Tuijin Jishu/Journal of Propulsion Technology
ISSN: 1001-4055
Vol. 45 No. 2 (2024)

Spectrum Sensing Techniques in Cognitive Radio Networks

Gaikwad P.B[1], Dhaigude N.B[2], Gawade P.D[3], Changan D.D[4], Sorate S.B[5]

[1]*Electronics, Shivnagar Vidya Prasarak Mandal,s COE Malegaon(Bk), Maharashtra, India.*

[2]*E &Tc, Shivnagar Vidya Prasarak Mandal,s COE Malegaon(Bk), Maharashtra, India.*

[3]*Electrical, Sharadchandra Pawar COESomeshwar Nagar, Maharashtra, India.*

[4]*Electrical, Sharadchandra Pawar COESomeshwar Nagar, Maharashtra, India.*

[5]*Electrical, Sharadchandra Pawar COESomeshwar Nagar, Maharashtra, India.*

Abstract:- The burgeoning demand for wireless communication necessitates efficient management of spectrum resources, particularly in cognitive radio networks. Spectrum detection, a pivotal aspect of cognitive radio network deployment, involves identifying and vacating frequencies occupied by primary users to avoid interference. This paper presents an exhaustive exploration of spectrum sensing methods, categorizing them into direct and indirect approaches. Various strategies, including principal transmitter detection and cooperative methods, are scrutinized for their efficacy in identifying spectrum opportunities. Challenges such as channel uncertainty, noise variability, and aggregate interference are addressed, emphasizing the need for robust sensing techniques. A comprehensive enumeration of spectrum sensing methods, including primary transmitter detection, collaborative approaches, and interference-based detection, is provided, highlighting their advantages and limitations. Furthermore, signal processing techniques such as multi-taper spectrum sensing and wavelet-based detection are discussed, offering insights into spectrum sensing advancements. By synthesizing research findings and methodologies, this paper contributes to the understanding of spectrum detection in cognitive radio networks, facilitating informed decision-making for future research and deployment endeavors.

Keywords: Spectrum Detection, Cognitive Radio, Cooperative Spectrum Detection, Channel Uncertainty, Noise Variability, etc.

1. Introduction of Spectrum Detection

One of the biggest challenges in cognitive broadcast is that additional users have to recognize when the main users are present in a legally allocated spectrum and leave the frequency range as soon as the appropriate main radio appears to prevent the interference to the main users. Cognitive Radio system involves spectrum detection and estimate [4].The spectrum detection strategies can be divided into two categories: direct method, also referred to as a frequency domain strategy, in which the calculation of parameters is done promptly from the signal, as well as an indirect strategy, sometimes called a temporal domain strategy, in which the estimation is done using the signal's autocorrelation between An additional method for classifying spectrum sensing and estimation techniques involve splitting the collection into nonparametric in character, periodogram-based, and model-based, descriptive procedures.

1.1 Spectrum Monitoring for Spectrum Possibilities

1.1.1 Principal Transmitter Detection-In this instance, the message received at customers of CR is used to identify the principal receivers. This method covers waveform-based, energy-based, matching filter (MF)-based, covariance-based, waveform-based, cyclostationary-based, broadcast identification-based, and arbitrary Hough Transform-based recognition.

1.1.2. Cooperatives and group-based detection

The technique involves engaging or working together among other users to correctly identify the main signals

[1]Siddhi Vijay Ghadge
[2]Dr. Prakash Devale
[3]Shrikala Deshmukh
[4]Saloni Shah
[5]Ganesh Gadhave
[6]Sarika Pawar
[7]Swapnali Limkar

The Smart Agriculture System Using IOT and ML

JES
Journal of Electrical Systems

Abstract: - Numerous countries have abundant resources, including land, rivers, groundwater, the environment, with agriculture serving as the primary source of income for many people in country. Nonetheless, resource shortage has grown in recent decades, particularly for groundwater and river water, so remote control smart irrigation system is developed to avoid access use and loss of water in the agriculture. A lack of information about the best use of available resources leads to increased resource consumption and worse crop yields. Choosing crops that are unsuited for the soil or climate reduces both quality and quantity of crop. As a result, system that recommends appropriate crops and fertilizers based on soil NPK values, soil colour, Season, PH, Rainfall, temperature etc has been developed. Fires are one of the most destructive global disasters, thus early detection is necessary to avoid the damages in agriculture. To reduce losses, an automated system capable of early fire detection through alarm systems and prompt extinguishing procedures through the roof structure pipeline in the farm is developed. Another use of that same pipeline is for spraying the pesticides and fertilizers. A potential resolution to address all these challenges involves the development and implementation of an intelligent agricultural system integrating Internet of Things (IOT) and Machine Learning technologies.

Keywords: Identification of soil nutrients, Crop Recommendation, Nitrogen Phosphorus Potassium (NPK), Internet of Things (IOT), Machine Learning (ML), Random Forest (RF), Fertilizer Recommendation.

I. INTRODUCTION

A United Nations study predicts that by 2050, there will be close to 10 billion people on Earth, could potentially reach 11 billion by around 2100. The need to produce more food for this rapidly expanding population has led to a surge in the adoption of intensive agricultural methods [4]. Human livelihood is mainly depends on agriculture, which is the world's primary source of food and economic growth. Important issues facing India's agriculture industry includes soil health, inadequate irrigation, disasters such as fire in farm and poor seed quality etc.[7].

Our project primarily aims to automate land irrigation without human involvement, [15] prevent disasters in agriculture such as fires, and analyze soil NPK values to suggest suitable crops and fertilizers to the farmers. Designing an automated system requires the integration of Machine Learning and IOT principles [11]. An Internet of Things (IOT) network is a network of interconnected devices that are able to exchange and collect data from the environment without human intervention [14]. Particularly in countries like India, efficient water management is essential where agriculture serves as the backbone. [13].So our primary aim is to prevent water wastage by automating the irrigation system using IOT sensors and android application. Building an automated system requires the combining of IOT concepts with various sensor data, processing it according to user requirement [11], and ensuring automated water distribution throughout the entire field for irrigation [15]. Inadequate or excessive water

[1] *Student, Dept of Information Technology, Bharati Vidyapeeth (Deemed to be University) College of Engineering, Pune.
[2] Professor, Dept of Information Technology, Bharati Vidyapeeth (Deemed to be University) College of Engineering, Pune.
[3] Assistant Professor, Dept of Information Technology, Bharati Vidyapeeth (Deemed to be University) College of Engineering, Pune.
[4] HOD-Assistant Professor,Dept of Comp Engg,SSSPM's Sharadchandra Pawar College of Engineering and Technology,Someshwarnagar.
[5] HOD-Assistant Professor,Dept of Elect Engg ,SSSPM's Sharadchandra Pawar College of Engineering and Technology,Someshwarnagar.
[6] Assistant Professor,Dept of Comp Engg,Vidya Pratishthan's Kamalnayan Bajaj Institute of Engineering and Technology,Baramati.
[7] Assistant Professor,Dept of Comp Engg,Vidya Pratishthan's Kamalnayan Bajaj Institute of Engineering and Technology,Baramati.
Email id- siddhighadge284@gmail.com, prdevale@bvucoep.edu.in, smdeshmukh@bvucoep.edu.in, shahsaloni1601@gmail.com, gadhaveganesh92@gmail.com, sarikapawar8009@gmail.com,swapnali.limkar@vpkbiet.org.

IRJMETS

International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
e-ISSN: 2582-5208
Volume:06/Issue:03/March-2024 Impact Factor- 7.868 www.irjmets.com

REVIEW ON ISLANDING OPERATION AMONG SOLAR HYBRID SYSTEM

Ms. Suvarna S. Bhise*[1], Dr. P.V. Paratwar*[2], Prof. S.S. Bhosale*[3], Prof. M.S. Tamboli*[4]

*[1]Students, Dept. Of Electrical Department, DGOIFOE, Duand, Pune, India.

*[2,3,4]Professor, Dept. Of Electrical Department, DGOIFOE, Duand, Pune, India.

DOI : https://www.doi.org/10.56726/IRJMETS50254

ABSTRACT

The building will run in islanding mode in the event of a grid outage since on-site generators are permitted by the control system that was developed. A photovoltaic array and a backup induction generator make up the on-site generation. Regulation refers to the absence of abrupt changes in frequency and voltage. Keeping frequency and voltage within acceptable bounds while in islanding mode. Solar hybrid systems with photovoltaic and battery storage provide both on- and off-grid electricity delivery to buildings. In this paper islanding operation of solar photovoltaic system is discussed.

Keywords: On-Site, Solar Hybrid, Islanding, Photovoltaic Etc.

I. INTRODUCTION

Many electrical power sources are ideal for on-site generation in buildings because they are widely available in the power system. The unintegrated operation is improved by the integration of grid-tied photovoltaic systems. Small-scale wind turbines and solar photovoltaic (PV) panels are two examples of renewable energy sources that are well-suited for building integration. Larger buildings may also have combined heat and power (CHP) systems installed.

On-site generation ensures a steady supply of electricity. This would be helpful in multi-story buildings, where stairway illumination and lift functioning would improve safety without interruption. There are several electrical safety and power supply standards that must be met for islanding operation to be permitted.

1. Consistent voltage and frequency supply for islanding operations.

2. A seamless switch from grid-connected to islanding mode refers to a shift in voltage or frequency that occurs gradually.

Electrical Power Systems and Power Regulation

Regular electrical power supply is essential. We model that work using multistory buildings. Use primary site generators for this work, such as PV arrays. Backup power is provided by generators during islanding operations. They provide the PV array's daytime power and act as its only source at night. Array in the daytime and serves as the only source at night. loads such as air conditioning and heating, lighting, and one or more lift usage. If islanding happens during the day, electricity could be supplied by the generator, the PV array, or all of the loads. But at night, the generator isn't enough to power only the necessities, like the lighting in the stairs and lifts. The majority of generators in the kW range are induction generators. These generators are employed when there is less of a need for control speed. Major loads, such as lift motors, require the usage of induction motors. Capacitors are a part of induction motors, and they aid in providing reactive power to maintain voltage. The lift motor is supplied to the battery bank after experiencing a significant sporadic load. The battery gets charged from the PV array when it is discharged. Next, a smaller generator will be employed. bigger loads, such as air conditioning and heating units. These loads are only used for brief periods of time when the walls, floors and water tanks of the structure require a high heat capacity. The other loads that can be adjusted by the user include electronic gadgets and room illumination.

Solar Hybrid System

There are three types of solar power systems. These come in on-grid, off-grid, and hybrid variants. The advantages of both on-grid and off-grid solar systems are combined in a hybrid system. Net metering is used to connect the hybrid solar system to the grid. They store the power in a battery backup system. To create electricity, the energy collected by solar panels is passed through a hybrid solar inverter. One of the main reasons hybrid systems are used is that they have a backup power source. It implies that even during blackouts, you can keep using electricity without any problems. During peak hours, an additional battery backup aids in

TuljinJishu/Journal of Propulsion Technology
ISSN: 1001-4055
Vol. X No. Y (20--)

Islanding Operation with Solar Hybrid System and Grid Tied PV System

Suvarna S. Bhise, Dr.Paratwar P V, S.S.Bhosale, M.S.Tamboli, B.V.Anarase
Department of Electrical Engineering, Dattakala Group of Institutions Faculty of Engineering, Pune, India

Abstract:- Buildings can get electricity from solar hybrid systems that combine photovoltaic and battery storage, both on and off the grid technolgy. Grid-tied photovoltaic systems are integrated to improve unintegrated operation. It is forbidden for many hybri on/off grid grid inverters to charge the battery when the system is off grid to prevent the inverters associated with grid from receiving excessive electricity. A smart meter and a solar irradiance sensor are combined in this work. The system can be analzied to with battery conncted solar hybrid system for different operating modes considering grid. Islanding between grid-tied and hybrid solar PV systems is done using MATLAB software.

Keywords: - VSI Islanding , Photovoltaic , Generation.

1. Introduction

The emphasis on Distributed Generation (DG) for getting profit to electric utilities and customers is still growing. A distributed generator (DG) is a small-scale electric power source that is connected to the customer side meter or the point of consumption in a distribution network (DN). Larger-scale availability of various electrical power sources makes them appropriate for on-site generation in structures. Renewable eneArgy sources include small-scale wind turbines and solar photovoltaic (PV) panels, which are especially well-suited for building integration. Larger buildings may also have combined heat and power (CHP) systems installed. Many different power sources are appropriate, which makes them acceptable for the generation in buildings. A variety of renewable energy sources, such as photovoltaic panels, are ideal for integration into buildings. Benefits of PV system integration include reduced electricity costs and enhanced power quality. PV panel and battery storage system are both parts of the solar hybrid system. When there is an electrical outage, the solar hybrid system keeps the building powered continuously. Large-scale solar hybrid systems with PV arrays include separate connections to the electrical system and a power converter. However, a small portion of a solar hybrid system with a PV array and battery storage is connected to the main grid via a solar hybrid grid converter. This inverter is utilized when the grid is on or off. Maintaining a steady power source is one of the challenges of islanding operations.

This paper focuses on islanding operation of solar hybrid system and grid tied PV system. The paper is organized as, Section I-Introduction, Section II-System Description, Section III-Test System and Result Analysis and Section IV-Conclusion.

2. Objectives

In contrast to the solar hybrid on/off grid inverter alone, this project provides a specific power curtailment controller that allows the grid-tied PV inverter to support power generation during islanding operations. The grid-tied PV inverter;s output power is regulated to avoid excessive PV feeding by the utilization of data from the solar irradiance sensor and smart meter. The purpose of this study is to show how well a purpose-built power-limiting controller performs in supplying more power from a grid-tied photovoltaic inverter, perhaps reducing the need to discharge battery power. Therefore, in the event of a loss from the main grid, this tactic might aid inkeeping the supply of electricity going.

Journal of Xidian University DOI:10.37896/jxu17.12/024 ISSN No:1001-2400

Gas Leakage of IoT Based Industrial Plant Safety Discovery System

Shilpa Somic[1], Sunil Pondkulc[2], Priya Rajguru[3], Shradhha Bhagat[4], Vikas Dhanc[5], Pratiksha Gawadc[6]

[1,2,3,4,5,6] Asst. Professor, SPCOET, Someshwarnagar ; [2] Research Scholar, VIIT, Pune

Abstract: Gas leaks are the primary cause of industrial fires. These have catastrophic effects on the environment, the machinery, and human life (deaths and injuries). The leak detectors that are now on the market employ on-s ite alarms to alert those nearby. As a result, the system provides a leak detector that sends alerts to affected people via the dashboard. This detector detects harmful gases such as LPG, methane and benzene. Gases like LPG and methane have the potential to catch fire and explode. The health of employees may be harmed by the carcinogen benzene if it is breathed in high enough doses. Therefore, identifying these gases is crucial. The system is Wi-Fi enabled, and the MQ 135, MQ6, and MQ4 gas sensors identify benzene, LPG, and Methane gas leaks, respectively. The concentration levels therefore, identifying these gases is crucial. The system is powered by Wi-Fi, and the gas sensor applications of MQ4, MQ6, and MQ135 detect leaks of methane, LPG, and benzene gas, respectively. The aforementioned gas concentration levels are stored on the internet, and the user is provided with the login credentials in the warning message so, it may verify if required. Recommended system prototype sounds a warning with the help of a buzzer when a severe leak is found and then uses the IFTTT web service to convey the message to the person who should know. The type of gas that has leaked is indicated by the presence of a different coloured LED; for instance, a LED with RED light indicates the presence of LPG.

Keywords MQ135, MQ4, MQ6, Dashboard, Cloud.

I. INTRODUCTION

Unknown is the annual number of gas leakage on industrial plants. Since most of these leaks do not immediately result in concrete damage, regardless of whether they are acknowledged, they go undetected. The Environmental Protection Agency (EPA) noted that these facilities alone in the United States generate around 1 billion cubic metres of methane each year (few other gases are not taking into account). About 80% of these accidents seem to be the result of faulty couplings, valves, seals, or compressors. Around 2200 million metric tonnes of CO2 were unintentionally released in 2012 from oil infrastructures and other synthetic processes required for the production of steel, iron, bond, and plastics. Around 800000 holes are estimated to be checked on refineries each year, with approximately 200 KM particularly causing fatalities, injuries, damaged hardware, or operational problems [1]. To put it simply, industrial gas leakages provide a significant issue in the quest for safe, environmentally responsible, and resourceful operations. Propane, butane, and methane are all part of the combination of gases that make up LPG and natural gas. These gases have a strong ability to ignite and catch fire. If there is a leak when they are being produced or transported, the gases may cause an explosion. The number of fatalities brought on by gas barrel explosions has increased. Therefore, the spillage needs to be contained to keep people safe. The Bhopal gas catastrophe is a prime example of accidents caused by gas leakage. Recognizing gas leaks is essential, but managing spills is just as crucial [2].

The most popular gas in homes and businesses is LPG. However, LPG breakdowns can occasionally occur inside a house, a place of business, or in a gas-powered vehicle. This gas can be dangerous if it leaks since it increases the risk of a blast. In order to efficiently detect the presence of LPG, an odorant, such as ethane thiol, is added. In any event, certain individuals with impaired senses of smell will probably be unable to rely on this vital tool. A gas leakage detector becomes essential in these situations and protects people from the dangers of gas leaking. Tracking back flow water in businesses contains benzene, a substance known to cause cancer. Additionally, it can be present in concoction production, tobacco smoke, and gasoline. Government rules under OSHA limit benzene exposures in the workplace since it is a proven carcinogen. In any event, some activities involving the production of oil and gas are not included in those gauges [3]. To measure the exposure of practitioners examining reverse fluid in Colorado and Wyoming sources, National Institute of Occupational Health and Safety has partnered alongwith the industry. There

PRINCIPAL
Sharadchandra Pawar College of Engineering & Technology
Someshwarnagar, Tal.Baramati, Dist Pune (Pin 412 306)

Journal of Xidinn University DOI:10.37896/jxu17.12/024 ISSN No:1001-240

Gas Leakage of IoT Based Industrial Plant Safety Discovery System

Shilpa Sorate[#1], Sunil Pondkule[#2], Priya Rajguru[#3], Shradhha Bhagat[#4], Vikas Dhane[#5], Pratiksha Gawade[#6]

[#1, 2, 3, 4 5, 6] Asst. Professor, SPCOET, Someshwarnagar ; [#7] Research Scholar, VIIT, Pune

Abstract— Gas leaks are the primary cause of industrial fires. These have catastrophic effects on the environment, the machinery, and human life (deaths and injuries). The leak detectors that are now on the market employ on-s ite alarms to alert those nearby. As a result, the system provides a leak detector that sends alerts to affected people via the dashboard. This detector detects harmful gases such as LPG, methane and benzene. Gases like LPG and methane have the potential to catch fire and explode. The health of employees may be harmed by the carcinogen benzene if it is breathed in high enough doses. Therefore, identifying these gases is crucial. The system is Wi-Fi enabled, and the MQ 135, MQ6, and MQ4 gas sensors identify benzene, LPG, and Methane gas leaks, respectively. The concentration levels therefore, identifying these gases is crucial. The system is powered by Wi-Fi, and the gas sensor applications of MQ4, MQ6, and MQ135 detect leaks of methane, LPG, and benzene gas, respectively. The aforementioned gas concentration levels are stored on the internet, and the user is provided with the login credentials in the warning message so, it may verify if required. Recommended system prototype sounds a warning with the help of a buzzer when a severe leak is found and then uses the IFTTT web service to convey the message to the person who should know. The type of gas that has leaked is indicated by the presence of a different coloured LED; for instance, a LED with RED light indicates the presence of LPG.

Keywords— MQ135, MQ4, MQ6, Dashboard, Cloud.

I. Introduction

Unknown is the annual number of gas leakage on industrial plants. Since most of these leaks do not immediately result in concrete damage, regardless of whether they are acknowledged, they go undetected. The Environmental Protection Agency (EPA) noted that these facilities alone in the United States generate around 1 billion cubic metres of methane each year (few other gases are not taking into account). About 80% of these accidents seem to be the result of faulty couplings, valves, seals, or compressors. Around 2200 million metric tonnes of CO2 were unintentionally released in 2012 from oil infrastructures and other synthetic processes required for the production of steel, iron, bond, and plastics. Around 800000 holes are estimated to be checked on refineries each year, with approximately 200 KM particularly causing fatalities, injuries, damaged hardware, or operational problems [1]. To put it simply, industrial gas leakages provide a significant issue in the quest for safe, environmentally responsible, and resourceful operations. Propane, butane, and methane are all part of the combination of gases that make up LPG and natural gas. These gases have a strong ability to ignite and catch fire. If there is a leak when they are being produced or transported, the gases may cause an explosion. The number of fatalities brought on by gas barrel explosions has increased. Therefore, the spillage needs to be contained to keep people safe. The Bhopal gas catastrophe is a prime example of accidents caused by gas leakage. Recognizing gas leaks is essential, but managing spills is just as crucial [2].

The most popular gas in homes and businesses is LPG. However, LPG breakdowns can occasionally occur inside a house, a place of business, or in a gas-powered vehicle. This gas can be dangerous if it leaks since it increases the risk of a blast. In order to efficiently detect the presence of LPG, an odorant, such as ethane thiol, is added. In any event, certain individuals with impaired senses of smell will probably be unable to rely on this vital tool. A gas leakage detector becomes essential in these situations and protects people from the dangers of gas leaking. Tracking back flow water in businesses contains benzene, a substance known to cause cancer. Additionally, it can be present in concoction production, tobacco smoke, and gasoline. Government rules under OSHA limit benzene exposures in the workplace since it is a proven carcinogen. In any event, some activities involving the production of oil and gas are not included in those gauges [3]. To measure the exposure of practitioners examining reverse fluid in Colorado and Wyoming sources, National Institute of Occupational Health and Safety has partnered alongwith the industry. There

Next-Generation Tool Condition Monitoring: Leveraging AI and IoT in Milling Applications.

PDF (https://www.propulsiontechjournal.com/index.php/journal/article/view/5693/3837)

Sunil M. Pondkule, Sachin M. Bhosle, Pranesh B. Bamankar, Vikas S. Dhane

Abstract

In the era of smart manufacturing, the combination of AI and the IoT have changed a landscape of CNC milling with Next-Generation Tool Condition Monitoring (TCM). This radical combination opens a new paradigm of efficiency, precision, and productivity in milling applications. Through AI-driven analytics, CNC machines become proficient observers, assessing real-time sensor data from IoT-enabled cutting tools. Predictive maintenance solutions are seamlessly integrated, ensuring proactive tool wear detection and problem anticipation, thus eliminating production disruptions and optimizing tool life. Edge computing equips these smart CNC machines with lightning-fast decision-making capabilities, while an agile cloud-based framework facilitates seamless data storage and sharing. Case studies demonstrate the real-world benefits of AI-driven TCM, exhibiting improved production outcomes, management of resources, and more powerful quality control. Embrace the future with Next-Generation Tool Condition Monitoring, where AI and IoT unite to elevate manufacturing excellence to new heights.

Issue

Vol. 45 No. 02 (2024) (https://www.propulsiontechjournal.com/index.php/journal/issue/view/26)

Section

Articles

Indexed by

ScienceDirect

Materials Today: Proceedings

Available online 17 February 2021

In Press, Corrected Proof ⓘ What's this?

Effect of presence of holes locations and size on spring back in U bent components

Gawade Sharad [a], Vilas Nandedkar [b], G. Dharmalingam [c] ✉, Sachin Salunkhe [c], Hariprasad Tarigonda [d]

Show more

Share Cite

https://doi.org/10.1016/j.matpr.2021.02.090

Get rights and content

Abstract

The automotive industry is widely uses the forming processes. Springback is a significant issue associated with forming processes. Springback is caused because of elastic stresses present in bent areas. These residual elastic stresses try to get relieved when the punch is retracted it causes the movement of the formed-up parts called springback. In this paper, the effect of holes on sheet metal components (such as base, corner, and sidewall of the U shape component) and the spring back is investigated. The results obtained by finite element analysis (FEA) are compared with the experimental results. Further, the size of the hole in the base wall of the U shape component on the springback is studied. For all locations of holes, i.e. the hole in the base wall, corner, and sidewall, a decrease in the springback is observed. But the presence of a hole in side wall has shown more decrease in springback as compared with hole in the base wall and corner andalso, with an increase in the size of the hole the decrease in springback is observed.

Introduction

The sheet metal forming is one of the popular techniques used to form the sheet into the desired shape [1]. The forming processes are associated with little or more amount of spring back which dependent on process parameters like die radius, Blank holding force (BHF), punch radius etc. and material properties like strength coefficient, strain hardening exponent etc. so it becomes a complex phenomenon. The elastic stresses remaining in the bend area, try to get relieved when the punch is retracted and it causes the movement of formed up part, disturbing the formed up shape. Correct prediction of spring back is important to obtain the desired shape [2]. Because if the required shape is not obtained, it become very cumbersome and time consuming for assembling of the mating parts. It also increases the production cycle time required for assembling. In the past a lot of research has been done to find the parameters affecting spring back and to reduce it. Tomasz Trzepiecinski [1] summarized the development of sheet metal forming in both experimental and numerical methods. Rui Ma et al. [2] provide an iterative compensation algorithm for spring back control which is independent of material properties and mechanical model. Recep Kazan et al. [3] studied spring back for the process of wipe-bending. By using neural network, a prediction model to predict the spring back was developed from data obtained by FEA. The effect of R/t ratio (ratio of die radius to sheet thickness) on spring back was studied which shows that initially up to R/t ratio equal to 3 the spring back is constant and for further increase in R/t ratio spring back increases with increase in R/t ratio. Y. E. Ling et al. [4] investigated the effect of various parameters like die clearance, die radius, step height and

processes

MDPI

Review

Optimization of Abrasive Water Jet Machining Process Parameters on Onyx Composite Followed by Additive Manufacturing

Dharmalingam Ganesan [1,*], Sachin Salunkhe [1,*], Deepak Panghal [2], Arun Prasad Murali [1], Sivakumar Mahalingam [3], Hariprasad Tarigonda [3], Sharad Ramdas Gawade [4] and Hussein Mohamed Abdel-Moneam Hussein [5,6]

1 Department of Mechanical Engineering, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Chennai 600062, India
2 National Institute of Fashion Technology, New Delhi 110016, India
3 Department of Mechanical Engineering, SoE, Mohan Babu University, Tirupati 517102, India
4 Sharadchandra Pawar College of Engineering and Technology, Baramati 412306, India
5 Mechanical Engineering Department, Faculty of Engineering and Technology, Future University in Egypt, New Cairo 11835, Egypt
6 Mechanical Engineering Department, Faculty of Engineering, Helwan University, Cairo 11732, Egypt
* Correspondence: [illegible] (D.G.); drsalunkhesachin@veltech.edu.in (S.S.)

Abstract: Fiber-reinforced additive manufacturing components have been used in various industrial applications in recent years, including in the production of aerospace, automobile, and biomedical components. Compared to conventional methods, additive manufacturing (AM) methods can be used to obtain lighter parts with superior mechanical properties with lower setup costs and the ability to design more complex parts. Additionally, the fabrication of onyx composites using the conventional method can result in delamination, which is a significant issue during composite machining. To address these shortcomings, the fabrication of onyx composites via additive manufacturing with the Mark forged 3D-composite printer was considered. Machinability tests were conducted using abrasive water jet machining (AWJM) with various drilling diameters, traverse speeds, and abrasive mass flow rates. These parameters were optimized using Taguchi analysis and then validated using the Genetic algorithm (GA) and the Moth Flame Optimization algorithm (MFO). The surface morphology (D_{max}) and the roughness of the drilled holes were determined using a vision measuring machine with 2D software (MITUTOYO v5.0) and a contact-type surface roughness tester. Confirmation testing demonstrated that the predicted values werenearly identical to the experimental standards. During the drilling of an onyx polymer composite, regression models, genetic algorithms and the Moth-Flame Optimization algorithm were used to estimate the response surface of delamination damage and surface roughness.

Keywords: onyx composite; abrasive water jet machining; delamination; Taguchi analysis; surface roughness

check for updates

Citation: [illegible]

Academic Editor: [illegible]

Received: [illegible] 2022
Revised: [illegible] 2022
Accepted: [illegible] 2022
Published: [illegible] 2022

1. Introduction

Composites reinforced with onyx have high degrees of strength, stiffness, fatigue strength, corrosion resistance, and wear resistance, as well as being lightweight. As reported by Fernandes et al. and He, Q et al. [1,2], such composites have many industrial structural applications, including aerospace, valves and fittings, robot grippers, tools, battery cell holders, cargo and passenger doors, jigs and fixtures, wind turbine blades, automotive, prototype parts, and civil structures. Compared to other manufacturing methods, additive manufacturing (AM) enables the 3D printing of complex structures that arelightweight and cost-effective with minimal material waste, as well as offering reduced fuel consumption

crystals

MDPI

Article

Optimization of Wire EDM Process Parameters for Machining Hybrid Composites Using Grey Relational Analysis

Sunder Jebarose Juliyana [1], Jayavelu Udaya Prakash [1], Charles Sarala Rubi [2], Sachin Salunkhe [1,*], Sharad Ramdas Gawade [3], Emad S. Abouel Nasr [4] and Ali K. Kamrani [5]

[1] Department of Mechanical Engineering, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Chennai 600062, India; jebarose@veltech.edu.in (S.J.J.); udayaprakashj@veltech.edu.in (J.U.P.)
[2] Department of Physics, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Chennai 600062, India; csaralarubi@veltech.edu.in
[3] Sharadchandra Pawar, College of Engineering and Technology, Someshwar, Baramati 412306, India; s_g212001@yahoo.com
[4] Industrial Engineering Department, College of Engineering, King Saud University, P.O. Box 800, Riyadh 11421, Saudi Arabia; eabdelghany@ksu.edu.sa
[5] Department of Industrial Engineering, Cullen College of Engineering, University of Houston, Houston, TX 77204, USA; akamrani@uh.edu
* Correspondence: drsalunkhesachin@veltech.edu.in

Abstract: The materials used in engineering have seen a significant transformation in the contemporary world. Numerous composites are employed to overcome these problems because conventional materials are unable to meet the needs of current applications. For quite some time, professional engineers and researchers have been captivated by the problem of choosing the best machining parameters for new composite materials. Wire electrical discharge machining is a popular unconventional machining process that is often used for making complex shapes. Numerous process parameters influence the WEDM process. Thus, to achieve affordable and high-quality machining, the right set of process parameters must be provided. Finding the wire cut EDM optimized settings for the fabricated LM5/ZrO_2/Gr composite is the main aim of this research. The chosen input parameters are the wire feed, pulse on and pulse off times, the gap voltage, and the reinforcing percentage. In this study, LM5/ZrO_2/Gr composites were made from stir casting with 6-weight percent ZrO_2 as the reinforcement and varying graphite percentages of 2, 3, and 4 wt%. Then they were machined in WEDM using L_{27} OA to seek the best parameters for machining by adjusting the input parameters. The findings were analysed by means of grey relation analysis (GRA) to achieve the supreme material removal rate (MRR), lowest surface roughness (SR), and a smaller kerf width (K_w) simultaneously. GRA determines the impact of the machining variables on the standard characteristics and tests the impact of the machining parameters. Confirmation experiments were performed finally to acquire the best findings. The experimental findings and GRA show that the ideal process conditions for achieving the highest grey relational grade (GRG) are 6% ZrO_2 with 2% graphite reinforcement, a wire feed of 6 m/min, a pulse off time (T_{off}) of 40 µs, a pulse on time (T_{on}) of 110 µs, and a gap voltage (GV) of 20 V. The gap voltage (22.87%) has the greatest impact on the GRG according to analysis of variance (ANOVA), subsequent to the interaction between the pulse on time and the gap voltage (16.73%), pulse on time (15.28%), and pulse off time (14.42%). The predicted value of the GRG is 0.679; however, the experimental GRG value is 0.672. The values are well-aligned between the expected and the experimental results. The error is only 3.29%, which is really little. Finally, mathematical models were created for each response.

Keywords: hybrid composites; wire EDM; grey relational analysis; DoE; ANOVA

Citation: Jebarose Juliyana, S.; Udaya Prakash, J.; Rubi, C.S.; Salunkhe, S.; Gawade, S.R.; Abouel Nasr, E.S.; Kamrani, A.K. Optimization of Wire EDM Process Parameters for Machining Hybrid Composites Using Grey Relational Analysis. *Crystals* 2023, 13, 1549. https://doi.org/10.3390/cryst13111549

Academic Editor: Umberto Prisco

Received: 22 September 2023
Revised: 23 October 2023
Accepted: 26 October 2023
Published: 28 October 2023

1. Introduction

In most circumstances, material selection is a paradoxical decision-making process. It is quite hard to discover a unique material with the requisite properties for engineering

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

ANALYZING EARLY DETECTION OF INNER AND OUTER RACE FAULTS IN BEARINGS THROUGH CONDITION MONITORING

[1]Ms.Shraddha Nanaso Bhagat, [2] Prof. J.S, Shitole, [3]Prof. S.S. Kathale

[1]PG Student, Department of Mechanical Engineering, DGOI, FOE, Swami-Chincholi, Bhigwan,

[2]Professor, DGOI, FOE, Swami-Chincholi, Bhigwan,

[3]HOD Department of Mechanical Engineering, DGOI, FOE, Swami-Chincholi, Bhigwan.

Abstract: This research investigates the early detection of faults in bearings at the inner and outer race using condition monitoring techniques. Bearings play a critical role in various mechanical systems, and early fault detection is essential for preventing catastrophic failures and minimizing downtime. The study aims to evaluate the effectiveness of condition monitoring methods in identifying faults in both inner and outer races of bearings. A comprehensive literature review is conducted to provide context and identify gaps in existing research. The methodology involves selecting appropriate bearing types and fault scenarios, designing an experimental setup, and employing various conditions monitoring techniques for data acquisition and processing. Data analysis is performed to identify fault signatures and assess the accuracy of fault detection. Results indicate the efficacy of condition monitoring techniques in detecting faults at both inner and outer races, with insights into factors influencing early fault detection. The findings contribute to enhancing bearing maintenance practices and provide valuable guidance for future research in the field of condition monitoring.

Index Terms - Bearings, Condition monitoring

I. INTRODUCTION

Bearings serve as fundamental components in machinery, facilitating rotational motion by reducing friction between moving parts. However, bearings are susceptible to various types of faults, such as inner and outer race faults, which can lead to severe consequences including machinery breakdown, production downtime, and safety hazards. Early detection of bearing faults is crucial to prevent catastrophic failures and minimize maintenance costs. Condition monitoring techniques play a pivotal role in achieving early fault detection by continuously monitoring the health status of bearings and identifying incipient faults before they escalate into major issues. These techniques typically involve the use of sensors to collect data on vibration, temperature, lubrication, and other parameters associated with bearing operation. While numerous condition monitoring techniques exist, including vibration analysis, thermography, and oil analysis, the effectiveness of these techniques in detecting inner and outer race faults in bearings warrants further investigation. Inner race faults occur on the inner ring of the bearing, while outer race faults occur on the outer ring. Each type of fault exhibits distinct vibration signatures and characteristics, necessitating tailored monitoring approaches for accurate detection.

Despite these efforts, there is still a need for further research to improve the accuracy and reliability of early fault detection in bearings, particularly focusing on the comparison between inner and outer race faults. This study aims to address this gap by analyzing the early detection of inner and outer race faults in bearings through condition monitoring techniques.

To analyze the early Detection of Faults in Bearing at Inner and Outer race using Condition Monitoring

[1]Mrs. Shraddha Bhagat , Prof.S.S.kathale, Mr.J.S.Shitole

[1]M.E Student,Department of Mechanical Engg,DGOIFOE,Swami Chincholi,Maharashtra,India
[2]Head of Department of Mechanical Engg,DGOIFOE,Swami Chincholi,Maharashtra,India
[3]Professor, Department of Mechanical Engg, DGOIFOE, Swami Chincholi,Maharashtra,India

ABSTRACT

Rolling element bearings find widespread domestic and industrial application as it is an important factor in failure of rotating machines and therefore bearings are the one which are exposed the most towards getting damaged and failure. In industrial applications, these bearings are considered as a critical mechanical components and a defect in such a bearing, unless detected in time, causes malfunction and may even lead to catastrophic failure of machinery which results in significant time and economic loss. These types of failures might take place during the manufacturing process and therefore it is important to review the problem and monitor the condition of roller bearings so that the details of failure would occur before any harsh consequence. take place. Therefore an early detection and indication is necessary for the safety and reliability of machine. This project focuses on vibration monitoring technique,suitable to analyze the defect in bearing. By performing this test, these techniques would reveal information about the progressing faults. From the different maintenance techniques, conditioning monitoring which is one of the techniques is highlighted. It uses the vibration having high frequencies which are generated from faulty bearing, i therefore investigated and compared. Vibration analysis methods are been elaborated and therefore utilised as a medium to fulfi the aim. An experimental set up is used to testify and investigate good bearing and faulty bearing by using differen measurements. The vibration signatures caused due to damages at outer race of bearing are examined. The expected results wil indicates that faulty bearing has a strong effect on vibration spectrum. This project therefore reveals comparison betwee frequencies and time domain signals from vibration analysis and it will be validate using suitable software. Overall this projec has demonstrated that different techniques are useful in detecting the problems in roller bearings.

KEYWORDS: *Bearing fault diagnosis, outer race, MATLAB, Preventive maintenance*

1. INTRODUCTION

The vibration analysis technique gives the precise and early information about the failure of bearing. Faults in bearing (inner race outer race and cage fault) produce the particular defective frequencies which are calculated by using the following equations.

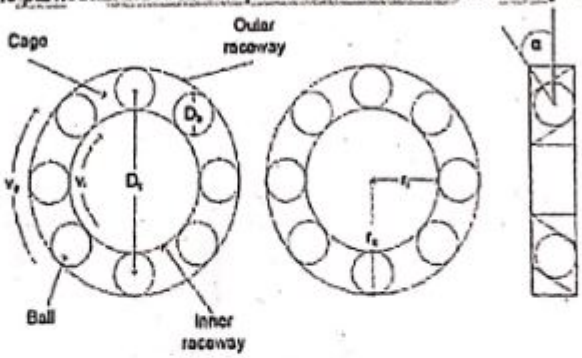

Fig-1: Standard rolling-element bearing

Ball Pass Frequency at inner race of bearing (BPFi)

$$BPFi=fr*(1+(d/D)*\cos(A))*B/2 \quad \ldots\ldots 1$$

Ball Pass Frequency at inner race of bearing (BPFo)

$$BPFo=fr*(1-(d/D)*\cos(A))*B/2 \quad \ldots\ldots 2$$

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 12 Issue V May 2024- Available at www.ijraset.com

Investigation of Ferrocement Plate Affected by Flexural Filling up

Ms. Komal Balaso Bhosale[1], Ms Jayshree Madhukar Khatal[2]
Assistant Professor, Dept. of Civil Engineering, Sharadchandra Pawar College of Engineering and Technology Someshwarnagar Pune India -413106.

Abstract: *In spite of the fact that terrorist attacks are exceptional instances caused by human dynamic loads, such as blast loads, which must be carefully calculated like wind and seismic loads, the increased number of terrorist attacks in the last few years has largely shown that the impact of blast loads on structures is a real concern that we should take into account during the configuration procedure of structures. This article also introduces the behavior of ferrocement composites under blast loading, which are used as long-lasting formwork in traditional reinforced concrete constructions. Specimens of single ferro cement panels are subjected to blast load testing both analytically and experimentally, and the behavior of load deflection is then examined.*

Keywords: *Ferrocement, Finite Element Method, Explosive Effect, Blast Resistant Design, Blast Waves.*

I. INTRODUCTION

Concrete is a multicolored material composed of molten cement paste and finely and coarsely ground aggregate that settles over time. The majority of commonly used concretes are composed of lime, such as Portland cement or cements derived from other water-powered concretes, such as calcium aluminates cement. In any case, bitumen-based concrete, such as asphalt concrete, is another type of concrete that is utilized for road surfaces; polymer cements are occasionally employed in situations where a polymer is used as the bonding ingredient.

There are various varieties of concrete that vary depending on the ratios of the primary components. The final product can be implemented by substituting the aggregate and cementation steps. Density, tolerance to chemicals and heat, and strength are unique characteristics.

Large chunks of material mixed with finer elements like sand to form aggregate are typically found in coarse gravel or crushed stones like granite or limestone. The primary goals of this project are to examine how ferrocement concrete behaves under blast loading and how resistant it is to blasts compared to regular concrete.

First, a quick explanation of blasts and their various varieties has been provided. In addition, the standard components of the blast process were demonstrated to clarify how blasts affect structures. Gaining a deeper understanding of blasts and their characteristics will enable us to plan blast-safe structures much more efficiently. Basic techniques for extending a structure's perimeter to provide protection from hazardous impacts are discussed using both a planning and designing methodology.

If the threat posed by bomber action cannot be eliminated, then social fury, harm to the populace, and fatalities must all be reduced. It is undeniably not a feasible or cost- effective alternative to plan and design structures to be entirely safe, but modern engineering knowledge and design can enhance both new and existing buildings to lessen the impacts of a blast.

A. Ferrocement

A potential solution to material problems is ferrocement, a material that is thin and slender but yet substantial and exquisite. It has a long history of use in structural hovels, where quills are used to stiffen dried mud. Committee ACI 549-R97. The development component known as ferrocement is thin, measuring between 10 and 25 mm in thickness. It is made of pure concrete mortar, devoid of any coarse fragments of broken or crushed stone. At least one layer of steel with a smaller diameter serves as reinforcement meshing of wire and welding.

Skilled labor is not needed for either the casting or the formwork. Because wire mesh support swiftly absorbs breaking powers beneath the surface, the concrete network in ferrocement remains intact. The Husain Doshi Gufa is a ferrocement shell construction located beneath the surface of Ahmedabad, India. It was constructed in 1993 and has withstood earthquakes and other natural disasters without breaking. It is still intact today.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:05/Issue:10/October-2023 Impact Factor- 7.868 www.irjmets.com

EXPERIMENTAL STUDY OF STRENGHT OF CONCRETE BY USING OPTICAL FIBER

Piyush P. Kharade*1, Akash S. Nazirkar*2, Niketan S. Kolekar*3, Suyash M. Kharade*4, Thaksen M. Nanwar*5, Jayashri M. Khatal*6

*1,2,3,4,5Student B.E. Department Of Civil Engineering, S.S.P.M's Sharadchandra Pawar College of Engg & Technology, Someshwarnagar. Maharashtra, India.

*6Assistant Professor, Department Of Civil Engineering, S.S.P.M's Sharadchandra Pawar College of Engg & Technology, Someshwarnagar, Maharashtra, India.

ABSTRACT

Building energy saving and safe evaluation for engineering structures have obtained the worldwide attention. It is much of importance for developing a new kind of building material, which can integrate green energy saving with self sensing properties of functional material. based on the excellent properties of light guiding and elastic optic effect of Optical Fiber, a novel smart transparent concrete is researched by arranging the optical fibers into the concrete. To evaluate the effectiveness of the smart transparent concrete, the light guiding based on white light test, long-term durability based on freezing and thawing test are made respectively. The experiments result show that the smart transparent concrete has good self-sensing properties by using of the optical fiber in concrete.

Keywords: Optical Fiber, Compressive Strength, Flexural Strength, Environment, Reuse.

I. INTRODUCTION

Litracon present the phenomenon of light transmitting concrete in the form of widely applicable new building materials. Litracon is a combination of optical fibers and fine concrete. It can be produced as prefabricated buildings blocs and panels. Duc to small size of fabrics, they blend in to concrete becoming a component of material like small pieces of aggregate. The plastic fibers lead light by point between two sides of the blocks. Because of their parallel position, the light information on the brighter side of such a wall appears darker side. The most interesting from of this phenomenon is probably the sharp display of shadows on the opposing side of the wall. Moreover.

Thousands of optical fibers from a matrix and run parallel to each other between the two main surfaces of each block. The proportion of fibers is very small (4%) compared to the total volume of the block. Moreover, these mingle in the concrete because of their in significant size, and they become a structural component as a kind of modest aggregate. Therefore, the surface if the blocks remain homogeneous concrete. In theory, a wall structure built from light- transmitting concrete can be several meters thick, because the fibers work without almost any loss in light up until 20 meters. Load-bearing structure can be also built of these blocks, since plastic Fibers do not have a negative effect on the well-known high compressive strength value of concrete. The block can be produced in the various sizes and with embedded heat-isolation.

Concrete by using Optical fiber

An optical fiber is a flexible, transparent fiber made by drawing glass (silica) or plastic to a diameter slightly thicker than that of a human hair. Optical fibers are used most often as a means to transmit light between the two ends of the fiber and find wide usage in fiber-optic communications, where they permit transmission over longer distances and at higher bandwidths (data rates) than wire cables. Fibers are used instead of metal wires because signals travel along them with lesser amounts of loss; in addition, fibers are also immune to electromagnetic interference, a problem from which metal wires suffer excessively. Fibers are also used for illumination, and are wrapped in bundles so that they may be used to carry images, thus allowing viewing in confined spaces, as in the case of a fiber scope. Specially designed fibers are also used for a variety of other applications, some of them being fiber optic sensors and fiber lasers. Optical fibers typically include a transparent core surrounded by a transparent cladding material with a lower index of refraction. Light is kept in the core by the phenomenon of total internal reflection which causes the fiber to act as a wave guide. Fibers that support many propagation paths or transverse modes are called multi-mode fibers (MMF), while those

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue VI Jun 2023- Available at www.ijraset.com

Experimental Investigation on Effect of Spent Wash Usage in Mixing Water on Properties of Concrete

Mahesh R. Bhagat[1], Pratik D. Biramane[2], Chinmay V. Naik[3]
[1, 2]U.G. Student, [3] Assistant Professor, Department of Civil Engineering, S.S.P.M's Sharadchandra Pawar College of Engg.& Technology, Someshwarnagar.

Abstract: The by-product of sugar industry- distillery spent wash, is the unwanted residual liquid waste generated during alcohol production and pollution caused by it is one of the most critical environmental issue because it poses a serious threat to the water quality in several regions around the globe. Despite standards imposed on effluent quality, untreated or partially treated effluent very often finds access to water courses. The ever-increasing generation of distillery spent wash on the one hand and stringent legislative regulations of its disposal on the other has stimulated the need for developing new technologies to process this effluent efficiently and economically. This paper presents an overview on experimental study on usage of spent wash in concrete with various percentages and its alternative use in various sectors. The contribution of distillery waste i.e. spent wash on the mechanical properties of concrete is high compared to conventional concrete. In this study partial replacement of water has been done at 0%, 0.5%, 1%, 1.5% and 2% with Spent wash Compressive as well as acid curing test on concrete made with spent wash has been compared with conventional concrete of grade M40.

Keywords: Spent Wash, strength, durability, environment, disposal.

I. INTRODUCTION

Industrialization produces lots of waste product are from every manufacturing industry. The main problem is to decompose this waste without disturbing the sustainability of the environment. Spent wash is a distillery waste having high BOD, COD and corrosive content which causes the extreme harm to cropping land and water resources after direct contact with spent wash. Most of water from natural sources get polluted due to wastewater emerging from chemical industries. India being a developing country establishing a large number of industries such as sugar, distillery, steel, paper, textile etc. that play important role in progress of the nation. These industries along with their product produce wastewater, which causes various environmental problems. However, wastewater characteristics are different from industry to industry. One such major chemical industry is distillery. India is a major producer of sugar in the world and this industry offer employment potential and contributes substantially to economic development. There are about 579 sugar mills and 285 distilleries in India. Apart from sugar and alcohol these industries generate many by product and waste material. Molasses, one of the important by product, is the chief source for the production of alcohol in distillery by fermentation method. This molasses contains 7-8 % glucose, which is converted into alcohol by fermentation process. First molasses is diluted by adding water to adjust the total dissolved solids up to 7-8%. Then yeast is added in diluted molasses solution and fermentation process takes place. As process go up glucose is converted into ethyl alcohol and carbon dioxide. This carbon dioxide is removed as a gaseous form, which is collected separately. After sufficient conversion of glucose into ethyl alcohol this solution is now called as a beer solution. This beer solution then passed through distillation column. Based on temperature difference ethyl alcohol is separated from the beer solution and condensed into liquid form. The wastewater from distillery column is called spent wash liquor About 40 billion liters of waste water annually discharged by the distilleries. The distillery spent wash in general practice discharge into local water bodies which cause pollution in water, underground water and soil. It also affects the aquatic life of these water bodies. When this polluted water is used for irrigation purpose it directly or indirectly affect the growth and productivity of plants like pea, wheat, rice, legumes and others. Spent wash contains the toxic parameters High COD, total nitrogen and total phosphate content of the effluent may result in eutrophication of natural water bodies. The demand of better concrete is increasing day by day. Improved quality of concrete will only perform better if concrete improve workability, durability, flow ability & resistance to chemical attack/corrosion and reduce w/c ratio, heat of hydration & segregation mainly. For the fulfillment of above properties waste produced from Sugar industries & other industries are used for effective & efficient strength & durability of concrete in various climatic conditions with addition of spent wash in mixing water of concrete.

Materials Today: Proceedings xxx (xxxx) xxx

Contents lists available at ScienceDirect

Materials Today: Proceedings

Journal homepage: www.elsevier.com/locate/matpr

Recent development in geopolymer concrete: A review

Smita Patil [a,*], Deepa Joshi [b], Deepanshu Mangla [c], Ioannis Savvidis [c]

[a] Dr. D. Y. Patil Institute of Technology, Pimpri, Pune 411035, India
[b] Civil Department, Dr. D. Y. Patil Institute of Technology, Pimpri, Pune 411035, India
[c] Mangla Ecomix Innovations Pvt. Ltd., Faridabad 125055, India

ARTICLE INFO

Article history:
Available online xxxx

Keywords:
Geopolymer concrete
Alkali activator solution
Ground Granulated Blast Furnace Slag (GGBS)
Fly ash
Rice husk ash

ABSTRACT

As a developing country, India is growing in all sectors, which leads to an extensive use of cement concrete. India stands second in production of cement globally; India's overall cement production is increasing annually. The cement industry releases CO_2 into the atmosphere, which contributes to global warming. Hence, it is necessary to resolve this problem by finding an alternative to cement concrete. Geopolymer concrete is proving to be a good alternative to replace ordinary cement concrete as it has high strength, lesser shrinkage, resistance against reinforcement corrosion, acid and sulfate resistance, freeze–thaw resistance, fire resistance and resistance to alkali-aggregate reaction. Geopolymer concrete emits less CO_2 than Ordinary Portland Cement (OPC).

Geopolymer concrete utilizes industrial waste materials in an effective way and ultimately aim to reduce the dumping problem of waste materials. Geopolymers are cementitious materials which can replace OPC entirely. This review article focuses on the use of different supplementary cementitious materials like Ground Granulated blast furnace slag (GGBS), fly ash, metakaolin, rice husk ash, silica fume, calcined clay for development of Geopolymer concrete and their effect on physical and mechanical properties. It is found that Geopolymer concrete with combination of different supplementary cementitious materials gives similar or superior fresh and mechanical properties than conventional cement concrete.

1. Introduction

India stands second in production of cement globally. Demand for cement is increasing in various sectors such as housing, commercial construction and industrial construction. India's overall cement production for FY2021 is 294.4 million tons [MT] [1]. Cement industry is expected to reach 419.9 million tons per annum by FY2027 [1]. Cement industry releases CO_2 in the atmosphere, which contributes to global warming. Every 1 ton of cement manufacturing process emits up to 1 ton of CO_2 [2]. Fig. 1 show India provides around 8% of global cement production, and this is the second-largest emitting industrial subsector. A number of energy efficiency measures have been implemented at Indian cement plants, and as a result, total emissions (including indirect emissions from the use of electricity) per tonne of production are nearly 15% lower in India than in China. Coal and oil are the primary fuels used to provide heat for the country's cement industry [4]. Emission of CO_2 from cement industry is 50% from the calcination process of limestone, and remaining 50% is from combustion of fuels in kiln, transportation, electricity used in manufacturing operations [3]. Type of fuel used for cement manufacturing affects CO_2 emission. Efforts should be taken to reduce the air pollution and global warming. Using Cement substitutes to make concrete is a fair starting point to reduce the CO_2 emissions of concrete. Cement substitutes can be various kinds, such as fly ash, GGBS, rice husk ash, metakaolin etc. but the substitutes that are derived from the industries as waste materials should be considered.

Substituting 100% of the cement with these industrial by products will help to utilize the growing waste streams and reach the carbon reduction goal faster. The term Geopolymer concrete (GC) was described by French Professor Davidovits in 1978. The geopolymer concrete is an emerging class of cementitious materials that can be produced with industrial waste/by products like fly

Abbreviations: GGBS, Ground Granulated Blast Furnace Slag; FA, Fly Ash; OPC, Ordinary Portland Cement.

* Corresponding author.
E-mail address: smitapatil23098@gmail.com (S. Patil).

https://doi.org/10.1016/j.matpr.2023.04.046

Please cite this article as: S. Patil, D. Joshi, D. Mangla et al., Recent development in geopolymer concrete: A review, Materials Today: Proceedings, https://doi.org/10.1016/j.matpr.2023.04.046

JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue

JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)

An International Scholarly Open Access, Peer-reviewed, Refereed Journal

Trying on online cloths using AI

Prof .Shah S. N. , Professor ,Computer Department ,SPCOET Someshwarnagar College , Baramati , India.

Apeksha Chavan, Student ,Computer Department SPCOET Someshwarnagar College , Baramati , India.

Samiksha Dange, Student ,Computer Department SPCOET Someshwarnagar College , Baramati , India.

Renuka Garud, Student ,Computer Department SPCOET Someshwarnagar College , Baramati , India.

ABSTRACT : -

Long lines and waiting times frighten off clients in this fast-paced world. This has an impact on the store's sales as well. Inventory management is one of the more significant problems we encounter when discussing large retail showrooms. These days, inventory management is a more significant issue. Businesses are spending a lot of money because handling big crowds requires a lot of manpower. A potential answer to all of this is the creation of virtual trial rooms, where clients can theoretically try on clothing without really doing so. Augmented reality and artificial intelligence can help with this. Comparing this technique to the traditional one, it will be quicker and even more participatory degree. Additionally, this will relieve the shops of the burden of constantly folding and unfolding clothing and help them maintain the freshness of their inventory. Additionally, this can deter shoplifting to a larger degree.

KEYWORDS : - AR, VR, Navigation, Simulation

I. INTRODUCTION

Since fashion is a way of life in the twenty-first century and not just something we wear, the experience of purchasing it must be amazing. As everyone knows, the stores get quite crowded during the sales. The situation gets worse when we need to try on things and there is a long line in front of us. Additionally, there are occasions when they won't even let clients take more than three clothes at once. From the perspective of the client, who has had to endure a great deal of waiting and irritation, the buyer simply looks at the goods, assumes its size, and purchases it, only to later regret the purchase because of the size issue. Our objective is to save the user time when they are shopping in various stores or online and trying on different clothes. OpenCV can be used to fix the issue with ease. We have developed a system that facilitates everyday fashion coordination, saves the user time, and improves the user experience. This enables the user to interact with the virtual mirror and view a virtual version of oneself dressed in their favorite clothes. The algorithm that follows is made to work with any computationally efficient system that has a camera. The suggested algorithm is very independent and economical because of this attribute.

II. LITERATURE REVIEW

1. **Md. Farhan hamid, md. Ashraful alam, "virtual wardrobe for physically impaired using microsoft kinect sensor"**

This research sheds light, in particular, on those who are partially or wholly challenged and physically disabled. For those who are totally blind, a sensor detects eye movements to choose an outfit and head

IRJMETS

e-ISSN: 2582-5208

International Research Journal of Modernization in Engineering Technology and Science

(Peer-Reviewed, Open Access, Fully Refereed International Journal)

Volume:06/Issue:05/May-2024 Impact Factor- 7.868 www.irjmets.com

AUTOMATED TIMETABLE GENERTOR ANDRIOD APPLICATION

Dr. Sanjay A. Deokar*1, Prof. Shah N. Shah*2, Namrata R. Shendage*3, Diya A. Sanas*4, Kiran M. Kharade*5

*1Principal, SPCOET Someshwarnagar, Baramati, Maharashtra, India.

*2Professor, Department of Computer Engineering, SPCOET Someshwarnagar, Baramati, Maharashtra, India

*3,4,5Student, Department of Computer Engineering, SPCOET Someshwarnagar, Baramati, Maharashtra, India

ABSTRACT

Generating timetable for university with many branches, different years, and multiple batches is a tiresome job. It takes a lot of time and is required for every semester that is of six months. Thus, a lot of time and manpower is taken up by this process. In some cases, the manual process of creating timetables is too cumbersome. Creating temporary timetables when a faculty is on leave is impractical. In this paper, we have created an algorithm to generate timetables which can save a lot of time and pressure on the person doing this job manually. A software-based approach is better, as a computer can process data and churn out results at a much higher rate with greater accuracy. Also, it can be coded and optimized as per requirements set by different universities and the base code will remain the same. Currently, in most of the institutes, this timeconsuming most complex problem is tackled manually by a single person or a group of related people with the only goal of producing feasible timetables. This may lead to unnecessary wastage of faculties and concerned members precious time due to lack of optimization in the generation of timetable. One cannot deny the human errors which will introduce conflicts such as overlapping of resources, double booking of time-slots, etc. To generate conflict-free and optimized timetable, adequate constraints need to be considered. These constraints are often classified as either hard or soft in nature. Fulfilling just hard constraints will create a feasible solution but satisfying maximum soft constraint would give an optimized solution.

Keywords: Schedule, Timetable, Generator, Automated, Andriod Application, Android Java.

I. INTRODUCTION

In today's fast-paced world, efficient time management is crucial for educational institutions. One of the key challenges they face is creating and managing schedules Swhich often involves complex considerations such as resource availability, constraints, and user preferences. Traditional methods of timetable creation can be time-consuming, error-prone, and inefficient. To address these challenges, the Automated Timetable Generator Android application offers a modernsolution. By leveraging advanced algorithms and intuitive user interfaces, the application automates the process of timetable generation, making it faster, more accurate, and user-friendly. This introduction will provide an overview of the features, benefits, and significance of the Automated Timetable Generator application in enhancing productivity and organization within various scheduling contexts.

II. PROBLEM STATEMENT

A goal is to develop an automated timetable generator that can create efficient, flexible schedules for students and teachers. The app should streamline timetable management, reduce manual effort, and provide customizable solutions to meet the diverse needs of educational institutions. Constraints while meeting the diverse needs of stakeholders.

III. LITERATURE SURVEY

1) Paper name: Automated Timetabling System for University Course

Author Name: Mrunmayee V. Rane, Vikram M. Aptel, Vishakha N. Nerkar, Mani Roja Edinburgh,K.Y.Rajput

Summerise paragraph: The problem of class teacher timetabling was first studied by Gotlieb in 1962. Since then several algorithms have been introduced to solve the problem. The earliest solution proposed was based on sequential methods that deal with timetabling problems as a graph problem. [4] Later, several researchers

IJRAR.ORG E-ISSN: 2348-1269, P-ISSN: 2349-5138

INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) | IJRAR.ORG

An International Open Access, Peer-reviewed, Refereed Journal

Smart AI System For Generate Energy From Waste Material

Dr.S.A.Deokar
Principal
SPCOET, Someshwar Nagar,Baramati

Prof S.N.Shah
Assistant Professor Department, Computer,Engineering, SPCOET, Someshwar Nagar,Baramati

Jagtap Apeksha Navnath
Student
B.E. (Department of Computer Engineering) SPCOET, Someshwar Nagar, Baramati

Shilimkar Vaibhavi Sarjerao
Student
B.E. (Department of Computer Engineering) SPCOET, Someshwar Nagar, Baramati

Hande Prathamesh Sharad
Student
B.E. (Department of Computer Engineering) SPCOET, Someshwar Nagar, Baramati

Kewat Rutik Sunil
Student
B.E. (Department of Computer Engineering)
SPCOET,Someshwar Nagar,Baramati

Abstract : The rapid growth in the population has also led to the surge in the volume of waste being generated on a daily basis. This increase in the generation of waste due to continuous growth in the urbanization and industrialization has become a severe problem for the local and the national government. It is also posing a serious problem for the local authorities to manage the wastes being dumped everywhere as landfill. To ensure the minimal risk to the environment and human health, it is necessary to take meticulous measures when segregating and transporting waste. Segregation of waste in a proper manner brings to the limelight actual economic value of the waste. The traditional method used for segregating of waste in India is through rag pickers which are time-consuming and can have adverse effects on the health of the people who are exposed to such wastes. Here we propose the use of an Auto Waste Segregator (AWS) which is cheap and also an easy to use solution for segregation of household waste. It is designed to segregate the waste into three categories viz. metallic, dry and wet waste. The system makes use of moisture sensor for the segregation of wet and dry waste and inductive proximity sensor for the detection of metallic waste and an LCD display for displaying the result of segregation. It is evident from experimental reports that segregation of waste using AWS has been successful

I. INTRODUCTION

In today's world, the pursuit of sustainable energy sources has become a paramount concern as we grapple with the looming threat of climate change, dwindling fossil fuel reserves, and increasing energy demand. The need for innovative solutions to generate clean and renewable energy is more critical than ever. One such promising avenue for addressing this challenge is the development of a"Smart AI System for Generating Energy from Waste Materials." Waste materials, often considered a burden on our environment, possess untapped potential as a valuable resource for energy generation. With the increasing generation of waste, especially in urban areas, it is imperative to transform this issue into an opportunity. This project delves into the realm of waste-to-energy technologies, leveraging the power of Artificial Intelligence (AI) to create an intelligent system that not only mitigates waste-related environmental

Empowering The Power Of AI:MARSAI

Dr. Deokar S. A.
Principal of SPCOET, SomeshwarNagar,Engineering,
Baramati ,Pune, Maharashtra, India

Guide : Prof.Shah.S.N
Department of Computer Engineering
Sharadchandra Pawar College of Engineering And
Technology, SomeshwarNagar, BaramatiPune,
Maharashtra, India

Aditya Nigade
Department of Computer Engineering Sharadchandra
Pawar College of EngineeringAnd
Technology, SomeshwarNagar, BaramatiPune,
Maharashtra, India

Somesh More
Department of Computer EngineeringSharadchandra
Pawar College of Engineering And
Technology, SomeshwarNagar, BaramatiPune,
Maharashtra, India

Mayuresh Durgade
Department of Computer Engineering Sharadchandra
Pawar College of EngineeringAnd
Technology, SomeshwarNagar, BaramatiPune,
Maharashtra, India

Rohit Mane
Department of Computer EngineeringSharadchandra
Pawar College of Engineering And
Technology, SomeshwarNagar, BaramatiPune,
Maharashtra, India

Abstract:- In recent years, the integration of artificial intelligence (AI) with voice assistance has revolutionized human-computer interaction, offering a more intuitive and natural interface for users. This paper delves into the innovative realm of "MarsAI," a novel approach that combines generative AI capabilities with voice assistance to enhance various aspects of human-computer interaction. Through MarsAI, users can engage in dynamic conversations and interactions, leveraging the power of generative AI to generate contextually relevant responses and facilitate seamless communication. This research explores the technical foundations of MarsAI, including the underlying algorithms and methodologies employed, as well as its potential applications across diverse domains such as virtual assistants, educational platforms, and entertainment media. Furthermore, the paper discusses the implications of MarsAI on user experience, privacy concerns, and ethical considerations, paving the way for future advancements in AI-driven voice assistance technologies.

Keywords— Human-Centric AI, Text-to-Speech (TTS), Automatic Speech Recognition (ASR), Natural Language Processing (NLP),AI(artificial Intelligence), Voice Assistance

I. INTRODUCTION

Artificial intelligence (AI) has experienced remarkable advancements in recent years, particularly in the domain of human-computer interaction (HCI). One of the most promising frontiers in this field is the integration of AI with voice assistance, which offers a more natural and intuitive way for users to interact with computers and digital devices. This paper introduces "MarsAI," a cutting-edge approach that combines generative AI capabilities with voice assistance to create a more immersive and dynamic interaction experience.

The concept of MarsAI emerged from the need to enhance traditional voice assistants by incorporating advanced generative AI techniques. While existing voice assistants excel at understanding and responding to user queries, they often lack the ability to generate contextually relevant and engaging responses in open-ended conversations. MarsAI seeks to address this limitation by leveraging the power of generative AI to produce more human-like interactions.

The primary objective of this research is to explore the technical foundations of MarsAI and investigate its potential applications across various domains. By analyzing the underlying algorithms and methodologies behind MarsAI, we aim to provide insights into its capabilities and limitations. Additionally, we will examine the implications of MarsAI on user experience, privacy, and ethics, highlighting both its benefits and challenges.

Through this research, we hope to contribute to the ongoing dialogue surrounding AI-driven voice assistance technologies and inspire further innovation in this rapidly evolving field. By harnessing the combined power of generative AI and voice assistance, MarsAI has the potential to revolutionize human-computer interaction and pave the way for more natural and immersive digital experiences.

Background:

based on AI-driven conversational agents, have proven invaluable in providing instant responses to textual queries. Similarly, voice-enabled assistants have gained popularity, offering hands-free and intuitive interaction experiences. However, existing systems often operate in isolation, either relying solely on text or voice, limiting their versatility and user engagement. MARSAI addresses this limitation by combining the strengths of both modalities,creating a multimodal AI- based responsive speech assistant and interpreter.

A. Objectives:

The primary objective of this research is to design, develop, and evaluate MARSAI as a robust, responsive, and intelligent multimodal system. Specifically, the project aim to:

1. Implement generative AI Develop a MARSAI based on the latest advancements in NLP, ensuring accurate comprehension and generation of text-based interactions.
2. Integrate Voice Assistance: Implement ASR and TTS technologies to enable seamless voice interactions,enhancing the system's user accessibility and engagement..
3. Enhance User Experience: Focus on optimizing response accuracy, naturalness of speech synthesis, and overall system responsiveness,

PRINCIPAL
Sharadchandra Pawar College of Engineering & Technology
Someshwarnagar, Tal. Baramati, Dist. Pune (Pin 412 306)

© December 2023| IJIRT | Volume 10 Issue 7 | ISSN: 2349-6002

Empowering The Power of AI: MARSAI

Prof.Shah.S.N, Aditya Nigade, Mayuresh Durgade, Somesh More, Rohit Mane
Guide, Department of Computer Engineering, Sharadchandra Pawar College of Engineering And Technology, SomeshwarNagar, Baramati, Pune, Maharashtra, India
Department of Computer EngineeringSharadchandra Pawar College of Engineering and Technology, SomeshwarNagar, BaramatiPune, Maharashtra, India

Abstract— **In the contemporary era, the rapid advancements in artificial intelligence and natural language processing have paved the way for intelligent virtual assistants, revolutionizing the way humans interact with computers. This paper presents MARSAI, a sophisticated ChatGPT clone integrated with cutting-edge voice assistance technology, designed to elevate the user experience in human-computer interactions. MARSAI, short for Multimodal AI-based Responsive Speech Assistant and Interpreter, combines the power of text-based chatbots with the intuitiveness of voice-enabled assistants, creating a seamless and interactive communication platform**

The proposed system utilizes OpenAI's GPT-3.5 architecture, enhancing it with custom-trained algorithms to comprehend and respond to user queries in natural language. Moreover, MARSAI incorporates automatic speech recognition (ASR) and text-to-speech (TTS) technologies, enabling users to interact with the system through spoken language. The integration of ASR and TTS is achieved using state-of-the-art neural networks, ensuring high accuracy and naturalness in speech interactions.

Keywords— **Human-Centric AI, Text-to-Speech (TTS), Automatic Speech Recognition (ASR), Natural Language Processing (NLP), AI, Voice Assistance.**

I. INTRODUCTION

In recent years, the rapid evolution of artificial intelligence (AI) and natural language processing (NLP) technologies has transformed the way humans interact with machines. Virtual assistants powered by AI have become integral parts of our daily lives, assisting us in various tasks, from answering queries to performing complex operations. As these technologies continue to advance, there is a growing need for intelligent systems that can seamlessly integrate both text-based and voice-based interactions, enhancing user experience and accessibility. In response to this demand, our research introduces MARSAI, a state-of-the-art ChatGPT clone enriched with voice assistance capabilities, aiming to redefine the landscape of human-computer interaction.

A. Background:

Chatbots, based on AI-driven conversational agents, have proven invaluable in providing instant responses to textual queries. Similarly, voice-enabled assistants have gained popularity, offering hands-free and intuitive interaction experiences. However, existing systems often operate in isolation, either relying solely on text or voice, limiting their versatility and user engagement. MARSAI addresses this limitation by combining the strengths of both modalities, creating a multimodal AI-based responsive speech assistant and interpreter.

B. Objectives:

The primary objective of this research is to design, develop, and evaluate MARSAI as a robust, responsive, and intelligent multimodal system. Specifically, the project aim to:

1. Implement ChatGPT Clone: Develop a ChatGPT clone based on the latest advancements in NLP, ensuring accurate comprehension and generation of text-based interactions.
2. Integrate Voice Assistance: Implement ASR and TTS technologies to enable seamless voice interactions, enhancing the system's useraccessibility and engagement.
3. Enhance User Experience: Focus on optimizing response accuracy, naturalness of speech synthesis, and overall system responsiveness, ensuring a superior user experience in both text and voice interactions.
4. Real-world Application: Evaluate MARSAI's performance in real- world scenarios, such as customer support services and educational

International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 08 Issue: 05 | May - 2024 SJIF Rating: 8.448 ISSN: 2582-3930

EXAM SECTION MANAGMENT SYSTEM

Deokar S.A*1, Shah S.N.*2, Prajakta Jagtap*3, Viraj Khalate*4, Manjiri Suryawanshi*5, Kiran Shinde*6.

*1Principle, SPCOET Someshwarnagar College, Baramati, India

*2Professor, Computer Department, SPCOET Someshwarnagar College, Baramati, India

*3,4,5,6Student, Computer Department SPCOET Someshwarnagar College, Baramati, India

ABSTRACT

The Exam Section Management System (ESMS) is a comprehensive solution for managing exam-related tasks in educational institutions. It generates a master timetable, organizes seating arrangements, and efficiently allocates faculty resources. The system considers factors like course requirements, faculty availability, and student preferences to create an optimized timetable. It also allows dynamic adjustments to seating arrangements based on last-minute changes or special accommodations. The system also assigns faculty members to examination sessions based on expertise, availability, and workload, ensuring equitable distribution and efficient examination management.

Keywords: Allocation, Exam Duties, Supervision, Invigilators, Blocks, Mastertimetable , Summary.

INTRODUCTION

The Exam Section Management System (ESMS) is a revolutionary solution for educational administration, focusing on the efficient and precise management of exam-related processes. Its key functionalities include the generation of a master timetable, meticulous seating arrangement organization, seamless faculty allocation, and a user-friendly summary viewer for stakeholders. The master timetable is the cornerstone of ESMS, addressing the intricate task of scheduling examinations across various courses, subjects, and academic levels. ESMS employs sophisticated algorithms to optimize the allocation of time slots and resources, mitigating conflicts and ensuring an equitable distribution of exam schedules. The system also streamlines the process of seating arrangement, generating facilitating informed decision-making and fostering transparency .meticulously designed plans that promote fairness, security, and efficiency during exam sessions. The system also intelligently assigns faculty members to examination sessions based on their expertise, availability, and workload, ensuring the integrity of examination procedures and effective utilization of human resources. The summary viewer provides stakeholders with a comprehensive overview of exam schedules, seating arrangements, and faculty allocations.

PROBLEM STATMENT

The Examination Section Management System addresses the inefficiencies of traditional exam management processes in educational institutions. By automating tasks such as scheduling exams, allocating exam halls, and managing student details, the system eliminates manual errors and enhances accuracy. It improves transparency by providing real-time access to exam schedules and hall allocations, streamlines resource allocation through automated supervisor assignment, and ensures data accuracy and security by digitizing student records. With a user-friendly interface and timely notifications, the system aims to reduce stress for students, faculty, and administrative staff. Overall, it modernizes exam administration, enhances transparency, optimizes resource utilization, and improves the overall efficiency of exam management in educational institutions.

DOI: 10.55041/IJSREM35184

IJRAR.ORG E-ISSN: 2348-1269, P-ISSN: 2349-5138

INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) | IJRAR.ORG

An International Open Access, Peer-reviewed, Refereed Journal

Enhancing Mobility in Rural Areas: A Comprehensive Analysis of Village Transportation Systems

Dr.Deokar.S.A[1], Prof.Bhapkar A.D[2], Vishal Nayabrao Kolte[3], Yash Dnyaneshwar Adsul[4], Prasad Prahlad Adsul[5], Pranita Adhir Baile[6]

[1]Principal, Sharadchandra Pawar College of Engineering and Technology(SPCOET)

[2]Guide, Department of Computer Engineering,SPCOET, SomeshwarNagar, Baramati, Pune,

[3,4,5,6]Department of Computer Engineering, Sharadchandra Pawar College of Engineering and Technology, SomeshwarNagar, Baramati, Pune, Maharashtra, India

Abstract - The planning and organization of transportation systems in rural villages is a complex task due to low transport demand, making it difficult to establish financially sustainable public transport systems. Village Transportation Systems have emerged as a solution to address these challenges and provide benefits to all stakeholders involved. This paper explores the impact of Village Transportation Systems on mobility in rural areas, critically evaluating existing literature on both urban and rural contexts. The research methodology examines the challenges specific to rural areas, considering unique dynamics influencing transportation demand and accessibility. The methodology also investigates the efficiency and effectiveness of these systems in increasing mobility in the areas where they are implemented. The literature review reveals a significant gap in research on mobility in rural areas, emphasizing the need for further exploration. The study demonstrates that Village Transportation Systems have the potential to overcome challenges associated with low transport demand, offering a viable solution for enhancing mobility in rural areas. The findings highlight the potential for increased mobility in areas implementing Village Transportation Systems, paving the way for more efficient and sustainable passenger transport planning systems in rural communities. Future research is crucial to refine and optimize the planning and organization of Village Transportation Systems, ensuring their successful implementation and long- term viability in diverse rural settings.

Keywords *Village Transportation Systems, Rural mobility, Transport demand, Public transport sustainability, Transportation challenges, Efficient passenger transport planning, Innovative transportation approaches, Mobility in rural areas, Transport system organization, Commercial Vehicles Booking*

I. INTRODUCTION

The background of the given topic revolves around the transformation occurring in the field of on-demand mobility services. This transformation is rooted in the necessity for a deeper understanding of travel demand patterns and the door-to-door movements of residents. Traditionally, datasets primarily focused on trip-ends, representing single trips from one zone to another. However, as the concept of mobility expands beyond mere transportation, there is a growing recognition of the need for modeling tools and data inputs to evolve accordingly. This shift is particularly pertinent in rural areas, where the landscape of mobility services often operates on a community-based model. Unlike commercially-driven services, these community-based systems rely on local knowledge and cater to the specific needs of distinct population segments. The existing paradigm, which emphasizes door-to-door movements and nuanced understanding of local dynamics, demands a departure from traditional data collection and modeling approaches. The background highlights the limitations of relying solely on qualitative market research and local knowledge for identifying demand, establishing viable business models, and determining operational areas. While community-based models bring a personalized touch, they may face challenges in scalability, resource allocation, and commercial viability compared to their commercially-driven counterparts. The background sets the stage for the discussion on the advantages and disadvantages of this evolving paradigm in on-demand mobility services.

The relevance of the provided text in the context of online cab and Commercial Vehicle booking services lies in its exploration of

PRINCIPAL
Sharadchandra Pawar College of Engineering & Technology
Someshwarnagar, Tal. Baramati, Dist. Pune (Pin 412 306)

IRJMETS

e-ISSN: 2582-5208

International Research Journal of Modernization in Engineering Technology and Science

(Peer-Reviewed, Open Access, Fully Refereed International Journal)

Volume:06/Issue:05/May-2024 Impact Factor- 7.868 www.irjmets.com

SMART CASHLESS REFUELING AND REAL TIME NOTIFYING SYSTEM USING RFID

Prof. Bhapkar A.D*1, Gaurav Khomane*2, Shraddha Rananavare*3, Sakshi Wakase *4, Pushpak Chavan*5

*1Professor, Computer Department, SPCOET Someshwarnagar College, Baramati, India.

*2,3,4,5Student, Computer Department SPCOET Someshwarnagar College, Baramati, India.

ABSTRACT

In the rapidly evolving world of technology, the traditional petrol pump system is undergoing a transformation, integrating smart technologies to improve operational efficiency and enhance customer experience. This paper presents a Smart Petrol Pump with a Real-Time Notifying System, which leverages cutting-edge technologies such as IoT (Internet of Things) and data analytics to streamline petrol pump operationsand provide timely notifications to both customers and pump operators. This integrated approach of combining smart technology with real-time notifications at petrol pumps not only enhances operational efficiency but also provides as camless and transparent experience for customers. It sets the stage for a future where petrol pumps arehighly automated, data-driven, and customer-centric.

Keywords: Automotive; Fuel Dispenser; Intelligence; Internet-of-Things; RFID.

I. INTRODUCTION

In today's fast-paced world, technological advancements continue to reshape various industries, including the fuel sector. Traditional petrol pumps have long served as critical points for fuel distribution and transaction, but the rising demand for efficiency, sustainability, and customer satisfaction necessitates a transformation in how petrol pumps operate. The integration of smart technologies, such as the Internet of Things (IoT) and real-time notifyingsystems, into petrol pump operations offers solution to meet these demands. This paper introduces a novel concept - the Smart Petrol Pump with a Real-Time Notifying System, designed to revolutionize the petrol pump experience by optimizing operations and enhancing communication with customers in real time. The Real-Time Notifying System further enhances this smart petrol pump concept by enabling instant notifications to customers regarding their transactions and promotions. Additionally, pump operators receive notifications concerning equipment maintenance The integration of these technologies ensures a more transparent, efficient, and customer-centric petrol pump experience, setting the stage for a transformative shift in the fuel industry.

II. LITERATURE SURVEY

1. *Paper name : Smart fuel dispenser using RFID technology and IoT based monitoring for automotive*
Author : S. Chandana1 , C. J. Dhanyashree1 , K. L. Ashwini1 , R. Harini1 , M. Premkumar1, LaithAbualigah*
An innovative smart fuel dispenser system that leverages RFID technology and IoT-based monitoring to enhance automotive fuelling processes. Notably, it offers numerous benefits, such as improved accuracy, efficiency, safety,and sustainability, thereby presenting potential cost savings for fuel station owners and operators. The ongoing project is focused on automating fuel dispensing stations using RFID technology as a highly efficient tool. This approach aims to reduce the traffic congestion typically seen in front of fuel stations for fuel dispensing compared to traditional manual operations. To enhance control and monitoring capabilities, an Android application has been created. It for the tracking of fuel transactions and transaction history for both

© 2024 JETIR February 2024, Volume 11, Issue 2 www.jetir.org (ISSN-2349-5162)

JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue

JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)

An International Scholarly Open Access, Peer-reviewed, Refereed Journal

Fake Product Detection System Using Blockchain Technology

Sukhada More
Department of Computer Engineering
SPCOE, SomeshwarNagar, Baramati
Pune, Maharashtra, India
sukhadamore8766@gmail.com

Prof. Ashwini Bhapkar
Assistant Professor Department of Computer Engineering
SPCOE, SomeshwarNagar, Baramati
Pune, Maharashtra, India
ashwinibhapkar121@gmail.com

Siddhi Punde
Department of Computer Engineering
SPCOE, SomeshwarNagar, Baramati
Pune, Maharashtra, India
pundesiddhi2003@gmail.com

Shinde Kaveri
Department of Computer Engineering
SPCOE,SomeshwarNagar, Baramti
Pune,Maharasta,India
shindekaveri274@gmail.com

Omkar Kalyankar
Department of Computer Engineering
SPCOE, SomeshwarNagar,Baramti
Pune,Maharasta,India
omkarkalyankar8@gmail.com

Abstract: Counterfeit products pose significant threats to consumer safety, brand reputation, and market integrity. Traditional methods for detecting fake products often lack efficiency and transparency, leading to continued proliferation of counterfeit goods in the market. In response to this challenge, this paper presents a novel approach leveraging blockchain technology, smart contracts, and QR codes to create a robust fake product detection system.

The proposed system utilizes Ethereum blockchain for its decentralized and immutable ledger, ensuring transparent and tamper-proof records of product authenticity. Smart contracts are employed to automate the verification process, enabling seamless interaction between stakeholders without the need for intermediaries. QR codes are embedded on product packaging, containing unique identifiers linked to blockchain records.

The implementation of the system involves several components:
The workflow of the system begins with the generation of unique QR codes during the manufacturing process, each linked to a corresponding entry on the blockchain containing product details and authenticity information. Upon purchase, consumers can scan the QR code using a mobile device to verify the product's authenticity instantly. The smart contract executes predefined logic to validate the product's legitimacy based on the information stored on the blockchain.

In the event of a counterfeit product being detected, stakeholders can initiate appropriate actions such as product recall or legal proceedings, with all relevant information securely stored on the immutable blockchain ledger. This ensures transparency and accountability throughout the supply chain, deterring counterfeiters and safeguarding consumer interests.

The proposed fake product detection system offers several advantages, including enhanced transparency, real-time verification, and decentralized data storage. By leveraging blockchain technology and smart contracts, it provides a reliable and efficient solution to combat counterfeit products, thereby fostering trust and integrity in the marketplace.

Keywords: fake product, QR law, Blockchain , Ethereum , Smart Contract

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:05/May-2024 Impact Factor- 7.868 www.irjmets.com

AGRICULTURE MANAGEMENT SYSTEM USING WEB DEVELOPMENT WITH MACHINE LEARNING

Prof. Ashwini Bhapkar*1, Dr. Deokar S.A.*2, Rohit Kumbhar*3, Prasad Taware*4, Vishnukant Shinde*5, Avdhut Durgade*6

*1Assistant Professor Department Of Computer Engineering, SPCOET, Someshwar Nagar, Baramati Pune, Maharashtra, India.

*2Principal Of SPCOET, Someshwar Nagar Baramati Pune, Maharashtra, India.

*3,4,5,6Department Of Computer Engineering SPCOET, Someshwarnagar, Baramati Pune, Maharashtra, India.

DOI : https://www.doi.org/10.56726/IRJMETS57845

ABSTRACT

"Agriculture Management System" provides the farmers to upload their products and helps its users or buyers to get the details of the agricultural products. The main objective of this project is building an website which will help the farmers to sell their products by uploading the details of that product in the application.

Agricultural Management System is an online web application where buyers can go through the list of products uploaded by the farmer and can add to their cart or buy the required product directly. Both farmers and buyers need to login separately using their own user id and password. And the buyer can place their items into a cart and can purchase it. This application is developed using PHP, HTML and MYSQL programming language.

Agriculture is the cornerstone of our nation. Approximately 60-70% of people in India rely on agriculture, either directly or indirectly, for their livelihood and food.

Keywords: Agriculture, Worker, News, Image Processing, CNN.

I. INTRODUCTION

Agriculture is the backbone of our country. Mostly 60-70 of people in India depends either directly or indirectly on Agriculture for food for their own living. As India is also an agriculture dependent country, it is the major platform for India's development. Even though, Agriculture is the main occupation of India farmers have both advantages and disadvantages too. Farmers usually invest most of their money on agriculture. But they were not correctly rewarded to their hard work. They only get less amount of money compared to the money they invested on it. The vital idea of our project is to create an web application which will help the farmers to solve these problems for selling their goods as it is a trust-worthy and beneficial way for farmers. It would be profitable for both the buyer's side and the seller's side. Agriculture is the backbone of India. The Indian Agriculture board provides so many options to farmers in order to stop the growth of farming through chemical fertilizers and pesticides. But it has not reached the farmers in an effective way. Since, India is developing digitally, there is a solution which can be provided digitally to this problem. Organic pesticides and fertilizers can be sold to farmers through online and post guideline instructions videos on using organic pesticides and fertilizers. Identification of plant diseases and providing a remedy is crucial to eliminate farm losses and increase agricultural yield. Every year farmers must bear huge damages due to plant diseases as well as inaccurate choice of crop. The diseases in plants every time cannot be identifies by the naked eye. Also, contacting farm experts is not always feasible. The absence of sufficient agriculture workers poses a critical challenge to our food production system. As fields await tending, crops languish, jeopardizing harvests and food supply. The shortage not only impacts the economy but also highlights the undervalued role of these essential workers. With fewer hands to sow the seeds and reap the rewards, there's an urgent need to address the underlying issues causing this labor shortfall.

Bridging this gap is vital for a resilient and sustainable agricultural future. Making one platform for farming worker as well as farmer where farmer can hire worker. Agriculture serves as the foundational pillar of our nation, sustaining the livelihoods of approximately 6070% of the Indian population directly or indirectly. Given India's reliance on agriculture, it plays a pivotal role in the country's overall development. However, despite

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:05/May-2024 Impact Factor- 7.868 www.irjmets.com

SMART AGRICULTURE SYSTEM USING IOT AND MACHINE LEARNING

Prof. Ghadge S. V*1, Yogesh Telawade*2, Himmat Mutekar*3, Ayush Shinde*4, Swapnali Gawade*5

*1Professor, Computer Department, SPCOET Someshwarnagar College, Baramati, India.

*2,3,4,5Student, Computer Department SPCOET Someshwarnagar College, Baramati, India.

DOI : https://www.doi.org/10.56726/IRJMETS57888

ABSTRACT

Smart agriculture is an emerging concept, because IOT sensors are capable of providing information about agriculture fields and then act upon based on the user input. The development of Smart Agriculture System using IOT & ML helps not only increasing the quality of farming but also saves the lots of time of farmers. In Our system this will be accomplish with the use of Soil moisture, NPK and Flame detection sensors. The motive of this project to prevent accidents and overcome the traditional way of farming, also helps the farmer to avoid infections from fertilizer. In Our system soil moisture sensor checks the moisture of soil if water level of soil is less motor will get on automatically and when water level reaches to required level motor will get off automatically. NPK sensor collects the Nitrogen, Phosphorus and Potassium from soil and machine learning model and model will suggest the crops, fertilizers required to soil according to soil NPK values . Flame detection sensor, if detects fire in farm and motor will get on automatically. Roof structure pipeline will be created in farm through which water will get sprinkled to extinguish the fire also this pipeline is used to sprayer the pesticides and fertilizers.

Keywords: - Random Forest, Support Vector Machine , Decision tree , Android Studio , Anaconda Navigator , Jupyter Notebook ,Arduino IDE .

I. INTRODUCTION

Agriculture plays a very important role where economic growth of a country like India is considered. The development of smart agriculture system using IOT & ml helps not only increasing the quality of farming but also saves the lots of time of farmers. All of this is accomplished with the use of soil moisture, NPK and flame detection sensors. It also helps farmer to fertilize the farm using roof structure created by pipes in farm and this pipes structure is also used for extinguish the fire.

II. LITERATURE SURVEY

1. **Paper name:** Iot Based Smart Irrigation System Using Soil Moisture Sensor And Esp8266nodemcu.

Author: Ms.S.Shobana, B. Sanjana Pandey, Padmashri.R and U.Triveni

[1] Currently, farmers physically operate irrigation methods and irrigate their land over a set period of time. Because of these mechanisms, there is less water in the environment. While irrigation is difficult in dry areas and there is less rainfall there. Because of its low cost, ease of application, and ease of maintenance, the ESP8266 Wi-Fi based communication system was chosen. The device is automatic, reliable, and will correctly track and control the water requirement. The ability to communicate through the application allowed users to interact with sensors in nanoseconds, which was beneficial for users to interact with sensors in the Arduino, which reduced power consumption by lengthening system life and performed well for a relatively low investment. By referring this and using sensors we are creating user friendly application to control the motor manually and automatically also.

2. **Paper name:** Smart irrigation system based on IoT and machine learning,

Author: Youness Tace, Mohamed Tabaa, Sanaa Elfilali, Cherkaoui Leghris, Hassna Bensag and, Eric Renault

[2] The world's food demand is predicted to increase by more than 70% by the year 2050, making increased production to fulfil this need a critical first step. It also involves controlling how much water is used for irrigation. In this article, we suggest an irrigation forecast that begins with the development of a database utilising a data acquisition card with several sensors (soil humidity sensor, temperature and humidity sensor,

International Journal of Innovative Research in Computer and Communication Engineering

IJIRCCE

|e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.379 | Monthly Peer Reviewed & Refereed Journal|

|| Volume 12, Issue 4, April 2024 ||

| DOI: 10.15680/IJIRCCE.2024.1204304 |

Arduino Based Car Accident Detection System

Prof Kokare S.A[1], Pisal Vaishnavi Ajit[2], Gole Diksha Mohan[3]

Assistant Professor, Department of Computer Engineering, Sharadchandra Pawar College of Engineering and Technology Someshwarnagar Baramati, India[1]

UG Students, Department of Computer Engineering, Sharadchandra Pawar College of Engineering and Technology Someshwarnagar Baramati, India[2,3]

ABSTRACT: The presented study introduces an Arduino-based Car Accident Detection System leveraging a combination of sensor technologies for heightened road safety and rapid emergency response. Employing limit switches for precise accident detection ensures immediate responsiveness to collisions, strategically positioned within the vehicle to promptly trigger alerts upon impact. Integrated GSM and GPS modules facilitate real-time transmission of location data during accidents, with the GSM module notifying predefined emergency contacts and the GPS module ensuring accurate vehicle tracking for swift emergency response. Additionally, ultrasonic sensors contribute to obstacle detection, continuously scanning the vehicle's surroundings to identify potential hazards. In the event of an impending collision, the system can activate preventive measures or provide driver warnings, augmenting accident prevention measures. This multi-sensor approach showcases a comprehensive system addressing various aspects of road safety, from immediate collision response to proactive obstacle avoidance.

KEYWORDS: Car accident, Arduino, Alert, Controller, GSM, GPS, Ultrasonic, Accident Detection.

I. INTRODUCTION

In the dynamic realm of automotive safety, the integration of cutting-edge technologies stands as a cornerstone in minimizing the repercussions of accidents and bolstering emergency response systems. Among these innovations, the Arduino-based Car Accident Detection System emerges as a significant advancement, amalgamating a sophisticated array of sensors for real-time monitoring and alerting. This system is meticulously engineered not only to swiftly detect accidents but also to relay vital information, such as live location data, to emergency services, thus heralding a paradigm shift in how vehicular accidents are perceived and addressed within the automotive landscape.

At the heart of the Arduino-based Car Accident Detection System lies its utilization of limit switches for the rapid and precise identification of accidents. Strategically positioned within the vehicle, these switches are primed to activate upon impact, swiftly signaling the occurrence of a collision. This instantaneous response mechanism proves pivotal in emergency scenarios, enabling the system to promptly initiate subsequent actions. By harnessing the inherent reliability and swiftness of limit switches, the system ensures that accident detection is both accurate and expedient, facilitating swift assessments of the situation and triggering essential emergency protocols.

Moreover, beyond mere accident detection, the system seamlessly integrates GSM and GPS modules to furnish a comprehensive response framework. Upon detecting a collision, the system not only notifies local emergency services but also harnesses the GPS module to transmit the vehicle's real-time location. This feature proves invaluable in expediting emergency response times, affording rescue teams precise incident localization. The incorporation of GSM technology further streamlines communication, ensuring immediate alerts are dispatched to relevant authorities and contacts. Through the amalgamation of these communication and location-tracking elements, the Arduino-based system establishes a robust infrastructure for swift and efficient response to vehicular accidents, potentially mitigating casualties and augmenting overall road safety standards.

II.RELATED WORK

In the realm of vehicular accident detection systems, a spectrum of challenges plagues existing methodologies, significantly impeding their effectiveness. One prominent issue centers around the delayed response times inherent in many conventional systems, primarily due to their reliance on singular or limited sensor arrays. Such setups often lack the requisite sensitivity to discern various collision types, leading to instances of both false negatives and false

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Prediction of Stocks and Stock Price using Artificial Intelligence

S. P. Padalkar[1], S. S. Bere[2], D. B. Hanchate[3],

[1] Post Graduate Student, Department of Computer Engineering, Dattakala Shikshan Sanstha, Pune Maharashtra, India,

[2,3] Associate Professor, Department of Computer Engineering,Dattakala Shikshan Sanstha, Pune, Maharashtra, India

Abstract

Research hotspots in academic and financial circles include understanding the pattern of financial activity and forecasting their growth and changes. Predicting financial data's development trends is a very challenging task because financial data contain complex, incomplete and fuzzy information. The movement of stock prices can be predicted and analysed using a variety of techniques. Use Artificial Intelligence algorithms for forecasting. Aim of this method is to improve the quality of output of stock market predicted by using stock value. In this paper is used to predict the futuristic prices of stocks and use wide range of algorithms like long short-term memory (LSTM), recurrent neural networks (RNN), Autoregressive Integrated Moving Average (ARIMA). This bibliometric study focusses on the study based primarily on the Scopus database.

Keywords: Artificial Intelligence; LSTM; RNN; ARIMA

I. Introduction

Researchers and analysts who are interested in improving investor decision-making processes have shown an increasing amount of interest in the topic of stock market prediction. The investigation of sophisticated artificial intelligence (AI) and machine learning approaches has been prompted by the difficulties that traditional methods have faced, such as their poor handling of input information and limited predicted accuracy. This study expands on the understanding of the intricacy of market dynamics and the demand for novel strategies. The potential for increased predictive accuracy has been highlighted by earlier research, which includes hybrid models combining genetic algorithms, artificial neural networks, and hidden markov models. Furthermore, a significant knowledge vacuum exists about the influence of various input feature representations and the accuracy of weekly financial forecasting methods such as Support Vector Machines. These gaps are filled by this study, which aims to improve the accuracy and dependability of stock price prediction systems.

II. Motivation

The primary driving force behind stock price predictions is the stock's potential future price. Motivation can be helpful in a variety of contexts, including business and industry, finance, and economics. It is possible to estimate the stock of the company's future worth.

III. Literature Review

The utilization of the artificial intelligence (AI) and machine learning (ML) techniques for stock market forecasting is a different active area of interest, as is evidenced by numerous empirical studies that have put forth multiple models and algorithms [5].

International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 08 Issue: 02 | February - 2024 SJIF Rating: 8.176 ISSN: 2582-3930

Cube Computation Different Study of Map Reduce Approaches: Survey Paper

Swati B Nazirkar

nazirkar33piyou@gmail.com

Faculty of Sharadchandra Pawar Institute of Technology, Someshwarnagar, pune, Maharashtra, India

***Abstract-MapReduce** is a programing poser and an related effort for processing and generating super aggregation sets. Users determine a map operate that processes a key/value place to make a set of medium key/value pairs, and a Reduce function work that merges all middle values associated with the very mediate key. Efficient extract of aggregations very significant role in Date wearhouse Store systems. Multidimensional accumulation psychotherapy applications data crosswise much dimensions designer for anomalies or unusual patterns. The SQL mass functions and the GROUP BY operator are utilised for accumulation. But Data psychotherapy applications requirement the N-dimensional generality of these operators.Data cube is introduced which is a way of structuring information in N-dimensions so as to spread analysis over few measure.Data wearhouse implementation for the essential part of data cube computation. The precomputation of all or endeavor of a data cube can greatly restrict the salutation quantify and deepen the executing of online analytical processing.Various strategies to Cube Materlization,there are various methods for cube computation and specific computation algorithms, namely Star Cubing, BUC, Multiway array aggregation, parallel algorithms, the computation of shell fragments and. But these techniques some rule so new MapReduce based approach is used.*

Keywords- Bottom Up Computation, cube Computing Techniques, Data cubes, Hadoop Map reduce, star cubing.

I INTRODUCTION

MapReduce was introduced by Hisrion et. al. in 2004[1].Understanding the comprehensive information of how MapReduce enterprises must a needed responsibility for savvy this product. In momentaneous,MapReduce processes accumulation suffused (and replicated) crossways galore nodes in a shared-nothing foregather via the canonical dealings.Archetypal, a set of Map tasks are milled in nonintersecting by apiece client in the meet without act with opposite nodes. Close, information isrepartitioned across all nodes of the flock. Finally, a set of Thin tasks are executed in modify by each convexity on the divide it receives. This can be followed by an discretional identify of added Map-repartition-Reduce cycles as needful. MapReduce does not make a careful ask process organization that specifies which nodes faculty run which tasks in travel; instead, this is dictated at runtime. This allows MapReduce to correct to guest failures and largo nodes on the fly by distribution statesman tasks to faster nodes and reassigning tasks from unsuccessful nodes. MapReduce also checkpoints the sign of apiece Map strain to anesthetic disk in tell to minimize thetotal of utilise that has to be redone upon a insolvency.Of the desirable properties of volumed shell data analysis workloads,MapReduce superior meets the imperfection tolerance and knowledge to operate in diversified surround properties. It achieves fissure tolerance by detecting and reassigning Map tasks of failed nodes to now nodes in the gather (rather nodes with replicas of the sign Map collection). It achieves the ability to manipulate in a heterogeneous surroundings via prolix extend action. Tasks that are action a agelong quantify to play on decrease nodes get redundantly executed on remaining nodesthat jazz completed their allotted tasks. The minute to hearty the task becomes coordinate to the abstraction for the fastest symptom to gross the redundantly executed task. By breaking tasks into puny, granular tasks, the signification of faults and "straggler" nodes can be minimized.

MapReduce has a pliable query interface; Map and Slimfunctions are virtuous whimsical computations scripted in a general-purpose language. Thence, it is achievable for each task to do anything on its sign, fair as perennial as its turnout follows the conventions distinct by the modeling. In indiscriminate, most MapReduce-based systems (such asHadoop, which straight implements the systems-level information of the MapReduce material) do not suffer mood SQL. However, there are both exceptions (such as Hive).As shown in preceding utilise, the greatest proceeds with MapReduce is show [2]. By not requiring the someone to position hypothesis and alluviation assemblage before processing, numerous of the performance enhancing tools registered above that are utilised by database systems are not contingent.Tralatitious sector information analytical processing, that change

International Journal of Advances in Engineering and Management (IJAEM)
Volume 5, Issue 1 Jan. 2023, pp: 899-903 www.ijaem.net ISSN: 2395-5252

Implementation Map Reduce Paradigm in Data Cube Mining

Ms Gawade Swati Bhimrao
Lecturer, Sharadchandra pawar institute of technology, Someshwarnagar.

Date of Submission: 17-01-2023 Date of Acceptance: 27-01-2023

ABSTRACT-Computing measures for tweeter data cubes mining of cube group over data sets are impossible for many analyses in the tweeter.We have to compute the data set taken from tweeter user. You have to create a cube creation and then measure dimension setting using the roll up function.In the real world various challenges in the cube materlization and mining on web data sets. Map shuffle Reduce can be efficient extract cube and aggregate function on attribtes of tweeter.MR-Cube can be extract from efficient and effective PC cubes of holistic measures over large-tuple aggregation sets.In the existing techniques can not measure the holistic scale to the large tuples.

Keywords-CubeMaterlization,MapReduce,Cube Mining,Holistic Measure ,Data Cube.

I. INTRODUCTION

In the multidimensional data analyzing having the Data cube analysis is Powerful Tool. Parallel Hadoop is an open-source version of the MapReduce framework,implemented by directly following the ideas described in the original MapReduce paper, and is used today by dozens of businesses to perform data analysis [1]. We deployed the system with several changes to the default configuration settings. We also allowed more buffer space for file read/write operations (132MB) and increased the sort buffer to 200MB with 100 concurrent streams for merging.Additionally, we modified the number of parallel transfers run by Reduce during the shuffle phase and the number of worker threads for each TaskTracker's http server to be 50.Moreover, we enabled task JVMs to be reused[1].For each benchmark trial, we stored all input and output data in HDFS with no replication add. After benchmarking a particular cluster size, we deleted the data directories on each node, reformatted and reloaded HDFS to ensure uniform data distribution across all nodes[1].

We present results of both hand-coded Hadoop and Hive-coded Hadoop (i.e. Hadoop plans generated automatically via Hive's SQL[1] interface). These separate results for Hadoop are displayed as split bars in the graphs. The bottom, colored segment of the bars represent the time taken by Hadoop when hand-coded and the rest of the bar indicates the additional overhead as a result of the automatic plan-generation by Hive, and operator function-call and dynamic data type resolution through Java's Reflection API for each tuple processed in Hive-coded jobs[1]. These adjustments follow the guidelines on high-performance Hadoop clusters [2].

Attributes refers to the set of attributes that the someone wants to analyze. Based on those attributes, a number Cube all possible grouping(s) of the attributes.We have to representing that attribute Where the dimension setting and roll up.

Given the hierarchical cube,the task of cube computation is to compute given measures for all valid cube groups, where a measure is computed by an aggregation function based on all the tuples within the group. MapReduce. MapReduce is a shared-nothing parallel data processing paradigm that is designed for analyzing large amounts of data on commodity hardware. Hadoop is an open-source implementation of this framework During the Map phase, the input data are distributed across the mapper machines, where each machine then processes a subset of the data in parallel and produces one or more key, value pairs for each data record. Next, during the Shuffle phase, those key, value pairs are repartitioned (and sorted within each partition) so that values corresponding to the same key are grouped together into values v1,v2, and other. Finally, during the Reduce phase, each reducer machine processes a subset of the key v1, v2 pairs in parallel and writes the final results to the distributed file system[3]. The map and reduce tasks are defined by the user while the shuffle is accomplished by the system. Fault toleranceis inherent to a MapReduce system, , which reschedule