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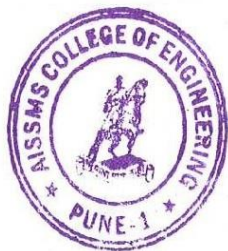
5	R D Nalawade	Research Methodology	NA	NA	NA	2022-23	9
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360-Degree Waste Management, Volume 1
Fundamentals, Agricultural and Domestic Waste, and Remediation
2023, Pages 139-157

7 - Technological developments in the energy generation from municipal solid waste (landfill gas capture, combustion, pyrolysis and gasification)

Ashish V. Mohod¹, Manisha V. Bagal²

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Abstract

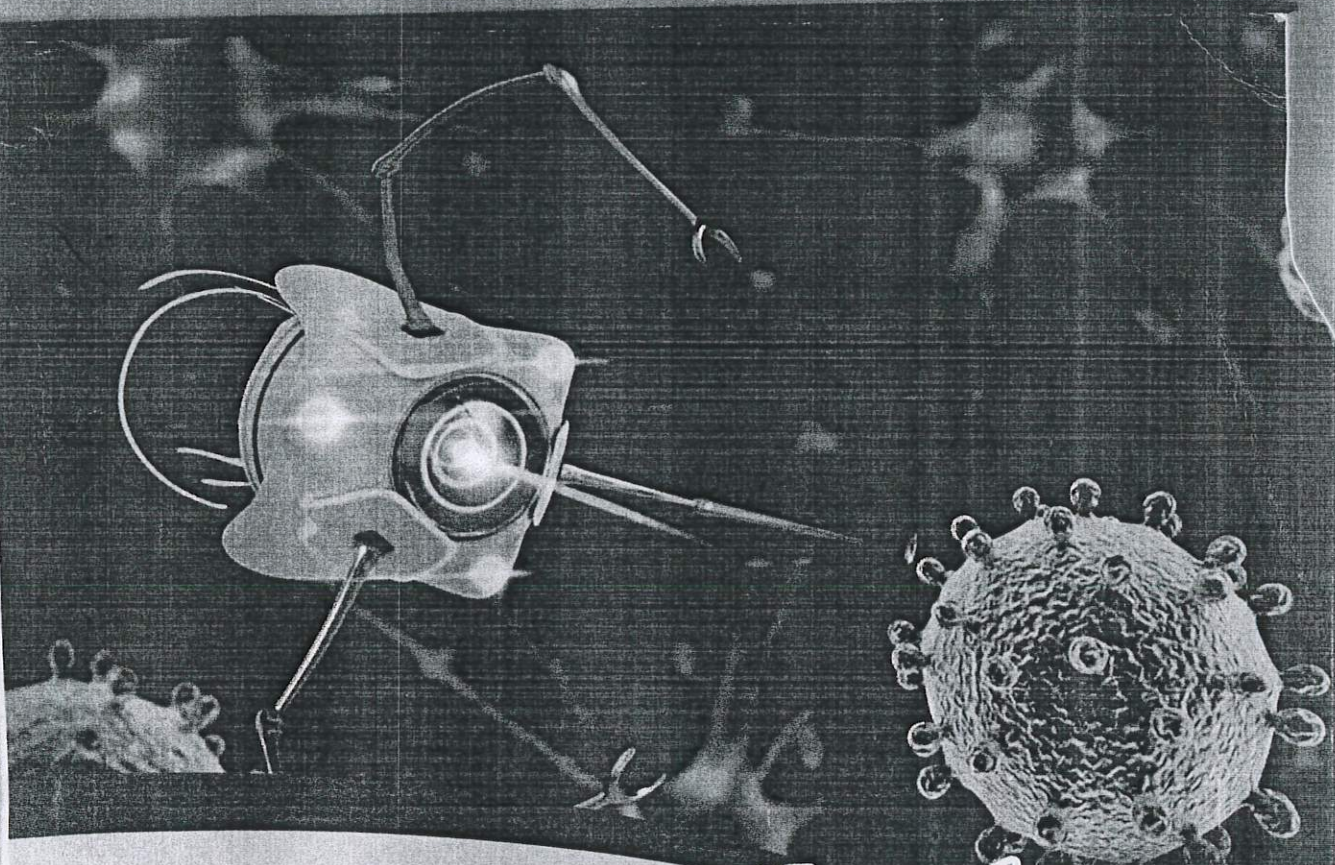
Despite substantial socioeconomic and technological progress, the world's population relies on conventional fuels such as coal for domestic use. Hence, reserve fuels based on fossils are being depleted rapidly and day by day the demand of required energy becomes more, hence, need to find alternative energy resources. Energy from waste is one of the best and alternative options to fulfil the demand of energy required for future. Energy from waste is a potential resource for energy generation that is both economically viable and environmentally friendly. The energy generated from waste will be either of electricity or fuel by converting the nonrecyclable waste materials through various physio-chemical processes known as waste-to-energy technologies. In this chapter, review of technological developments in the energy generation from municipal solid waste (MSW) has been discussed. Initially, brief introduction of major parameters of MSW management has been reviewed and then detailed study of MSW generation, characterization, collection and treatment options in India have been reported. Different pathways have been reported in literature for conversion of MSW into energy. Various pathways to convert wastes to energy are combustion, gasification, pyrolysis and landfill gas recovery and have been discussed in detail along with its environmental impacts. Overall, it can be said that technologies based on conversion of waste to energy ensures effective MSW management, which is a prospective energy source to meet the demand of energy.

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Keywords


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Introduction to Nanotechnology

Dr. Santosh Walke

Dr. Makarand Naniwadekar

OXIP

MW
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Autonomous College, PUNE

Title of the Book: INTRODUCTION TO NANOTECHNOLOGY

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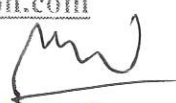
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Dr. Santosh Walke, has brilliant academic record of more than 26 years of teaching and research experience in renowned colleges and Universities in India and abroad. Dr. Santosh Walke is currently working as a faculty in MIE Department, College of Engineering, National University of Science and Technology, Oman. He received his B Tech in Chemical Engineering Degree from Dr. Babasaheb Ambedkar Technological University, Lonere Maharashtra in 1996, M.B.A. Marketing Management from Pune University in 1999, M.E. in Chemical Engineering from Shivaji University, Kolhapur in 2005 and PhD in Chemical Engineering from Dr. Babasaheb Ambedkar Technological University, Lonere Maharashtra in 2014. He has published 65 research papers in reputed International Journals and Conferences. His research interest includes Process Simulation and Design, Multiphase Flow, Energy Conservation, Reaction Engineering, International Marketing, Supply Chain Management and Logistics, Nano technology, Artificial Intelligence. He had received patent grants and published 2 patents. He is Chartered Engineer (Chemical Engineering Division) of Institution of Engineers and associated with various professional bodies like American Institute of Chemical Engineers, SPE, ISTE, IEI, IACSIT, IEDRC, IETI, and SASE.



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FIRST EDITION

FLUID MECHANICS ENGINEERING

**Dr. Santosh Walke
Prof. Manoj B. Mandake
Dr. Ravi W. Tapre
Dr. Makarand Naniwadekar**



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Fluid Mechanics Engineering

Dr. Santosh Walke, Prof. Manoj B. Mandake,

Dr. Ravi W. Tapre and Dr. Makarand Naniwadekar

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About The Author



Dr. Santosh Walke, has brilliant academic record of more than 26 years of teaching and research experience in renowned colleges and Universities in India and abroad. Dr. Santosh Walke is currently working as a faculty in MIE Department, College of Engineering, National University of Science and Technology, Oman. He received his B Tech in Chemical Engineering Degree from Dr. Babasaheb Ambedkar Technological University, Lonere Maharashtra in 1996, M.B.A. Marketing Management from Pune University in 1999, M.E. in Chemical Engineering from Shivaji University, Kolhapur in 2005 and PhD in Chemical Engineering from Dr. Babasaheb Ambedkar Technological University, Lonere Maharashtra in 2014. He has published 65 research papers in reputed International Journals and Conferences. His research interest include Process Simulation and Design, Multiphase Flow, Energy Conservation, Reaction Engineering, International Marketing, Supply Chain Management and Logistics. He is Chartered Engineer (Chemical Engineering Division) of Institution of Engineers and associated with various professional bodies like American Institute of Chemical Engineers, SPE, ISTE, IET, IACSIT, IEDRC, IETI, and SASE.



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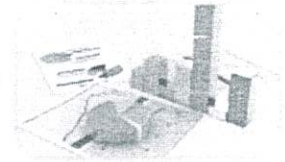
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Research Methodology



Mr. Tarun Kanodia has been working as a Programmer at I. K. Gujral Punjab Technical University, Kapurthala, since January 2016. Previously, he has more than six years of experience in the IT Industry and HR Management. Born in Kanpur, Uttar Pradesh and brought up in Amritsar, Punjab, he did a Bachelor of Science (Information Technology) from Guni Nanak Dev University. He did his Master of Computer Applications from Punjab Technical University. Presently he is pursuing a Ph.D. degree in Applied Sciences (Computer Applications) from I. K. Gujral Punjab Technical University, Kapurthala. He has 02 patents in Machine Learning and Natural Language Processing, and 02 more patents in similar fields are under process. His areas of interest include Machine Learning, Artificial Intelligence, Data Science, Soft Computing, Entrepreneurship Management, Research Methodology, Research Publication and Ethics. His research work for Ph.D. is related to the Design and Development of a Machine Learning based Framework for Automatic Human Activity Recognition.



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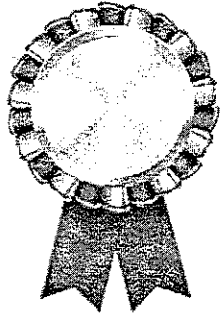


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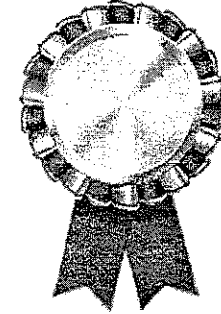
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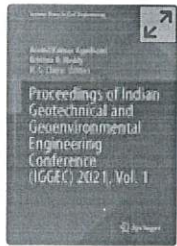
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Indian Geotechnical and Geoenvironmental Engineering Conference

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Plaxis 2D Numerical Analysis of Encased Stone Column in Soft Clay

[Sanket S. Mudekar](#), [Vidya N. Patil](#) , [Hemant S. Chore](#) & [Vishwas A. Sawant](#)

Conference paper | [First Online: 24 November 2022](#)

123 Accesses

Part of the [Lecture Notes in Civil Engineering](#) book series (LNCE, volume 280)

Abstract

Strengthening soft soil ground with different techniques requires several tries with available material and properties of the same. Widely accepted soft ground strengthening technique is ordinary stone column (OSC), and it is encased with geosynthetic material, known as Geosynthetic

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Bearing Capacity of Geocell Reinforced Model Fly Ash Slope

[Vidya N. Patil](#) , [Hemant S. Chore](#) & [Vishwas A. Sawant](#)

Conference paper | [First Online: 24 November 2022](#)

146 Accesses

Part of the [Lecture Notes in Civil Engineering](#) book series (LNCE, volume 280)

Abstract

A bulk utilization of pozzolonic material in the geotechnical construction is in demand for sustainable infrastructural development as it is economical, and further, it also reduces pollution. This paper focuses on the experimental investigations of only fly ash and single geocell-layered fly ash with slope angle $\beta = 45^\circ$ and footing edge distances ($D_e = 1B, 2B, 3B$). This is done in laboratory and with model instrument. From the



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Recent Trends in Construction Technology and Management pp 1073–1088

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Seismic Response of RC Elevated Liquid Storage Tanks Using Semi-active Magneto-rheological Dampers

[Manisha V. Waghmare](#) , [Suhasini N. Madhekar](#) & [Vasant A. Matsagar](#)

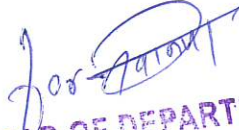
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619 Accesses

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Abstract

The paper presents the use of semi-active magneto-rheological (MR) dampers for the structural response reduction of the reinforced concrete (RC) elevated liquid storage tanks. The effectiveness of MR dampers is investigated based on the control strategies and the placement of the dampers in the staging. The RC elevated liquid storage tank is modeled as a multi-degree freedom


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Groundwater and Water Quality pp 191–198

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Applications of Cascade Feed Forward Neural Network for Modelling of Coagulant Dose in a Drinking Water Treatment Plant: Comparative Study

D. V. Wadkar & A. S. Kote

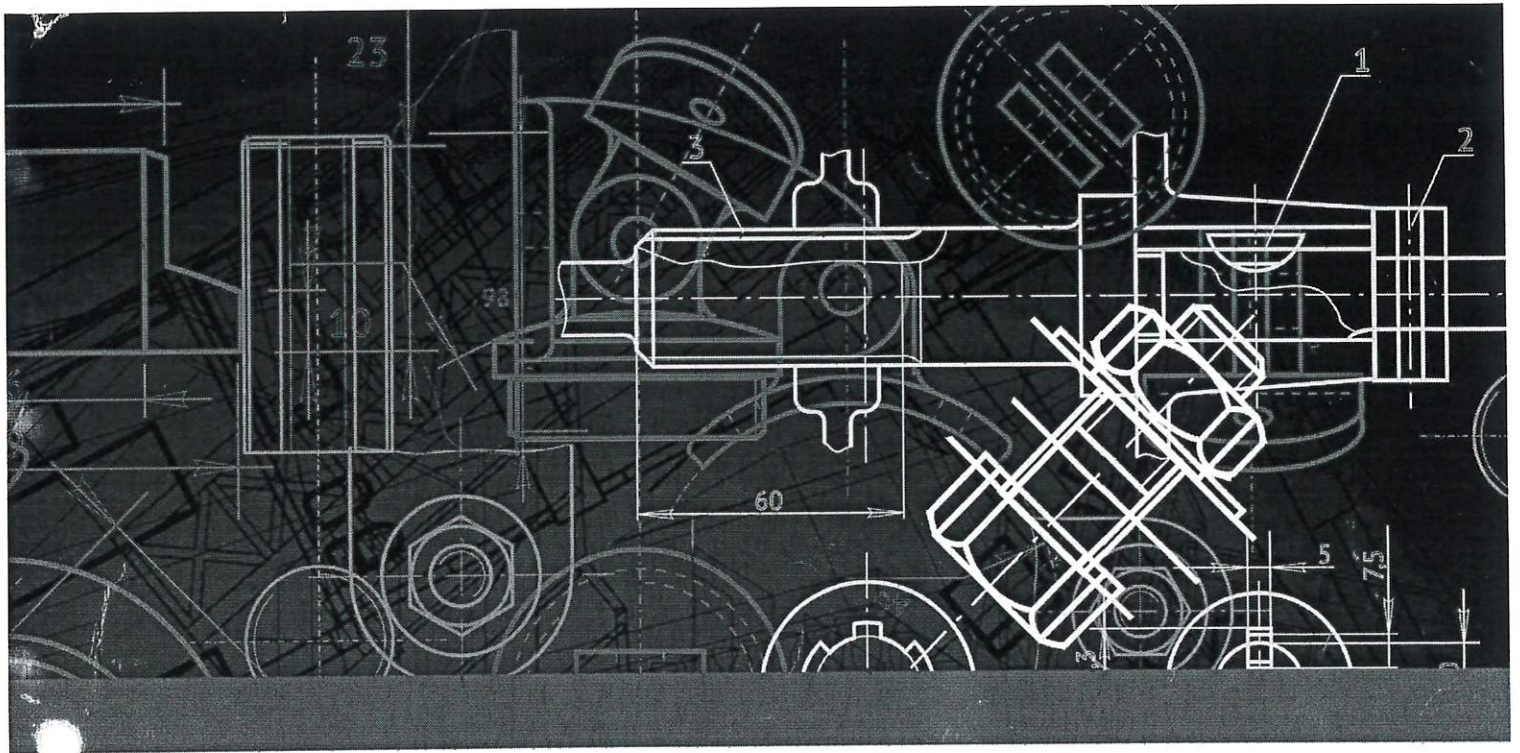
Chapter | [First Online: 04 October 2022](#)

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Abstract

Coagulation process is complex and nonlinear and its control plays a crucial role in a water treatment plant (WTP). Traditionally, aluminum sulphate (alum) is used as a coagulant in the coagulation process and the optimum coagulant dose is determined using a jar test. The jar test is quite time-consuming and expensive too. Jar tests are conducted periodically, which means they are reactive rather than proactive. The development of predictive models for coagulant dose in a WTP is needed. The aim of this study was to use an artificial neural network (ANN) to predict coagulant dose. For ANN modelling, the plant laboratory provided data for 48 months of daily water monitoring in terms of inlet and outlet water turbidity and coagulant dosage. By applying various training functions and evaluating the coefficient of regression (R) and mean




Recent Advances in Material, Manufacturing, and Machine Learning

Proceedings of 1st International Conference
(RAMMML-22), Volume 1

Edited by

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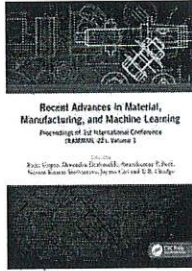
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44 Stacked classifier for network intrusion detection system

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Abstract

Intrusion Detection System is useful to monitor and analyses computer system in network and produces alert about malicious activity. However, existing intrusion detection systems do not offer acceptable accuracy and offers high false positive rate. To overcome these problems, many researchers have proposed hybrid approach of intrusion detection system. Recently, an ensemble method such as Bagging, Boosting and AdaBoost methods of machine learning is being widely used to reduce false positive rate with high accuracy.

In this paper, a novel stacked classifier has proposed for network intrusion detection system. Appropriate selection of base classifiers and Meta classifier is very important aspect in stacking based ensemble. BayesNet, PART rule learner and J48 Decision tree have used as base classifier. These three different base classifiers have stacked using Logistic regression Meta classifier. Novelty of the proposed intrusion detection system is that new stacking method with appropriate base classifiers have used to implement detection system. Base learners and Meta classifier have trained and tested using NSL-KDD datasets. Experimental results exhibit that the proposed stacked classifier beats its base learners and existing intrusion detection systems on test, training datasets and cross validation. Proposed stacked classifier also offer better false positive, precision and recall values than its base learners and existing intrusion detection systems.

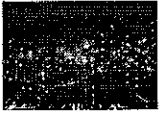
Keywords: Base classifier, ensemble, J48, naïve bayes, PART, stacked classifier.

Introduction

Now-a-days, worldwide usages of computer networks have increased rapidly. Cyber adversaries try to exploit delicate points of network to abolish important information of organisations (DeWeese, 2009; Eom et al., 2012; Vatis, 2001). Therefore, network intrusion detection systems are widely proposed by researchers to spot and identify invaders in computer network. These intrusion detection systems are broadly divided into anomaly and misused based detection techniques (DeWeese, 2009; Eom et al., 2012; Vatis, 2001; Lee et al., 1999; Moustafa and Slay, 2014; Valdes and Anderson, 2019). Signature based detection technique is used to detect known attacks. It offers advanced accuracy and inferior false positive rates than the Anomaly detection technique. Anomaly based detection technique identify unknown attacks (Ghosh et al., 1998). Anomaly detection technique is being widely used to detect and identify new attacks in networks. Many researchers have proposed anomaly based detection technique to develop intrusion detection systems (IDS). Presently, machine learning (ML) and data mining methods become a famous tool for IDS. Deep learning technique of ML also is taking lead in developing IDS. Individual classifier of ML is not capable to offer higher classification accuracy and lower false positives. Therefore, researchers are offering ensemble classifier for IDS. Ensemble is a method of combining individual learners that offers improved classification accuracy with less value of false positive. Homogenous, heterogeneous, lazy and eager classifiers can be used to develop ensemble classifiers. In ensemble method, selection of individual classifiers is very important exercise (Moustafa and Slay, 2016). Specifically, Bagging, AdaBoost and Stacked methods of ensemble are being used for intrusion detection system. They offer very admirable accuracies with very low false positive rates. For getting precise great accuracy and small false positive rate, researcher are involved in researching suitable base learners. Stacking of similar classifiers sometimes will not give good classification due to their similar performances. The over these research gap heterogeneous classifiers have been used in this research work.

In this paper, a new stacked ensemble classifier has suggested for intrusion detection system. Three appropriate heterogeneous base classifiers have chosen for stacked. One decision tree, one rule learner and Bayes Net classifiers have selected for stacked. Logistic regression based Meta Classifier has proposed for stacked base learners. All Base learners and stacked classifier have trained and tested using NSL-KDD dataset. Rest

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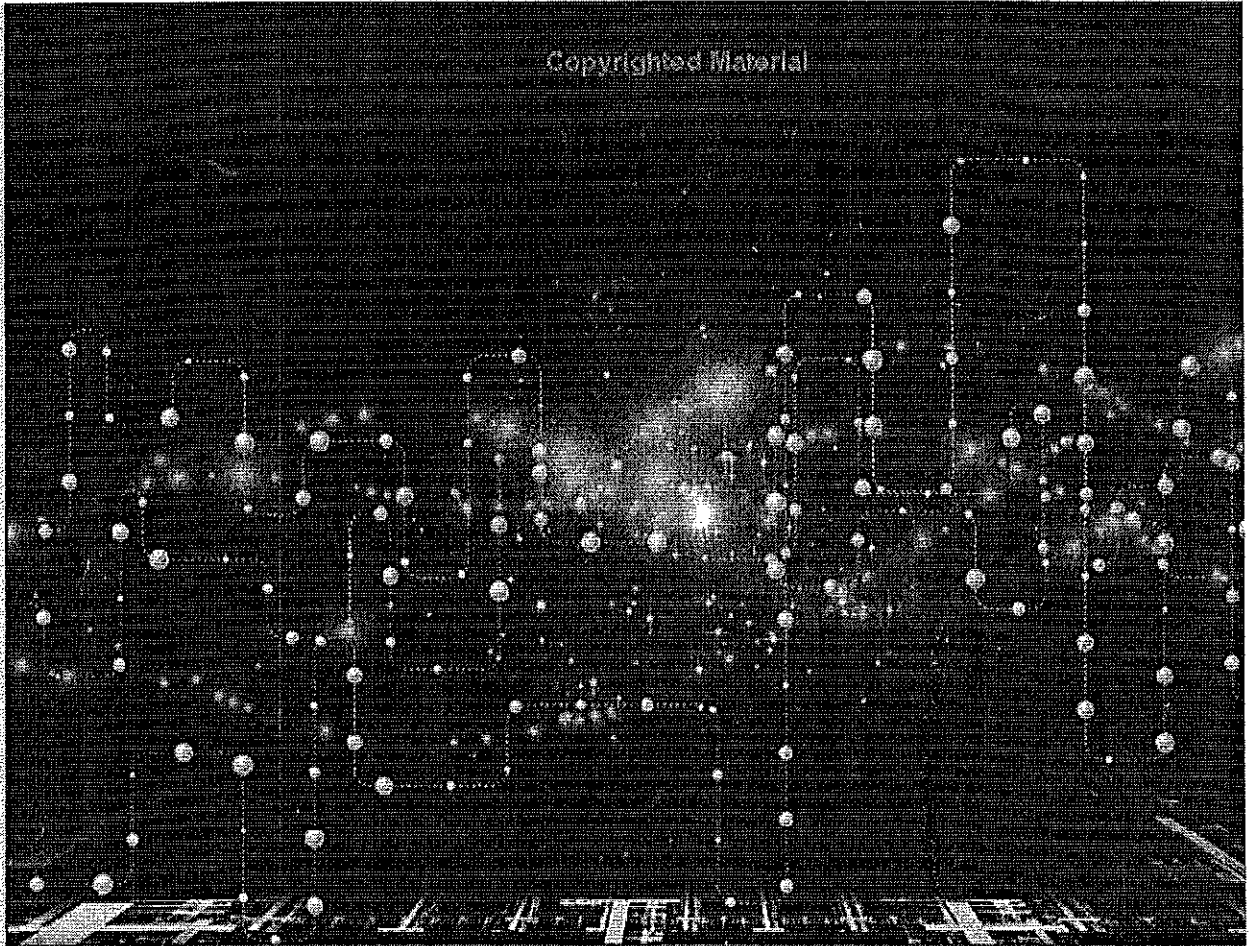
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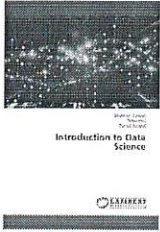
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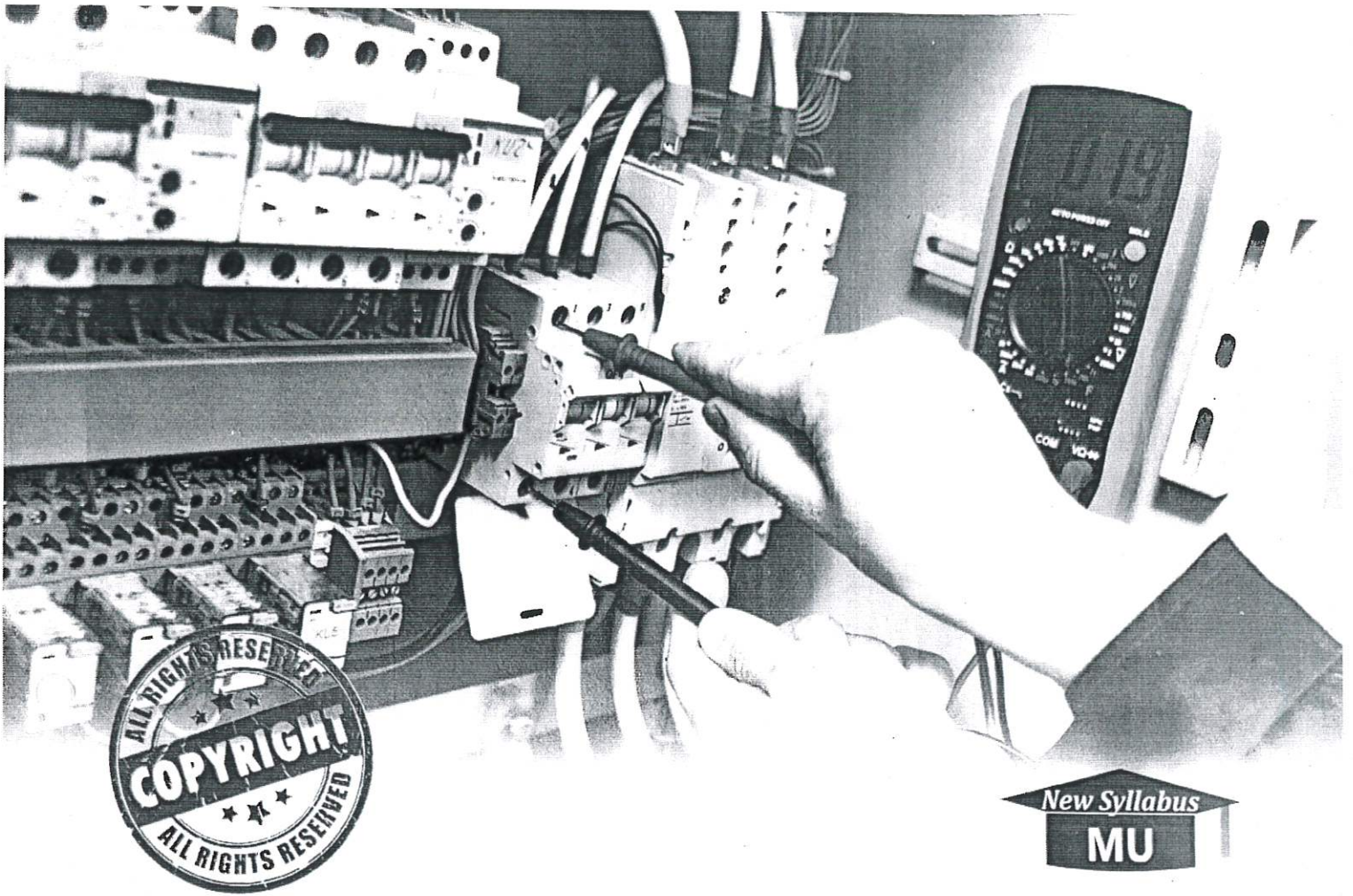
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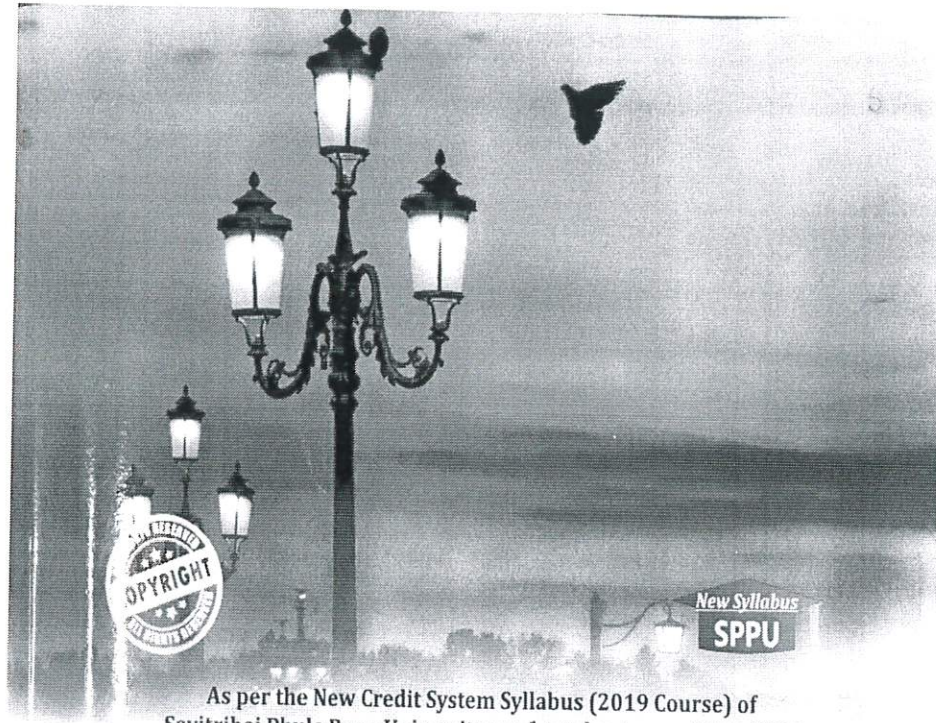
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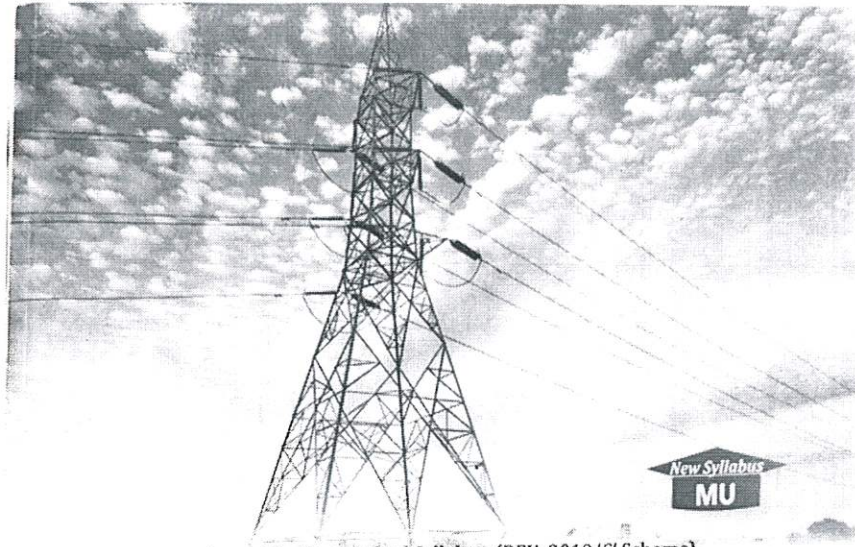
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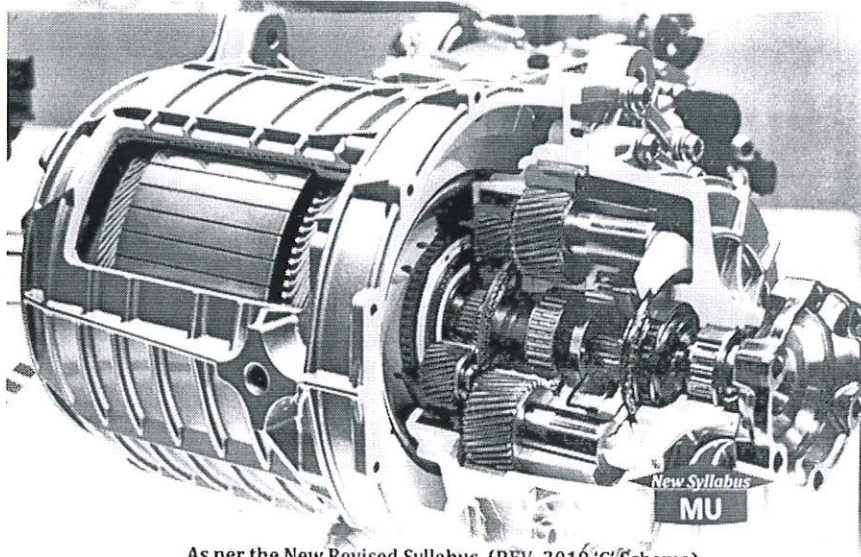
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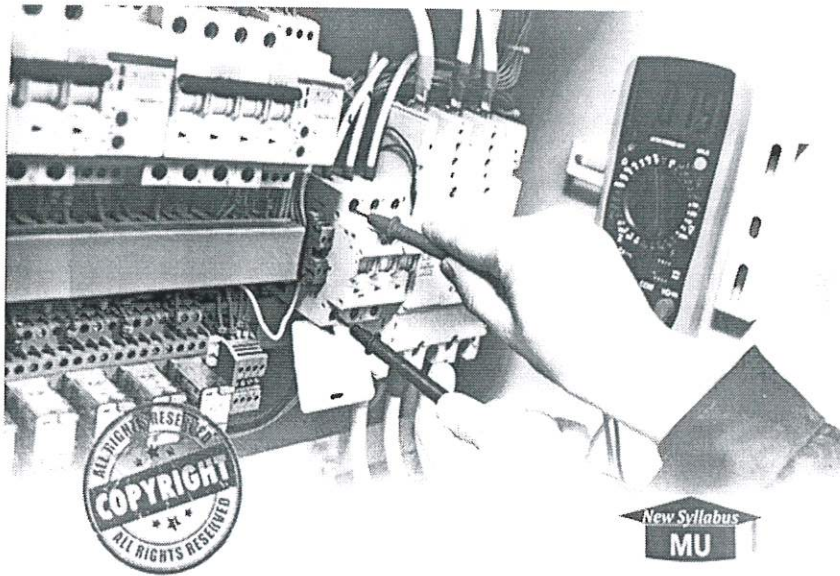
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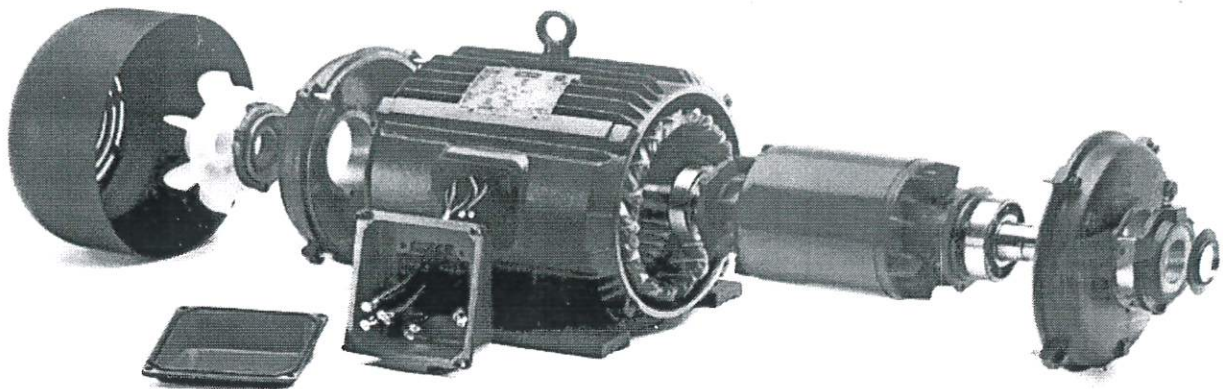
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Electrical Machines - I

(Code : 3140913)

Semester IV - Electrical Engineering

J. S. Katre

S. M. Chaudhari



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Electrical Machines-I: (Code : 3140913)

(Semester IV, Electrical Engineering, Gujarat Technological University, GTU)

J. S. Katre, Prof. S. M. Chaudhari

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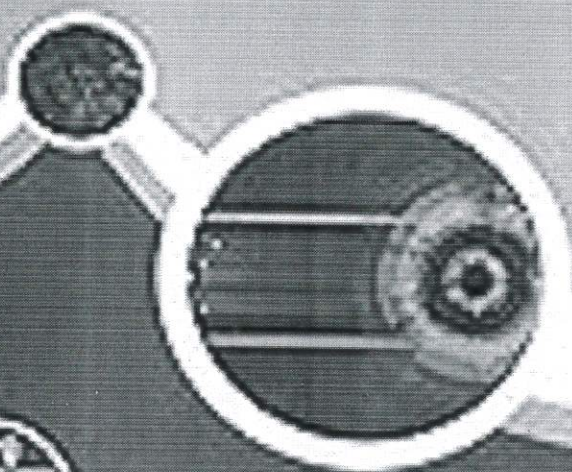
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Smart Grid System using GSM

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ABSTRACT

This paper presents a GSM-based Prepaid Electricity Energy Meter system using Arduino as an innovative solution for managing electricity usage and payment. The project aims to replace traditional postpaid billing systems with a prepaid system that requires customers to pay in advance for the amount of electricity they intend to use. The energy meter is enhanced with a GSM module, enabling seamless communication between the meter and the service provider's server. This communication facilitates real-time validation of payments and updates the remaining credit balance accordingly. The project also includes an LCD display and a keypad to allow users to view their energy usage and remaining balance.

KEYWORDS: *Smart grid, Prepaid electricity, GSM module, Energy meter*

INTRODUCTION

A novel solution has been introduced for the management of electricity usage and payment, which involves the utilization of an Arduino-based GSM Prepaid Electricity Energy Meter. This project, built on the Arduino platform and utilizing GSM network technology, aims to create a prepaid energy meter that can be quickly and easily installed in households, offices- wherever electricity is being consumed.

The primary idea behind this project is to replace traditional postpaid systems with a prepaid one where users pay beforehand for their anticipated electricity consumption. With a GSM module integration, the energy meter can interconnect with the service provider's server to authenticate payments and promptly refresh the available credit balance.

In terms of benefits offered by this project, it notably reduces non-payment incidents and risks associated with disconnections from power suppliers. It enables consumers to supervise their own power consumption rates, encouraging them towards adopting sustainable habits while also providing an economical option for electric management solutions. Facilitating these aspects relies heavily on integration capabilities between

several key components, including an Arduino circuit board and a GSM module linked to an energy-supply tracking apparatus with accompanying LCD displays informing users of their current utilization status.

PROBLEM STATEMENT

Traditional electricity billing systems are based on postpaid billing, where the customers are billed for the electricity, they have consumed at the end of a billing cycle. However, this system has several limitations, including delayed billing, inaccurate billing, and difficulty in collecting payments. Additionally, traditional electricity billing systems do not provide customers with real-time information about their electricity consumption, which makes it difficult for them to manage their energy consumption effectively. To overcome these limitations, a GSM-based prepaid electricity energy meter using Arduino can be developed. The proposed system allows customers to buy electricity credits in advance and utilize them based on their individual needs.

PROPOSED SYSTEM

Objective

- i. To design the smart grid system.

Autonomous Medical Assistive Robot

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ABSTRACT

Old age population in India is 139,610,000 as per 2019 records. In India, about one in five people is 60 or older and it is expected to increase in the coming years. As the age increases, the dependency of the person increases. There is a need for a tool to compensate for the lack of personnel and the wish for the elderly to prolong their independent lives. Aging is a natural factor and has its effects on people. One of the main effects is seen in memory. Elderly people find it hard to memorize things and events and also have a hard time remembering. Due to this there arises an issue that they can't remember if they have had their dose of medications or not. This can only result in two scenarios: they either skip their medication dose or overdo it. This for sure affects their health and can be fatal in some cases. The robot traverses the wards where the medicine needs to be delivered using an algorithm based on sensors. The proposed method saves time and also human resources and is easy to operate with external monitoring from the hospital reception. This way, we would ensure that medicines are delivered and fed on time. Also, contagious diseases are not transferred when medicine delivery is done as compared to the same laborious process being done manually.

KEYWORDS: *Autonomous , RTC, Keypad matrix.*

INTRODUCTION

Researchers are finding new ways in which they can improve and integrate their technology leading to new discoveries that push us towards a future where the majority of tasks are done by robots and not by humans. Robots can be defined as an artificially intelligent physical system that is capable of interrelating with the environment. The essential part of robots in the medical services framework is principally to limit an individual-to-individual contact, defilement, and to guarantee cleaning, disinfection. A low-cost miniature robot can be easily assembled and controlled via remote and this system includes an active end effector, a passive positioning arm and a detachable swap gripper with integrated force sensing capability. The principal use of robots is impressively in limiting individual to individual contact and guaranteeing cleaning and cleansing. Robots will bring down the responsibility of clinical staff and doctors, subsequently improving the effectiveness of large medical care

offices. They can control instruments' expansion in the security, observe the patients and play out some diagnostics. Autonomous robots could be of great help for people with high-skill careers, such as doctors. Duties or even operations could be performed by robots and be able to provide better diagnostics, safer surgery, shorter waiting times, and reduced infection rates. The use of automation in the industrial world has a great impact on factories due to the replacement of unskilled laborers. Old age population in India is 139,610,000 as per 2019 records. In India, about one in five people is 60 or older and it is expected to increase in the coming years. Most elderly people prefer to stay in their own house for as long as possible. As the age increases, the dependency of the person increases.

There is a need for a tool to compensate for the lack of personnel and the wish for the elderly to prolong their independent lives. Aging is a natural factor and has its effects on people. One of the main effects is seen in memory. Elderly people find it hard to memorize things

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Elevator Control using Voice Command

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ABSTRACT

This paper mainly focuses on implementing elevator system that will work based on voice commands given by user through smartphone which will be beneficial for physically challenged people and can be used in hospitals. It will ensure transport of peoples and goods in elevator without physical interaction by operating elevator with voice commands, thus its helpful in the time of COVID-19 and similar pandemic situations as well. The voice commands are given through smartphone using google assistant and elevator will come on particular floor based on voice command. Elevators are used in daily life and thus this system will be a great help for physically disabled people and during pandemic situation to avoid physical contact .

KEYWORDS: *Arduino, Voice command, Google assistant, Adafruit io.*

INTRODUCTION

Elevators are a necessary in our daily life . Peoples opt for elevators instead of stairs to save their time . Elevators are used in larger apartments, shopping malls/markets,hotels ,banks ,hospitals, and colleges/schools. Elevators have key-pad which means it requires users physical interaction for its movement. It uses switch mechanism for its operation. Blind people cannot use elevator easily Also in this time of pandemic like COVID-19 and other situations like flu,people avoid physical touch due to spreading of virus it is better to take precaution. So considering all these aspects we came up with an idea of developing the elevator that will work based on voice commands given by user . Elevator have been designed using different approaches. By just giving a voice command the user can easily reach to the destination floor without any physical work which would provide an ease to user to reach their destined floor and will also give a ease to short height people and physically challenged people. The voice commands are given as input to the microcontroller and based on the voice commands given by the user it moves the

lift vertically up and down. The vertical movement of the lift up and down is done by DC motor. The voice commands will be given through smartphone using google assistant and elevator will come on particular floor based on voice command.

LITERATURE SURVEY

Smart elevator have been designed using different approaches like wireless elevators, voice operated elevators. Advancements in elevators are done by technologies like Machine learning ,Artificial intelligence , Big data and sensors, advanced algorithms. In 1979,First elevator was developed by the Otis Elevator Company [7]. Different systems had been introduced to overcome the challenge for blind and physically challenged like paralyzed and short height people in using elevator. For analysis of lift model by voice and sensor panel, OMRON Controller C2OOHX is used. For indication of cage position, programmable terminal NT20S is used that is programmed with the package NTWIN [2]. In Elevator for blind people using voice recognition [6] developed a solution for blind people that makes an easy way to use elevator. System

Design and Development of IOT based Sanitary Napkin Vending Machine

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ABSTRACT

In contemporary society, women have emerged as key decision-makers and contributors to national progress. Acknowledging the significance of their involvement, it becomes imperative to ensure their well-being, particularly during menstrual hours, with emphasis on cleanliness. Regular pad changes every five to six hours are essential during menstruation, underscoring the need for easy accessibility to sanitary napkins. With India's digital transformation gathering momentum, the Unified Payments Interface (UPI) has already facilitated approximately 40% of all digital transactions. Therefore, this research proposes the upgrade of existing coin-based payment methods to UPI within a vending machine system. The pivotal components of this system include the Raspberry Pi controller, serving as its core, a user-friendly touchscreen display integrated with the Raspberry Pi module for input, and a stepper motor for dispensing pads. Furthermore, when stock levels run low, an automatic message sent to a designated person's mobile device facilitates a timely refill of the vending machine. This versatile system finds application in educational institutions, such as schools and colleges, as well as in industries, fostering an environmentally friendly atmosphere.

KEYWORDS: *Raspberry Pi, Touchscreen display, UPI payment.*

INTRODUCTION

Every year, a substantial amount of used sanitary pads, estimated at 12.3 billion, is disposed of in landfills throughout India. This improper disposal not only contributes to environmental pollution but also presents significant challenges in waste management. In addition to visual pollution, the hazardous chemicals present in these pads pose health risks. To address these pressing issues and promote sustainable menstrual hygiene practices, the integration of vending machines with digital payment capabilities offers an innovative solution.

By incorporating digital payment methods, such as QR codes, into vending machines, a convenient and cashless transaction experience can be provided for users. This eliminates the need for users to carry physical cash or coins, simplifying the process. Users can easily scan the QR code displayed on the vending machine using their smartphones and make payments through popular online payment platforms. This enhanced convenience

not only streamlines the transaction process but also promotes financial inclusion by accommodating individuals who may not have access to traditional banking services.

Moreover, the incorporation of digital payment methods in vending machines encourages the adoption of eco-friendly practices. The reduced reliance on physical currency minimizes the production and distribution of coins and banknotes, resulting in a decreased environmental impact associated with their manufacturing and disposal.

The introduction of vending machines with digital payment capabilities revolutionizes the accessibility and convenience of menstrual hygiene products. These machines can be strategically placed in various locations such as schools, colleges, offices, shopping centers, and public facilities, ensuring easy access to sanitary pads for women whenever they need them.

Overall, the integration of digital payment methods in vending machines not only enhances convenience and

The Proctor – A Robot for Crop Monitoring and Disease Detection using IoRT and YOLO

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ABSTRACT

Agriculture is a vital industry that sustains global food production and plays a critical role in the economy. However, traditional farming practices face numerous challenges, including labor-intensive tasks, limited use of technology, and inefficient agricultural practices. To address these issues, this research paper aims to incorporate IoRT in agriculture to build a multifunctional robot for crop monitoring and analysis. This robot is equipped with multiple sensors and cameras to detect soil, weather and crop conditions. It has characteristics like Live Crop Monitoring, Real Time Crop Analysis, Multi-terrain Capacity, On Board WiFi, Remote Control and Obstacle Detection. The machine learning-based image processing methods detect and classify cotton plants in categories like fresh and diseases. Thus, it will enhance agricultural practices, optimize resource allocation and improve overall productivity to achieve precision agriculture.

KEYWORDS: *IoRT, Image processing, YOLO, Precision agriculture, Robotics.*

INTRODUCTION

Agriculture is the backbone of societies, providing food, raw materials, and livelihoods for millions of people. Today, farmers face difficulties in identifying and managing crop diseases which leads to yield losses and economic instability. To overcome these challenges, innovative solutions are needed to improve crop monitoring and analysis in agriculture.[1] The integration of robotics and advanced analytics techniques offers promising possibilities to achieve precision agriculture. This research paper describes 'The Proctor – Crop Monitoring and Analysis Robot' which is a multipurpose robot built with advanced technologies to address the above challenges.

The primary objective of this paper is to design and build a robot capable to monitor and analyze soil, weather and crops conditions.[2,3] Here, we have taken cotton crops to test the functionality of the robot. The robot is equipped with an integrated camera to navigate and monitor the cotton plants. The captured images will be processed using image processing techniques based

on the YOLO algorithm combined with deep learning principles, to accurately detect and classify the fresh and diseased cotton plants.

This paper aims to achieve precision agriculture by providing farmers with real-time information about crops, soil and weather conditions.[4] The robot's multi-terrain capabilities will allow it to travel efficiently through agricultural fields. By leveraging these technologies, farmers will be able to identify diseased plants at an early stage, enabling them to take timely and targeted actions to mitigate the spread of diseases and optimize crop management practices.[3,5]

METHODOLOGY

The methodology implemented in this paper involves the design and development of a multifunctional robot for crop monitoring and analysis. It is based on technologies involving the Internet of Robotic Things (IoRT), Machine Learning based Image Processing algorithms, Cloud Platform, Camera-based navigation, WiFi and Wireless Sensor Networks (WSN). The metallic body structure with coating ensures the housing

Smart Cylinder Trolley with Home Safety

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ABSTRACT

Cylinder for LPG Gas leaks can lead to serious incidents that result in both monetary losses and harm to people. To avoid such occurrences, a lot of attention has been paid to the development of reliable techniques for gas leak detection. Simply being aware that a leak exists is not always enough to launch a corrective action, so some leak detection techniques were developed to give the possibility of locating the leak. This project's objective is to create a safety-focused system that can take immediate action and notify the user via mobile device if there is a threat in the kitchen. This system will alert the user and send a message when LPG leaks are found. It ensures defence against any gas leakage incidents that might result in suffocation or explosion. The added benefit of this proposed system's weighing sensor is that it can weigh the cylinder and periodically inform the user of how much gas is still in it. Customers can use this system to check whether a gas company is undercutting them by providing them with less LPG. Everyone is currently preoccupied with their daily activities, making it challenging to determine the status of the gas cylinder. Making elderly people who are dependent on others and live alone independent as well as shielding them from potential kitchen dangers will be beneficial.

KEYWORDS: Load cell, MQ2 sensor, ESP8266, BLYNK Mobile.

INTRODUCTION

The internet of things aims to make our lives easier by automating any small task we come across. In addition to aiding in task automation, the benefits of IoT can also be extended to enhance current safety standards. Towns, businesses, and residential structures all require careful consideration of security issues. The increased focus of some gases in the environment can be dangerous, so everyone needs a facility that minimises time and effort and expects their work to be as simple as possible. Reports state that cylinder explosions result in at least 1000 fatalities each year. IoT technology can help us use human safety and security more effectively, which will help keep accidents to a minimum. This project focuses on a cylinder weight monitoring system and a gas leakage detection notification system in order to prevent accidents and create safe kitchens.

PROBLEM STATEMENT

Standard LPG Cylinder Gas leaks can lead to serious

incidents that result in both monetary losses and harm to people.

There has been a lot of focus on the creation of reliable tools for locating gas leaks.

Simply being aware that a leak exists is not always enough to launch a corrective action, so some leak detection techniques were developed to give the possibility of locating the leak. This project's objective is to create a safety-focused system that can take immediate action and notify the user via mobile device if there is a threat in the kitchen. A weighing sensor is part of the suggested system, which can weigh the cylinder and periodically alert the user to how much gas is left inside.

PROPOSED SYSTEM

Objective

- To design a smart cylinder trolley that can track LPG consumption in real-time.

Design and Development of Microstrip Antenna for Non-Invasive Glucose Testing

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ABSTRACT

Microstrip antennas have gained significant attention in biomedical applications due to their low profile, lightweight, and ease of fabrication. In this paper, we propose the use of a non-invasive microstrip antenna for blood glucose monitoring. The proposed antenna is designed to operate at a frequency of 2.4 GHz, which is within the ISM band. When a human finger containing a certain value of Blood Glucose Level (BGL) is placed in the radiating region of the microstrip antenna, the radiating patch antenna structure's near field interacts with the human finger and causes changes in the electrical characteristic of the antenna. These electrical changes are associated with changes in blood permeability due to changes in Blood Glucose Level value. A change in the electrical characteristics of the microwave structure of the antenna leads to a corresponding frequency change. The antenna is simulated and optimized using HFSS software, and its performance is evaluated in terms of reflection coefficient, radiation pattern, and gain. The antenna is fabricated using a FR4 substrate, and its performance is validated through experiments. The results show that the proposed antenna has a reflection coefficient of -22 dB, and can detect diabetes in a non-invasive manner.

KEYWORDS: *Microstrip antenna, Non-invasive, Material under test, Resonating frequency.*

INTRODUCTION

Millions of people worldwide are affected by diabetes, a chronic condition. It happens when the body is unable to make and use insulin, a hormone that controls blood sugar, properly. Therefore, diabetics have high blood sugar, which can lead to various health problems over time.

There are two primary kinds of diabetes: type I and type II. Type I diabetes is an immune system sickness that frequently gets created in childhood or adolescence. It happens when the safe framework assaults and obliterates the cells in the pancreas that produce insulin, bringing about a total absence of insulin in the body. Type II diabetes, then again, ordinarily creates in adulthood and is frequently connected with the way of life factors like weight and actual dormancy. In type II diabetes, the body becomes impervious to insulin, and the pancreas may not deliver sufficient insulin to

address the body's issues. The two sorts of diabetes can prompt a scope of unexpected problems, including cardiovascular sickness, kidney infection, nerve harm, and visual deficiency. Overseeing diabetes requires cautious observing of glucose levels, a solid eating routine, standard active work, and once in a while drug or insulin treatment.

Despite the challenges of living with diabetes, many people with the condition are able to manage it effectively and lead full, active lives. Ongoing research is helping to improve diabetes management and develop new treatments, with the ultimate goal of finding a cure.

Non-invasive glucose testing has been a longstanding goal in the field of diabetes management. Current methods of monitoring blood glucose levels require invasive techniques such as finger pricks or continuous glucose monitoring systems implanted under the skin. These methods can be uncomfortable, inconvenient,

Text-to-Image AI Model using Deep Learning

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ABSTRACT

Converting our multifarious Imagination into reality is a tough task! But not anymore, today one can convert their visualization into a "Two Dimension Reality" (2D). The "Text-to-Image Model" converts the Text inserted by the Visualizer into a Two Dimension Images. The ability to produce eye-catching images from word descriptions has a magical air to it and certainly indicates a change in how people create, think, and perceive the world. The very versatile "Stable Diffusion Model" is a very popular Model in AI that can produce desired images from the given text prompt. It is recent Artificial Intelligence, Machine learning model which has been introduced in 2022 itself and can be explored far in deep to create wonders in the 'AI generation'. This model can be easily used for content making, creating dataset, new advanced keyboard and in many other fields that will revolutionize our life, make our life Interesting and easy..

KEYWORDS: 2D, AI, Text-to-Image.

INTRODUCTION

Typically speaking, people are able to create vivid, in-depth scenes in their minds through descriptions communicated in spoken or written language. Supporting the capacity to produce visuals from such descriptions has the potential to open up creative applications in a variety of fields, including as the arts, design, and the production of multimedia material. Recent work on text-to-image generation, such as DALL-E and Cog View, has significantly improved the ability to produce high-fidelity images and to show generalization skills to hitherto undiscovered pairings of objects and concepts. Both approach the task as a type of language modelling, converting textual descriptions into visual words, and employ contemporary sequence-to-sequence structures like transformers to discover the connection between language inputs and visual outputs. There are techniques for converting text to images that use Diffusion Models, Autoencoders, or Generative Adversarial Networks. Diffusion models currently perform well in this type of issue. Diffusion model works on two phenomena, the Forward Diffusion, which destroys the input by introducing Gaussian Noise, and

the Backward Diffusion, which uses Deep Learning Models to restore the input after it has been damaged. An open-source version of the Latent Diffusion architecture called Stable Diffusion has been trained to denoise random Gaussian noise in a lower dimensions latent space in order to provide an interesting sample. After a few iterations, a result is produced using diffusion models, which have been trained to predict how to gently denoise a sample in each step. Several generation tasks, including image, speech, 3D form, and graph synthesis, have already used diffusion models. The Stable Diffusion executes the diffusion process on a compressed version of the image rather than the original pixel images in order to accelerate the image production process. An autoencoder is used to perform this compression. The autoencoder uses its encoder to compress the image before utilizing its decoder to recreate it using only the compressed data. One's imagination will take on a whole new dimension when the human photographic memory is combined with artificial intelligence in terms of text and image. It can be used to create text, designs, graphics, and other artefacts, among other things. Traditionally, all

Smart Chef: Automated Cooking System with Robotic Arm

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ABSTRACT

In today's hectic lifestyle, many working individuals and students struggle to procure desirable and healthy food. Unfortunately, they often resort to consuming food from outside sources. Cooking requires time and physical effort, making it challenging for individuals with disabilities, the elderly, and those lacking the necessary strength or resources. Moreover, food prepared outside is frequently unhealthy and often made in unhygienic kitchens. Our proposed system aims to overcome these obstacles by providing a solution that saves time and ensures food safety. This paper presents an automated cooking robot arm designed specifically for elderly, working, and disabled individuals. The robot arm serves hygienic and meticulously prepared meals, minimizing waste. Upon receiving a menu request, the robot arm grabs the ingredients and initiates the cooking process. The system operates efficiently, optimizing time management. It is worth noting that there is currently no existing robot available on the market specifically designed for cooking omelets. Our robot efficiently prepares omelets to meet culinary standards, filling this gap in the market.

KEYWORDS: *Automated, Meticulous, Efficient, Time-saving*

INTRODUCTION

Food is an essential need for every individual, and the importance of healthy and hygienic food cannot be overstated. However, working professionals, college students, and individuals who are elderly or disabled often face challenges in accessing proper and nutritious meals. Those who live away from home in cities must rely on outside food to meet their dietary requirements, often unaware of the food's preparation process, hygiene standards, and quality of ingredients. Consequently, the food they consume may lack hygiene, leading to potential health issues and illnesses.

To address this problem, the concept of automated cooking robots has emerged. These robots are designed to provide hygienic and healthy meals effortlessly, without manual intervention. The vision behind this ground breaking idea is to meet the need for safe, high-quality food prepared with precision consistently. By

utilizing the same algorithm for each cooking session, these robots ensure that the taste and quality of the food remain unchanged.

Moreover, automated cooking robots offer numerous benefits. Firstly, they save time, allowing individuals to focus on other meaningful activities. Secondly, these robots provide consistency in taste and cooking results, eliminating variations that are common in home or restaurant cooking. Additionally, automated robots contribute to safety by reducing kitchen-related accidents, as they can operate in hazardous environments without risking human wellbeing. The swift cooking process of these robots is also noteworthy, as they can prepare food in significantly less time compared to humans, avoiding issues related to fatigue. Furthermore, automated cooking robots are reliable, as they precisely follow programmed instructions, ensuring no misplaced ingredients or errors in the cooking process. Lastly, these robots prove to be cost-effective, with a one-time

Breaking Language Barriers: Transformer based Sentence Translation

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ABSTRACT

Machine Translation is a crucial task in Natural Language Processing, has seen significant advancements with the arrival of Transformer architecture. In this paper, we present our novel implementation of a Transformer architecture using TensorFlow for translating Hindi to English and English to Hindi sentences. Our implementation offers a thorough rundown of the Transformer architecture's salient characteristics that make it suitable for machine translation. We also describe our implementation details, including the pre-processing steps, hyper-parameters, and training setup. We present experimental findings using the BLEU score, a common machine translation evaluation metric. With a BLEU score above 0.5 for Hindi to English translation and a score above

0.5 for English to Hindi translation, our implementation performed admirably. Our research demonstrates the efficiency of our system and its applicability in practical situations. We are also conducting ablation studies to test possible future research techniques and to evaluate the effects of different components. According to the study, two important factors that greatly affect the translation performance are attention and the number of layers in a transformer system. Overall, our research enhances and provides opportunities for the machine translation industry another comes to improve language translation models, especially for low-resource languages like Hindi

KEYWORDS: BLEU : BiLingual evaluation understudy, RNN : Recurrent neural networks, SMT : Statistical machine translation, NMT : Neural machine translation, GPT : Generative pretraining transformer, BERT : Bidirectional encoder representations from transformers, RoBERTa : A robustly optimized BERT pretraining approach, GloVe : Global vectors

INTRODUCTION

With the introduction of Transformer architecture proposed in Attention Is All You Need [1], Machine Translation has become centre of attraction in NLP and has made drastic progress in recent times. In 2017, the machine translation model achieved flexible performance in a variety of language-related fields. Transformer architecture based on self-attention mechanism and positional encoding has surpassed traditional recurrent neural networks (RNNs) [2] in terms of parallelization, efficiency and performance.

We provide a summary of the Transformer architecture, highlighting important elements like the self-attention mechanism and positional encoding, which help the model more successfully capture long-term dependencies and contextual information. We then describe our dataset, the preprocessing of the dataset, along with the implementation of the Transformer architecture, including encoder and decoder components, and a training procedure using stochastic gradient descent with ADAM optimization [3].

We use a large parallel corpus of Hindi-English sentence pairings for training and testing in order to assess the

Design and Development of a Real Time Hand Gesture Recognition System for Indian Sign language using TensorFlow

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ABSTRACT

Real time communication interpreter is a technique in which the deaf and dumb people can interact with the normal persons. The way of communication, the deaf and dumb people use is the sign language. But this becomes difficult as for the normal person it is essential to learn the sign language and understand it. Hence learning sign language becomes a barrier for interaction. Thus through this research work we are developing an economically efficient system for recognizing Indian Sign Language (ISL) that helps to reduce this barrier. A raspberry pi, a camera and speaker is used with which the deaf and dumb can interact with a typical sign and the sign is detected and converted to text and then into speech output. For sign language detection we are using machine learning algorithms which are embedded on raspberry. Here tensor flow, an open source programming is used for implementing machine learning and deep neural learning algorithms. The accuracy with which the system works is almost 100%.

KEYWORDS: *Hand gesture, Indian sign language, Tensor flow, CNN.*

INTRODUCTION

It is very difficult for the deaf and dumb people to interact with the normal people. They use sign language to interact with normal people. Here through this work an attempt is made to develop a system that will make communication with the deaf and dumb people and normal people very effective. In recent times, there is a research in progress for sign language recognition using deep neural learning. Such systems can be used in gaming, for robot control, for TV control, in virtual environment and sign language recognition [6]. Sign language recognition can be performed by extracting various features of the gestures. Every gestures is contains some distinguishing features that can perceived by human eye. Hence a human can interact with any machine for applications such as gaming, controlling and sign language recognition. There are basically two approaches for sign language recognition, glove based and vision based. Vision based is the widely used method as glove based requires special gloves to wear and the natural hand movements are

restricted. Vision based is and natural and non-contact method though it is difficult to design vision based interaction system. A convolutional neural network approach with tensor flow framework is implemented in real time for ISL. There is more research carried out for other sign languages such as American Sign Language (ASL), Japanese Sign Language, British Sign language etc. There is less research carried out on Indian sign language as the signs used in ISL are complex as it uses two hands for most of the gestures. Thus this research work emphasizes on real time recognition of Indian sign language.

There are many classifiers such as support vector machine (SVM), K-Nearest Neighbor (K-NN), artificial neural network and some matching algorithms such as Euclidean distance measurement. A feed forward artificial neural network is implemented [7] with 85 hidden layers for real time hand gesture recognition with an accuracy of 88.7%. Artificial Neural Network is applicable in different fields of Artificial intelligence and in machine learning. But machine learning with

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Chapter 16

Sharp coefficient bounds and solution of the Fekete-Szegö problem for a certain subclass of bi-univalent functions associated with the Chebyshev polynomials

Amol Bhausaheb Patil

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16.1 Introduction

Geometric function theory (GFT) is a core branch of Complex Analysis and the study of univalent and multivalent functions is a fascinating branch of it. The theory of univalent functions is properly classified under the GFT, mainly due to the interconnection between the geometric behavior and the analytic characteristics of the function. The famous Bieberbach conjecture (1916) was the basic source of motivation for researchers to accelerate the development of this subject, which was finally settled positively by de Branges in 1985. The researchers Duren [7], Goodman [10, 11], Nehari [17], etc., obtained a number of interesting results and open problems in line with the Bieberbach conjecture.

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Recent Trends in Thermal Engineering pp 11–22

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Experimental Exploration of Effect of Hydrogen Enrichment on the Performance and Emissions of Dual Fuel Diesel Engine Equipped with CRDI by Varying Injection Duration


[M. R. Dahake](#) & [D. N. Malkhede](#)

Conference paper | [First Online: 05 August 2021](#)

Part of the [Lecture Notes in Mechanical Engineering](#) book series (LNME)

Abstract

The hydrogen due to its carbonless structure is considered as a potential supplement fuel in near future for dual-fuel Internal Combustion engines. It reduces the burden of energy imports and reduces carbon containing tailpipe emission, thereby protecting the environment. Hydrogen has inimitable characteristics because of carbonless structure which is considered as better alternative


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Recent Trends in Industrial and Production Engineering pp 133–143

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Investigations of Wear Behavior of Journal Bearing Materials

[Priya Gajjal](#) & [Shekhar Gajjal](#)


Conference paper | [First Online: 24 July 2021](#)

458 Accesses

Part of the [Lecture Notes in Mechanical Engineering](#) book series (LNME)

Abstract

Behavior of wear in tribological condition in metal-based brass and graphite material at dry and wet sliding conditions. Wear test of these materials were performed on wear test machine. The test of wear in mass loss was performed under different loads 10, 20, 30 N with interval and at different 1000, 1200, 1400 rpm speed, etc. Wear characteristics of materials are investigated through load, speed, and time. The main objective is to


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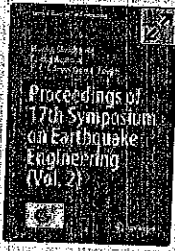
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Title:	Role of DOAJ in Promoting Open Access in India
Authors:	Dandawate, Vrushali Sainath (/ir/browse?type=author&value=Dandawate%2C+Vrushali+Sainath)
Keywords:	Open Access India DOAJ
Issue Date:	Nov-2022
Publisher:	INFLIBNET Centre, Gandhinagar
Series/Report no.:	CALIBER-2022;44
Abstract:	<p>The Open Access (OA) movement supports online access to scholarly publications, eliminates financial and legal restrictions, and supports the dissemination of knowledge. Open access is not a new concept for Indian researchers. Still, there is some gap in the open access movement in India. Open access journals are growing in India, but many are questionable publications, and researchers are sending their papers to such journals. Many times, researchers are not able to identify the correct journal for their paper publication. The major goal of this study is to evaluate the role of DOAJ in the corpus of knowledge made by scholarly publications published between 2003 and 2022. Worldwide recognized database DOAJ (Directory of Open Access Journals) was analyzed for this research study. Open access publishing demonstrates how the world of knowledge is dynamic. India has significantly contributed to the growth of knowledge with its 326 open access journals. DOAJ ambassador and other OA advocates are also trying for promoting open access in India</p>



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SEE 2022: **Proceedings of 17th Symposium on Earthquake Engineering (Vol. 2)** pp 643–659

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Seismic Behavior of Regular and Vertically Irregular Reinforced Concrete Building by 3D and MDOF Models

[S. A. Chavan](#) , [N. U. Mate](#) & [A. A. Manchalwar](#)

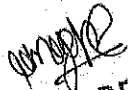
Conference paper | [First Online: 20 July 2023](#)

126 Accesses

Part of the [Lecture Notes in Civil Engineering](#) book series (LNCE; volume 330)

Abstract

Buildings' behavior in seismic forces is dependent on the structural configuration of the building. Regular buildings have more stable and predicted behavior than the irregular one. Irregular configuration in plan or in elevation is one of the major causes of failure of building during earthquakes. Vertical irregularity is mainly due to strength, stiffness and mass


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NCIET
2023



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Mode of Conference : Hybrid Conference

Proceedings

Date: 31st May 2023

General Chair : Dr D S Bormane

Coordinator: Prof. R. R. Itkarkar

Organized by AISSMS College of Engineering, Pune

Preface

NCIET 2022 is a platform for Engineering professionals, academicians, researchers etc, to present new ideas, research and share their experiences and also contributing to development and up gradation in Engineering technology. The scope of the conference specially covers various tracks from various core streams of engineering like Electronics and Telecommunication, Electrical Engineering, Chemical Engineering, Mechanical/Production Engineering, Computer Engineering and Civil Engineering. There are many scholarly writings on various areas from these tracks and also some with multidisciplinary approach. Following important areas are a few to be listed

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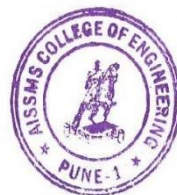
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Hand-Driven Based Virtual Mouse and Keyboard

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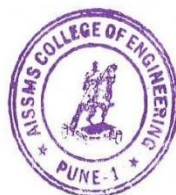
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Abstract: In our modern age of technology, the need for effective and simple interface for user has grown significantly. A potential solution for this problem is a hand driven virtual keyboard and mouse system that utilizes gestures of hand to perform common interactions of the computer, including right-click, left-click, double-click as well as drag and drop operations of the mouse and typing operations of the keys by typing the specific keys needed. Such a system is proposed in this research paper below which is using Python as a programming language and its variety of libraries to create an user-friendly and interactive interface.

This project's main goal is to develop a hand gestures driven virtual keyboard and mouse system which needs minimal efforts by the user to perform common computer actions. For this project the primary language used is Python and its various libraries are engaged to generate an interface which is dependable and efficient for the end user. The Visual Studio environment is used to develop the project which allows ease of with the tasks such as debugging, testing as well as development.

On the basis of this research project, we seek to display the hand gestures efficiency as an alternative to the traditional and conventional keyboard and mouse system. We are going to calculate the performance of the system in terms of ease of use, responsiveness and accuracy, also assess its limits to improve the productivity of the user and mitigate the risk of consecutive strain injuries related to the traditional usage of mouse and keyboard. Overall, the final goal of the research given below is to contribute to the field of human-computer interaction by investigating the potential of hand-driven based virtual keyboard and mouse systems as an intuitive and efficient interface for the end user.

Keywords: Image Processing, Recognition of Gestures, Haar Cascade, Keyboard and Mouse, Hand Gestures



A purple ink stamp of the principal. It features a handwritten signature in blue ink at the top. Below the signature, the text "PRINCIPAL" is written in bold purple letters. Underneath that, the text "ALL INDIA SHRI SHIVAJI MEMORIAL SOCIETY'S COLLEGE OF ENGINEERING KENNEDY ROAD, PUNE-411 001" is written in purple, arranged in four lines.

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Abstract: An effective way to draw the public's attention to a good or service is through advertising. It is a form of communication used to advertise a good or service to an audience in an effort to spur interest, participation, and sales. The same way that the world is getting digital, so are the ads. It is most effective when the target audience is being targeted and engaged because every product has a different target audience depending on the product or service. In this essay, we suggested a mobility van with digital signs as an effective form of advertising. We created a display screen that would be installed atop a van in this project. The Raspberry Pi controller would be used to control the display panel. Furthermore, a mobile application is created for the complete offering. Each controller has a specific display screen attached to it, and the software is linked to the raspberry pi using the pi's IP address. Through our application, we choose and deliver the necessary advertisement to be shown on the screen. Then the commercial appears on the screen. The product supports advertising in MP1, MP2, MP3, and MP4 formats

Keywords-



Multi-Banking ATM System Services Using Biometrics.

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Abstract: Automated Teller Machine (ATM) transactions are now regarded as secure, dependable, and unavoidable for meeting our financial obligations. The conventional method of utilizing an ATM requires the use of a debit card. But occasionally users run out of money in their accounts or forget their cards, which makes it difficult to execute a purchase. Mobile phone use has been an unavoidable development, similar to ATM usage. By connecting these electronic devices, it has become possible to make cash withdrawals that are both quick and secure without the use of a debit card, or "card less cash withdrawals." OTP, face detection and fingerprint are utilized for user authentication. Three tiers of security are comprised by this. If all three parameters are authenticated then and then only the user is allowed to the banking transaction.

Keywords- ATM, OTP, Face detection




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Custom Object Distance & Size Analysis Using Computer Vision

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Abstract: In recent times, there has been a drastic demand for the real-time distance and size estimation of the objects. Various vehicles rely on some sensors, such as LiDAR, speed sensors etc. These sensors consecutively perform well, however it's costing becomes a big liability factor. This paper comprehends about detecting the object and forecasting its distance and size using the YOLOv5 algorithm, which mainly emphasizes the computer vision concept. To initiate, the paper introduces the concepts of Deep Learning, Computer Vision, Object Detection. Eventually, the paper crawls into a literature survey that encloses variety of concepts and studies related to this field. Further, exploring methodology i.e Yolov5 for object detection, distance and size calculations. The trained model utilizes the provided dataset to accurately and quickly estimate the given features.

Keywords- Deep Learning, Computer Vision, Object Detection, CNN, Yolov5, Distance and Size Estimation.




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IoT BASED SANITARY NAPKIN VENDING MACHINE (SNVM)

Yogita Lad

AISSMS College of Engineering Pune

Prathamesh Vishwas

AISSMS College of Engineering Pune

Samruddhi Jadhav

AISSMS College of Engineering Pune

Diya Vora

AISSMS College of Engineering Pune

Abstract: In contemporary society, women have emerged as key decision-makers and contributors to national progress. Acknowledging the significance of their involvement, it becomes imperative to ensure their well-being, particularly during menstrual hours, with emphasis on cleanliness. Regular pad changes every five to six hours are essential during menstruation, underscoring the need for easy accessibility to sanitary napkins. With India's digital transformation gathering momentum, the Unified Payments Interface (UPI) has already facilitated approximately 40% of all digital transactions. Therefore, this research proposes the upgrade of existing coin-based payment methods to UPI within a vending machine system. The pivotal components of this system include the Raspberry Pi controller, serving as its core, a user-friendly touchscreen display integrated with the Raspberry Pi module for input, and a stepper motor for dispensing pads. Furthermore, when stock levels run low, an automatic message sent to a designated person's mobile device facilitates a timely refill of the vending machine. This versatile system finds application in educational institutions, such as schools and colleges, as well as in industries, fostering an environmentally friendly atmosphere

Keywords- Raspberry Pi, Touchscreen Display, UPI Payment




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Crop Monitoring and Analysis Robot using IoRT

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Abstract: Agriculture is a vital industry that sustains global food production and plays a critical role in the economy. However, traditional farming practices face numerous challenges, including labor-intensive tasks, limited use of technology, and inefficient agricultural practices. To address these issues, this research paper aims to incorporate IoRT in agriculture to build a multifunctional robot for crop monitoring and analysis. This robot is equipped with multiple sensors and cameras to detect soil, weather and crop conditions. It has characteristics like Live Crop Monitoring, Real Time Crop Analysis, Multi-terrain Capacity, On Board WiFi, Remote Control and Obstacle Detection. The machine learning based image processing methods detect and classify cotton plants in categories like fresh and diseases. Thus, it will enhance agricultural practices, optimize resource allocation and improve overall productivity to achieve precision agriculture.

Keywords- IoRT, YOLO algorithm, Precision agriculture, Smart agriculture, Robotics




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IOT Based System to Avoid Wastage of Fruits

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Abstract: To control fruit ripening plants release the gaseous hormone ethylene. Environmental conditions, including drought, salinity and pathogens, can also cause levels of the hormone to fluctuate. There for, monitoring ethylene's release in real time could provide a farmer with important information about a plant's development and health. Because of the key role ethylene plays in plant health, the agricultural industry is interested in monitoring the hormone. Early detection of changes in the release of this gas could allow farmers to take preventative actions that restore plant health, reducing crop losses. However, existing sensors have limitations that make them impractical for use in the field. To control fruit ripening plants, release the gaseous hormone ethylene. Environmental conditions, including drought, salinity and pathogens, can also cause levels of the hormone to fluctuate. Therefore, monitoring ethylene's release in real time could provide a farmer with important information about a plant's development and health. Because of the key role ethylene plays in plant health, the agricultural industry is interested in monitoring the hormone. Early detection of changes in the release of this gas could allow farmers to take preventative actions that restore plant health, reducing crop losses. However, existing sensors have limitations that make them impractical for use in the field.

Keywords- MQ4 sensor, lm35 sensor, led, buzzer, IOT




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