ANSYS Fluent. In this paper, only the fully submerged flow is considered on a hull without any appendages. The total drag on a body is caused in three different parts that are wave drag, skin friction drags and base drag. The analysis is done different shapes of submarines like Conic shape hull, Elliptical shape hull, Ogive shape hull and Parallel mid-body hull by flowing water at velocities of 3 m/s, 4m/s and 5 m/s. The fineness ratios at which the drag is minimum are found in all submarine shapes. The optimum value of fineness ratio, which gives minimum drag is obtained by the analysis is 6 for Conical shape hull, Elliptical shape hull and Ogive shape hull whereas for the submarine with Parallel mid-body hull shape the optimum fineness ratio is 7. © TJPRC Pvt. Ltd.

Author keywords

CFD Drag Fineness ratio Submarine

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156 – 2018

Journal of Structural Engineering and Management

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REVIEW ON BIODEGRADABLE CONCRETE

Mohini R. Shelke

Abstract

Concrete is one of the strongest construction materials used all over the world and usually considered as indestructible because of their longer service life as compared with the most constructional products. However, they can get destroyed for a variety of reasons including the material limitations, poor quality design and construction practices, as well as the hard exposure conditions. Degradation mechanisms of concrete often depend on the way potentially aggressive substances can penetrate into the concrete, possibly causing damage. The permeability of the concrete depends on the porosity and on the connectivity of the pores. The more open the pore structure of the concrete, the more vulnerable the material is to degradation mechanisms caused by penetrating substances. The deterioration of concrete structures usually involves movement of aggressive gases and/or liquids from the surrounding environment into the concrete, followed by physical and or chemical reactions within its internal structure, possibly leading to irreversible damage. The durability of concrete structures can be determined by many different ways to evaluate chemical and physical mechanisms but bio-chemical process is very complex so new ways of concrete design are required, substantial work is being done all over world to protect concrete from bio-deterioration. Microbial concrete is one of the emerging solutions to get rid of bio-deterioration.

Full Text:

PDF

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Improvement of Ultimate Bearing Capcity of Black Cotton Soil By Using Murum Bed and Geo-Grid

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Asso. Professor Civil Engg. Dept. M.I.T Aurangabad, (MS) India[2]

Abstract— The abnormal behavior of expansive soil creats difficulties in construction. Many of studies were carried out to improve the stability of black cotton soil. In most of cases it is advised to alter the subgrade soil by [illegible]gh strength soil such as sand or murum. But it was found that this may costs more and project becomes expensive. In the present study we are investigating suitability of murum bed in black cotton soil at a certain depth without replacing total soil bed along with a layer of geo-grid. Effect of use of murum in soil bed increases the strength by considerable margin. Geo-grid holds the murum densly and avoid the formation of cracks in soil bed. Load carrying capacity of soil increases and firm suitable foundation available for construction.

Keywords: Black cotton soil, Murum, Geo-grid.

I INTRODUCTION

Foundation is the lower most part of the structure but very important part of any structure whether it is onshore or offshore structure. Foundation is the part of structure which receive highest amount of load from superstructure [illegible] distribute it to ground soil. So it is necessary to have [illegible]ndation strong enough to sustain the load of superstructure. Total performance of any structure depends on the performance of foundation. As foundation plays vital role in the construction, so it should be designed properly. Design of foundation comprises two major parts: one is the ultimate bearing capacity of soil below foundation and second is the allowable settlement that a footing can undergo without any failure of superstructure. Ultimate bearing capacity means the load that the soil can sustain without shear failure; while, settlement consideration involves determination of the settlement caused by load from superstructure which should not exceed the allowable value for the stability and function of the super structure. Ultimate bearing capacity problem can be solved with the help of either analytical solution or experimental study. In our country, the commonly available rocks are of either basalt or laterite. The materials obtained from disintegration of laterite are widely used in admixture of clay and coarse fraction and known as lateritic gravel. This material is known as murum. Naturally available murum have low strength, which decrease ultimate bearing capacity of soil. A suitable use of murum along with Geo-grid will not only improve its Index properties but also its strength. Experimental study is propose to carry out in laboratory by adding murum in soil bed in a layer with appropriate thickness. Also murum can be packed in between Geo-grid to hold murum firmly. Use of Geo-grid also prevents the formation of cracks in soil bed and failure plane will not developed in the soil.

II OBJECTIVES OF THE STUDY

1. To study the behaviour of footing under loading.
2. To study the complex nature of black cotton soil.

III LITERATURE REVIEW

Anil Kumar Thakur, Anil Kumar Saxena, T. R. Arora [1] In the year 2013 method suggested for the use of black cotton soil by adding coarse sand and Granular sub-base. In this study investigation were made for the determination of suitability of waste quarry soil obtained from disintegration of laterite stone by adding the soil with suitable percentage of river/nalla sand. It is concluded that the mixture of the murum mixed with 25% of sand full fill the requirement for granular sub base material recommended by Ministry of rural development (MORD)

B. M. Patil, K. A. Patil,[2] In the year 2013 method suggested for the improvement in properties of subgrade soil by using murum and RBI grade 81. In this study is was found that the CBR value of subgrade soil improved by using moorum with RBI Grade 81and cost of construction was reduced to great extent. From CBR test, it was found that the soaked CBR value of soil was improved by 476.56% i.e. 2.56% to 14.76% by stabilizing soil with 20% moorum and 4% RBI Grade 81.

Shripad S. Somvanshi, Prof. Dr. V. J. Sharma, Mr. Bhanudas Abhale,[3] In the year 2017 experimental study carried out on Load Settlement behavior on Silt Clay Loam (Soft Murum) with or without Geogrid. In this study the prototype structure of working foundation was prepared and tested under cyclic load of various vertical load and eccentricities of a size of square and circular footing. The effect on bearing capacity of soil due to inclusion of reinforcement into the soil at various positions was also

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Emerging Technique of Soil Reinforcement for Foundations: A Review

2018 - 158

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Dr. Manish S. Dixit, Asso. Professor Civil Engg. Dept. M.I.T Aurangabad, (MS) India.

Abstract - For any type of civil engineering work some basic criteria which are to be followed is that the structure should be economical and safe as for as possible. Therefore, ground improvement is essential to obtain the above criteria. The experimental and numerical studies concluded that the geosynthetic is the most suitable type of soil reinforcement technique. The use of geosynthetic reinforcement increases the strength and stiffness property of the soft soil. This paper deals with the study of various reinforcing material for soft soil and their applications.

Key Words- Geosynthetic, Reinforcement, Soft Soil.

I. INTRODUCTION

Reinforced soil is one of the fast-growing trends of ground improvement which is gaining popularity all over the world. Using this technique overall stability of soil can be improved. There are various types of reinforcement layers, for example geotextiles, geogrids and galvanized steel strips are generally embedded in weak foundation soils basically to reduce footing settlements, and to increase the ultimate bearing capacity of soil below foundations. Use of the reinforcements in a soil mass became very popular after the innovative work of Vidal in 1966. Generally, for calculating the effect of the reinforcements on load carrying capacity and settlement of the footings, Various researchers have performed a series of model test for their studies.

Now a days use of geosynthetic materials for improvement of the load bearing capacity and settlement performance of shallow foundation has gained popularity in the field of geotechnical engineering. From last two three decades, various studies have been conducted on the field and laboratory model tests, related to the effects of the geosynthetic materials on weak soils. Now a days use of geosynthetics as a reinforcement become common for railway projects base courses or earth work etc. It is observed that like reinforced concrete, the engineering properties of soil can also be improved by using geosynthetics, as geo-synthetic reinforcement materials are ability to absorb tensile forces.

From the studies of number of researchers, we can conclude that the bearing capacity of soil may alter due to various factors like type of soil, ratios of reinforcing material, number of reinforcement layers, and foundations such as footing width, soil texture, and unit weight of soil. Now a days geocells are widely used in geotechnical engineering for various applications by reinforcing soft soil strata and stabilizing slopes and embankments.

A Typical Geocell

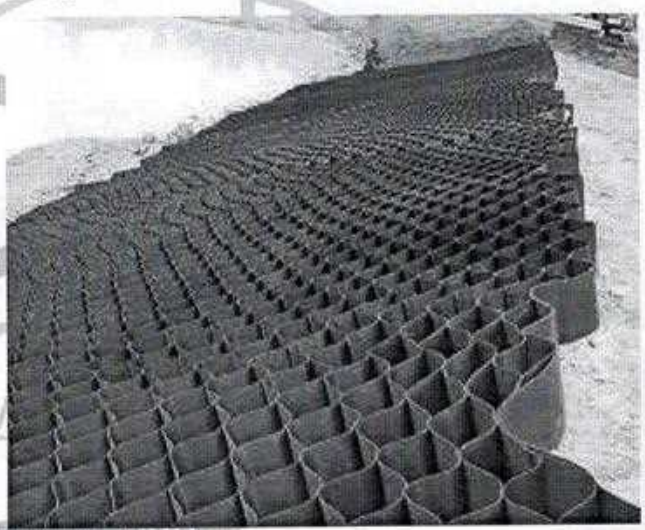

Figure-1: Strata Web Geocell

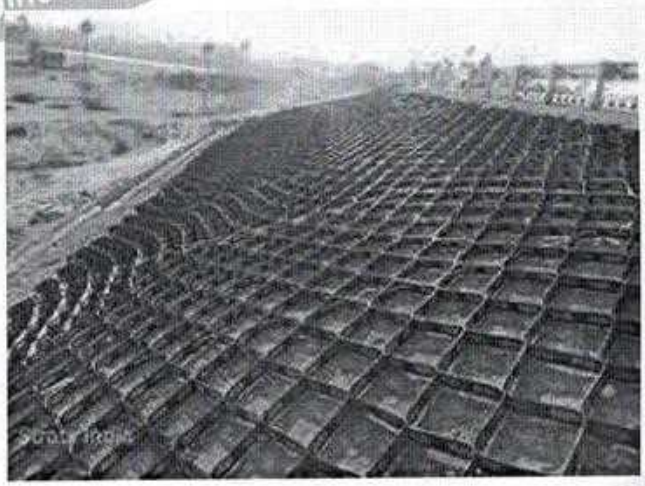

Figure-2: HDPE Geocell Mesh

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2018 - 159

Designing a Novel PTS Method to Reduce Peak to Average Power Ratio in OFDM

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Abstract*: Most of the wireless standards used these days, heavily rely on Orthogonal Frequency Division Multiplexing (OFDM). Peak to Average Power Ratio (PAPR) is one of the known key acknowledged confines of OFDM. Reduced PAPR at OFDM transmitter helps power amplifier to operate in stable mode and reduction in complexity of digital to analog converter (DAC). Several PAPR reduction techniques have been evolved from different principles such as signal scrambling techniques, such as Partial Transmit Sequence (PTS), signal distortion techniques such as Clipping, etc. Reducing PAPR degrades bit error rate (BER) or computational complexity. PTS is one of the best methods of PAPR reduction. There is large scope of betterment of PTS to get a best PAPR reduction technique. In this paper we have concentrated on PTS scheme by exploring PTS and its variants evolved over a period of time. We proposed a novel PTS with best performance balancing PAPR and BER performance. Design and development of scheme is done using a graphical programming environment LabVIEW (Laboratory Virtual Instrumentation Engineering Workbench) and real time environment validation is done with software defined radio – NIUSRP2922, which is National Instruments Universal Software Radio Peripheral. The paper has three sections in first section, Introduction, the OFDM fundamentals and PAPR are defined in design perspective, in second section conventional and proposed PTS schemes have been explained. The third section consists of result and conclusion.

***Keywords* : OFDM, PAPR, PTS, ACF, LabVIEW, NI-USRP**

I. INTRODUCTION

OFDM:

OFDM utilizes frequency spectrum almost 50% more than conventional frequency division multiplexing and has excellent performance in multipath fading channel. Figure 1 Shows Time and Frequency domain representation of OFDM signal. It uses the concept of Cyclic Prefix (CP) which adds last few bits of symbol as prefix to symbol, to prevent Inter Symbol Interference. CP is required to maintain the Orthogonality but it costs a part of spectrum [1]. OFDM can transmit bulk of data over Radio waves and it is one of the most known prominent multicarrier multiplexing accesses Technique [2].

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Mathematically OFDM is expressed as equation (i)

$$x(t) = \sum_{k=0}^{N-1} X_k e^{j2\Pi kt/T} \qquad 0 \le t \le T \qquad \text{(i)}$$

OFDM acted as backbone in numerous deployments such as Digital Audio Broadcasting: DAB/EUREKA, DAB+, Digital Radio Mondale, HD Radio, T-DMB and ISDBTSB Terrestrial Digital Video Broadcasting: DVB-T and ISDBT, Mobile TV: DVB-H, T-DMB and ISDB-T, Wireless PAN, ultra-wideband (UWB) IEEE 802.15.3a, Wireless LAN radio interfaces: IEEE 802.11a, g, n and HIPERLAN/2, Wireless MAN: broadband wireless access standard, IEEE 802.16e, the mobile broadband wireless access standard IEEE 802.20, 4G Long Term Evolution (LTE): Evolved UMTS, Terrestrial Radio Access (E-UTRA). And now it has been considered as a strong candidate for 5G mobile phone standards [3] [4]. Figure 2 shows conventional Block schematic of OFDM Transmitter and Receiver

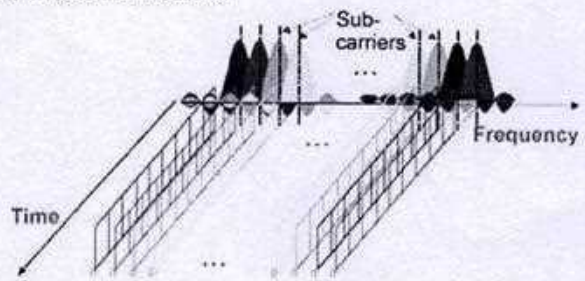

Figure 1: Time and Frequency domain representation of OFDM signal

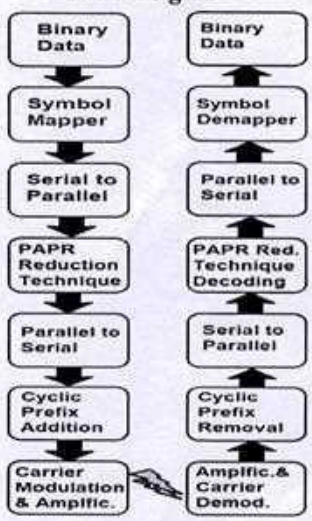

Figure 2: Block schematic of OFDM Transmitter and Receiver