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Sustainable Engineering, Energy, and the Environment

Challenges and Opportunities

Editors
Kailas L. Wasewar
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Sustainable Engineering, Energy, and the Environment

Sustainable Engineering, Energy, and the Environment

Editors: Kailas L. Wasewar, PhD
ex Associate Professor and former Head, Chemical Engineering Department, Visvesvaraya National Institute of Technology (VNIT), Nagpur, India

Sumita Neti Rao, PhD
Associate Professor and Head, Department of Applied Chemistry, Priyadarshini Institute of Engineering and Technology, Nagpur, India

This book takes a unique interdisciplinary look at the latest developments, advances, and trends in the interrelated areas of sustainable engineering, energy, and the environment, focusing on environmental engineering for renewable and green energy. It looks at new research and studies on a variety of topics in green nanotechnology, green processing and solar energy, sustainable energy policies, biofuels, fuel cells, and much more.

The first section of **Sustainable Engineering, Energy, and the Environment: Challenges and Opportunities** looks at myriad issues in sustainable energy, such as sustainable urbanism through space planning and residential building design, a method to convert vibrations from mechanical work into power, energy grid maintenance, mathematical modeling and time analysis of various mechanical activities, and more. Topics on sustainable energy include voltage systems for stand-alone nanogrids, new sources for biodiesel production, solar energy conversion, protection equipment for windmill towers, etc. The section on sustainable environment explores issues such as industrial water recycling, regeneration of spent-activated carbon in pharmaceutical production, smell mitigation and recovery of fuel from waste, the water footprint of agriculture, etc.

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- Presents advances and developments in the areas of engineering, energy, and environment under sustainable development
- Examines potential issues of understanding of green buildings and their energy efficiency
- Presents case studies on sustainable urbanization
- Presents novel clean technology applications for attaining environmental sustainability
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ABOUT THE EDITORS

Kailas L. Wasewar, PhD, has been in the Chemical Engineering Department of the Visvesvaraya National Institute of Technology (VNIT), Nagpur, India, for the last 12 years and was Head of the department for two tenures. He was also a visiting Professor at Kyung Hee University, South Korea. He has more than 20 years of industrial, research, and teaching experience gained at various reputed organizations, such as the Indian Institute of Technology (IIT), Roorkee, India, and the Birla Institute of Technology and Science (BITS), Pilani. Presently he is Associate Dean of Education Technology & Library at VNIT. Recently Dr. Wasewar has been included in the world's top 2% of scientists in chemical engineering as per a survey done by Stanford University. His world rank is 369 (top 0.66%) and 18th rank in India in chemical engineering. Dr. Wasewar has more than 200 journal publications, with over 6,000 citations. His h-index is 48, and his i-10 index is 124. He also has three granted patents to his credit. He has guided many PhD, MTech, and BTech students. He has delivered more than 55 invited expert lectures at various conferences, workshops, and seminars and has been a reviewer for various international journals and is a member of editorial board/advisory boards of several national and international journals.

Sumita Neti Rao, PhD, is Associate Professor and Head of the Department of Applied Chemistry at the Priyadarshini Institute of Engineering and Technology, Nagpur, India, run under the banner of Lokmanya Tilak Jankalyan Shiksha Sanstha. She is also Dean of Academics of the Institute. She has 28 years of research experience and 21 years of teaching experience. Her main areas of research are homogeneous/heterogeneous catalysis, synthesis and characterization of coordination compounds and their zeolite variants for applications in catalysis and green synthesis, wastewater treatment using the application of advanced oxidation processes, regeneration of spent activated carbon, and waste utilization. She has published over 40 research papers in international and national research journals and has four patents to her credit. She has participated and presented her research at several international and national conferences and won a best paper prize. She has worked as principal investigator for industrially funded projects and consultancies.

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CHAPTER 34

Adsorption Studies of Activated Carbon Prepared from Industrial Waste Lignin for the Removal of Malachite Green

ARCHANA R. CHAUDHARI,[1] MONITA A. BEDMOHATA,[2] and SHRIPAL P. SINGH[3]

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ABSTRACT

Activated carbon has been prepared from industrial waste lignin (IWL) using $ZnCl_2$ as an activating agent. This prepared activated carbon was utilized for adsorption of the malachite green (MG) dye. Here an endeavor has been made to study the applicability of IWL as potential dye adsorbent for the removal of MG from aqueous solution. The systematic optimization involved the study of factors such as effect of adsorbent doses, pH, and contact time. Langmuir, Freundlich, and B.E.T. isotherms were applied to the data obtained at equilibrium. A maximum adsorption capacity of 111.11 mg/g of MG was achieved by activated carbon obtained from IWL using $ZnCl_2$. The adsorption isotherm data was found to fit well into Langmuir and B.E.T. isotherm models with R^2 values 0.99. The kinetic data obtained at various concentrations was studied to determine the constant rate of adsorption using Langmuir adsorption kinetics model. It shows that the rate of adsorption is very high as compared to the rate of desorption which indicates MG dye is irreversibly adsorbed on the adsorbent.

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CHAPTER 31

Valuable Products from Thermal Degradation of Industrial Waste Lignin in the Presence of Chemical Additives

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ABSTRACT

Pulp and paper industries produce lignin as waste material in very large quantities, and it causes a great disposal problem which poses an environmental burden. The structure of lignin shows a three-dimensional branched polymer with aromatic phenolic units with various functional groups; it degrades slowly and has the potential to produce valuable chemicals. In this study, the waste lignin obtained from Simplex Paper Mills, Gondia, Maharashtra, India, was purified and characterized by CHN analysis, FTIR spectroscopy, and thermal studies. The degradation of this waste lignin was carried out at 400–500°C without and with the chemical additives such as $ZnCl_2$ and K_2CO_3 separately in N_2 atmosphere. The degradation of lignin yielded gaseous products, distillate, tarry material, and highly porous carbonaceous material. The distillate was analyzed through GC-MS studies, and it showed the presence of various phenolic compounds having immense industrial applications. The influence of the chemical additives used on the formation of phenolic compounds was studied. Thus, this study indicated that industrial waste lignin (IWL) has the potential to produce valuable chemicals when subjected to thermal degradation.

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CHAPTER 15

Futuristic Scope for Biofuels and Their Production

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ABSTRACT

Rapid growth in the use of fossil fuel and the consequent CO_2 emission is demanding the need for new alternative energy sources which are renewable and ecofriendly. The disadvantage of fossil fuel is that burning of it has increased the atmospheric concentration of some greenhouse gases (GHG), which are responsible for global warming.

Biofuel is the fuel obtained from biological sources like crop wastes, animal wastes, exhausted mineral oils or fats and algae, etc. Biofuels generation, driven with the potential to enhance the energy security and climate issues. A few nations have started approaches to help biofuel improvement, creation, and use in transportation area. Biofuels acting like an important source to stimulate rural development and create employment opportunities. In this chapter, the challenges and future prospects of ecologically and economically viable biofuel product is outlined.

15.1 INTRODUCTION

Bioenergy actually characterized as a sustainable source of energy which can be obtained from biomass. Natural waste materials, goes under the wide area of biomass. Biofuels are an option in contrast to petroleum products, which

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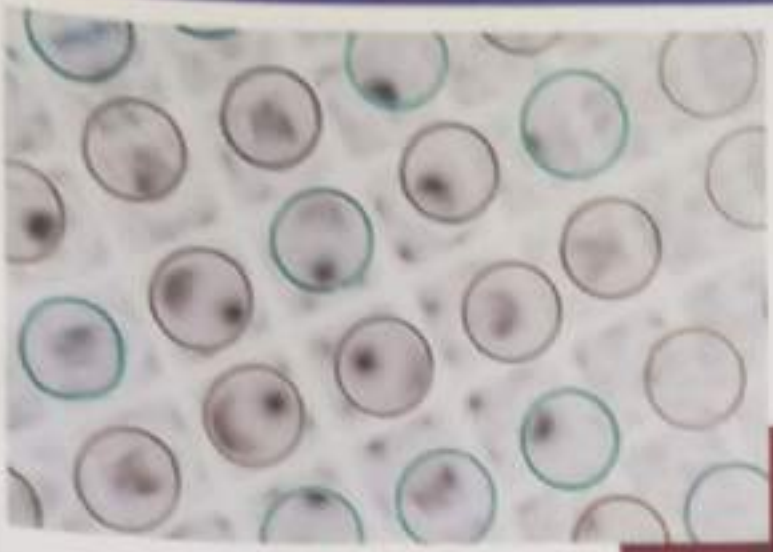

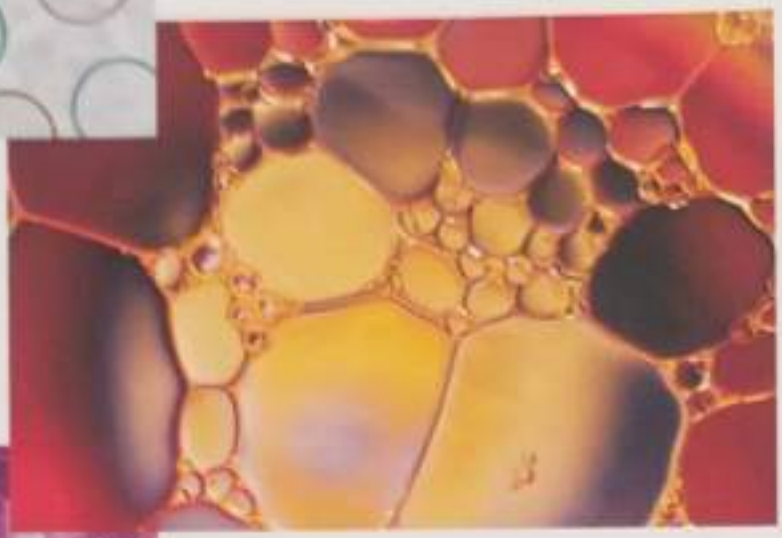

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Static Synchronous Series Compensator (SSSC) to Improve Power System Security

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Sapana A Bhande ; Vinod K Chandrakar **All Authors**

Abstract:
In the electricity market competition, there is more power exchange with reverse power sharing. The key challenge is to make electrical energy available in the majority of areas at the lowest possible cost and with the best level of dependability. As a result, the transmission network must run at or over one or more transfer limitations, causing transmission line congestion. Proper usage of reactive power compensation based on FACTS devices can alleviate these transmission line issues. The major goal of this research is to improve the performance of the power system using a static synchronous series compensator (SSSC). The suggested controller's performance is assessed under various conditions. According to the simulation findings, the PI-based SSSC successfully manages the power flow in a disturbed state. As a consequence, the suggested SSSC-based controller provides efficient damping control, improves system profile voltage under various load conditions, and increases power system security.

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Disruptive Technologies for Society 5.0

Exploration of New Ideas, Techniques, and Tools

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Sapna Sinha
Prashant Johri

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Study of Device-to-Device Communication in the Next Generation of Wireless Communication

Sapana Dhanvijay & Rajneesh Karn

Conference paper | First Online: 03 January 2022

Part of the Lecture Notes in Networks and Systems book series (LNNS,volume 333)

Abstract

The next generation of wireless communication set the goal of high-speed data rate without delay and low energy. The next generation of wireless communication's primary challenge is the full utilization of a dedicated spectrum and minimizing resource waste. The journey of all communication decade, such as 1G to 5G, works on the mode of high speed and low latency. The device-to-device communication model fulfills all criteria of next-generation communication with specific limitation. The mode of device-to-device communication is direct and short range. The direct communication

Atulya K. Nagar · Dharm Singh Jat ·
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Editors

Intelligent Sustainable Systems

Selected Papers of WorldS4 2021, Volume 1

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in 5th World Conference on Smart Trends in Systems, Security & Sustainability (WorldS4 2021)
held during July 29 - 30, 2021. The conference was held through digital platform ZOOM.

The paper has also been selected for publication in the (WorldS4) conference as per fulfilment of guidelines issued by IEEE/Springer.

We wish the authors all the very best for future endeavors.

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Automatic Hand Sanitizer Using Face Mask Detection With IOT and Machine Learning

Deepak Shelke[1], Syed Sana Ali[1], Amit Pendam[1], Sabhyata Moon[1], Krunal Khambalkar[1], Amol Meshram[1], Dr M.S. Chaudhari[2], Mr.Mayank Gupta[2]

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ABSTRACT

Today, the demand for sanitizer is very high because of Covid-19 Pandemic. Everywhere people are using a sanitizer bottle, when one presses the bottle, a large amount of sanitizer is spread-out, which gets wasted and whenever an infected person triggers the sanitizer bottle may be chances of someone else getting the virus from it. This paper discusses how things can be easy with an automatic machine. An automatic hand sanitizer machine is designed in two stages, the first stage is about the face mask detection and the second stage is about the hardware part that is called hand sanitizer machine. The developed machine is automatic, portable and easily operatable that can be used by many people. In this project, both modules- first is face mask detection and second is hand sanitizer are working satisfactory. The machine is correctly detecting whether the person is wearing a mask or not and accordingly dispensing the sanitizer.

Keywords: covid-19, sanitizer, face detection, security check, automation.

I. INTRODUCTION

Today, there is a lot of demand for sanitizer due to Covid-19. Usually, everywhere people are using sanitizer bottles, when one presses the bottle, a large amount of sanitizer is spread-out, which gets wasted and whenever an infected person triggers the sanitizer bottle, there will be chances of someone else getting the virus from it. This paper tells us how easy things can be with an automatic machine. In this machine many different features are present and some of them are as follows:

- Instant sanitization
- Smart sensor Touch free
- Easy to install
- User friendly
- Low power consumption

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Artificial Intelligence Based Banking Chatbot

Dr. Mrs. Radha Pimpale[1], Ms. Shivie Kahapdey[2], Ms. Namrata Chopade[2], Ms. Nikhita Bodhankar[2], Ms. Shreya Katore[2], Ms. Priyanka Paunikar[2], Ms. Kavita Ninave[2]

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ABSTRACT

The project's goal is to create a chatbot for the banking industry. The application's major goal is to assist unaided clients while also reducing staff disruption. Customers can use this project to fill out bank application forms such as account opening, loan claiming, and so on. The customer receives textual, audio, and visual responses from the chatbot. Natural Language Processing is used to do this (NLP). The most prevalent way for constructing Chabot applications is natural language processing (NLP), and we're using it to create a user-specific Chabot for banking customers. By analyzing the user input against three separate engines, NLP detects the intent of the user entity with a high degree of accuracy. Understanding the user's genuine voice and facilitating smooth contact is critical. This unit assists the customers in the bank with their personal needs. Furthermore, the goal of this study is to develop a high-potential application-specific knowledge system in the banking sector.

Keywords— Natural Language Processing, Unibet, Artificial Intelligence, Knowledge base.

I. INTRODUCTION

NLP is a type of artificial intelligence that is used to communicate with intelligent systems. A wide range of studies on chatbots utilizing Natural Language Processing exists in Artificial Intelligence. Chatbots provide answers to any inquiries that the user has, regardless of the domain in which they are used. Chatbots are being employed in a variety of areas, including universities, healthcare, and entertainment. Siri, Cortana, Alexa, and other prominent chatbots are just a few examples. Many websites employ chatbots to respond to user inquiries. AI-powered chatbot A chatbot is a piece of artificial intelligence software that can interact with humans and respond in real-time. These chatbots can answer in a variety of ways, including text, speech, and visual representation. AI bots are created in such a way that they can understand and respond to human needs; to do so, a set of principles is applied to AI bots. A set of queries that the user might ask is sometimes mapped with relevant responses. Limited chatbots are what they're called. This is one way in which AI bots function. The

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An Android Based Face Recognition Application

Ms. Rupali Shinganjude[1], Aakansha Patre[2], Anjali Merkhed[3], Sakshi Khadgi[4], Shreyash Somankar[5], Shruti Sonune[6], Tejaswini Harne[7]

[1] Assistant Professor,[2,3,4,5,6,7]Student, Department of Information Technology, Priyadarshini Bhagwati College of Engineering, Nagpur, Maharashtra, India

ABSTRACT

This paper presents an android app utilized for securing data, files, and apps additionally, for authenticating into the system the app utilizes the username, password, and face authentication as credentials provided by the utilizer at the time of signing up in the app. The main aim is to provide security to the paramount documents or apps, and it can be utilized by any sector like banks, personal use, corporates, etc. It utilizes face authentication as its vigorous aspect of the overall app. This can truncate fraud and larceny of documents from sundry mobile phones.

Keywords : Face Authentication, Security, ML Kit, Flutter, Android, And Python.

I. INTRODUCTION

In the world of advanced technologies where any system or mobile can be hacked easily by professionals, it is very consequential to have a secured system that not only secures the data files but additionally gives a surety about the auspices against hackers and data crashes. In the market, many apps and security software are available that provide accommodations for documents but they failed due to less security. We present an affordable app that provides a vigorous security system with the utilization of the latest technologies (python and flutter).

The information age is expeditiously revolutionizing the way transactions are consummated. Everyday actions are increasingly being handled electronically, in lieu of with pencil and paper or face to face. This magnification in electronic transactions has resulted in a more preponderant demand for expeditious and precise utilizer identification and authentication. Access codes for buildings, banks accounts, and computer systems often use PINs for identification and security clearances. Utilizing the congruous PIN gains access, but the utilizer of the PIN is not verified. When credit and ATM cards are disoriented or purloined, an unauthorized utilizer can often come up with the correct personal codes. Despite admonition, many people perpetuate easily conjectured PIN‟s and passwords: days of inception, phone numbers and gregarious security numbers. Recent cases of identity larceny have heightened the desire for methods to prove that someone is genuinely who he/she claims to be. Face apperception technology may solve this quandary since a face is indisputably connected to its owner except in the case of identical twins.

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Redefining Indian Agriculture through Farming 4.0- An IoT Approach

Shubhangi P. Gurway
Department of Mechanical Engineering, Priyadarshini Bhagwati College of Engineering, Nagpur, Maharashtra, India

ABSTRACT

Agriculture is the heart of Indian economy generating employment for approximately 60% of the total workforce and feeding a population of about 1300 million. India generates about 250 million tons of agriculture produce every year. Despite of having a significant contribution in the economy this sector is yet to be technologically developed in India. With the growing population, meeting the expected demand for food and allied agriculture product is bit challenging for which revolution in the field is need of an hour. Significant number of efforts have been taken by government to bring the Indian agriculture a new turn focusing towards uplifting agriculture sector. Agriculture 4.0 mark the digitalization of agriculture and entire food system using IoT, AI automation and other technologies for optimizing both production and consumption for demand supply chain management. This paper represent the application of Internet of Things approach in Indian farming, tool and techniques adopted and the possible challenges could be faced by Indian farmers as well as government in applying the same.

Keywords—Indian Agriculture, farming 4.0, Internet of Things, smart farming, Information and Communication Technology (ICT)

I. INTRODUCTION

When it comes to life of a well being the first question come to everybody's instinct is food. Day by day world's population getting increasing and if we look at the food-scarcity equation, demand side is increasing and lagging behind value chain or supply side. Agriculture 4.0 is a revolution in agriculture industry which can be a proving solution addressing the need of this food chain and improve the farming process. The global agriculture in future may be affected by limited resources, climate change, and food waste and government policies [4]. As population is continue to grow, the government need to manage the available arable land for maximum utilization and high yield production. As per one of the article published in Economictimes by 2050 huge shifting of rural population to urban areas is estimated which add about 2.4 billion people to urban cities which trigger the increased demand of about 70% for food and allied stuff which is directly or indirectly related to

Stone Crushers: A Technical Review on Significant Part of Construction Industry

Shubhangi Gurway and Padmanabh Gadge

Abstract Adoption and implementation of innovative solutions is the need of an hour & with the advent of time, this need give driving force to various development projects. Construction industries are those over which major emphasis should be given as they contribute enormously to country's economic development. Increasing the number of construction projects will demand high quality of work which is in direct concern with associated factors and equipment used. Crushers are one of the essential quarrying machines used in foresaid industries which are generally used to reduce the size of large size rocks into small stones, sand dust and gravels. Enormous amount of work has been performed beforehand to improve the performance of stone crushers. To take this research forward we tried to give a thorough review of all the designs and performed on different stone crushers. Present focus is on primary and secondary crushers used in stone crushing, because in tertiary crushing process combination of primary and secondary crushing were used according to the specific application. Consequential findings and outcomes of experiments and fabrication work of stone crushers in recent years are deeply reviewed with the objective of finding out the scope for application of Taguchi Optimization to improve performance.

Keywords Stone crusher · Jaw crusher · Cone crusher · Impact crusher · Aggregate production

1 Introduction

Crushers are widely used equipment to reduce the large size rocks into stones finer than about 50–100 mm in size [1]. In infrastructure industry, these equipment are available in different capacities ranging from 0.1 ton/hr. to 50 ton/hr. They can be classified according to extent to which they can break and fragment the starting

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Design of Multi-Operation Agricultural Robot with Renawable Energy Source

Akshay Dilip Anjikar[1], Nikhil Girdharilal Bopche[2], Soumy Chandrashekhar Mishra[2], Tushar Umesh Tembhare[2], Soumy Hemant Gudadhe[2], Amey Anil Punje[2]

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ABSTRACT

The Indian Academy has a strong emphasis on agriculture. Agriculture in India has expanded rapidly in recent decades. This has been carried out. Despite the fact that huge agricultural machinery and robots have been developed for maximum yield, the multipurpose farming robot is a fundamentally novel concept in this business. Weeding, spreading seeds, and applying insecticides are all time-consuming tasks. Bullocks, horses, and buffalo are still used by many Indian farmers for agricultural purposes. This would be insufficient to meet agricultural energy needs in comparison to other countries across the world. We believe that a sophisticated mechanism suitable for small-scale farms can economically substitute human and animal labour. As a result, we're building this prototype with the expectation that it will meet all of the requirements and address all of the problems in real life. India is a predominantly agricultural country, with 70% of the population relying on the fruits of their labour. However, as the population grows, the farm is divided among the family, and Indian farmers now have only two acres of land on average. However, as the population grows, the farm is divided among the family, and Indian farmers now have only two acres of land on average As a result, we're working on machinery that will suit all of these needs while simultaneously solving the human problem. The paper is about a multi-purpose farming machine that can feed seeds, spray insecticides, fungicides, and fertilizers, as well as cut grass. As a result, more cost-effective and multi-use equipment for farmers is becoming available, which is also easy to clean and maintain, easy to handle, and does not require fuel, decreasing expenses and supporting farmers in their fields to a greater extent.

Keywords : Agricultural robot, Design of robot, Seed box, Feed shaft, Mass flow metering device, Ground wheel, Furrow opener

I. INTRODUCTION

Agriculture is India's primary source of income. Because agriculture is the backbone of the Indian economy, there is a pressing need to improve the equipment used in the cultivation or agricultural process. The most critical phase in the farming process is seed sowing. In a conventional seed sowing operation, bullock-driven sowing equipment is used. Animals are regarded as the backbone of the rural economy in India. Aside from

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Optimizing processing parameters of stone crushers through Taguchi method

Shubhangi Gurway *, Padmanabh Gadge

Department of Mechanical Engineering, G.H.Raisoni University, Saikheda 480337, India

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ABSTRACT

Present paper showcase the optimization of crushing parameters through Taguchi methods to improve the production yield of the aggregate produced. The main objective is to investigate the impact of various crushing parameters like feed rate to jaw crusher and eccentric speed of Jaw crusher, closed side setting and throw in cone crusher. For optimization, Taguchi Design of Experiment (DOE) have been perform by considering eccentric speed, feed rate, closed side setting & throw as the process parameters.L09 orthogonal array have been formed and ANOVA technique is used to evaluate the parameters which actually affect the objective function. The selected parameters are optimized to get the desired result using statistical method of Signal-to-Noise ratio. Results shows that closed side setting put the major emphasis on the production yield which are represented by cumulative weight fraction percentage in the work. Eccentric speed, throw and feed rate of rock aggregates does not have notable influence on same.

Selection and peer-review under responsibility of the scientific committee of the 2022 International Conference on Materials and Sustainable Manufacturing Technology.

1. Introduction

Stone crushers are one of those important part of aggregate production process which convert the large size useless rocks into useful stones finding wide range of application in construction right from home to buildings to transports and other utilities. Depending upon the area of application where the crushed stones demanded, the process of crushing may change [1]. In general, the crushers usually apply three steps in this size reduction process namely primary, secondary and tertiary crushing. With the ever increasing technological advancement the demand for various infrastructural projects is rising drastically. And hence most of the countries focus on the effective utilization of all the resources available to them. Stone crushers are among those useful resources. To become competitive in market most of the infrastructure companies worldwide now increasing their interest towards the quality of crushes aggregate as they are part of whole foundation of any infrastructure. In the developing countries like India due to lack of economic and technical restrictions very less attention is given to these aggregate processing plants which indirectly affect the production yield and quality of crushed rock as well. The crushing parameters are always act as a major role players in influencing the quality of the crushed aggregates. The crushing parameters right from crusher speed, feed gradation to crusher settings not only affect the specific energy conversion of the crusher but also affect the aggregate quality. Similarly, the parameters might also affect the mechanical properties of finally crushed aggregates to some extent. The flakiness index of the crushed aggregates are sometimes independent of closed side setting but the reduced feed rate may yield a low graded stone [2]. The reduction in feed particle size distribution of material can reduce the flakiness of the material which is again one of the measure of aggregate quality [3]. The optimization techniques are generally used to select the best solution among the most available alternatives. In aggregate production units these techniques are mostly used by authors to achieve the subsequent amount of results in their studies. Which are discussed below: Elisabeth Lee [4] Optimize the compressive crushing by improving the energy efficiency of the crusher. The complex compressive behavior of four different rocks and two different iron ore were studied and mathematically modelled. In order to theoretically optimize the compressive crushing, genetic algorithm approach were used. It has been observed that the optimality of the crushing is totally depend - upon the type of objective function formed because each crushing sequence is depend upon different production situation. It has been observed that the

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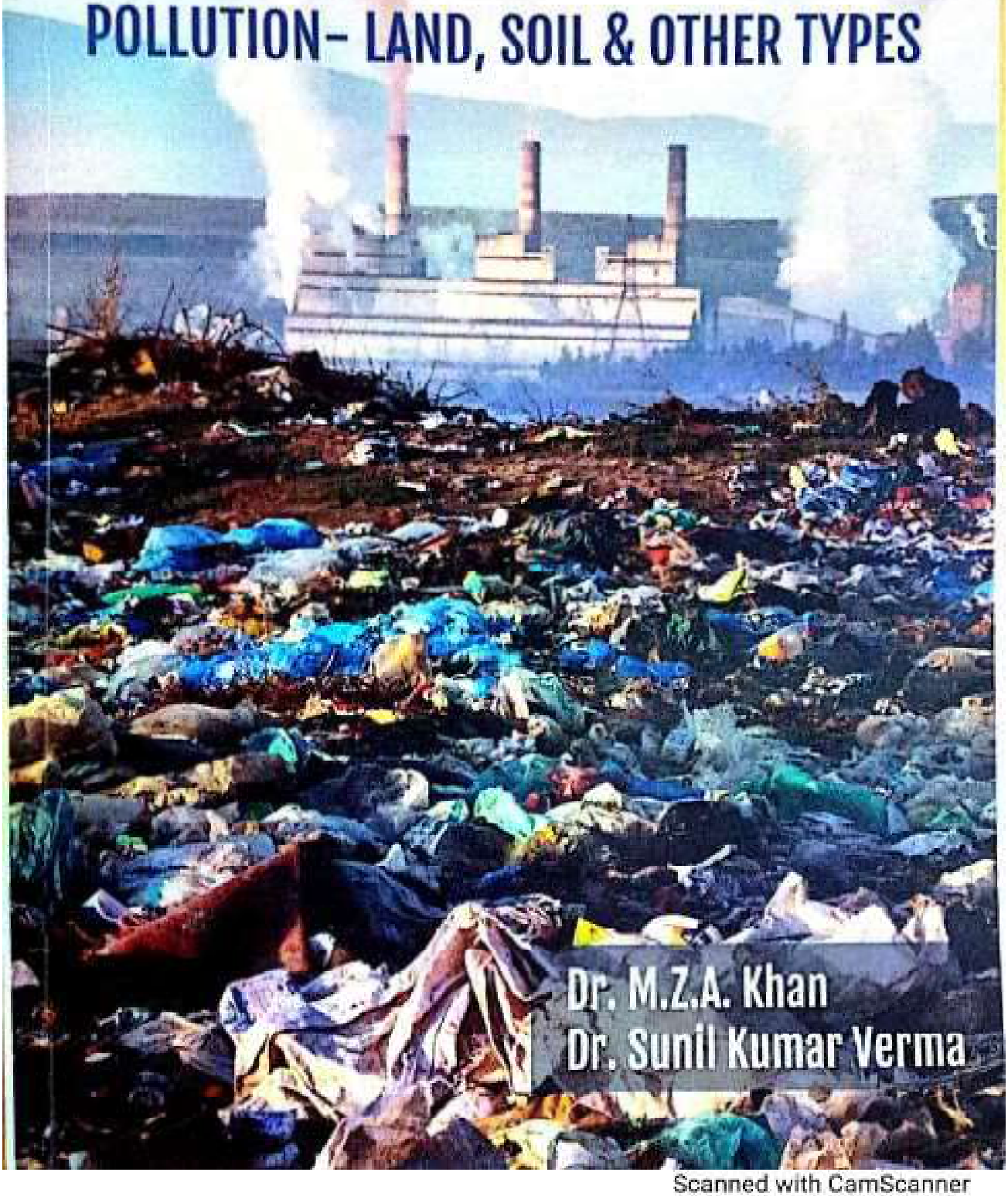

Dr. M.Z.A. Khan
Dr. Sunil Kumar Verma

Managing Solid Waste through IoT in Indian Context

Ms. Shubhangi P. Gurway
Dr. Padmanabh A. Gadge

Abstract:

With the ever-growing population, India produces almost 277million tonnes of solid waste every year which is 13% of the total waste generated by world's population. Increase number of populations demands higher management of waste generated everyday as there is a huge health risk for the well-being if the waste is not disposed of properly. So, solid waste management is a challenging task for the municipal corporations associated with the cities. As, India is heading toward a new technological development by launching "Smart City Mission" in the year 2015 under Ministry of Urban Development, managing a solid waste of the becoming smart cities is the crucial task for every state government. With the technological advancement Internet of Things is a powerful tool which have a promising scope in Solid Waste Management. In this article we try to propose conceptual model for Solid Waste Management through IoT approach. The model implies smart garbage bins equipped with sensors and low-cost embedded devices which continuously monitor the level of garbage in the bin and send the signal to the cloud via systematic mobile application which invoke the vehicle management system to send the vehicle to collect the garbage. This work aims to represent an IoT based waste management system which facilitate garbage bin monitoring, dynamic scheduling and guiding the routing of garbage trucks to the target areas.

Keywords: *Solid Waste, Waste Management, Internet of Things, Smart City, Solid waste management challenges, artificial intelligence.*

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Chapter - 1

Solid Waste Management though IoT in Indian Context, Key Areas & Challenges

Ms. Shubhangi P. Gurway

Abstract

With the ever growing population, India produces almost 277million tonnes of solid waste every year which is 13% of the total waste generated by world's population [1]. Increase number of population demands higher management of waste generated everyday as there is a huge health risk for the well-being if the waste is not disposed of properly. So, Solid waste management is a challenging task for the municipal corporations associated with the cities. As, India is heading toward a new technological development by launching "Smart City Mission" in the year 2015 under Ministry of Urban Development, managing a solid waste of the becoming smart cities is the crucial task for every state government. With the technological advancement Internet of Things is a powerful tool which have a promising scope in Solid Waste Management. In this article we try to propose conceptual model for Solid Waste Management through IoT approach. The model imply smart garbage bins equipped with sensors and low cost embedded devices which continuously monitor the level of garbage in the bin and send the signal to the cloud via systematic mobile application which invoke the vehicle management system to send the vehicle to collect the garbage. This work aim to represent an IoT based waste management system which facilitate garbage bin monitoring, dynamic scheduling and guiding the routing of garbage trucks to the target areas.

Keywords: Solid waste, waste management, internet of things, smart city, solid waste management challenges, artificial intelligence.

Introduction

With the advent of time and technological demand from the growing population of India, smart management of waste generated daily through the populations is the need of an hour. Some key factors like rapid population growth, huge shift of population to urban areas, consumption rate of goods, administrations, people's awareness and adoptability towards new technological system, prediction of waste generated, unavailability of

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Development of Internet of Things (IoT) Based Monitoring of Hazardous Exhaust Compounds in Air - A Review

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Abstract. Presence of pollutants in Air is the most prominent problem globally confronted now a day. The extreme use of fueled vehicles and rapid urbanization has deteriorated the air quality. This deteriorated air contains hazardous compounds like Mono-oxides & Di-oxides of carbon, Sulphur, Nitrogen, Atmospheric Particulate Matter. Exposure to such hazardous compounds in the air for a long time can cause damage to the human health. Traditional air monitoring systems consists of monitoring stations. As far as traditional air quality monitoring methods are concerned, they are highly expensive and requires a regular maintenance. Due to these limitations, these stations are deployed in small numbers and also it provides indicative values of the sensed data. This monitored data has low resolution and precision. This paper proposes framework for the development of smart and portable system using Internet of Things (IoT) for monitoring of hazardous exhaust compounds in the air using real time. This framework consists of different types of sensors and a controller that are used for monitoring and assessment of the air quality. Also it is used to check the presence of hazardous compounds emitted by different industries and share this data through IOT. The outcome of the proposed research work can be utilized by industries as well as by other agencies to carry out an audit of hazardous exhaust components present in air, so as to take necessary precautions and to save human.

Keywords – Hazardous Exhaust Compounds, Particulate Matter, Internet of Things (IoT), Real Time Monitoring, World Health Organization (WHO), Sensors.

1. Introduction

During past few decades, world has witnessed tremendous Industrial growth and rapid urbanization. Due to this industrial growth, employment has increased manifold. On the

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Role of Blockchain Technology and Machine Learning in Design of Smart and Secure Warehouse Management System: A Survey

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Blockchain network is defined as interconnection of many computers, and each and every computer holds the copy of the ledger. It can be observed as continuously budding chain of blocks, and blocks are interconnected with the support of hash function. Validating of new blocks is followed by a set of protocols and consensus mechanism from every node in the network. The records are kept and arranged in linear fashion chain. The main feature of the Blockchain technology is that it allows secure communication between untrusted parties without the involvement of any third party authority. Artificial intelligence, which emulates the human intelligence, is impacting heavily on the business and social media applications nowadays. Machine learning which is the subset AI, automatically learns and improve based on input data. Whereas deep learning which is subset of machine learning uses networks to identify complex patterns in data. The basic approach of machine learning is to collect and analyze the data at central location like server. But in today's scenario the data is decentralized and emerges from multiple sources. Hence the need of distributed machine learning algorithms in many applications is required. ML can be used to make chain smarter than before. By making use of decentralized data architecture of Blockchain we can build good models of machine learning. This paper investigates the possibility of integrating Blockchain Technology and Machine learning for optimization and improvement of Warehouse operations at data and transactions levels by providing security processes needed for smart and secure system.

Keywords: Blockchain Technology (BCT), Machine Learning (ML), WMS, IoT, Supply chain management.

1. INTRODUCTION

Supply chain management provides the structure and flow to the goods and services of finished and semi-finished materials between provider and consumer of the product end to end. It is based on network of suppliers that handles the product and raw materials. Warehouses are inevitable element of the Supply chain. Storage and handling of the products and items of varied category are the part of operations of Warehouse Management System (WMS) (Enna Hirata, 2021). Channelizing the products in and out of warehouse and creating the space for new items is complex activity in WMS. Traditional WMS operates by using DBMS to store the records and access it. Improving the efficiency and effectiveness of the WMS operations is the need of the era. Warehouse Management System is the backbone of Supply chain and impacts the success of the supply chain. (K. SALAH M. H. REHMAN and Al-Fuqaha, 2018) The goods, products or the items in warehouse must not be overstocked or understocked, as both may reduce the efficiency based on particular order pattern of the material. Operations like Route optimization for the product delivery, physical space management are some of the issues which can be automated using the new technologies like Blockchain and Machine Learning (Mostafa and Elawady, 2018)(Alessandro Tufano, 2022). Because of unpredictability of the product movement and demand in and out of warehouse, stock needs and forecasting of inventory, the use of machine learning based algorithms will be effective in addressing these needs. Machine Learning can understand the pattern of supply chain and WMS working processes in many directions thereby generating the scope for better decentralized ML based algorithms for operations. Logistics industry is also using the ML based algorithms for prediction of the operations required and improving the overall performance of the system.(Sarkis, 2020) Forecasting and pattern understanding feature of ML based

Correlation models to determine the characteristics of concrete with plastic granules

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***Abstract*: To test the viability, mathematical models have been constructed, compressive strength and split tensile strength of the concrete samples produced using plastic granules as replacement of coarse aggregates. In this study, discarded Low Density Polyethylene granules were used as a partial replacement for coarse aggregate Its influence on the properties of concrete has been studied. Waste LDPE is utilised as a partial substitute for coarse aggregates in various quantities such as 0%, 20%, 30%, and 40%.**

***Keywords*: concrete; aggregates; plastic; characteristics; strength**

1. Introduction:

Plastics and polythene do not disintegrate naturally and are therefore ecologically unsuitable, As a result, other ways for recycling these materials must be implemented. There are several modifiers that may be used to modify the properties of road surfaces; However, the vast bulk of the components are raw or natural. When used as a modifier to the components, natural materials are difficult to find and prohibitively expensive. As a result, using discarded plastic bottles as a modifier in road building may drastically reduce material waste while also improving road characteristics.

Recycling waste materials can give a much-needed justification for reducing a costly and ecologically unfavourable solid waste dumping problem for the aforementioned items. Currently, allowing for the hazards associated with waste resource land filling and disposal problems, Researchers are developing new methods of incorporating recycled materials into asphalt pavements, which has resulted in global action. The main reasons for the utilisation of waste materials in the creation of fresh concrete are a lack of adequate deposition area and a scarcity of natural items (Zega et al., 2010). As a result, reusing these old plastic-related wastes to create new materials such as concrete appears to be the greatest option for disposing of plastic trash (Saikia and Brito, 2012). However, the use of other materials may have an impact on the properties of concrete (Westerholm et al., 2008).

2. Experimental Investigations and correlation models

Experiments were carried out on concrete mixes with a target strength of 20 MPa that were cast using 53 grade cement, River sand is used as a fine aggregate with a fineness modulus of 2.27 and a water-to-cement ratio ranging from 0.45 to 0.55. Table 1 displays the results of studies conducted to determine the fundamental properties of the manufactured concrete, The observations are as follows: -

A higher percentage of plastic granules reduces the strength and workability of concrete, whereas a higher amount of glass powder raises the strength. The workability of a Plastic Granules proportion decreases as the amount of glass powder increases.

Table 1 – Results of Experimental Program

S. No.	Mixes with variation in Glass powder	Split Tensile strength in MPa	Slump in mm	Compressive strength in MPa	Cement	Glass Powder	% Plastic Granules
1	M11	5.10	97	19.1	0.95	0.05	0
2	M12	4.60	95	19. 3	0.9	0.1	0
3	M13	4.30	94	19.8	0.85	0.15	0
4	M21	4.59	93	18.6	0.95	0.05	12
5	M22	4.14	91	18.9	0.9	0.1	12
6	M23	3.87	88	19.4	0.85	0.15	12
7	M31	4.13	89	18.4	0.95	0.5	18
8	M32	3.73	87	18.7	0.9	0.1	18
9	M33	3.48	84	19.3	0.85	0.15	18
10	M41	3.72	86	18.1	0.95	0.5	24
11	M42	3.35	83	18.7	0.9	0.1	24

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Avoiding loss in cryptocurrency by prediction and automating transactions using machine learning

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Abstract

Avoiding loss in cryptocurrency by automating transactions using machine learning
High-tech enables payment evolution and global competition. The ambiguities surrounding of the digital currency still leave enough space for the analysis of its unreserved acceptance, trust and anticipation, which are the main driver for the spread of the network.

Machine learning and AI-assisted trading have attracted growing interest for the past few years. Here, we use this approach to test the hypothesis that the inefficiency of the cryptocurrency market can be exploited to generate abnormal profits.

Why Cryptocurrency? It is the most volatile market which at all the time 365 days every tick and second of the clock, this system will enable the users to trade more often without human interaction

This project intends to study the history in markets of the cryptocurrency and tries to implement a most reliable algorithm for the trades such that a user can carry out more profit without human interference after setup.

1. Introduction

The popularity of cryptocurrencies has skyrocketed in 2017 due to several consecutive months of super exponential growth of their market capitalization which peaked at more than $800 billion in Jan. 2018. Today, there are more than actively traded cryptocurrencies. Between and millions of private as well as institutional investors are in the different transaction networks, according to a recent survey, and access to the market has become easier over time. Major cryptocurrencies can be bought using fiat currency in several online exchanges (e.g., Binance, Upbit, Kraken, etc.) and then be used in their turn to buy less popular cryptocurrencies. The volume of daily exchanges is currently superior to $15 billion. Since 2017, over 170 hedge funds specialized in cryptocurrencies have emerged and Bitcoin futures have been launched to address institutional demand for trading and hedging Bitcoin.

The emergence of a self-organized market of virtual currencies and/or assets whose value is generated primarily by social consensus has naturally attracted interest from the scientific community. Recent results have shown that the long-term properties of the cryptocurrency marked have remained stable between 2013 and 2017 and are compatible with a scenario in which

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Efficient CP-ABE scheme for Privacy of PHR Based on OBDD Access Structure

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***Abstract* — We have implement efficient CP-ABE scheme for Privacy of PHR Based on OBDD Access Structure with the advancement of information and communication technology (ICT), the medical sector is undergoing a massive transformation. Health records are being digitized, stored remotely in the cloud and shared with different stakeholders. However, the use of the cloud for personal health record (PHR) storage presents data security and privacy challenges. Ciphertext-policy attribute-based encryption (CP-ABE) is being widely studied for ne-grained access control of PHRs in the cloud. Expressiveness, efficient and attribute access, among others, are some key requirements of a cloud based health systems. it is based on the expressive and non-restrictive ordered binary decision diagram (OBDD) access structure, and it securely outsources the computationally demanding attribute operations of both encryption and decryption processes without requiring a dummy attribute. Security analysis shows that the CESCR scheme is secure in the selective model. Simulation and performance comparisons with related schemes also demonstrate that the CESCR scheme is expressive and efficient**

I. INTRODUCTION

The rapid development of information and communication technologies, in particular, the internet of things (IoT), wireless technologies and cloud computing in recent years have paved the way for interconnection of medical resources enabling improved delivery of healthcare services for patients. Digitized or electronic health records (EHR) (sometimes referred to as PHR) can now be collected from patients and sent to the cloud for analysis, diagnosis and sharing with different healthcare stakeholders. There are two variants of ABE, Ciphertext-policy attribute-based encryption (CP-ABE) .In CP-ABE, the Ciphertext is labeled with an access policy allowing the data owner to specify which users have access to his/her data while the user's key is associated with a set of attributes.

As fascinating as it may be, there are still several concerns that need to be addressed for its total acceptance. In particular, the use of third party servers for data storage presents privacy and security issues which are increasingly

Becoming the biggest concern in collaborative health systems. Adoption of the traditional access control techniques can be used to address the data privacy and security concern in collaborative health. However, these techniques only allow coarse-grained access policies which are not ideal for scalable environments.

II. PROPOSED SCHEME

In this study, I focused on addressing the privacy issues of PHR in cloud based health systems. We proposed and constructed an expressive, efficient and access control for ne-grained access to health data based on OBDD access structure. In our construction, we leveraged attribute roups and assigned version numbers to Ciphertext and user keys to achieve attribute/user access while preventing collusion between revoked and non-revoked users. Their proposed system utilizes the smart home environment to gather health information which is then sent to the cloud for analysis.

CPABE schemes are alternatively classified into "bounded" and "unbounded" schemes. In "bounded" schemes, the total number of attributes in the attribute space is fixed during setup and is polynomially bounded in the security parameter. The bounding of the size of the attribute universe can have

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Phishing Website Detection Using Data Analysis and Machine Learning

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Abstract: *This paper presents a novel scheme for detecting Phishing & Legitimate Websites using Data analysis and Machine Learnig Classifiers. In recent years, advancements in Internet and cloud technologies have led to a significant increase in electronic trading in which consumers make online purchases and transactions. This growth leads to unauthorized access to users' sensitive information and damages the resources of an enterprise. Phishing is one of the familiar attacks that trick users to access malicious content and gain their information. In terms of website interface and uniform resource locator (URL), most phishing webpages look identical to the actual webpages. Various strategies for detecting phishing websites, such as blacklist, heuristic, Etc., have been suggested. However, due to inefficient security technologies, there is an exponential increase in the number of victims. The anonymous and uncontrollable framework of the Internet is more vulnerable to phishing attacks. Existing research works show that the performance of the phishing detection system is limited. There is a demand for an intelligent technique to protect users from the cyber-attacks. In this study, the author proposed a URL detection technique based on machine learning approaches. A recurrent neural network method is employed to detect phishing URL. Researcher evaluated the proposed method with 1500 malicious and 1000 legitimate sites, respectively. The experiments' outcome shows that the proposed method's performance is better than the recent approaches in malicious URL detection.*

Keywords: Phishing Attack, Data Analysis, Machine Learning

I. INTRODUCTION

Phishing is the most commonly used social engineering and cyber-attack. Through such attacks, the phisher targets naïve online users by tricking them into revealing confidential information, with the purpose of using it fraudulently.

Nowadays Phishing becomes a main area of concern for security researchers because it is not difficult to create the fake website which looks so close to legitimate website. Experts can identify fake websites but not all the users can identify the fake website and such users become the victim of phishing attack. Main aim of the attacker is to steal banks account credentials. Phishing attacks are becoming successful because lack of user awareness. Since phishing attack exploits the weaknesses found in users, it is very difficult to mitigate them but it is very important to enhance phishing detection techniques. Phishing may be a style of broad extortion that happens once a pernicious web site act sort of a real one memory that the last word objective to accumulate unstable info, as an example, passwords, account focal points, or MasterCard numbers. all the same, the means that there square measure some of contrary to phishing programming and techniques for recognizing potential phishing tries in messages and characteristic phishing substance on locales, phishes think about new and crossbreed procedures to bypass the open programming and frameworks. Phishing may be a fraud framework that uses a mixture of social designing what is additional, advancement to sensitive and personal data, as an example, passwords associate

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Secure Text Transfer Using Doubly Encrypted Chat Application Based on Cloud

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Abstract: *One of the most important ways to preserve information security is to use cryptographic techniques. It provides digital signature, authentication, secret sub-storage, system security, and other capabilities in addition to keeping the information confidential. As a result, the encryption and decryption solution can secure information secrecy, as well as information integrity and certainty, to avoid tampering, forgery, and counterfeiting. The security of encryption and decryption algorithms is determined by the algorithm's internal structure and mathematical rigour, as well as the key secrecy. The key in the encryption algorithm plays a crucial role; if the key is released, anybody may use the encryption system to encrypt and decrypt data, rendering the encryption process ineffective. As a result, the encryption and decryption solution can secure information secrecy, as well as information integrity and certainty, to avoid tampering, forgery, and counterfeiting. The security of encryption and decryption algorithms is determined by the algorithm's internal structure and mathematical rigour, as well as the key secrecy. The key in an encryption algorithm plays a critical role; if the key is released, anybody may use the encryption system to encrypt and decrypt data, rendering the encryption technique ineffective. As a result, throughout the encryption and decryption process, the type of data you pick to be a key, how you disseminate the private key, and how you preserve both data transmission keys are all critical considerations.*

Keywords: Cryptographic Techniques

I. INTRODUCTION

The transfer of digital information has a tremendous influence on the way we live our lives, whether it's in the form of fundamental communications, banking transactions, or even driving our automobiles. Access to secure ways of privately communicating information becomes increasingly crucial as more information from our daily lives gets digital. In fact, the commercialization of o digital footprint has transformed information into a type of currency - and if information is a currency, privacy is the difference between keeping your money in the bank and freely giving it away.

Because robust cryptographic systems that can be practically implemented are difficult to develop, the history of cryptography has seen a very small number of big advances. As a result, when breakthroughs occur, they attract a lot of attention. Though RSA cryptography is now considered an outdated approach and is frequently supplanted by newer methods based on elliptical curves, it is safe to claim that its development was one of the most significant discoveries in cryptography. Learning how RSA cryptography works is a useful exercise that will expand your toolkit and improve your understanding of the modern world, whether you're interested in how blockchains work, the general history of cryptography, or even the practical utility of seemingly esoteric number theoretic results.

The goal of this article is to present RSA's inner workings in a sufficiently self-contained manner. It is anticipated that readers who are interested in RSA will be able to go through the essay and feel sure that they have a good understanding of how it works. Multiple intriguing mathematical findings are used to prove that RSA cryptography is legitimate. The goal of this page is to compile all of the relevant background mathematics in one place, including clear proofs for key findings, so that readers may get a self-contained overview of RSA

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Social Distancing Detector Using Deep Learning

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Abstract: *The paper presents a methodology for social distancing detection using deep learning to evaluate the distance between people to mitigate the impact of this coronavirus pandemic. The detection tool was developed to alert people to maintain a safe distance with each other by evaluating a video feed. The video frame from the camera was used as input, and the open-source object detection pre-trained model based on the YOLOv3 algorithm was employed for pedestrian detection. Later, the video frame was transformed into top-down view for distance measurement from the 2D plane. The distance between people can be estimated and any noncompliant pair of people in the display will be indicated with a red frame and red line. The proposed method was validated on a pre-recorded video of pedestrians walking on the street. The result shows that the proposed method is able to determine the social distancing measures between multiple people in the video. The developed technique can be further developed as a detection tool in real time application.*

Keywords: Social distancing, Pedestrian Detection, Deep Learning, Streaming Media, Social Factor

I. INTRODUCTION

When the novel coronavirus (Covid-19) pandemic emerges, the spread of the virus has left public keep anxiety if they do not have any effective cure. The World Health Organization (WHO) has declared Covid-19 as a pandemic due to the increase in the number of cases reported around the world. To contain the pandemic, many countries have implemented a lockdown where the government enforced that the citizens to stay at home during this critical period. The public health bodies such as the Centers for Disease Control and Prevention (CDC) had to make it clear that the most effective way to slow down the spread of Covid-19 is by avoiding close contact with other people. To flatten the curve on the Covid-19 pandemic, the citizens around the world are practicing physical distancing.

To implement social distancing, group activities and congregations such as travel, meetings, gatherings, workshops, praying had been banned during the quarantine period. The people are encouraged to use phone and email to manage and conduct events as much as possible to minimize the person-to-person contact. To further contain the spread of the virus, people are also informed to perform hygiene measures such as frequently washing hands, wearing mask and avoiding close contact with people who are ill. However, there is a difference between knowing what to do to reduce the transmission of the virus and putting them into practice[1].

The world has not yet fully recovered from this pandemic and the vaccine that can effectively treat Covid-19 is yet to be discovered. However, to reduce the impact of the pandemic on the country's economy, several governments have allowed a limited number of economic activities to be resumed once the number of new cases of Covid has dropped below a certain level. As these countries cautiously restarting their economic activities, concerns have emerged regarding workplace safety in the new post-Covid-19 environment. To reduce the possibility of infection, it is advised that people should avoid any person-to-person contact such as shaking hands and they should maintain a distance of at least 1 meter from each other.[4]

Individuals, communities, businesses, and healthcare organizations are all part of a community with their responsibility to mitigate the spread of the Covid-19 disease. In reducing the impact of this coronavirus pandemic, practicing social distancing and self-isolation have been deemed as the most effective ways to break the chain of infections after restarting the economic activities. In fact, it has been observed that there are many people who are ignoring public health measures, especially with respect to social distancing. It is understandable that given the people's excitement to start working again, they sometimes tend to forget or neglect the implementation of social distancing. Hence, this work aims to facilitate the enforcement of social distancing by providing automated detection of social distance violation in workplaces and public areas using a deep learning model. In the area of machine learning and computer vision, there are different methods that can be used for object detection. These methods can also be applied to detect the social distance between people[9].

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Stock Price Prediction Using Random Forest Method and Twitter Sentiment Analysis

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Abstract: *Stock price forecasting could be a vital and thriving topic in financial engineering especially since new techniques and approaches on this matter are gaining ground constantly. Within the contemporary era, the ceaseless use of social media has reached unprecedented levels, which has led to the belief that the expressed public sentiment could be correlated with the behaviour of stock prices. The concept is to acknowledge patterns which confirm this correlation and use them to predict the future behaviour of the assorted stock prices. With little doubt, though uninteresting individually, tweets can provide a satisfactory reflection of public sentiment when taken in aggregate. We develop a system which collects past tweets, processes them further, and examines the effectiveness of varied machine learning techniques like Naive Bayes Bernoulli classification and Support Vector Machine (SVM), for providing a positive or negative sentiment on the tweet corpus. Subsequently, we employ the identical machine learning algorithms to research how tweets correlate with exchange price behaviour. Finally, we examine our prediction's error by comparing our algorithm's outcome with next day's actual close price. Overall, the final word goal of this project is to forecast how the market will behave within the future via sentiment analysis on a collection of tweets over the past few days, also on examine if the idea of contrarian investing is applicable. the ultimate results seem to be promising as we found correlation between sentiment of tweets and stock prices.*

Keywords: Stock Market Prediction, Sentiment Analysis, Twitter, Machine Learning

I. INTRODUCTION

Modern data processing techniques have led to the event of sentiment analysis, [1] Ashish Sharma, Dinesh Bhuriya, Upendra Singh. "Survey of exchange Prediction Using Machine Learning Approach", ICECA 2017. an algorithmic approach for detecting the predominant sentiment a few product or company using social media data. A positive field for the employment of sentiment analysis has been stock exchange forecasting, a theme undeniably undergoing intense studies nowadays, an excellent volume of knowledge, which contains information about numerous topics, is being transmitted online through various social media, a wonderful example is Twitter, where over 400 million tweets are sent daily. Though each tweet might not be significant as a unit, an oversized collection of them can provide data with valuable insight about the common opinion on a specific subject. Gauging the public's sentiment by retrieving online information from Twitter, will be valuable in forming trading strategies. The proper prediction about the fluctuation of stock prices depends on many factors, and public sentiment is arguably included. Exchange price prediction for brief time windows appears to be a random process. The stock price movement over an extended period of your time usually develops a linear curve. People tend to shop for those stocks whose prices are expected to rise within the near future. The uncertainty within the stock exchange refrain people from investing in stocks. Thus, there's a desire to accurately predict the exchange which may be utilized in a real-life scenario. [2]

The methods wont to predict the stock exchange includes a statistic forecasting together with technical analysis, machine learning positive and predicting the variable exchange. The datasets of the stock exchange prediction model include details just like the terms opening price, the info and various other variables that are needed to predict the article variable which is that the price in a very given day. The previous model used traditional methods of prediction like statistical method with a prediction statistic model. Exchange prediction outperforms when it's treated as a regression problem but performs well when treated as a classification.

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DAPP to Store Electronic Medical Health Records on Ethereum Blockchain and IPFS

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Abstract: *In this digital world, information technology is growing day by day. Due to this, a large amount of data is generated every day from various domains, and one of the domains is medical health records. A large amount of medical data is generated every day. Such as electronic medical records, medical images, diagnostic reports, X-rays, MRI scans, etc. These medical records can help in treating a patient when needed and can be shared with different medical institutions. There are systems built that are used to store all the medical records of patients. But they are centralized and may not be secured, and a user may not know how and where these records are shared. However, if these medical records are leaked or shared with a third party, the owner of that medical record may not know how and where these medical records are used, thus sabotaging the patient's privacy. Therefore, controlling the access rights to medical data is an urgent issue. On the other hand, patients do not have any proper application that will help them store and view their history of medical records and have control over them. This project aims to build a decentralized application to store the medical records of patients on the Ethereum Blockchain and Inter Planetary File System (IPFS). This app will help users to keep electronic medical records in one place, and the user will have full control over their data. This app will help doctors diagnose the patients by seeing their medical history. This will also help researchers to research various diseases. This app will store the data of patients from doctors and pathology labs. Users will be able to control who can add the medical details and see them. They can give access and revoke it. This application will store the file in DICOM, JPEG, JPG, PNG, and PDF format. In this application, there is no centralized authority. This application is secured because of peer-to-peer and distributed networks, it is tamper-proof. User has control over their data. They can choose whom to share their data with, and blockchain is reliable.*

Keywords: Blockchain, IPFS, Electronic Medical Health Records, Decentralized Application

I. INTRODUCTION

1.1 Importance of Medical Health Records

The rapid development in the fields of information technology and medical science has made electronic medical records widely used for medical treatment and research purposes. A large amount of medical data is generated every day such as electronic medical images, diagnostic reports, X-rays, MRI scans, CT scans, etc. Medical data can be used to reflect the treatment situation of patients and share the treatment experience with other doctors, laboratories, and medical institutions. Electronic medical records or electronic health records are the digital collection of a patient's medical history, including diagnostic reports, medications, allergy reports, treatment plans, and lab test reports. EMRs typically contains medical images and patient information, such as physician name, personal statistics (e.g., age and weight), home monitoring device data, and other data processed by practitioners in a text format. Medical images and patient data are stored and maintained by different medical institutions, even when being related to the same patient.

1.2 Drawbacks of Centralized EMR Systems

Most medical institutions and hospitals store their patient's data locally in their data centres which require engineering, maintenance, and high security of data centre is very costly, and some of them do not have any backup storage system in

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Implementation of Object Detection Technique for Image Processing using Deep Learning

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ABSTRACT

Object detection can be defined as a branch of computer vision which deals with the localization and the identification of an object. Object localization and identification are two different tasks that are put together to achieve this singular goal of object detection. Object Localization deals with specifying the location of an object in an image or a video stream, while Object Identification deals with assigning the object to a specific label, class, or description. With computer vision, developers can flexibly do things like embed surveillance tracking systems for security enhancement, real-time crop prediction, real-time disease identification/ tracking in the human cells, etc. Technique to identify an object considering the deep learning pre-trained model MobileNet for Single Shot Multi-Box Detector (SSD). In order to implement the module, combination of the MobileNet and the SSD framework for a fast and efficient deep learning-based method of object detection. We will use MobileNet SSD v3 version for training a model. We will Implement Using Python as a programming language. This pretrained Deep Learning Module will be load using OpenCV DNN module. We will re-retrain this module using Transfer Learning.

Keywords— Object localization, Object identification, Single shot multibook detector, Mobilenet, Open CV DNN Module, Transfer learning.

I. INTRODUCTION

Imparting intelligence to machines and making robots more and more autonomous and independent has been a sustaining technological dream for the mankind. It is human goal to let the robots take on tedious, boring, or dangerous work so that we can commit our time to more creative tasks. Unfortunately, the intelligent part seems to be still lagging behind. In real life, to achieve this goal, besides hardware development, we need the software that can enable robot the intelligence to do the work and act independently. One of the crucial components regarding this is vision, apart from other types of intelligences such as learning and cognitive thinking. A robot cannot be too intelligent if it cannot see and adapt to a dynamic environment.

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Recognition And Detection Of Traffic Sign Using Convolutional Neural Network

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Abstract **:** Traffic sign recognition is that the task of recognizing traffic signs in a picture or video. the target of this project is that the development of an algorithm for the automated recognition of traffic signs. This method detects the situation of the register the image, supported its geometrical characteristics and recognizes it using colour information. Partial occlusion is dealt by the utilization of the Hough Transform. The traffic signs are a basic yet very important aspect of our daily life. It contains fundamental information that guarantees the protection of the apparent multitude of people around us. Independent transports must equally maintain lane passing and thusly recognize and determine traffic symbols. A deep learning design can recognize traffic signs with near 95% exactness on the test set. Traffic sign classification is that the process of automatically recognizing traffic signs along the road, including ordinance signs, yield signs, merge signs, etc. having the ability to automatically recognize traffic signs enables us to make "smarter cars". Self-driving cars need traffic sign recognition so as to properly parse and understand the roadway. Similarly, "driver alert" systems inside cars must understand the roadway around them to assist aid and protect drivers.

Index Terms - Traffic sign detection, traffic sign recognition, convolutional neural network, classifiers.

I. Introduction

Traffic sign detection could also be a serious crisis in intelligent vehicles, the traffic sign recognition provides critical information like directions and alerts to the driving person. In current traffic management systems, there's a high probability that the driving person may miss a number of the traffic signs on the road due to overcrowding thanks to neighboring vehicles. There are several differing kinds of traffic signs like speed limits, no entry, traffic signals, turn left or right, children crossing, no passing of heavy vehicles, etc. Traffic signs classification is that the method of identifying which class a traffic sign belongs to. Object identification has many applications in various fields. This project aims to spot a traffic sign from a picture. This is able to be useful in an autonomous vehicle application.

These ideas and methods could even be utilized in other areas. For achieving accuracy during this technology, the vehicles should be ready to interpret traffic signs and make decisions accordingly. The traffic environment consists of various aspects whose main purpose is to manage flow of traffic, confirm each driver is adhering to the principles so on provide a secure and secure environment to all or any the parties concerned. The proposed approach consists of building a model using convolutional neural networks by extracting traffic signs from a picture using color information. We have used convolutional neural networks (CNN) to classify the traffic signs and that we used color based segmentation to extract/crop signs from image . In this Python project, we build a convolutional neural network model which will classify traffic signs present within the image into different categories. With this model, we are able to read and understand traffic signs which are a really important task for all autonomous vehicles. After choosing model architecture, fine tuning and training, the model are tested on new images of traffic signs found on the online. Because we have images classification, a Convolutional Neural Network is chosen as a sort of DNN, which may be a common choice for this sort of problems. The code is written in Python.

II. Algorithm

The algorithm of our proposed work is described as follows

Step 1 Upload the image from directory or any folder which has traffic sign images

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MERN Stack Ecommerce Web Application

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Abstract: *Over the last decade, web development has gone through significant changes in every aspect. The rapid development of web technologies in general as well as front-end library and framework have taken web development to a new level which facilitate developer job considerably. One of the most widely used and modern full-stacks is the MERN stack, which plays a leading role in web development nowadays. The four components included in MERN stack are MongoDB database, Express as back-end web framework, React.js serves as front-end library and Node.js as JavaScript environment. The purpose of this thesis was to study the usability and functionality of each technology in the MERN stack and as a consequence, to develop a fully functional E-commerce web application by utilizing MERN as well as some other additional modules. The thesis presented the development process of the application, with all the essential parts noted and explained. The outcome of this project is an e-commerce web application with all the necessary and fundamental features of an online bookstore. The product aimed to be an essential part in the business strategy of the author's parent's startup. The application is a beta version and focused mainly in development process, therefore deployment process is not carried out in this thesis but will be concerned further in the future..*

Keywords: MERN Stack, E-commerce, React, JavaScript, Node, Ex-press, MongoDB, Web Development.

I. INTRODUCTION

MERN stack, E-commerce, React, JavaScript, Node, Ex- press, MongoDB, web development Nowadays, technology is growing incredibly fast. The rapid innovation of hardware devices makes software technologies to advance as well, automatically take place of old technologies. Because of the significant expanding in the number of electronic devices that use Internet and real-time feature, performance is key.

By tradition, web development has been carried out by technologies such as JAVA servlets, ASP.NET or PHP. While those technologies are quite widespread and have good features with many years of development and are supported by a large community, they still have some limitations concerning about today's need which is performance. The MERN stack (MongoDB, Express, React and Node) with their simplicity and uniformity, has been recently developed to become a better solution for this performance issue.

II. METHODOLOGY

The five phases of the project are as follows:

2.1 Scoping and Planning

This phase focuses on the planning of the project's overall direction, including the definition of the project's scope, objectives, and timelines. The deliverable from this phase is this Design Plan.

2.2 Conceptual Design and Research

In this phase, the conceptual design of the methodology is developed and research on existing methodologies is conducted. Research is performed from independent research firms, such as the Gartner Group, Forrester Research, and CIO.com. These research firms sometimes publish the methodologies that consulting firms use. Consulting firms' websites are another source for researching E-commerce strategy methodologies.

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This is to certify that **Ms. S. S. Wankhede** has published a research paper entitled ***'Effective Spam Filtration and Fraud Identification Mechanism in Android Phones using Deep Learning and Artificial Intelligence'*** in the International Journal of Scientific Research in Science, Engineering and Technology (IJSRSET), Volume 9, Issue 2, March-April-2022.

This Paper can be downloaded from the following IJSRSET website link
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Covid-19 Detection Using Machine Learning and Deep Learning

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Abstract: *The current COVID-19 pandemic threatens human life, health, and productivity. AI plays an essential role in COVID-19 case classification as we can apply machine learning models on COVID-19 case data to predict infectious cases and recovery rates using chest x-ray. Accessing patient's private data violates patient privacy and traditional machine learning model requires accessing or transferring whole data to train the model. In recent years, there has been increasing interest in federated machine learning, as it provides an effective solution for data privacy, centralized computation, and high computation power. In this paper, we studied the efficacy of federated learning versus traditional learning by developing two machine learning models (a federated learning model and a traditional machine learning model) using Keras and TensorFlow federated, we used a descriptive dataset and chest x-ray (CXR) images from COVID19 patients. During the model training stage, we will try to identify which factors affect model prediction accuracy and loss like activation function, model optimizer, learning rate, number of rounds, and data Size, we kept recording and plotting the model loss and prediction accuracy per each training round, to identify which factors affect the model performance, and we found that softmax activation function and SGD optimizer give better prediction accuracy and loss, changing the number of rounds and learning rate has slightly effect on model prediction accuracy and prediction loss but increasing the data size did not have any effect on model prediction accuracy and prediction loss. finally, we build a comparison between the proposed models' loss, accuracy, and performance speed, the results demonstrate that the federated machine learning model has a better prediction accuracy and loss but higher performance time than the traditional machine learning model.*

Keywords: Chest X-ray, Covid19, Convolutional Neural Network, etc.

I. INTRODUCTION

The Coronavirus Disease 2019 (COVID-19) pandemic continues to have a devastating effect on the health and well-being of the global population, caused by the infection of individuals by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). A critical step in the fight against COVID-19 is effective screening of infected patients, such that those infected can receive immediate treatment and care, as well as be isolated to mitigate the spread of the virus. The main screening method used for detecting COVID19 cases is reverse transcriptase-polymerase chain reaction (RT-PCR) testing, which can detect SARSCoV-2 ribonucleic acid (RNA) from respiratory specimens (collected through a variety of means such as nasopharyngeal or oropharyngeal swabs). While RTPCR testing is the gold standard as it is highly specific, it is a very time-consuming, laborious, and complicated manual process that is in short supply. The world has not yet fully recovered from this pandemic and the vaccine that can effectively treat Covid-19 is yet to be discovered. However, to reduce the impact of the pandemic on the country's economy, several governments have allowed a limited number of economic activities to be resumed once the number of new cases of Covid has dropped below a certain level. As these countries cautiously restarting their economic activities, concerns have emerged regarding workplace safety in the new post-Covid-19 environment. To reduce the possibility of infection, it is advised that people should avoid any person-to-person contact such as shaking hands and they should maintain a distance of at least 1 meter

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Staff Optimization using Artificial Intelligence

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Abstract: *In recent years, with the increase in the number of shopping centers and consumer expectations, comprehensive research on the performance evaluation of shopping centers has started to be needed. In the performance evaluation process, it is very important to determine the correct staffing criteria. In this study, the staffing criteria were determined by reviewing the literature and interviewing experts and managers in the shopping center sector. In the next step, the Analytical Hierarchy Process (AHP), a multi-criteria decision making (MCDM) method, was used to determine the significance levels of these criteria and a new performance index model was hereby developed. The proposed method consists of a total of 140 criteria including six main criteria (NO. of MOBs, NO. of Owners, Category of MOBs, the staff in MOBs, Ratio of MOBs, Customer Overview.), and other sub- criteria. As far as we know, this study is the first to propose a model for measuring the performance and staffing of shopping malls.*

Keywords: Shopping malls, multi-criteria decision making, analytical hierarchy process, performance measurement.

I. INTRODUCTION

Human Resources Management has undergone profound transformations as a result of diversification of issues related to the Malls function and a strengthening of its influence in the strategic decision-making processes of companies. Most mall operators decide opportunistically which tenants to lease to and which units within the mall each store will occupy. Some malls have a basic tenant-category segmentation but lack a systematic and analytical approach to prioritizing, prospecting for, and acquiring tenants. They don't have a data-driven way of answering important questions, As people's traditional consumption habits have changed, so too have shopping places. Shopping places have taken different forms and shapes in the past; the shopping mall is the most recent form. The concept of the shopping mall is of big structures in which different needs are met, that include plenty of shopping stores, are considered life and entertainment centers, and are located in the city center or periphery. Shopping malls are no longer visited for only shopping but have been turned into places also hosting social, cultural, and entertaining activities. And also, shopping malls are dynamic environments, in which shops change, promotions appear and disappear continuously for that all things we will be needing a good and managed staff to handle them so that's why we are proposing our system of staff optimization using AI

II. LITERATURE REVIEW

Over the last years, there have been some researchers who have completed their work successfully on Human resources analytics. We have chosen to collect the various researches on this subject during the period between 2008 and 2018. The majority of articles dealing with topics related to the field of artificial intelligence and human resources were published in newspapers from 2015 to 2018, especially between 2015 and 2017. In 2018, the number of researchers involved increased between the months of March and September and during the month of November. Hundreds of articles have appeared in scientific journals related to computer science such as (Future Generation Computer Systems, International Journal of Interactive Multimedia and Artificial Intelligence, International Journal of Computing and Informatics, The Scientific World Journal, … etc) while others have appeared in human resources management journals (for example Management: Journal of Contemporary Management Issues, Journal of Business Strategy, Business Horizons, … etc). The exponential growth of Shopping and Multiplex MALLs articles number from 2008 to 2018 is shown in Figure 1.

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Paralysis Patients Monitoring System using GSM

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Abstract: *Healthcare systems are a critical component of each country's economy and public health. In today's fast-paced world, it's difficult for people to be continually available for their loved ones who may require assistance while they are going through a difficult time. Physiological parameters are measured constantly or at regular intervals by patient monitoring systems. According to a recent World Health Organization survey, over 5.6 million people are paralysed, accounting for 1.9 percent of the population, or roughly 1 in every 50 people. Paraplegic health surveillance in hospitals indicates that a variety of exercises, stimulation, and medications are available to safeguard the paralysed. However, there isno specialised monitoring system in place to follow the health of paralysed persons. To deal with these problems, a monitoring system is put in place, which is used to keep track on the patients' health. Bio sensors, such as pulse rate, blood pressure, and airflow sensor, are used in this monitoring system to sense the vital framework of patients, and these parameters are continually monitored and relayed to the caretaker through GSM. This is something that a microcontroller can help with (MSP430).*

Keywords: GSM , Patient Monitoring System, Health Surveillance, SafeGuard

I. INTRODUCTION

This method is provided by electronic innovation, which reduces human needs and, as a result, improves people's well-being. As a result, a patient's condition should be monitored on a regular basis. However, it is a difficult task. This can be made easier by deploying GSM technology, which sends a message to the doctor or guardian regarding the patient's condition if any changes in health parameters occur. This innovation also makes use of a GPS module to keep track of the patient's whereabouts. As a result, the patient is not required to remain in the doctor's presence at all times. When the patient is at home or in another location, his condition will be continuously recorded. Consistent monitoring of the patient's vital signs, such as temperature, heart rate, and voltage. This structure is intended for usage by family members of patients who do not appear to be in critical condition but should be examined for health on a regular basis. In any emergency, an SMS is sent to a professional or a family member. The tilt direction of the user part is read by our proposed system. Mounting the accelerometer on the glove demonstrates how the device works. To send a message, the user now only needs to tilt the smartphone at a specific angle. Different messages are conveyed by tilting the gadget in different directions. We're going to use an accelerometer to measure motion statistics. It then sends the information to the microcontroller. The data is processed by the microcontroller, which then displays the appropriate message based on the input. The associated message is now shown on the LCD screen by the microcontroller. When it receives a motion signal from the accelerometer, it also sounds a buzzer and displays a message. If no one is available to respond to the message displayed on the LCD, the patient can opt to tilt the device, which will send an SMS to the patient's registered caretaker with the message that the patient wishes to express using a GSM modem.

II. LITERATURE SURVEY

The main goal of this massive connectivity is to make it possible to access information about any object from anywhere. IoT, the objects are integrated with some intelligent sensors, these sensors, sense the environment in order toget the meaningful information, after receiving this data they examined and processed further for the necessary action . The Internet of Things is also used in health-care systems. Sensors keep an eye on the patient whether he or she is in thehospital, at home, or elsewhere. There is a persistent need for continuous interaction with the technologies, it is not possible for every paralysed patient to connect and interact with these gadgets. To solve this difficulty, the scientists developed "Eye-com," a

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GSM BASED PARALYSIS PATIENT HEALTH MONITORING SYSTEM

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ABSTRACT

Healthcare systems are a critical component of each country's economy and public health. In today's fast-paced world, it's difficult for people to be continually available for their loved ones who may require assistance while they are going through a difficult time. Physiological parameters are measured constantly or at regular intervals by patient monitoring systems. According to a recent World Health Organization survey, over 5.6 million people are paralysed, accounting for 1.9 percent of the population, or roughly 1 in every 50 people. Paraplegic health surveillance in hospitals indicates that a variety of exercises, stimulation, and medications are available to safeguard the paralysed. However, there is no specialised monitoring system in place to follow the health of paralysed persons. To deal with these problems, a monitoring system is put in place, which is used to keep track on the patients' health. Bio sensors, such as pulse rate, blood pressure, and airflow sensor, are used in this monitoring system to sense the vital framework of patients, and these parameters are continually monitored and relayed to the caretaker through GSM. This is something that a microcontroller can help with (MSP430).

Keywords: GSM, Patient Monitoring System, Health Surveillance, SafeGuard.

I. INTRODUCTION

This method is provided by electronic innovation, which reduces human needs and, as a result, improves people's well-being. As a result, a patient's condition should be monitored on a regular basis. However, it is a difficult task. This can be made easier by deploying GSM technology, which sends a message to the doctor or guardian regarding the patient's condition if any changes in health parameters occur. This innovation also makes use of a GPS module to keep track of the patient's whereabouts. As a result, the patient is not required to remain in the doctor's presence at all times. When the patient is at home or in another location, his condition will be continuously recorded. Consistent monitoring of the patient's vital signs, such as temperature, heart rate, and voltage. This structure is intended for usage by family members of patients who do not appear to be in critical condition but should be examined for health on a regular basis. In any emergency, an SMS is sent to a professional or a family member. The tilt direction of the user part is read by our proposed system. Mounting the accelerometer on the glove demonstrates how the device works. To send a message, the user now only needs to tilt the smartphone at a specific angle. Different messages are conveyed by tilting the gadget in different directions. We're going to use an accelerometer to measure motion statistics. It then sends the information to the microcontroller. The data is processed by the microcontroller, which then displays the appropriate message based on the input. The associated message is now shown on the LCD screen by the microcontroller. When it receives a motion signal from the accelerometer, it also sounds a buzzer and displays a message. If no one is available to respond to the message displayed on the LCD, the patient can opt to tilt the device, which will send an SMS to the patient's registered caretaker with the message that the patient wishes to express using a GSM modem.

II. LITERATURE SURVEY

The main goal of this massive connectivity is to make it possible to access information about any object from anywhere. IoT, the objects are integrated with some intelligent sensors, these sensors, sense the environment in order toget the meaningful information, after receiving this data they examined and processed further for the necessary action . The Internet of Things is also used in health-care systems. Sensors keep an eye on the patient whether he or she is in thehospital, at home, or elsewhere. There is a persistent need for continuous interaction with the technologies, it is not possible for every paralysed patient to connect and interact with these gadgets. To solve this difficulty, the scientists developed "Eye-com," a retina-controlled gadget. This device is made out of low-cost IoT components such as an Arduino microcontroller, an accelerometer, an X-bee wireless sensor,

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FACE RECOGNITION BASED ATTENDANCE UPDATION SYSTEM

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ABSTRACT

In today's world, student attendance recording plays an important role in improving the quality of the educational system. The traditional attendance method is tedious for the lecture as it costs quite a lot of time. Thus, there is a requirement for a robust computerized biometric-based Face detection attendance recording system using an ESP32 camera. In our proposed paper, the ESP32 Camera is used to capture images and Python is used to process the student's images and for recording their attendance. The ESP32 Camera Module is programmed using FTDI Module. The Arduino IDE is set up for the ESP32 Camera Module. To access the ESP32 camera, the Open CV which is an open-sourced image processing library is used and for downloading the python dlib module, Visual Studio (desktop development with C++) is a prerequisite, hence used. Object Detection uses Haar feature-based cascade classifiers which is an effective object detection method. It is an approach where a cascade function is trained from a lot of positive and negative images to detect objects in particular images. It is observed, that the proposed attendance recording system is more accurate and effective under a controlled environment. The performance of the proposed attendance system completely depends upon the student's images collected, the resolution of the camera used, and the capacity of students.

Keywords: Face-Recognition, Open-CV, ESP32-Camera, Visual-Studio, HAAR-Cascading.

I. INTRODUCTION

The manual method of attendance marking is a tedious task in many schools and colleges. Manually calling the names of students might take about 5 minutes of the entire session which is an extra burden for the faculties and is time-consuming. Our project paper solves the chances of proxy attendance. The purpose of our proposed paper is to build an attendance system that is based on face recognition techniques. Facial recognition technology is used to identify and verify a person using the person's facial features and automatically mark attendance in the face recognition attendance system. The software can be used for detecting different groups of people such as employees, students, etc. The proposed attendance recording system, detects the student and stores the information of that detected student, in a Microsoft Excel File.

For marking attendance the face of the individual student will be used. Nowadays, face recognition is gaining more popularity. A classifier that considers the human face to recognize it as the target object is used. Haar's Feature selection technique targets extracting human facial features. These features are different permutations of white and black rectangles. In each feature calculation, the sum of pixels under black and white rectangles is found.

II. METHODOLOGY

Step 1:- **Data Collection**

All the students of the class have to register themselves by entering their names and then their images will be captured and stored in the dataset in one of the folders. The images of students are cropped so that the proposed system obtains the Region of Interest from the images of students which will be further used for the recognition process and also the images are saved as the names of respective students in a particular folder [2].

Step 2:-**Face Detection**

In [1] computer vision, the essential problem is to be figured out how to automatically detect objects in an image without taking human help. Face detection is introduced to get rid of this problem. Face detection can be used for human face detection from object images. There are slight differences in each face of human beings but overall, it is safe to say that there are some features that are associated with all human faces.

Face detection is basically the first step toward face-related technologies, such as face recognition or face verification. However, face detection can have very useful applications in various areas. The most successful

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FACE RECOGNITION ATTENDANCE SYSTEM

Dr. Pravin Palkar[1], Dipeshvirmani[2], Gagan Baghel[2], Kruti Kachaple[2], Roma Umrethe[2]

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A B S T R A C T

In today's world, student attendance recording plays an important role in improving the quality of the educational system. The traditional attendance method is tedious for the lecture as it costs quite a lot of time. Thus, there is a requirement for a robust computerized biometric-based Face detection attendance recording system using an ESP32 camera. In our proposed paper, the ESP32 Camera is used to capture images and Python is used to process the student's images and for recording their attendance. The ESP32 Camera Module is programmed using FTDI Module. The Arduino IDE is set up for the ESP32 Camera Module. To access the ESP32 camera, the Open CV which is an open-sourced image processing library is used and for downloading the python dlib module, Visual Studio (desktop development with C++) is a prerequisite, hence used. Object Detection uses Haar feature-based cascade classifiers which is an effective object detection method. It is an approach where a cascade function is trained from a lot of positive and negative images to detect objects in particular images. It is observed, that the proposed attendance recording system is more accurate and effective under a controlled environment. The performance of the proposed attendance system completely depends upon the student's images collected, the resolution of the camera used, and the capacity of students.

Keywords*: Face-Recognition,Open-CV,ESP32-Camera,Visual-Studio,HAAR-cascading*Introduction

1. INRODUCTION

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Suspicious Mass Detection Algorithms In Mammograms

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Suspicious Mass Detection Algorithms In Mammograms

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Abstract

In the recent years the death rate due to breast cancer among women has increased significantly and now it is a recognized world health problem. Early detection and treatment can reduce the death rate of breast cancer effectively. Presently numbers of imaging techniques are available for detection of breast cancer. Mammography test is the most efficient and reliable to find the breast cancer early. But finding and detecting breast cancer on mammogram is repetitive, tiring and fatigue obligation to radiologist; hence sometimes it may be overlooked. Therefore, smart Computer-Aided Detection system require to be extended and combined in new way in order to provide automatic detection of suspicious mass that meets the needs of medical application to point out the occurrence of breast cancer. Suspicious mass detection accuracy can be improved, which will assist the radiologist to classify the breast cancer. This paper presents algorithms to detect the suspicious mass in mammogram image, and also extract GLCM features of suspicious mass. These extracted GLCM features are graphically represented and based on the variation of these features; the mammogram is analyzed and classified as malignant and non-malignant.

Keywords:

Mammography, GLCM features, Graphical Representation, Malignant and Non-Malignant.

1. INTRODUCTION

The cancer causes cells of the body to change and grow randomly out of control [1]. Mostly the cancerous cells are tumor and the cancer is named after the part of the body where the tumor originates [2]. If the tumor originates in breast tissues, then it is a breast cancer. In the recent decade, breast cancer death rate has increased significantly among women and now it has become one of the recognized world health problems and also become one of the leading causes of fatality. One out of 12 women is affected approximately by breast cancer in their life time. In India also, breast cancer is reported common now in women after lung cancer with a one in eight fatality rate [3]. Breast cancer cases patients and the number of people killed is rising faster all over the world. To minimize the fatality rate, early detection and treatment is the only effective solution so that it can be treated successfully. Presently, many imaging techniques are available

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Implementation of Smart Stick for Blind People

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Abstract: *Visually disabled people have to face many challenges in their daily life and problem gets worst when there is an obstacle in their way. People find difficulties detecting obstacles in front of them, during walking on the street, which makes it harmful, so the stick is basically designed for blind people for easy navigation. In this project we propose a solution, we indicate clearly in a smart stick with ultrasonic sensor to detect stairs or pair of ultrasonic sensor to detect any other obstacles in front of the user, within a range of 1-1.5 meters. In addition, moisture sensor is placed at the middle of the stick for detecting water and puddles mostly in rainy season. When any obstacle is detected then buzzer beeps. This proposed system uses the microcontroller Arduino nano embedded system, buzzer, GSM, GPS, encoder IC, decoder IC, pcb. The stick is able to detect all obstacles in the range 10-15 meters during 39 ms. the visually impared people can walk independently in unfamiliar environment .In this project we are going to use GSM module which is interfaced with GPS device therefore the care taker or relative receive the intimation message with location at their mobile phone in case of any emergency. The smart blind stick is of low cost, fast response, easy to design light weight.*

Keywords: Ultrasonic sensor, Water sensor, Visually impared , Blind Navigation, GSM.

I. INTRODUCTION

Many people suffering from serious visual impairments preventing them from traveling independently. Appropriately, they have to use a large vary of tools and techniques to need them in their travelling. One in all these techniques are orientation and quality specialist who helps the visually impaired and blind people and trains them to move on their own independently and safely counting on their different remaining senses. The originality of the proposed system is that it utilizes an embedded vision system of 3 straightforward Ultrasonic sensors and brings along all reflective signals in order to classify an obstacle through Arduino nano microcontroller. Hence, additionally to distance the proposed system allows the determination of main characteristics of the obstacle.

To gather information about the obstacles presence in a road, three ultrasonic sensor can be used. In case of a passive sensor, the sensor receives a signal. Sensor detects the reflected, emitted or transmitted electro-magnetic radiation provided various natural energy sources. In order to using an active sensor, the sensor release a signal and receives a distorted version of the reflected signal. It finds reflected responses from objects radiated with artificially generated energy sources. These type of active sensors are capable of sensing and detecting far and near obstacles. Additionally, it determines an accurate measurement of the distance between the blind and the obstacle. Basically, in the obstacle detection domain, four different kinds of active sensors may be used: infrared, laser, ultrasonic, other than to radar sensors. Accordingly, training is then necessary to help the user understand the signals and to respond to them in real time. However, such training is occasionally more expensive than the product itself. Therefore, users can not afford it. Apart from that, the information is transmitted as a sound it may be embarrassing for the blind person in public.

II. WORK DONE

2.1 Working Principle

- This advanced smart blind stick using GPS and GSM module works on the principle of Ultrasonic sensors working which gives the drawbacks or information to microcontroller which is Arduino Nano in this case. Then microcontroller sends the message to care taker mobile phone or alerts the blind person what he has in front of him.

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IMPLEMENTATION OF SMART STICK FOR BLIND PEOPLE

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ABSTRACT

Visually disabled people have to face many challenges in their daily life and problem gets worst when there is an obstacle in their way . People find difficulties detecting obstacles in front of them, during walking on the street, which makes it harmful ,so the stick is basically designed for blind people for easy navigation. In this project we propose a solution, we indicate clearly in a smart stick with ultrasonic sensor to detect stairs or pair of ultrasonic sensor to detect any other obstacles in front of the user, within a range of 1-1.5 meters. In addition , moisture sensor is placed at the middle of the stick for detecting water and puddles mostly in rainy season. When any obstacle is detected then buzzer beeps. This proposed system uses the microcontroller Arduino nano embedded system,buzzer,GSM,GPS,encoder IC, decoder IC,pcb. The stick is able to detect all obstacles in the range 10-15 meters during 39 ms . the visually impared people can walk independently in unfamiliar environment .In this project we are going to use GSM module which is interfaced with GPS device therefore the care taker or relative receive the intimation message with location at their mobile phone in case of any emergency. The smart blind stick is of low cost, fast response, easy to design light weight.

Keywords: Ultrasonic Sensor, Water sensor, Visually impared, Blind Navigation.

I. INTRODUCTION

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Exact Techniques for Hardware Modelling of Machine Learning Algorithms with Building of Neuron Network

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Abstract: *System getting to know algorithms are complicated to version on hardware. that is due to the truth that those algorithms require quite a few complicated design systems, which are not effort lessly synthesizable. Therefore, through the years, multiple researchers have developed diverse kingdom-of-the artwork techniques, every of them has sure distinct advantages over the others. In this newsletter, we compare the specific strategies for hardware modelling of the various device gaining knowledge of machine learning algorithms, and their hardware-stage overall performance. this newsletter could be useful for any researcher or gadget dressmaker that needs to first evaluate the superior techniques for ML layout, and then inspired with the aid of this, they are able to similarly enlarge it and optimize the device's performance. Our assessment is based on the 3 number one parameters of hardware layout; that is; place, power and postpone. Any layout approach that can find a stability among those three parameters may be termed as greatest. This work additionally recommends sure enhancements for some of the techniques, which can be taken up for similarly studies. Machine Learning is a concept to find out from examples and skill, while not being expressly programmed. Rather than writing code, you feed knowledge to the generic formula, and it builds logic supported the info given. for instance, one reasonably formula could be a classification formula. It will place knowledge into totally different teams. The classification formula accustomed notice written alphabets may even be accustomed classifies emails into spam and not-spam. Machine learning has resolve many errors ranging from simple arithmetic problems like TSP (Travelling Salesman Problem) to complex issues like predicting the variations in stock market price, Machine learning algorithms like genetic algorithm, particles swarm optimization, deep nets and Q-learning are currently being developed on software platforms due to the ease of implementation. But the full utilization of core algorithms can only be possible. If they are designed & integrated inside the silicon chip. Companies like Apple, Google and Snapdragon etc. are continuously updating their ICs to incorporate these algorithms. But there is no standard architecture defined to implement these algorithms at chip level, due to these inefficiencies of every alternative multiply when these devices connected together. In this research work, we plan to develop a standard architecture for implementation of machine learning algorithms on integrated circuits so that these circuits. connected together work seamlessly with each other & improve the overall system performance. Finally, we planned to implement at least two algorithms on the proposed architecture & verify its optimization capability for practical systems. Our assessment is based on the 3 number one parameters of hardware layout; i.e.; place, power and postpone. Any layout approach that can find a stability among those three parameters may be termed as greatest. This work additionally recommends sure enhancements for some of the techniques, which can be taken up for similarly studies. Machine learning has solved many problems ranging from simple arithmetic problems like TSP (Travelling Salesman*

Review: A High Voltage Gain Interleaved Boost Converter for Electric Vehicles using Fuel Cells

Roshani D. Borkar

A. P. Thakare

Keywords: Fuel Cell Electric Vehicle, High Voltage Gain IBC, PEMFC, MPPT, RBFN

Abstract

Due to additional energy guidelines regarding gas extraction and gas economy, fossil fuels (FCEV) have become very popular in the same industry. The presenter provides a 1.26 kW-based neural-based community-based transmission system (MPRT) to generate a membrane fuel (EMF) device, to maximize DV development capacity. The advanced MPPT advanced neural controller uses the radial bases algorithm characteristic community (RBFN) algorithm to track the high-energy (MPP) high-energy machine (MPP). Excessive fluctuations and the advantages of overvoltage DC – DC converters are essential for FC–VV translation. For high power output, an advanced three-page interleaved enhance converter (IBC) is also designed for the FCEV gadget. Interleaving appoach lowers the input ripple and voltage robustness in semi-powered power devices. A complete review of the application for FSEV equipment with RBFN primarily based on MRPT director combined with logic Controller (FLC) at MATLAB/ Simulink.

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Automatic Hand Sanitizer Using Face Mask Detection With IOT and Machine Learning

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ABSTRACT

Today, the demand for sanitizer is very high because of Covid-19 Pandemic. Everywhere people are using a sanitizer bottle, when one presses the bottle, a large amount of sanitizer is spread-out, which gets wasted and whenever an infected person triggers the sanitizer bottle may be chances of someone else getting the virus from it. This paper discusses how things can be easy with an automatic machine. An automatic hand sanitizer machine is designed in two stages, the first stage is about the face mask detection and the second stage is about the hardware part that is called hand sanitizer machine. The developed machine is automatic, portable and easily operatable that can be used by many people. In this project, both modules- first is face mask detection and second is hand sanitizer are working satisfactory. The machine is correctly detecting whether the person is wearing a mask or not and accordingly dispensing the sanitizer.

Keywords: covid-19, sanitizer, face detection, security check, automation.

I. INTRODUCTION

Today, there is a lot of demand for sanitizer due to Covid-19. Usually, everywhere people are using sanitizer bottles, when one presses the bottle, a large amount of sanitizer is spread-out, which gets wasted and whenever an infected person triggers the sanitizer bottle, there will be chances of someone else getting the virus from it. This paper tells us how easy things can be with an automatic machine. In this machine many different features are present and some of them are as follows:

- Instant sanitization
- Smart sensor Touch free
- Easy to install
- User friendly
- Low power consumption

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This is to certify that **Dr. M. S. Chaudhari** has published a research paper entitled ***'Automatic Hand Sanitizer Using Face Mask Detection With IOT and Machine Learning '*** in the International Journal of Scientific Research in Science, Engineering and Technology (IJSRSET), Volume 9, Issue 10, March-April-2022.

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This is to certify that **Dr. Mrs. Radha Pimpale** has published a research paper entitled ***'Food Calorie Estimation using Machine Learning'*** in the International Journal of Scientific Research in Science, Engineering and Technology (IJSRSET), Volume 9, Issue 10, March-April-2022.

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Smart Cities- Technological Challenges and Implementation Issues: An Indian Perspective

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Abstract: *With the advent of technology it is necessary for mankind to get updated and "Smart" to meet technological challenges and obstacle triggered by ever increasing population, especially in India. As India is sixth largest economy in world by GDP & have an enormous scope of contributing for world's economic development, its need of technological development is at par. Although the concept of smart cities is being popular in literatures and other countries since two decades, the Union Ministry of Urban Development of India have announces National Smart Cities Mission in the year 2015 where 100 cities are going to be planned for being converted into "Smart Cities". Present work overviews the Indian scenario towards implication of "Smart Cities" concept, the possible challenges and issues faced by government and information, communication technologies. Similarly, a 5-layered Conceptual model is present to put a light on the technical phases of converting an urban city into smarter one. To showcase the implementation of 5-layered conceptual model an elaborative example of "Smart management of Waste" is presented.*

Keywords: Smart City, Urban development, Technological Challenges, Information and Communication Technology (ICT), Conceptual Model, Smart Waste Management.

I. Introduction

With the ever increasing population and growth in industrial sectors rapid urbanization demands smarter technologies and ways to manage all the resources associated with number of parameters like traffic control, reducing crime rates, waste management, managing energy consumption, water supply etc. In the year 2015 Union ministry of Urban Development of India have taken an initiative to implement smart cities concept in 100cities with the mission of driving the economic growth and improving the quality of life of people by enabling local area development and applying outcome based smart technologies. As of June 2021 around 5151 project have been proposed to strive towards the mission having proposed investment of ₹2,05,018 out of which 2637 Projects cost 43,701 Cr. Have been completed [1]

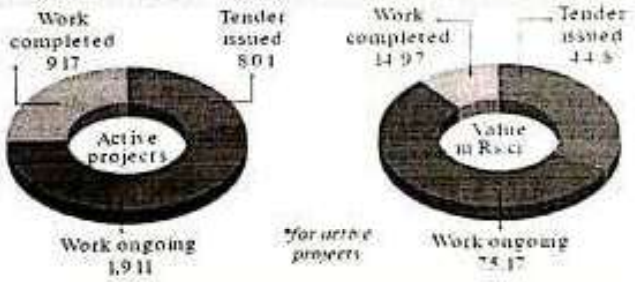

Figure 1: Shows the statistics of the smart city projects which shows the real status of smart city project. [7] (Source: What is the status of smart city projects in India - The Hindu)

II. Concept of Smart City

The concept of smart city move around two sides of a coin. In one side all the technologies and smart resources should be made available to the people and on the other side, for the people being a part of the smart city should be able and

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Design and Review of Spiral Wind Turbine

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Abstract: *The present study emphases on "Generation of power using spiral wind turbine". The function of wind turbine is to convert wind energy into mechanical energy and then generator converts mechanical energy into electrical energy. The study specifically about the size and dimensional parameter that need to be considered while designing spiral wind turbine and also about making the turbine more energy efficient than conventional wind turbine, and to overcome all possible drawbacks of conventional turbine.*

Keywords: Archimedes Wind Turbine, Spiral Turbine, Tear Drop Shaped Wind Turbine, Wind Turbine Generator, Horizontal Axis Wind Turbine.

I. INTRODUCTION

Wind is a clean source of renewable energy that produces no air or water pollution. And since the wind is free, operational costs are nearly zero once a turbine is built. Besides, quality production and technology improvements, aim also to build turbines cheaper. Among all renewable resources, wind energy has been proven to be a relatively matured technology and has great potential in commercialization and the production of large quantities. The main application of wind power is generation of electricity from a power system network integrates transmission grids. There are principally two types of wind turbines Horizontal axis wind turbines (HAWTs) and vertical axis wind turbines (VAWTs), out of which HAWTs are commonly manufactured.

It works on simple principle of conversion of wind's kinetic energy into the mechanical energy followed by further converting it into electrical energy with the help of a generator. In case of horizontal axis wind turbines, the axis of rotation is horizontal with respect to the ground and approximately parallel to the wind stream. Spiral wind is a type wind turbine. Our design is a radical departure from conventional three bladed types. It has a teardrop shaped body with swept blades that makes it very stable in high and low winds. A generator is enclosed in its hollow interior. The unit is fully scalable from a small portable size to a 1 kilowatt or greater power range, and can easily be mounted on any roof or structure.

To solve energy supply issues and address climate change, reductions of Greenhouse Gas (GHG) emissions, biodiversity protection and development of renewable technologies, energy conservation, and efficiency improvements are becoming increasingly important. Among the renewable resources, wind energy is a relatively mature technology with enormous potential for commercialization and mass production. With the expansion of the power grid and the reduction of electricity remote areas, small-scale wind turbines are now being applied in several countries and in many fields, such as city road lighting, mobile communication base stations, offshore aquaculture, and sea water desalination.

II. LITERATURE REVIEW

A. Design, Fabrication and Analysis Of Fibonacci Spiral Horizontal Axis Wind Turbine [Yogesh Patil]

The present study is focused on the ever-advancing field of wind energy (HAWT). Objective is to design, fabricate a wind turbine with the help of Fibonacci spiral. The profile of the blades was conical helix. An attempt has been made to use such turbines in urban areas while reducing the installation height. 3D model of the blades was designed on solid works to study the static simulation. Study showed that such turbines can yield RPM at low wind speeds 5 m/s. Results showed that the modified spiral wind turbine is ideal for urban locations due to its property to withstand wind turbulence. The results showed that the minimum speed required to function the turbine is 5 m/sec. The maximum efficiency on theory basis was found to be 71.38 %. The turbines exhibit high response towards varying wind speed. The minimum

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COMPARATIVE INVESTIGATION OF SPIRAL WIND TURBINE WITH PROPELLER WIND TURBINE

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Abstract ***The present paper gives comparison between Spiral Wind Turbine and Propeller Wind Turbine. Both turbines are compared on the basis of several parameters such as its shape, efficiency, occupied space, weight, location, cost, etc. the spiral wind turbine has positive advantages over the propeller wind turbine. It has low cost, more efficient, light in weight and easy installation as compared to propeller wind turbine. It can be transported from one location to other with very less efforts.***

Index Terms - **Propeller wind turbine, spiral wind turbine, propeller vs spiral wind turbine, wind energy**

I. INTRODUCTION

Wind is a clean source of renewable energy that produces no air or water pollution. And since the wind is free, operational costs are nearly zero once a turbine is erected. Besides, quantity production and technology improvements are making turbines cheaper. Among all renewable resources, wind energy has been proven to be a relatively matured technology and has great potential in commercialization and the production of large quantities. The main application of wind power is generation of electricity from a power system network integrates transmission grids. Propeller or a wind turbine comprises essentially a hub and blades. The blade of the propeller or the wind turbine blade can be considered as a rotating wing. The blade shape is defined by profiles, chosen for their aerodynamic performance. Profiles are distributed along the blade of the wind turbine or the propeller, in order to achieve the best compromise between resistance and production of lift. Spiral wind is a type wind turbine. Our design is a radical departure from conventional three bladed types. It has a teardrop shaped body with swept blades that makes it very stable in high and low winds. A generator is enclosed in its hollow interior. The unit is fully scalable from a small portable size to a 1 kilowatt or greater power range, and can easily be mounted on any roof or structure.

LITERATURE REVIEW

1.A COMPARISON STUDY BETWEEN ARCHIMEDES SPIRAL TURBINE AND PROPELLER TURBINE WITH WIND ATTACK ANGLE EFFECT (AYAD T. MUSTAFA AND HAIDER A. JALEEL)

A small-scale of wind turbine model has been designed and fabricated by using Fused Deposition Modeling, FDM Nylon material to investigate its performance. The wind attack angle effect on the generated electricity at Archimedes spiral wind turbine, ASWT, and propeller wind turbine was investigated experimentally. Experimental tests were carried out in the open stream field at different wind attack angles and speeds vary from 0° to 30° and from 6.0 to 10 m/s, respectively. The effects of the upcoming flow on the mechanical power extracted by the rotors and electrical power generation were estimated.

2) Comparison of horizontal axis wind turbine (HAWT) and vertical axis wind turbine (VAWT) (Muhd Khudri Johari*, Muhammad Azim A Jalil, Mohammad Faizal Mohd Shariff.)

The main objectives of this study are to build a functional wind turbine and to compare the performance of two types of design for wind turbine under different speeds and behaviours of the wind. A three-blade horizontal axis wind turbine (HAWT) and a Darrieus-type vertical axis wind turbine (VAWT) have been designed with CATIA software and constructed using a 3D-printing method. Both wind turbines have undergone series of tests before the voltage and current output from the wind turbines are collected.

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Design and Analysis of Spiral Wind Turbine with Various Wind Speed

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Abstract -*The paper targeted on Spiral wind turbine adopted for manage domestic electricity generation the design and analysis of Spiral turbine (SWT) are going to be described below The turbine may be a device that converts the Hydraulic energy into mechanical energy then ultimately convert it into electricity Wind turbines classified into 2 types i.e Horizontal axis turbine (HAWT) and Vertical axis turbine (VAWT) Spiral Wind Turbine (SWT) may be a new sort of Horizontal axis turbine comprising 2 whorled blades that as wrapped on tear drop formed shell. This special style ensures that a lot of air is drawn into the rotary engine. SWT is Associate in nursing increased sort of wind turbines introducing teardrop formed spiral bladed body the final word objective of this paper is that the analysis of Spiral turbine in varied wind rate the design of a Spiral (wind rotary engine turbine) blade has done by AutoCAD Fusion 360 code and also the computational fluid dynamics (CFD) analysis was accustomed analyze rate and Pressure contour of the turbine From the CFD analysis, it's finished that the SWT is appropriate for urban areas at light weight and moderate wind speeds.*

Key Words: Spiral wind Turbine, Tear drop shape turbine, SWT, Analysis of Spiral turbine, Design of Turbine

1. INTRODUCTION

This Wind energy is associate ample resource as compared with different renewable resources Moreover, not like the alternative energy, the use couldn't be full of the climate and weather. It's a supply of renewable power that comes from weather flowing across the surface. Wind turbines act as a converter that extracts mechanical energy from wind and converts it into usable power which might offer electricity for the house, farm, factories or business applications on little (residential), medium (community), or massive scales. A turbine consists of main components, i.e. the rotor, generator, system so on. The rotor is driven by the wind and rotates at a predefined speed in terms of the wind speed in order to generate electricity as output. A rotary engine with a shaft mounted horizontally parallel to the bottom is understood as a horizontal axis turbine. A vertical axis turbine has its shaft traditional to the bottom. Power of a turbine depends on wind speed and blade style. To extract the utmost mechanical energy from wind researchers place several efforts into the planning of effective blade pure mathematics. The orientation of the shaft and move axis determines the primary classification of the turbine.
In India, a median wind speeds square measure 3 m/s at 20 m height; thus, Spiral turbine is ideal for low and medium wind speeds Attention is currently being created on the Spiral turbine could be a new sort of turbine consisting of 2 spiraling blades This square measure wrapped on teardrop formed shell, as coils and so expanded, making a teardrop formed rotary engine Not like old HAWT, that use the carry force to require power from wind energy, the Spiral turbine uses each the carry and drag force. Since 2000, patron sain socialist, chief executive officer of Star Power star, a renewable energy company, has been obtaining calls from customers living close to the shore of island, NY, fascinated by putting in wind turbines on their homes Once a close search they found there was nothing offered on the market that would be directly put in a customer's roof. They recognized a chance and came up with a style impressed by biomimicry.
In this study, style of Spiral turbine shell of actual size of 400 mm diameter and 850 mm linear unit length has done by AutoCAD Fusion 360 and commercially offered code Ansys Fluent is utilized to predict the mechanic performance like force, power, carry & drag force, speed and pressure distribution, per wind condition k-epsilon with realizable model and scalable wall perform.

2. DESIGN OF SPIRAL WIND TURBINE

Figure 1 shows a schematic diagram of the Spiral wind turbine having two blades are connected to shaft with an angle of 180° between two blades and symmetric arrangement around the shaft. The blades are wrapped around the tear drop shell. The outer diameter of the

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Optimization of Operational Method to improve sustainable Energy Efficiency of Auxiliaries in a CFBC coal fired Boiler- Result Analysis

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ABSTRACT

The research paper provides details of the sultry dihydrogen monoxide heating system for power consumption such as aliment pump, victual pump motor, control valves etc; withal, details cognate to the test of the subsisting system power utilizing the 3-element mode method to control the drum level. Includes details about the sundry energy test equipment used during the potency test to quantify the sundry parameters such as flow, head, power haste, temperature and vibration. This study was conducted with the avail of 2 boiler and turbine engineers and 3 operators where there is an inch switch. During the study of the parameter sundry parameters were accumulated and designations were accumulated and the calculation was predicated on brake vigor and pressure disunion. In order to calculate it is consequential that one situation is sometimes engendered under the circumstances of each task. In cases of full volume, the drum pressure is customarily kg/cm² above the maximum pressure. This denotes that when the total smoke load maximum pressure is ninety kg/cm², then the corresponding drum pressure will be 100 kg/cm². Ergo, while competitive calculations always engender the assurance that the pressure to aliment the victual in an economic rest area or aliment supply center is much more preponderant than the high pressure of the boiler drum supplenes for harmless operation.

Keywords: Boiler Feed pump, Energy efficiency, Auto Scoop, Boiler auxiliary, Differential pressure, Drum level control

I. INTRODUCTION

The research paper provides details of the sultry dihydrogen monoxide heating system for power consumption such as aliment pump, victual pump motor, control valves etc; withal, details cognate to the test of the subsisting system power utilizing the 3-element mode method to control the drum level. Includes details about the sundry energy test equipment used during the potency test to quantify the sundry parameters such as flow, head, power haste, temperature and vibration. This study was conducted with the avail of 2 boiler and turbine engineers and 3 operators where there is an inch

DEVELOPMENT OF AN ELECTROPHORESIS SYSTEM FOR DETERMINATION AND MEASUREMENT OF HARDNESS IN WATER SAMPLES

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ABSTRACT

The prime intention of this research work has been to study and develop electrophoresis system using sensor to determine the hardness of water. It is needless to emphasize the great importance of water in human life.Hard water is water that has high mineral content, it may also contain salt quantity or acidic materials. The presence of salt content causes the water to become more hard and due to this hardness, water causes the further process to deteriorate. This research presents a electrophoresis model to measure the hardness parameter of sample water before sending it for further process. The tested sample if contains unwanted chemicals may be passed through various laboratory process to make it pure and then being used is not hard and detrimental, thus resulting in essential efficiency in the industrial applications of water.

Keywords- electrophoresis, hardness, salt, contamination, water

1. Introduction

It is very important task to monitor and control the quality of water for chemical industry. Generally calcium is the very first and most common parameter associated with water hardness property. It can pose careful consideration in industrial settings, where water hardness is monitored and maintained to avoid costly breakdowns in boilers, cooling towers, and other equipment. Processed water sometimes contain high amount of salt or acidic components which can further deteriorate the process in water applications. Therefore we need a simple sensor based electronic system that is used to test water, to ensure the quality of water, then water may be processed chemically to obtain adulterated water for processing. The electronics system measures the conductivity of water samples containing several types of impurities and use to determine the purity of water, which we may use at a later stage.

The main objective of this research has been to design and develop an electronics model which can be used to test and monitor the quality of water, by checking hardness parameter which can be embedded into industrial system to test the quality of water.

2. Methodology

Electrophoresis process is the migration process of a charged particle under the influence of an applied electric field. Positively charged particles always migrate towards the cathode electrode, and the negatively charged particles towards the anode electrode. Their rate of migration depends on the presence strength of the field, on the total charge, size and shape of the particles and also on the ionic strength of sample, viscosity and temperature in which the molecules are vibrated. As an analytical calculation, electrophoresis is very simple, rapid and highly sensitive method .

2.1 System Design and Experimentation

The electrophoresis system has been designed using performance detecting sensor, micro-controller circuit, voltage regulator circuit, monitoring display 16*2 LCD and testing panel. The testing panel has set of four test tubes of water sample. The power supply used has a range of 0 to 5V DC. The integrated circuit voltage regulator is designed for a wide range of applications which regulates to deliver up to 1.5 A of output current.

As the electrical conductivity of the water sample changes, the change in voltage levels at the electrode get reflected on the LCD panel in numerical values in the closed range of 0-5 V. This indicative value acts as a qualitative measurement for the test solutions electrical conductivity, thereby allowing analysis and decision making in the qualitative domain.

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Safety Helmet for Mining Workers

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Abstract : The mining industry is one of the most hazardous working environments, with accidents occurring frequently due to various reasons. To minimize the risk of accidents and enhance safety measures, we have developed a smart helmet using IoT technologies. The helmet is equipped with an ESP32 microcontroller, DHT11 temperature and humidity sensor, MQ2 gas sensor, MPU6050 accelerometer and gyroscope, and a piezo buzzer. The ESP32 microcontroller is connected to the internet and programmed to read data from the sensors, allowing the helmet to monitor the temperature and humidity levels, detect gas leakages, and detect sudden head movements or accidents. MQTT protocol and Mosquitto message broker are used for machine-to-machine communication between the smart helmet and other IoT devices. Eclipse Paho client libraries are used to implement MQTT communication in various programming languages. The smart helmet can be worn by miners to improve their safety and well-being in harsh and hazardous working environments. The results of our study show that the smart helmet is an effective solution for improving the safety of miners in the mining industry.

IndexTerms **- IoT technologies, Smart helmet, Mining safety, MQTT protocol, Mosquitto message broker, Eclipse Paho**

I. INTRODUCTION

The mining industry has always been associated with high-risk factors due to the harsh working conditions and the presence of various hazardous materials. Workers in the mining industry face many potential dangers, such as cave-ins, explosions, fires, gas leaks, and equipment failure. Despite the use of safety helmets, accidents still occur frequently in the mining industry, and workers and miners suffer from serious injuries or even lose their lives.

Safety helmets are an essential piece of protective gear that can help prevent head injuries in the event of an accident. However, traditional safety helmets have limitations in terms of their ability to detect potential hazards and provide real-time alerts to workers. In addition, workers in the mining industry often work in remote and isolated locations, making it challenging to provide quick and effective responses to emergencies.

To address these limitations, we have developed a smart helmet for mining using IoT technologies. The smart helmet is designed to be a comprehensive safety solution that combines various sensors and IoT technologies to provide real-time monitoring and alerts to workers in the mining industry. By using sensors such as temperature and humidity sensors, gas sensors, and an accelerometer and gyroscope, the smart helmet can detect potential hazards and provide real-time alerts to workers, enabling them to take quick and effective action to prevent accidents and injuries.

Statistics of Death in Mining Industry:

According to the International Labor Organization (ILO), mining is one of the most hazardous working environments, with an average of 15,000 fatalities occurring every year due to mining-related accidents. In the United States, the mining industry is known to have a high rate of fatalities, with an average of 28 deaths per 100,000 workers in 2019. Even when safety helmets are used, accidents still occur, and the risk of fatalities and injuries remains high.

IoT and Improving Conditions for Miners:

To minimize the risk of accidents and enhance safety measures in the mining industry, we have developed a smart helmet for miners. The helmet is equipped with various sensors, such as temperature and humidity sensors, gas sensors, and an accelerometer and gyroscope. These sensors allow the helmet to monitor the surrounding environment, detect gas leakages, and detect sudden head movements or accidents.

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Design & Fabrication of Extract Bio-Diesel from Waste Plastic Material

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ABSTRACT

The rate of economic expansion is unsustainable if fossil resources like coal, natural gas, and crude oil are not conserved. Alternatives to fossil fuels include biomass, hydropower, and wind energy. Another important component is having a robust waste management system. Development and modernization have resulted in a huge increase in overall production, which indirectly produces trash. Plastics are one of the materials with the most applications due to their adaptability and low price. Our project focuses on the production of Plastic Pyrolyzed Oil, which may be sold for a lot less money than what is already on the market, by extracting OIL/DIESEL from waste plastics. As is well known, petroleum fuels and plastics are both hydrocarbons, which are substances that contain both carbon and hydrogen. Presently, waste-to-energy delivery of biofuel to replace fossil fuel is a possibility thanks to pyrolysis technology. Pyrolysis has the advantage of handling dirty and unsorted plastic. The material doesn't need much pre-treatment. Plastic needs to be sorted and dried. Pyrolysis, as opposed to incineration, also doesn't emit any harmful or hazardous gases.

Keywords- Bio-Diesel, Extraction of oil, Heat, Plastic waste, Waste-to-energy

INTRODUCTION

One theory holds that waste plastic could serve as a cheap supply of chemicals and energy. Today, a wide variety of products that contain plastic ingredients are used by many of us. The increasing rate of private consumption of these plastic products results in massive amounts of trash being dumped into the environment.

A class of materials called plastics takes a very long time to organically decompose. Plastic has been collected in great quantities in both the natural environment and landfills. Based on their origin, the waste can be classified. They are,

- Industrial
- Municipal

These groups have different qualities and are governed in different ways. Plastic wastes are abundant in both industry and agriculture as a byproduct or defective product.

Municipal solid waste (MSW) mostly consists of wood, paper, cardboard, plastics, rubbers, textiles, and metals. Contrarily, thermoplastics, which account for more than half of municipal solid waste and are predominantly made of organic species, can be used as energy sources.

The traditional method of removing waste is by landfilling. Because plastics are enduring, throwing them away in landfills might just be putting problems off for the future. Plasticizers and other chemical additives, for instance, have been shown to leak from landfills. The degree of varies in accordance, particularly in terms of pH and organic content.

Recently, the concept of using MSW as a source of energy has drawn a lot of attention. It is also unpleasant to dispose of discarded plastics in landfills due to their poor biodegradability.

Chemical recycling also referred to as feedstock recycling or tertiary recycling is a different strategy that has received a lot of attention lately intending to convert waste plastics into basic petrochemicals that can be used as chemical feedstock or fuels for a variety of downstream processes.

Due to the increasing cost and need for energy sources, efforts are being made to convert organic molecules into usable hydrocarbon fuels. Even though biomass has

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Design & Fabrication of Extract Bio-Diesel From Waste Plastic Material

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Abstract -

Without conserving fossil fuels like coal, natural gas, or crude oil, the current rate of economic expansion is unsustainable. Fossil energy has various alternatives, including biomass, hydropower, and wind energy. A good waste management system is yet another crucial element. The production of all goods has increased dramatically as a result of development and modernization, which indirectly creates waste. The versatility and inexpensive cost of plastics have made them one of the materials with the most applications. Our project focuses on the extraction of OIL/DIESEL from waste plastics known as Plastic Pyrolyzed Oil, which can be sold for a lot less money than what is now available on the market. As is common knowledge, fuels made from petroleum and plastics are both hydrocarbons that contain the components of carbon and hydrogen. Pyrolysis technology is now a possibility for waste-to-energy delivery of biofuel to replace fossil fuel. The benefit of pyrolysis is that it can handle unclean and unsorted plastic. The material requires little pre-treatment. Sorting and drying of plastic are required. In contrast to incineration, pyrolysis also produces no poisonous or environmentally detrimental emissions.

Keywords: Plastic waste, Extraction of oil, Bio-Diesel, Heat, waste-to-energy etc.

1. Introduction

Plastic garbage is thought to be a potentially inexpensive source of energy and chemicals. Many of us have used a range of products today that use plastic ingredients. Huge amounts of garbage are released into the environment as a result of the rising rate of private consumption of these plastic products.

Plastic materials are a class of materials that take a long time to disintegrate naturally. Large amounts of plastic have accumulated in landfills and the natural world. The trash can be categorised based on where they came from. They are,

- Industrial
- Municipal

These groups are managed using various management techniques and have various characteristics. As a byproduct or defective product, plastic wastes in both industry and agriculture are enormous.

Food waste, wood, paper, cardboard, plastics, rubbers, textiles, and metals are the principal elements of municipal solid waste (MSW). In contrast, thermoplastics, which are primarily organic species and make up more than half of municipal solid trash, can be exploited as energy sources.

Landfilling is the conventional technique of disposing of Waste. Plastics are durable, so disposing of them in landfills might only be storing issues for the future. For instance, it has been demonstrated that plasticizers and other chemical additives leak from landfills. The degree of fluctuates correspondingly, especially in terms of pH and organic content.

The idea of recovering energy from MSW has recently received a lot of attention. Due to poor biodegradability, it is also unpleasant to dispose of used plastics in landfills.

Chemical recycling, also known as feedstock recycling or tertiary recycling, is an alternative approach that has gained a lot of attention recently with the goal of turning waste plastics into fundamental petrochemicals that can be used as chemical feedstock or fuels for a variety of downstream processes.

An effort is being made to transform organic compounds into useable hydrocarbon fuels as a result of the rising cost and increased demand for energy sources. Although a lot of this research has been on biomass, there are significant advantages to producing fuels from waste plastic. Plastic waste is widespread, and its disposal causes serious environmental issues. Plastic does not decompose in landfills, it is difficult to recycle and loses quality while doing so, and if burned at high temperatures, it can emit waste ash, heavy metals, and potentially dangerous gas emissions. By using thermal methods, it is possible to turn plastics into hydrocarbon fuels like petrol, diesel, aviation fuel and jet fuel, all of which have endless uses in the helicopter, heavy transportation and energy production industries. The approach and principal of the production / process will be discussed.

2. Problem Identification

People must concentrate on creating alternative energy sources including biomass, hydropower, geothermal energy, wind, solar energy, and nuclear energy because of the recent crisis with fossil fuels. In order to replace fossil fuels, research is being done on developing alternative fuel technologies. The technologies that are being concentrated on are dimethyl ether, biogas, pyrolysis,

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Dual Power Generation System Using Solar and Wind Energy

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Abstract - *Electricity is one of the most important things for our daily lives in today's technology-driven environment. We are all unaware of the reality that renewable energy sources are exhausting at a breakneck pace. So it's time to switch our attention from conventional to unconventional energy sources in order to generate electricity. When compared to traditional sources, non-conventional sources produce less electricity overall. The environment is not harmed by the use of renewable resources. In essence, a solar-wind hybrid system combines a solar energy plant with a wind energy plant. It will contribute to ensuring a steady supply of power. The hybrid system can be applied to both household and commercial settings. Solar-wind hybrid structures are essentially a combination of wind and sun power flowers. The main rotor shaft of horizontal-axis wind turbines (HAWTs) is a particular design of wind turbine. One benefit of this configuration is that solar panels and generators can both be installed near to the ground, creating a hybrid system. This electricity can be used for a variety of things. At a reasonable price, electricity will be generated. The goal of this project is to generate electricity from two sources simultaneously at a low cost without endangering the delicate balance of nature.*

Keywords: Solar Energy, Wind Energy, PV Cell, Renewable Energy, Hybrid Power System, Electricity etc.

1. INTRODUCTION

The hybrid machine is a combination of many renewable energy sources, including solar and wind power. In hybrid energy generation, the energy produced is initially stored in batteries and then utilised to satisfy user needs. Currently, the wind and solar energy industry is developing quite unexpectedly, and conventional power sources are declining every day and will eventually disappear. We want to learn about new energy sources that are easily accessible without harming the environment. It is powered by solar energy on sunny days and by wind energy in large amounts on cloudy days[1][2].

Thanks to renewable energy sources, there is ample clean energy available on earth. The ground, water, sunlight, plants, and other natural resources are the source of these renewable energy sources. Power generating commonly uses these resources. Solar and wind power generation are appealing sources since they are environmentally friendly. A hybrid machine is a combination of numerous renewable energy sources, such as solar energy, wind energy, and biomass energy[3]. Energy demands are satisfied by storing the electricity produced by hybrid strength generation in batteries initially. Traditional energy sources are declining every day and may disappear in the future, whereas wind and solar power are now growing rapidly[3][4].

We therefore want to discover new energy sources that are clean to use without polluting the environment. It is significantly powered by solar energy on sunny days, and significantly powered by wind force on cloudy days. The horizontal axis windmill has the identical horizontal rotor as the traditional Dutch windmill. Windmills with horizontal axes mostly rely on lift from the wind. According to Bernoulli's precept, "a fluid will exit from a region of extremely high stress to a location of low stress." Also, it states, "A fluid's density decreases as its velocity increases." The horizontal axis windmill blades are primarily based on this principle and are constructed to resemble the wings of an aeroplane with a curved top. This layout increases the air's spread at the top of the wall, correspondingly reduces its density, and causes an upward rise in the air below the wall. The blades are angled at the axis to use lift inside the rucksack. The blades of conventional wind generators are built for maximum lift and little drag[5][6].

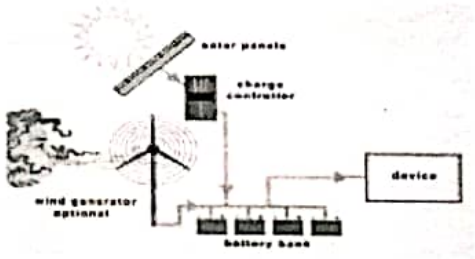

Fig.1. Hybrid Power Generation system [2]

Now, depending on the environmental conditions, the needed amount of energy may be produced by employing different systems at the same time or by choosing the most effective one, depending on the conditions at that particular time[6].

2. HYBRID ENERGY SYSTEM

In order to power the load, a hybrid power tool combines two power sources. In other words, it can be described as "a strength device that is manufactured or constructed to extract energy by the use of two energy sources, commonly known as a hybrid energy system." The hybrid strength device has the necessary dependability, efficiency, low emissions, and low cost [7].

In this proposed device, power is generated using solar and wind strength. In comparison to all other non-conventional energy sources, the strength of the sun and the wind have distinct advantages. Every owner asset is specifically to be held in each area. It asks for a small cost.

INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING

INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING

Dr. M. ANUSUYA

Dr. SHAILENDRA P. DAF

Mr. G. RAJASHEKHAR

Mr. SUMANTH RATNA. KANDAVALLI

αIP

INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING

FIRST EDITION

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Chapter

Experimental optimisation of crushing parameters in stone crusher using taguchi method

By *Shubhangi P. Gurway, Padmanabh A. Gadge*

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ABSTRACT

This paper presents the application of Taguchi optimisation process in stone crushers which are the major role players in quality concerns of construction industry. The objective of the present work is to investigate the influence of various crushing parameters on production yield. Crushing parameters namely eccentric speed, feed rate, closed side setting and throw are selected for experimental design approach where L9 orthogonal array was formed and selected for experiments. The effect of selected crushing parameters has been analysed by ANOVA and is optimised by using signalto-noise (SN) ratio as a statistical method. Analytical results i.e. main effect plots of SN ratios and regression analysis witnessed that closed side setting put a major impact on production yield whereas eccentric speed, throw and feed rate does not have notable influence on the same.

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Design And Fabrication Of Automatic Fire Fighting Robot

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Abstract : In reality, fire accidents may occur anytime, anyplace, and are typically scarcely preventable. Accidental fires may destroy structures, harm people, and result in unanticipated losses. Moreover, deaths from the fire as well as toxic gas inhalation and smoke inhalation. So, protecting against fire is crucial for maintaining human life. Be aware that it is challenging to find the human. the fire at a place that is difficult for humans to access or notice. Because it can be difficult to locate a water source, it may also take a long time for a human to put out a fire. As a result, this work has created and presented an autonomous firefighting robot. Three flame sensors were employed by this robot to find the fire. Additionally, it has three ultrasonic sensors for avoiding obstacles, shielding the robot and its internal parts from any danger. The Arduino is used to control every sensor on the robot. In addition to the sensors, the robot has a water tank that, when a fire is detected, supplies water. The When the power is on, the robot will wander around the space at random. The robot will go to the fire source and alert the user when the flame sensors identified the fire. Once it has arrived at the burning area, the robot will stop and use water to put out the fire from a distance.

Keyword : Robot, Fire, Smoke Sensor, Flame Sensor, Camera module, Arduino.

1. INTRODUCTION

The fire security of the home, office, and building is important to human life. A fast response to detect the small fire can avoid unpredictable damage and losses to human. However, it is difficult to detect the small fire in the location that is hard to reach or see by a human. The human also takes more time to find the water source to extinguish the fire. This will cause the fire to be spread quickly, which can increase death. Hence, to extinguish the fire within a short period of time and reduce the damage, an automatic fire fighting robot is proposed.

Robotics is one of the fastest-growing engineering fields. A lot of robots are designed to remove the human factor from labourintensive or dangerous work. It also acts in an inaccessible environment. Today the use of robots is becoming more common than before and it is no longer exclusively used by the heavy production industries. A firefighting robot that is able to detect and extinguish the fire has been developed and used before. With the invention of such a device, people and property can be saved at a much higher rate with relatively minimal damage caused by the fire. To begin with, it is essential to design an autonomous robot and build a prototype system that could detect and extinguish fires automatically. The designed robot also able to move in a room with obstacle avoidance, detect the fire, extinguish it by using water and send a warning message to the user.

2.LITERATURE REVIEW

Tawfiqur Rakib, M. A. Rashid Sarkar proposed a fire fighting robot model which consists of a base platform made up of 'Kerosene wood', LM35 sensor for temperature detection, flame sensors to detect the fire and a water container of 1 litre capacity which is made up of a strong cardboard that makes it water resistant.The robot has two wheels for its movement.

Saravanan P.,Soni Ishawarya proposed a model which uses Atmega2560 micro-controller and in which the robot is divided into three basic units according to their functions which are as locomotive unit, fire detecting unit and extinguishing unit.Each unit performs their task in order to achieve the desired output of extinguishing fire.

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Designing a Safe and Ergonomic Go-Kart: An Engineering Approach Utilizing CAD and ANSYS Analysis

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ABSTRACT

Designing a go-kart is a complex and multidisciplinary task that involves various aspects, such as safety, functionality, performance, and manoeuvrability. To achieve these objectives, a thorough understanding of the design process, technical specifications, competition rules, and environmental factors is required. This project aims to design a go-kart that is safe, functional, and optimized for performance and manoeuvrability while adhering to competition rules, environmental considerations, and cost constraints. The design group is responsible for creating an aesthetically pleasing and ergonomic layout for the vehicle. The frame must be rigid and torsion-free, and the powertrain well-mounted for optimal performance. The braking group is responsible for designing a reliable and efficient braking system that ensures maximum safety, while the steering group is responsible for designing a responsive and accurate steering system that enables the driver to navigate the track with ease. The engine and transmission groups must carefully select and optimize the powertrain to minimize emissions and noise while maintaining peak performance. In the design process, computer-aided design (CAD) software and finite element analysis (FEA) are used to simulate the vehicle's performance, optimize the design, and identify potential areas of improvement. Prototype testing is crucial to assess the effectiveness of the design and identify any shortcomings. To ensure that the final design meets the requirements and objectives of the project, the group continuously tests and evaluates each subsystem. This involves conducting simulations, analyzing data, and adjusting the design as needed. The group also receives feedback from experts and industry professionals to ensure that the final design is of high quality and meets industry standards.

Keywords- Braking, CAD, Cost analysis, Driver comfort, Engine, Environmental impact, FEA, Go-kart design, Industry standards, Multidisciplinary approach, Performance, Safety, Steering, Transmission

INTRODUCTION

Designing a go-kart requires a thorough consideration of various engineering aspects, including safety, ergonomics, market availability, cost of components, and safe engineering practices. In this research paper, we will explore the design process of a go-kart. It underwent analysis with the aid of ANSYS after being modelled in the CAD-programmed SOLIDWORKS. Based on the analysis results, the model was modified and retested until a final design was achieved.

To facilitate the design process, the team was split up into core groups in charge of several subsystems. The design group was responsible for the overall layout and aesthetics of the vehicle, while the engine and transmission group were responsible for selecting and optimizing the powertrain. The steering group was responsible for designing a responsive and accurate steering system, and the brakes and wheels group was responsible for designing a reliable and efficient braking system. Finally, the business and management group were responsible for ensuring that the project adhered to budget constraints and time constraints.

Throughout the design process, we set up parameters for our work to ensure that the go-kart was safe, functional, and cost-effective

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The Aesthetic Encounter between Go-Karts and Spectators: Exploring the Role of Design, Emotion, and Perception in Racing and Recreational Experience

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ABSTRACT

This research paper explores the impact of go-kart aesthetics on the spectator's experience. The authors define aesthetics as the visual appeal and appearance of go-karts, and automotive design as the profession that deals with the appearance and ergonomics of motor vehicles. The study highlights the crucial role of go-kart aesthetics in making a first impression on spectators and how it can evoke positive or negative emotions and influence their moods and behaviour. The authors suggest that further research is required to fully understand the impact of aesthetics on the racing or recreational experience. They also caution against overreliance on technology in shaping go-kart aesthetics as it can lead to a lack of uniqueness and creativity. Instead, designers should balance technology with traditional design elements to create aesthetically pleasing and unique go-karts. Moreover, the authors emphasize that the intended purpose of the go-kart should guide the design of its aesthetics to ensure it meets the users' expectations. For instance, a racing go-kart may prioritize speed and performance, while a recreational go-kart may prioritize safety and comfort.

Keywords- Aerodynamic performance, Aesthetics, Automotive design, Color, Go-karts, Safety

INTRODUCTION

Fig. 1 showcases the Mecheetah 1.0 go-kart, which has been designed with a focus on strength, safety, and performance. The seamless pipe chassis and rounded corners of the roll cage, as described in the works [1, 2] not only contribute to its aesthetic appeal but also enhance safety by reducing the number of welded joints. Meanwhile, the aerodynamic performance of the kart is improved through expertly crafted streamlined bodywork, as discussed by [3]. The striking orange colour of the kart serves as a symbol of the team's dedication and commitment to excellence. In conclusion, the Mecheetah 1.0 combines both form and function, making it a standout in the racing world, as supported by the works of [4, 5].

Figure 1: Mecheetah 1.0.

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Intelligent Controlled System for Automated Guided Vehicles

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Abstract : In this research paper, we aim to explore the potential applications , examines the design and numerous approaches of controlled guided vehicle systems. We will review the current state-of-the-art in AGV technology, including sensing and control systems, and discuss the challenges and opportunities associated with their deployment.

Overall, this research paper highlights the potential of AGVs as a cost-effective and efficient solution for material handling and inspection in industrial and commercial settings. As the technology continues to advance, it is expected that AGVs will become even more sophisticated and capable, and will play an increasingly important role in the future of industrial automation.This recommends adding new functionalities to the AGV in accordance with the industry's escalating need for more multifunctional machinery aspects.To overcome this drawback this paper aims to design the robot for multiple applications of handling material The robot is controlled by Arduino micro controller with Smart sensors

Keyword : Automated Guided Vehicles, Arduino, Motor Driver, DC Motor,Wi-Fi Module .

1. INTRODUCTION

The Automated Guided Vehicles (AGVs) are autonomous mobile robots that are operated by a remote control. They are equipped with advanced sensing and control systems, allowing them to navigate through unstructured environments and perform a variety of tasks, such as material handling, inspection, and surveillance. AGVs are widely used in industrial and commercial settings, where they play a critical role in improving productivity, safety, and efficiency. The earliest industrial robots were created for manufacturing purposes in the early 1950s, which is when Remote Controlled Guided Vehicles (AGVs) got their start. Although these early robots were stationary and controlled by hardwired circuitry, they helped pave the way for the creation of mobile autonomous robots like AGVs. Short-distance movement within a building's walls or between a building and a moving vehicle constitutes material handling. It takes into account the storage, protection, and control of materials throughout their manufacture, warehousing, distribution, consumption, and disposal. It employs a wide range of manual, automatic, and semi-automated equipment. Material handling should be automated since manual handling can cause workers' tiredness and physical problems as well as low productivity.

It is a time of digitization that changes production and control systems across a wide range of industries. Through mobile devices and other forms of computing technology, the Fourth Industrial Revolution represents a connection between people. Unrestricted access to knowledge and information is one of Industry 4.0's fundamental characteristics, and all of these features will be backed by powerful computing and data storage systems. Knowledge from the fields of robotics, IoT, artificial intelligence, 3D printing technology, autonomous cars, and much more will be used to support new technological advancements.

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HAZARDOUS CHEMICALS BASED SKIN DISEASES CLASSIFICATION USING DEEP LEARNING:A REVIEW

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Abstract: Skin infection diseases due to hazardous chemicals are more usual as compared to other common skin diseases in our society. The human beings encounter with diseases due to hazardous chemicals because of distinct environmental aspect present in the world and absence of individual care or other factors such as chemicals present in daily use products. The experience and proficiency of the doctor/pathologist determine accurate diagnosis of skin diseases, as inaccurate diagnosis leads to financial damage and adverse health effects on the patient. In our proposed research work, we will deal with the identification of skin diseases due to hazardous chemicals present in daily use product/chemicals such as pesticides, cosmetics, detergent, paint, sanitizer, petrol, diesel etc with machine learning algorithms. Convolution neural network is main approach of skin disease identification with efficient deep learning network model having best accuracy rate. Our hazardous chemicals skin disease identification model will utilized large number of images for training the network using ISIC dataset. The AlexNet, ResNet, VGGNet, Inception, DenseNet, MobileNet, Googlenet or any other efficient network will be used to conclude our proposed research work.

Index Terms **- Hazardous Chemicals, Skin diseases, ISIC dataset, Convolutional Neural Networks (CNN), Deep learning.**

I. INTRODUCTION

Now a days, electronics system are used to identify the diseases through ECG, MRI SCAN, X-ray etc. Before the evaluation of medical instrument-system. the diagnosis of skin diseases were dependent on the experience and proficiency of the doctors. Diagnosis error or inaccurate diagnosis leads to negative health impact on patient and financial loss of the patient. In skin diagnosis, image processing plays very important role in detection of skin disease. Hazardous Chemical exposures on skin may have serious consequence on health which may be temporary or permanent. A hazardous chemical is something that has the capability to cause detriment such as injury, illness or harm to skin. These adverse health effects may appear on skin with the contact of hazardous chemical. It may be possible that hazardous chemical enter into human body through skin by wound or by penetrating through the skin. Then the hazardous chemical can be scattered by the blood stream causing health issues in the body. Hazardous Chemical exposures to the skin are in daily occurrence in a Agriculture Industry, Manufacturing. Services and hazardous chemicals based daily use product such as detergent, paint, cosmetics, petrol, Diesel, pesticide etc.

The COVID-19 pandemic has grown worldwide and it has serious impacts on people health issue. World health origination (WHO) directed to use hand sanitizer regularly to disinfect hands from corona virus. Alcohol Based Hand Sanitizer consist of alcohol with hazardous chemicals like excipients or humectants. An irritant contact dermatitis can vary from slight to significant adverse reaction such as dryness and bleeding on skin. Alcohol based hand sanitizer cause drying effect on hands which include allergic contact dermatitis to the skin like crack and viral disease [1][2]. Medical experts shared advise that the extensive use of alcohol based hand sanitizers as a protective measure against the corona virus will indirectly hike the possibility of germs responsible for skin disorder.[3].

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'Trends in Contemporary Indian Society & Literature'

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10	Honor Crimes: A Snippet of Potential Dystopia By Varuna Yadav

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Chapter 9

Financial Inclusion of Rural Women Workers: Various Obstacles and Remedies

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Abstract

In India women have been considered in secondary place due to the paternalistic family system. Most of the time women plays the key role as well as an increasing role for building the nation but they have remained backward due to the social evils, illiteracy, superstitions, male dominated culture and traditional values. Hence the profile of rural women workers has been labelled as a poor, superstitious, low skilled, illiterate and suppressed being. Rural women workers' access to information, assets and opportunities are very low because they are unorganized and underrepresented. In countries economic and social development, women are playing very significant role especially rural women workers, as most of the population of India lives in rural areas. But they are always discriminated for the job opportunities, lower level of wages, poverty and lower status. So rural women workers should be motivated to join the path of development, for their overall growth, rural women workers should be economically empowered then they should be financially included and they must receive the wages on their work basis not according to their social status basis. Financial inclusion of rural women workers plays significant role for women empowerment in our country. This paper attempts to highlight the real factors which are responsible for financial exclusion of rural women workers as well as to suggest the remedies for financial inclusion of rural women workers.

Introduction: Men and women both are playing the equal role for survival of the society but it has been evidenced that no society in the world ever provided the equal status. In India due to the paternalistic family system women are considered secondary. According to our culture, women

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Design and Development of Automatic Detection System for Motercyclists without Helmet using Machine Learning

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ABSTRACT

The use of two-wheelers as a mode of transport is increasing rapidly, but unfortunately, many riders neglect to wear helmets, which can lead to accidents and fatalities. To address this issue, many countries have implemented laws mandating the use of helmets for two-wheeler riders, and the police force often discourages this behavior by issuing traffic violation tickets. However, the process of issuing these tickets is often manual and tedious, which can lead to delays and errors. To solve this problem, a proposed system is to automate the process of detecting riders who are not wearing helmets. The system would use image processing algorithms to extract the license plate number of the rider, which would then be used to issue a traffic violation ticket. The image processing algorithm would consist of five parts, including image procurement, preliminary processing, fringe detection and segmentation, feature extraction, and recognition of character number plates using suitable machine learning algorithms. This automated system would not only make the process of issuing traffic violation tickets faster and more efficient, but it would also increase the compliance of two-wheeler riders with helmet laws. This would lead to a reduction in accidents and fatalities caused by not wearing helmets, ultimately making roads safer for everyone

Keywords: Automatic Detection System for Motercyclists without Helmet using Machine Learning , Moving Object Detection ,License Plate extraction ,Haar Cascade Classifier , Image thresholding ,Open CV2

I. INTRODUCTION

Two-wheelers are a popular mode of transportation in many countries, but unfortunately, many riders do not wear helmets, which increases the risk of accidents and injuries. To address this issue, governments have made it a punishable offense to ride a bike without a helmet, but the current methods of catching violators

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Secure and Transparent Crowdfunding using Blockchain

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ABSTRACT

Crowdfunding is a popular method for raising funds for various projects, where a large number of individuals contribute a small amount of money to finance a particular project. It provides an opportunity for entrepreneurs, startups, and artists to seek financial support from the general public, rather than relying on traditional funding sources such as venture capitalists, banks, and angel investors. This project aims to create a decentralized crowdfunding platform using Ethereum blockchain technology. The platform allows creators to post projects with funding goals and deadlines, and investors can contribute funds to these projects. Smart contracts are used to manage the crowdfunding process, ensuring that funds are released only when milestones are met, and that investors have a say in the progress of the project. The platform is designed to be transparent, secure, and accessible to anyone with an internet connection. By using blockchain technology, the platform eliminates the need for intermediaries, reduces transaction fees, and enables global participation. This project demonstrates the potential of blockchain technology in transforming traditional funding models and enabling decentralized innovation. The platform utilizes various features of Solidity, including structs, mappings, and events, to enable the creation, management, and tracking of projects, milestones, and investments. The web interface is developed using HTML, CSS, and JavaScript, with a Node.js backend that interacts with the smart contracts using the web3.js library.

Keywords: Blockchain, Crowdfunding, Solidity, Ganache, HTML, CSS, NodeJS, MongoDB, Blockchain Projects

I. INTRODUCTION

Crowdfunding is a relatively new way of funding projects, which has gained significant popularity over the past decade. It involves funding a project or venture by raising small amounts of money from a large number of people, usually through online platforms. The concept is simple, but the impact can be huge, as it allows people to support projects they believe in, even if they don't have the financial resources to support them on their own. However, crowdfunding has its own set of challenges, such as transparency, security, and accountability, which can be addressed by leveraging the power of blockchain technology.

A. How Crowdfunding Works

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NLP based Video Summarisation using Machine Learning

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ABSTRACT

More people are capturing their daily lives with video data, because to the wide availability of recording equipment. However, the sheer volume of video content makes it more challenging to manage, especially for lengthy movies like security or CCTV footage. For a richer and more succinct condensing of the film will result from automatically detecting the key sections and frames of larger videos and providing them with captions. Users still need to spend time searching or navigating through a summarized video. To extract a shortened version of the footage's information into text form, automatic video summarizing has been proposed. With simply a text summary, the suggested system provides a quick semantic understanding of a lengthy film using LSTM model and the summary can be taken in 3 major different languages (English, Hindi, & Marathi).

Keywords : Video Summarizer, Text Summarizer, Long Short Term Memory, Machine Learning, Summarizer, Abstractive, Extractive

I. INTRODUCTION

One of the most popular ways to access visual information is now video. It would take almost 85 years just to view every video that is published to YouTube every day due to the massive volume of video data! Therefore, it is crucial to have automated methods for video content analysis and comprehension. Automatic video summarization in particular is a crucial tool for assisting human users in browsing video material. An effective video summary would condense the main points of the original video into a concise, viewable overview.

There are many ways that video summaries can cut down on the length. In this study, we concentrate on the two most typical ones: keyframe selection, in which the system identifies a sequence of defining frames [1] [2] [3] [4] [5] , and key sub-shot selection, in which the system identifies a sequence of defining techniques each of which is a set of frames that is temporally contiguous and spans a brief time interval.

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Cafeteria Food Ordering System using QR Code

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ABSTRACT

Cafeteria Food Ordering System Using QR Code Technology is a real time ordering system to manage the order process for cafeteria. This system helps customer to order without having to wait for the waiters to serve them. The cafeteria system is currently using traditional way which is took order system by using paper, cause the order missing and not manage properly to record the orders of customer. The current hand written ordering system brings inconvenience to both staffs and customer as it requires a lot of manual work and time. They don't have a proper ordering system to support and make the ordering process smoothly in the cafeteria. Nowadays, smartphone and tablet have widely used in our day to day life. By having this cafeteria food ordering system using QR Code, the time of placing order has reduced. Our proposed system is Cafeteria Food Ordering using QR Code that enables ease for the customers. Actually ordering is generating the QR code to increase the cafeteria productivity, whereas the tablet is used to scan the code and the order is send to the kitchen. By using this system, customer just captures QR Code on the table in each table cafeteria for ordering food. After placing an order, the admin can accept the order and it will be send through to the kitchen. People can easily scan the QR code by their smartphone which is on the cafeteria table. This new ways of ordering will ultimately save time for the waiter to take up orders and this system improves the method of taking the order from customer. In addition, owner cafeteria can add or manage their food menus and can saw the status updated from staff has delivery the order's to the customer.

Keywords: Multi-Keyword Ranked Search, Security, Cipher text Search, Privacy preserving.

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Image Caption Generation Using Machine Learning with Integrated Android Application

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Abstract : In the field of Machine Learning (AI), images can be automatically analyzed and described using computer vision and Natural Language Processing (NLP). A neural model, which is capable of regenerating content, is created for this purpose. This model relies on both computer vision techniques and machine translation. It utilizes a combination of Convolutional Neural Network (CNN) for extracting features from the image, and Recurrent Neural Network (RNN) for generating sentences that describe the image in a natural language manner. Through training on various datasets, the model learns to generate captions that closely match the input image. The accuracy of the model and the fluency of language used in the image descriptions are evaluated through experiments on different datasets, demonstrating that the model consistently produces accurate descriptions for input images. By Integrating Android Application forward captions to everyone.

IndexTerms **– ImageCaption, CNN & RNN, Image Description, Automatic Analyzed, Long Short Term Memory(LSTM).**

I. INTRODUCTION

Language, whether expressed through spoken or written forms, serves as a fundamental tool for communication among individuals. It is widely used to convey information and describe the world around us. However, for individuals with physical disabilities, such as those who are visually impaired, the traditional use of language may be limited in conveying visual content. In such cases, images and signs can play a crucial role in facilitating comprehension and communication. One promising approach to bridge this gap is through the automatic generation of image descriptions in coherent sentences. However, this process is highly complex, involving various challenges such as understanding the visual content of the image and converting it into meaningful and grammatically correct sentences. Despite the complexities, the potential benefits of such technology for visually impaired individuals in understanding image content on the web are significant.

The concept of "visualizing a picture in your head" is a commonly used term to describe how humans mentally perceive images. The ability to form mental images based on visual stimuli can greatly facilitate the production of descriptive sentences. In fact, humans are often able to quickly describe an image even with a cursory glance, showcasing the remarkable cognitive capabilities of the human brain. One avenue for making progress in the field of image description generation is by examining existing natural visual descriptions. By analysing how humans describe images in natural language, valuable insights can be gained to improve the accuracy and comprehensiveness of automatically generated image descriptions. The ultimate goal is to achieve a level of image identification that is comparable to the human ability to interpret and describe images. However, generating image descriptions that are human-like in terms of their accuracy and level of detail is a significant challenge. Unlike image classification or identification, which focuses on labelling images with pre-defined categories, image description requires capturing not only the objects in the image, but also the relationships between objects, their properties, and the activities depicted. This level of complexity adds to the difficulty of automatically generating coherent and meaningful image descriptions.

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Real-Time Chat Application

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ABSTRACT

The emergence of new technologies has brought about significant changes in the way people communicate with each other. One of the most popular ways of communication in today's digital age is through messaging applications. To facilitate this need, several chat applications have been developed. In this thesis, we introduce a chat application built using the MERN stack, which is a popular technology stack used for building web applications. This application provides users with the ability to create accounts, join chat rooms, and send messages to other users in real-time. With the use of web sockets and Angular's two-way binding, the application allows users to see messages as soon as they are sent. Moreover, the application also includes features such as user authentication and authorization to ensure secure access to the chat rooms. Through this project, we aim to demonstrate the feasibility and effectiveness of building real-time chat applications using the Mern stack.

Keywords: Real time chat app, Chat app using mern stack, Chat app.

I. INTRODUCTION

Chat applications have become an integral part of our day-to-day life and have had a significant impact on how we communicate with each other. With numerous chat applications available in the market, each offering unique features and capabilities, users are spoilt for choice. Companies that develop these applications compete with each other to add new features and improve the user experience with each release. This competition has led to the development of some of the world's top companies, generating high revenue and employing a large number of people.

However, with the growing concern of data theft, companies must ensure the security of their users' data and protect them from third-party data breaches. To address this, the basic chatting system should involve both sending and receiving processes simultaneously, which can be achieved through the MERN concept.

Developers worldwide are constantly striving to enhance the user experience of chat applications and improve their workflow to deliver projects and changes quickly. This is where stacks come into play, which allow developers to build web applications quickly and efficiently. Mern and MERN are two popular stacks built on JavaScript that offer an end-to-

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Web App for Tracking Real-Time Performance of Cryptocurrencies

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ABSTRACT

Cryptocurrency is money that exists in digital or virtual form. Cryptocurrencies do not have a central issuance or regulatory authority, but instead use a decentralized system to record transactions and issue new units. Cryptocurrencies are a secure and popular standardized way to transact anywhere on earth with relatively low fees. This article provides an overview of what cryptocurrency is and begins to answer some of the most common questions asked by newcomers. Nowadays, everyone wants to explore and invest in the crypto market due to its high volatility and higher returns. Cryptocurrencies are inherently volatile because their prices change rapidly. Therefore, we thought of creating a platform to track the performance of cryptocurrencies. The platform will track the performance of cryptocurrencies and provide information on changes in the value of cryptocurrencies Our results will provide users with the necessary information, including the real-time data of cryptocurrencies in visual form like Graphs or Charts, so that they can decide whether to invest in them. We also provide various tools to facilitate the decision-making process of investing in the crypto market.

Keywords : Cryptocurrency Performance Tracker, Encrypted, Currency, Blockchain, Trading, Decentralized, Crypto coins.

I. INTRODUCTION

A cryptocurrency is a type of digital currency which is designed to operate as a medium of exchange on a computer network and does not depend on any central authority (such as a government or bank) to maintain or maintain it. It is a decentralized system for verifying that parties to a transaction have the funds they claim to have, removing the need for traditional intermediaries such as banks when transferring funds between two entities. Individual coin ownership records are stored in a digital ledger, a computerized database that uses strong cryptography to protect transaction records and control the creation of additional coins.

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An Architecture of Secure and Transparent Voting System Using Blockchain

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Abstract : Due to widespread mistrust of the conventional voting system, democratic voting is essential for any nation. Fundamental liberties are being violated, it has been noted. Other digital voting procedures have come under fire due to a lack of openness. Because most voting processes lack transparency, it is very challenging for the government to win the confidence of the voters. Because they can be easily abused, traditional and contemporary digital voting systems are flawed. Our goal is to fix issues with both conventional and electronic voting methods. This covers any errors or injustices committed throughout the voting process. Fairness is ensured by blockchain technology, which also reduces unfairness. Digital voting technologies are inefficient for general usage, and physical voting systems are rife with flaws. This assesses the requirement for a solution to safeguard people's political liberties. This article introduces a platform that attempts to promote trust between voters and election officials and is built on cutting-edge blockchain technology. The proposed platform offers a framework for performing voting activity online via blockchain without the use of actual polling places. Our suggested architecture makes use of adaptable consensus methods to enable a scalable blockchain. The voting process is safer because to the Chain Security Algorithm that is used. When a transaction is carried out in the chain, a secure link between the user and the network is provided via smart-contracts.. The blockchain-based voting method's security has also come under scrutiny. The prevention of 51% assaults on the blockchain and the encryption of transactions using cryptographic hashes have also been created. Additionally, a mechanism for carrying out blockchain operations throughout the voting process has been developed using blockchain technology. Finally, the system's performance analysis demonstrates that it may be used to a big population.

Index Terms **-** Voting System, Democratic Voting, E-voting, Blockchain, Consensus, Chain security, Encryption, Cryptographic Hash, Secure Voting

I. INTRODUCTION

The Blockchain infrastructure has the ability to drastically cut back on the time and resources used on polling stations, such as identifying areas, recruiting staff, and avoiding security threats. Blockchain-based digital elections reduce the chance of unfair voting while saving money. When used correctly, recent advances like the blockchain system are extremely safe and useful. It has the potential to make the voting process a lot more transparent and reliable, as well as improve transaction traceability. A voting machine is used in a traditional digital voting system linked to a centralised database is employed. A person who has direct access to this device can tamper with it. It could result in a one potential point of failure throughout the voting system's network; however, an immutable blockchain wouldn't be impacted by a single network tamper. Data is stored decentralized in a blockchain, where the veracity of the data is constantly verified. As a result, if a node is maliciously attacked, just that node is affected, and all services can still be offered through the connected peer-to-peer network. It makes the voting system's use of blockchain technology as a private ledger a trustworthy and secure method. In comparison to previous technologies, blockchain has given more than adequate protection and trust. Less staff can be hired, security personnel reduced, and miners given access to polling places for the conventional voting method. It does not necessitate the use of a real voting machine or module, which is always susceptible to hacking attempts using tampering tools. This method's transparency, which offers voters confidence that their votes are being cast properly, is its most alluring quality. Banking, the medical sector, food safety, and cryptocurrency exchange are all being considered for implementation. In comparison to previous digital voting systems, the voting system will be more trustworthy, safe, and consistent if blockchain technology is implemented. Voting may be more transparent using blockchain technology while simultaneously protecting voter privacy and confidence.

In the conventional voting process, a voter must first register to vote by sending an SMS to the Identification Authorities. (IA). IA records the voter's vote in the designated polling place after verifying the voter. To cast a ballot, a voter must physically travel to the voting location. The workers at the polling station then gather the votes. Vote counting is the responsibility of the staff, who also inform superiors of their findings. Employee cooperation within a democratic organisation increases the potential for human mistake. After verifying that the count is accurate a second time, the authorities announce the outcome. Vote rigging is possible due to a number of faults in the method. The staff has the ability to alter votes or add fictitious votes while they are being counted. Under the influence of a third party, authorities have the power to declare inaccurate results of their own choosing. The voter is not given any guarantees regarding the outcome of his vote. There is no transparency or guarantee of a fair vote in the traditional voting process as a whole. It won't be resolved by simply digitising the process or using digital voting equipment. The election might be tampered with if hackers

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AGE, GENDER AND EMOTION DETECTION BY USING DEEP LEARNING

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Abstract: Age Gender and emotion prediction based on facial images has become a vital part in many scenarios since the human face contains most important bio-metric characteristics. In this paper, we define an robotic real-opportunity whole that estimates age and gender by taking advantage of a set of first image sequences from a electronic devices. With the progress of friendly media sites, mechanical neuter and age classification has enhance progressively important. With the help of this initiative, an effort has been made to identify a person's gender, emotion and age from their frame.

Deep learning and OpenCV, which can process real-time frames, are used for this. The projected gender and age are given as inputs, and this frame is returned as the result. Due to factors including facial expressions, lighting, makeup, and other factors, it is challenging to determine an individual's actual age from a single frame. For this reason, multiple age ranges are used, and the anticipated age falls within one of them.

In addition, age and gender classification have become increasingly applicable to a wide range of applications, particularly with the rise of social media and platforms. However, the implementation of existing strategies on real-world images is still fundamentally lacking, especially with human factors. In this paper we exhibit that by education likenesses through the use of important Convolutional Neural Network (CNN).

Index Terms **– Convolutional Neural Network, Facial Expressions, Gender detection, webcam.**

1. INTRODUCTION

One of the most active areas in facial technology is facial features such as age, gender and emotion recognition. A lot of research has existed done utilizing deep learning methods to a degree ANN, CNN to determine age, grammatical rules applying to nouns that connote sex or animateness guess and emotion discovery. Human Facial verbalization depicts human impressions. Human does to change feelings, possibly on account of their mental or strength environments, in the course of old age Despite the fact that people experience a wide range of emotions, current psychology describes six fundamental facial expressions as being representative of common emotions: happiness, sadness, surprise, fear, disgust, and rage. Facial muscles exercise to assist with perceiving individual's feelings. Fundamental facial consideration features are eyebrows, mouth, nose and eyes.

An design established the convolution Neural network (CNN) projected in this place for age, gender and feeling categorization. One of the more well-known deep artificial neural networks is this one. Because of their outstanding performance in facial analysis and emotion recognition, convolutional neural network-based design models are frequently used in classification tasks.

The Convolutional Neural Network involves Feature origin which extracts Features matching to age, grammatical rules applying to nouns that connote sex or animateness, affection. Furthermore, CNN includes Feature classification determines the appropriate age group, gender, and emotion for facial images, such as joyful, sad, angry, or neutral.

(I)Gender and Age Classification:

Gender and age categorization is the first physiognomy that play a meaningful part in friendly interaction. Age and gender classification in face images play important task in much several application, for example access control, low authorization, visual observation and so on.

(II) Emotion Detection:

Emotion detection on face images can communicate and impact individual's feelings. It is interesting to elementary comprehend the impressions pass on by the representations and by virtue of what the visual content of the concept indicates passion.

2. LITERATURE SURVEY

A number of papers have been published in the past few years that have solved the problem of facial expression recognition. Several tasks have already been completed for real-time emotion classification, gender classification, and age classification. So, Some artwork of different states related to the proposed work is discussed in this section. Md jashim uddin Dr. paresh Chandra Barman, khandaker Takdir Ahmed et al.[1] proposed a detection system using CNN model which can achieved 95% accuracy rate in age, gender detection with IMDB-WIKI dataset and 66% accuracy achieved in emotion detection with FER dataset. A model of age (gender) detection using artificial neural networks was presented by Thakshila R. kalansuriya and Anuuja Dharmaratne et al. [2]. They used FERET and FGNET datasets to achieve a 70.5% accuracy rate. Using a neural network and sigma control limit, M.R.

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Fake Product Detection Using Blockchain Technology

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Abstract : Blockchain technology has the potential to help combat the problem of counterfeit products by providing a secure and decentralized way to verify the authenticity of products. By linking a unique QR code of a product to a Blockchain database, users can scan the code and check if the product is genuine or fake. This system can also provide a transparent and tamper-proof record of the product's history, from its manufacture to its delivery to the customer. This can help improve supply chain management and reduce the risk of counterfeit products entering the market. However, it's worth noting that the implementation of such a system may require a significant investment of time, resources, and infrastructure. Companies will also need to ensure that the QR codes and Blockchain database are properly secured and protected from potential hacks or attacks. Overall, Blockchain technology provides a promising solution to combat the issue of counterfeit products, but it requires a collaborative effort between manufacturers, distributors, and regulators to implement it effectively.

Index Terms – Blockchain, Smart Contract, Decentralization, Counterfeit product, QR code.

1.INTRODUCTION

Blockchain technology can be used to tackle the issue of counterfeiting by providing a secure and transparent record of a product's history, from its manufacture to its delivery to the customer. By generating a unique hash code for each product and recording it on the blockchain, it becomes virtually impossible to tamper with or duplicate the product without leaving a trace. This helps to ensure that the product is genuine and can be trusted by the end customer.

Additionally, by assigning a unique QR code to each product and linking it to the blockchain database, customers can easily scan the code and retrieve all relevant information about the product, including its origin, manufacturing details, and delivery history. This helps to build trust between the manufacturer and the customer, and can also serve as a powerful marketing tool to promote the authenticity and quality of the product.

However, it's important to note that implementing a blockchain-based system for product verification requires a significant investment of time, resources, and infrastructure. Companies will need to ensure that the blockchain database and QR codes are properly secured and protected from potential hacks or attacks. They will also need to ensure that all stakeholders in the supply chain, including manufacturers, distributors, and regulators, are on board with the system and committed to using it effectively.

Blockchain technology has the potential to combat counterfeit products by providing a transparent and immutable record of each product's journey throughout the supply chain. By creating a permanent and tamper-proof record of each product's origin, production, and distribution, blockchain technology can help prevent counterfeit products from entering the market.

One of the ways blockchain technology can be used for this purpose is by implementing a product authentication system that links each product to a unique digital identity recorded on the blockchain. This identity can include information about the product's manufacturer, production date, and location, as well as any certifications or quality control checks that have been performed. This digital identity can be verified by anyone with access to the blockchain, including consumers, retailers, and law enforcement officials. If a product's digital identity does not match its physical characteristics or there is any suspicion of counterfeiting, the blockchain can be used to track the product back to its source and identify any potential breaches in the supply chain.

Overall, blockchain technology has the potential to greatly reduce the prevalence of counterfeit products by creating a transparent and secure supply chain ecosystem that enables all stakeholders to verify the authenticity of each product.

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Web Application on Gaming

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Abstract: We are creating this website for business purpose. We all are knows the gaming craze in today generation so gaming website is very useful for game selling business. In this website we can sell a gaming product, as well as code of game by applying proper charges. In this website we used payment gateway like razor pay, for secured transaction of money. In this app the list of game will shown of PS4, PS5 with GTA and intend game, Mario game etc. The online game refers to games that are played over some form of computer network, typically on the Internet, in which you can connect with multiple players.

Nowadays, online gaming is not only for the entertainment of the students but also for learning. According to some research, it helps teens to exercise their mind and cause them to explore the Internet. It enables the mind of the players to be more active, especially with puzzle-based games. It also helps the player to come up with decisions in tight situations, especially with adventure games that require the players to be alert, active, and strategic. However, despite these benefits, playing online games becomes a necessity in their lives because it requires much of the player's time. With the rise in the internet, users across the globe proliferated. With this surge, online gaming achieved a new milestone every year. Players of all ages and every nationality compete against each other be it on arcade or console games. These gamers have become abstract with their uncanny usernames and thus it becomes impossible to research about them and collect worthwhile statistics for gaming companies. Thus it has become very important to investigate further in this domain. Many games also invoice for their premium services and thus it has become profitable for these companies.

Index Terms **– Gaming, Payment, Secure Transaction, PS4, PS5, GTA.**

I. INTRODUCTION

E-commerce website is online platform that allows people to buy and sell physical goods, services and digital products over the internet rather than going offline and selling products. Taking inspiration from this facility we are going to create one e-commerce gaming website selling gaming products. Nowadays, every age group of person likes to play online video games especially among youth generation it's huge craze for online games...And our online e-commerce website provides bestest option for customers to buyonline gaming products. We are going to provide one of the most secure and wide range of gaming products in our e-commerce website. In this website, variety of gaming products like PS4, PS5 with GTA& intend game, Mario game etc.are there. User can manually explore our website but in case they want to buy a gaming product they have to register with our website .After finally selecting the product they want they have to click on proceed to buy option and user can pay through secured payment method like razor pay etc.

We are creating is the virtual supermarket for gaming. If you like shopping the traditional way then you should stop once and start rethinking when our website has superb options available like nintendo,GTA,then why shop traditional way when we have the bestest and safest shopping options available. You can also order Play station Digital Cards & get voucher code immediately delivered on your e-mail. If you need good games in lowest prices than you have come to correct place our website has safest payment methods and very easy payment options also available make it available. Our Current catalogue contain Sony PlayStation Gift Card, PSTN Card, PlayStation PS Plus Gift Card, Xbox Live Gift Card, Xbox Gold Membership Card, Blizzard Gift Card, League of legends, Riots Points, Google Play Gift Cards India, Google Play Gift Cards US, Nintendo e-Shop Cards, iTunes Gift Card India, iTunes Gift Card USA, Steam Gift Card US, Amazon Gift Card, and many other gift card options are available for our old as well as new customers.

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Detecting Illegal Money Transaction For Potential Money Laundering

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Abstract: Today, financial markets pose a threat not only to financial institutions but also to governments. This crime has become complex and transformed from drug dealing behavior to financial crimes without forgetting the individual. Most financial institutions around the world have implemented financial solutions to prevent fraud. However, traditional studies require a lot of man-hours. Recently, data mining methods have been developed and found suitable for money laundering detection.

As part of a joint project to create a new solution for the AML department of International Capital Bank, we are preparing a simple and useful document as an AML solution. In this article, we introduce this solution designed as a tool and show some experiments before using it for real data exchange. Trade, domestic and international shipping, etc. We plan to use the management system to classify the business as fraudulent based on the data.

Keywords: Financial protection, Domestic business, Financial institution.

I. INTRODUCTION

Money Laundering (ML) is a criminal process; It is also a process where criminals try to hide the truth and ownership of the proceeds of crime. ML is defined by Genzman as "the deliberate use of the proceeds from certain crimes in the financial sector to facilitate or carry out illegal activities or to conceal or disguise the situation, to own or control revenues". Criminals try to turn the proceeds of crime into "clean" money through legal laundering, such as large investments in stock markets or investment companies, or pension funds. Detecting management fraud is a daunting task when using traditional auditing methods. First, there is a lack of understanding of the specifics of fraud management.

Second, because this condition is so rare, most researchers do not have the equipment to diagnose it. Finally, managers deliberately try to mislead auditors. The analysis process may not be sufficient for managers who understand the limitations of the analysis. These limitations indicate that additional scanning techniques should be used to detect fraud. It also noted that the increased measure was inconsistent with the mission's role in fraud investigation because most frauds occur at the highest level of the organization.

Using data mining for fraud as part of a routine financial audit can be difficult and, as we'll explain, data should only be used when potential returns are high. In general, the investigation team usually considers three factors when it comes to consumer fraud: (1) Details of the fraud (income claims, liabilities, etc.) should be included in the investigation. Dedicated customer service? (2) Any document (letter, e-mail, etc.) Will be given to prove the fraud? (3) Which data mining (like, targeted or not) best finds evidence of fraud in selected data? Developing a personal answer to each question is important, but difficult to answer together. Finding value in financial markets.

II. PROBLEM STATEMENT

The purpose of this paper is to develop, describe and validate a machine-learning model for prioritizing which financial transactions should be manually investigated for potential money laundering.

III. LITERATURE SURVEY

Several different or recent articles look at AML predictions as described below -

A. Kumar, S. Das & V. Tyagi, "Anti-Money Laundering Use Naive Bayesian Classifiers", 2020 using Naive Analysis of Bayesian Classifiers Data Cleansing, Using Law of 10,000 Variations Data Analysis for Data Analysis and Financial Analysis with 81.25% Accuracy

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Story Hub Using Natural Language Processing for Hearing Impaired Children

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Abstract : This mobile application for children with hearing impairment is designed to leverage natural language processing (NLP) technology to provide an innovative and immersive storytelling experience. The application includes a vast library of stories, which are presented in a visually appealing format, accompanied by sign language interpretation and captions. The app uses NLP technology to detect the child's response to the story and adjust the pace and complexity of the narrative accordingly. The application also includes interactive animations, games, and quizzes to reinforce language development and learning. Through this innovative use of NLP, children with hearing impairment can engage with storytelling on a more personalized and dynamic level, encouraging language development and communication. Parents and teachers can use this application to support their children's learning and foster a love of reading, language, and communication

Index Terms – Hearing impaired, Tokenization ,NLP(Natural Language Processing), Story Hub Application

1.INTRODUCTION

Hearing impairment is a condition that can greatly affect a child's ability to learn and communicate. Storytelling is an essential component of language development and can be challenging for children with hearing impairment. However, with the advent of mobile technology, there is an opportunity to create an interactive and engaging platform to enhance the storytelling experience for children with hearing impairment.

This mobile application aims to provide a comprehensive storytelling experience that is accessible to children with hearing impairment. The application includes a vast library of stories, presented in a visually appealing format, accompanied by sign language interpretation and captions. Additionally, the application leverages natural language processing technology to adapt the story's pacing and complexity based on the child's responses.

The application also includes interactive features such as games and quizzes to reinforce language development and learning. With this application, children with hearing impairment can enjoy the benefits of storytelling while improving their reading skills and fostering communication and language development. Parents and teachers can also use this application as a tool to support their children's learning and encourage a love of reading and language.

2.Problem Statement

Children with hearing impairment face significant challenges in developing language skills and communication. One essential aspect of language development is storytelling, which is an activity that can be challenging for children with hearing impairment. Traditional storytelling methods, such as reading books or watching videos, often lack adequate support for sign language interpretation and captions, limiting the accessibility of these activities for children with hearing impairment. This presents a significant challenge in terms of ensuring equal opportunities for learning and language development for children with hearing impairment. Additionally, traditional methods may not adapt to the child's learning pace, leading to frustration and a lack of engagement. The problem statement, therefore, is to provide an accessible, interactive, and adaptive platform for storytelling that supports the language development and learning of children with hearing impairment.

3.Analysis

The utilization of different resources, including the Indian Signing Research and Training Centre (ISLRTC) initiative and animated GIFs demonstrating hand gestures, to access Indian Sign Language (ISL) dictionaries. ISL dictionary launched by ISLRTC, is a crucial aspect of the proposed mobile application for children with hearing impairment.

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HUMAN ACTIVITY RECOGNITION USING ANDROID STUDIO SMARTPHONE

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ABSTRACT

Human activity recognition is the study of human movement and posture through the use of sensors that make predictions about human motion and posture. Using the three-dimensional sensors already present in the average smartphone, this HAR model has been researched and tested. The Accelerometer and Gyroscope are two examples. Input from these sensors is used to make deep learning-based predictions about the activities of moving objects. For performance forecasting, this CNN (Convolutional Neural Network) employs LSTM (Long Term Short Memory). Because of its widespread availability, the proposed system is carried out entirely on a Smartphone (Android Application). After collecting data from sensors and filtering it, we train TensorFlow on the data using the prepared dataset. We also compare the accuracy of CNN models using various optimizers and explore the implications. To show how accurate the model is, we built an app for Android that can do the job. We think that after some tweaks, this software might be used by the elderly who live alone to report emergencies to the proper authorities in a timely manner.

Key Words: Human Activity Recognition, Deep learning, Convolutional Neural Network (CNN), CNN-LSTM, Gyroscope, Accelerometer, Smartphone Sensors.

I. INTRODUCTION

The smartphone has not only become ubiquitous in today's rapidly evolving technology landscape, but also an indispensable component of our everyday lives. It can do everything, from regular contact and entertainment to helping you stay organised. It's almost as convenient as having a pocket-sized PC. According to a recent poll conducted by Statista, worldwide sales of smartphones are expected to reach 1.5 billion by 2020, an annual growth rate of 23.72%. A smartphone's transformative power can be realised in a number of contexts. Human activity recognition (HAR) is an area it can work in as well. Maintaining a healthy and fit lifestyle with HAR is possible. Using a person's sensor data, HAR can determine what kind of activity they are engaged in. Data is recorded along the X, Y, and Z axes via the sensors employed. The first HAR method includes both ambient and wearable sensors, with the latter creating a hybrid sensor that can be used to quantify human mobility. Improved data quality for detecting human activity and services based on sensed information from real-time environments (such as cyber-physical-social systems) are both possible because to advancements in sensor technology. There is also a class of magnetic sensors that, when installed in a smartphone, can provide accurate location tracking at no extra expense. Second, we can visually capture human movements with RGB video and depth cameras. Third, optical data and sensor data are being used together to detect human behaviour, making it multimodal. The plan for this project is to begin with data collection, followed by preliminary processing of the raw data. I will then use the matplot library to plot the data on a scatter plane after balancing and standardising it. The next step is to use these graphs to prepare the frames. Later on, a CNN model will be employed to categorise people's actions. Next, a learning curve and confusion matrix will be mapped out to determine the level of accuracy achieved.

II. RELATED WORK

The number of technologies that can be employed to attain the required output solution has grown as a result of study into the field of Human Activity Recognition. Historically, methods for this problem assignment have centred on the many machine learning techniques that can be applied to the solution of such practical issues. However, deep learning has started to acquire the supremacy in terms of accuracy when taught with vast volumes of data when compared to the older machine learning algorithms for prediction and classification. This section discusses the few available algorithms for use in HAR. In one study [1], researchers used a wide variety of supervised machine learning methods to put HAR into practise. Classifying the results into three groups—

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Cricket Match Prediction using Machine Learning

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Abstract: *As cricket is the most popular game in the world. T20 and ODI are most loved by people. The IPL was launched in 2008. So we decided to develop a machine learning model that can predict both game scores and outcomes. In this paper, a model with three methods is proposed. The first is the score prediction, the second is his IPL match win percentage and the last is his ODI match win percentage. The model used supervised machine learning. We used previous statistics to build this model. The application is trained on historical data from previous games and uses these algorithms to make accurate predictions for upcoming games. Finally, several predictors are identified that can be used for data analysis. I used jypyter notebook. A label encoder was used for pre-processing. I created a predictive model using a machine learning algorithm. Algorithms used are decision tree classifier, random forest classifier, etc. for team winning prediction, Lasso regression, and ridge regression for score prediction. The web application is designed to provide real-time predictions for upcoming matches, allowing cricket enthusiasts to stay up to date with the latest predictions for upcoming matches. Overall, this project has the potential to revolutionize the world of cricket by providing accurate match predictions. Our web application enables cricket enthusiasts to make informed decisions and improve their overall viewing experience.*

Keywords: Decision Tree Classifier, Random Forest Classifier, Lasso Regression, Logistic Regression, Gaussian NB, Gradient Boosting Classifier

I. INTRODUCTION

Cricket is a sport that is widely played and watched across the world, and two of the most popular formats of cricket are IPL (Indian Premier League) and ODI (One Day International). These formats attract millions of fans globally, and with the growing popularity of machine learning and data science, it has become possible to predict the outcome of cricket matches using advanced statistical models. In this project, we aim to build a web application that uses machine learning algorithms to predict the results of IPL and ODI matches. Our web application will provide real-time predictions for upcoming matches based on various factors such as team composition, player statistics, pitch conditions, and weather. To build our web application, we will be using Python, a popular programming language for data science and machine learning. Python provides a wide range of libraries and tools for data analysis and machine learning, making it an ideal choice for building predictive models. We will be using popular machine learning algorithms such as regression analysis, decision trees, and support vector machines to predict the outcome of matches. Our application will be trained using historical data from previous matches and will use these algorithms to make accurate predictions for upcoming matches. One of the challenges of predicting cricket matches is the number of variables that can affect the outcome of a match. Factors such as the form of the players, the pitch conditions, and the weather can all have a significant impact on the outcome of a match. To address this challenge, we will be using a combination of statistical analysis and machine learning algorithms to build our predictive models. Our models will take into account multiple factors and will use a combination of historical data and real-time information to make accurate predictions.

II. LITERATURE SURVEY

We studied papers based on the area of Cricket prediction. Following papers are related to our area i.e. Cricket prediction.

1] Monoj Ishi explained "WINNER PREDICTION IN ONE DAY INTERNATIONAL CRICKET MATCHES USING MACHINE LEARNING". In this paper explained the focus is given to the prediction of victory in one day international game of cricket using machine learning. The concept of ensemble algorithm using voting and stacking classifier is used