4th International Conference on Engineering Science Technology & Management

ICESTM - 2023

NEC - NELLORE

EDITORS

Dr. Gangineni Dhananjhay

Dr. Akhib Khan Bahamani

Narayana Engineering College Autonomous Nellore

NARAYANA ENGINEERING COLLEGE

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4th INTERNATIONAL CONFERENCE ON ENGINEERING SCIENCE TECHNOLOGY & MANAGEMENT (ICESTM - 2023)

4th International Conference on Engineering Science and Technology and Management (ICESTM-2023)

Editors

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The following are the different tracks in this conference:

Track 1:

Electronics and Communication Engineering

Topics of interest but are not limited to the following:

1. Nanoelectronics and microelectronics
2. Power and Applied electronics
3. Microprocessor and Microcontroller
4. Very Large Scale Integration(VLSI)
5. Micro scale fabrication
6. Electrotechnologies
7. High Voltage and Insulation Technologies
8. Power Electronics and Drive Systems

Track 2:

Computer Science and Engineering

Topics of interest but are not limited to the following:

9. Computer Networks.
10. Data Communications.
11. Data Encryption.
12. Data Mining.
13. Database Systems.
14. Programming Languages.
15. Image processing and Pattern recognition
16. CAD-CAM.

Track 3:

Electrical and Electronics Engineering

Topics of interest but are not limited to the following:

17. Instrumentation
18. Electric Power Generation
19. Electrical Machines and Drive Systems
20. Electromagnetic Transients Programs
21. Digital Signal Processing
22. Microprocessor based Technologies
23. Economic aspects of power quality and cost of supply
24. Reliability and continuity of supply.

Track 4:

Mechanical Engineering

1. Industrial Planning
2. Maintenance Engineering
3. Intelligent Mechatronics
4. Robotics
5. Automation, and Control Systems

6. Intelligent System
7. Fault diagnosis
8. Engines and Heat exchangers

Track 5:

Civil Engineering

1. Advanced Concrete Technology
2. Concrete Science and Technology
3. Construction Planning, Scheduling, and Control
4. Geology
5. Mechanics of Solids and Fluids
6. Monitoring of Structures & Buildings
7. Architecture and Town Planning

Track 6 :

Mathamatics

1. Probability & Statistics
2. Number Theory & Linear Algebra
3. Mathematical Modeling and Simulation
4. Graph Theory
5. Geometry Analysis and Fluid Mechanics
6. Computational Methods in Fluid Dynamics

Track 7:

Physcis And Chemistry

1. Thin Film & Characterization
2. Single Crystals & Applications
3. Semiconductor Devices
4. Polymers, Glasses & Ceramics
5. Photonic Materials
6. Graphene & Novel Materials
7. Nano Chemistry
8. Metal Alloys & Composite Structures
9. Green Chemistry
10. Electroplating
11. Catalysis
12. Biomedical Applications of Polymers

Track 8 :

Emerging Trends in Business & Commerce

1. Creative and Innovation in Business
2. Finance, Economics and Insurance
3. Accounting and Banking
4. Internet Banking and Marketing Management

5. Entrepreneurship and Sustainable Development
6. Supply Chain Management
7. Hospitality and Tourism Management
8. Stress Management Quality Control and Product Development
9. Environmental Protection and Disaster Management

Track 9 :

Emerging Trends in Economics & Statistics

1. Pedagogy of Economics
2. Innovative Practices of Economic
3. Interface between Economics and Mathematics
4. Key issues in Gender Economics
5. Nature of Economics
6. Modern Technique in Statistical Methods , Qualitative & Quantitative

Registration Process

- Send the paper to icestm2023@gmail.com
- After the acceptance mail received, complete the payment process.
- The registration fee is payable through crossed Demand Draft (DD) in the favour of "Principal Narayana Engineering College, Nellore", Payable at Nellore.

GUIDELINES FOR AUTHORS

- All submissions will be peer reviewed by experts in the field based on originality, significance, quality and clarity and it should be result oriented.
- All contributions must be original, should not have been published and should not be intended to be under review elsewhere during the review period.
- At least one author must register and present his/her accepted manuscript in the conference. Registration fee includes proceedings, Conference kit, Lunch, Tea& Certificate.
- Prior to submission, the paper should be checked for Plagiarism from licenced plagiarism software like Turnitin / iThenticate. The similarity content should not exceed 20% in any case (either self-contents or others) .
- All the accepted manuscripts have an opportunity to be published in UGC CARE and Scopus indexed journal. Additional publication charges are applicable as per journal norms

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About Narayana Engineering College

Narayana Engineering College was established in the year 1998 under the chairmanship of Dr P Narayana. This is one of the most prestigious institutions sponsored by Narayana Educational Society, across India. Within a short period, the college has witnessed significant growth and established itself as one of the premier private unaided Engineering Colleges in Andhra Pradesh today and in recent times our college was ranked as 'A' Grade by the Govt. of AP. The Institute offers a 4-year B Tech Programme in six branches at UG level (EEE, ECE, CSE, EIE, ME, CE) and seven courses at PG level (M.Tech EPE, EPS, VLSI, DSCE, CSE; MBA & MCA) with a total intake around 2500. All the Labs are well established with State-of-the Art facilities and are periodically updated with latest equipment. The Institution has got 9 well furnished Computer centres with the latest licensed software. In addition to disciplined education, the college consists of an Air Conditioned Central Library with more than 45,000 volumes and a Digital Library with 24-hour Internet facility. A full-fledged Training and Placement Cell facilitates the aspiring professionals in acquiring corporate skills towards grabbing placements in MNCs.

MAJOR ACHIEVEMENTS OF COLLEGE

- Autonomous Institutions
- Accredited with NAAC A+ Grade in Andhra Pradesh, No.3 In India wide
- Permanent Affiliation with JNTUA, Anantapuramu
- Best Engineering College in Co-Curricular Activities
- Recognized by UGC under 2(f) & 12(B).
- Rated as College with Grade-A by Govt. of AP.
- Authorized Training Partner to NSDC,New Delhi as PMKVY-TI Center
- Authorized Nodal Centre from IIT-Bombay
- Offering consultancy services to Major Government and Private Organizations – Testing / Evaluation / Design

ABOUT THE CONFERENCE

4th International Conference on Engineering Science Technology and Management, will be held at Narayana Engineering College, Nellore, Andhra Pradesh on 28th to 29th April 2023. In this era of knowledge, the higher education institutes are not restricted just to knowledge transfer from teachers to students, but are also involved in knowledge assimilation, knowledge generation, and knowledge dissemination. The prime objective of ICESTM-2023 is to bring experts, researchers and innovators from academia, R&D and industry in the related fields together and provide them a forum for knowing what is happening in the research arena, identify and conceptualize new ideas and sharing their valuable findings and thoughts. The conference also aims to create research interest in the minds of young graduates to pursue research as their career. ICESTM-2023 will facilitate and promote interdisciplinary research among researchers and help in reducing the gaps between different disciplines.

Message from founder

This is a matter of enormous pride that Narayana Engineering College, Nellore is conducting an 4th International Conference on Engineering Science Technology and Management from 28th to 29th April 2023.

Research being the indispensable tradition of any reputed academic institution. I am glad to announce NECN embarked up on important task of engaging in research culture as part of our academic responsibilities and bring out the knowledge to the world. This conference would provide a forum for interaction between scientists at R&D, Academicians at Universities and technocrats at industry level to sharpen their skills and bridge the gaps in application of technology.

I congratulate and take this opportunity to convey my best wishes to the organizers and participants and wish the event a grand success.

Dr. P. Narayana

Founder, Narayana Group of Educational Institution

Message from Chairmen

I am very glad that Narayana Engineering College, Nellore is organizing 4th International Conference on Engineering Science Technology and Management from 28th to 29th April 2023. Its great pleasure in welcoming academicians, research scholars and other participants in the 2 day international conference.

The ICESTM-2023 will provide a platform for academicians, researchers and other participants to interact each other and future collaborations. It is also a golden opportunities to the students of this institution to enhance their knowledge.

I wish the conference a grand success and congratulate the organizers for the fruitful effort.

Sri. Puneeth

Chairmen, Narayana Group of Educational Institution

Message from Registrar

It gives me enormous pleasure and privilege to welcome you to the 4th International Conference on Engineering Science Technology and Management from 28th to 29th April 2023 organizing by Narayana Engineering College, Nellore. This conference would be able to address the challenges face by the researchers professionals and student to share the innovative ideas, recent trends and future directions in the field of Engineering, Science and Technology.

I expect that this conference will pen novel windows in the thriving areas of innovative problem domains and interaction of scholars and intellectuals at this conference will definitely yields new solutions to untapped ideas in Engineering, Science and Technology.

Sri. R. Samba Siva Rao

Registrar, Narayana Group of Educational Institution

Message from Director

It gives me an immense happiness that Narayana Engineering College, Nellore is conducting 4th International Conference on Engineering Science Technology and Management from 28th to 29th April 2023.

I am confident that this conference will bring opportunities among the academicians, corporate delegates, and research scholars to present their innovative ideas, most up to date findings and technical proficiency in the various fields of research trends in Engineering Science and technology.

I welcome all the academicians and researchers to the conference and assure that it would be a great experience and wish the conference all the success.

Dr. A.V.S. Prasad

Director, Narayana Group of Educational Institution

Message from Principal, NEC::Nellore

It is indeed hearting to know that Narayana Engineering College, Nellore is organizing the 4th International Conference on Engineering Science Technology and Management from 28th to 29th April 2023. Aiming at providing a good platform for meeting researcher's academicians and industrial experts to interact. When global interdependence and competition are up on us, we must offer quality education and training to our youngster to keep up and keep face with the best and the brightest in the world. With this view in mind Narayana Engineering College has the tradition of offering the best possible technical education. It is really inspiring to know that over a span of two decades Narayana Engineering College has become one of the premier engineering college not only in the state but also in India. But the path towards excellence is never ending. Therefore, our collective efforts should be directed towards all round improvement of Narayana Engineering College in all frontiers of modern technical education. We should also see that the technologies advances and research output should be beneficial to all human beings and to the society.

I convey my blessings and good wishes to one and all members of Narayana Engineering College. I also congratulate the members of organizing committee of ICESTM 2023.

Dr. G. Srinivasulu Reddy

Principal, Narayan Engineering College, Nellore

Message from the General chair- ICESTM 2022, NEC::Nellore

Dear Participant,

It is a great pleasure for me to welcome all the delegates to the 4th International Conference on Engineering Science Technology and Management from 28th to 29th April 2023. Here in Narayana Engineering College, Nellore. It is routine practice in our college in conducting various activities like workshops, symposiums, seminars, conferences etc. to develop overall performance in students.

On behalf of the organizing committee, we are pleased to welcome you all to ICESTM-2023. We extend our heartiest greetings to all delegates, experts from industry and academia to the 3rd International Conference on Engineering Science Technology and Management from 28th to 29th April 2023. It gives us real honour and privilege to serve as the General Chair for this conference.

I look forward to welcoming all of you at ICESTM-2023

Dr. G. Dhanunjhay
Professor&Dean,
General Chair-ICESTM-2022

Message from the Convener chair- ICESTM 2022, NEC::Nellore

Dear Professors and Researchers

It is my privilege and honor to welcome you all to the 4th International Conference on Engineering Science Technology and Management at Narayana Engineering College, Nellore from 28th to 29th April 2023.

The main goal of organizing this conference is to share and enhance the knowledge of each and every individual in this fast-moving Information Era. We have given a good opportunity for those who have a thirst in knowing the present technological developments and also share their ideas. Additionally, this conference will also facilitate the participants to expose and share various novel ideas. The conference aims to bridge the researchers working in academia and other professionals through research presentations and keynote addresses in current technological trends .i.e. on Industry. It reflects the growing importance of Intelligent Computing systems as a field of research and practice for contribution and better opportunities in industry. You will get ample opportunities to widen your knowledge and network. Outside of the conference, I hope that you will enjoy some of the many attractions found in and around our beautiful campus at Narayana Engineering College Nellore.

I want to thank in advance the conference committee for extending their valuable time in organizing the program and all the authors, reviewers, and other contributors for their sparkling efforts and their belief in the excellence of ICESTM-2023.

I cordially invite all the enthusiasts to participate with full vigor in this celebrated event which can give immense exposure and global opportunities to all.

Dr. Akhib Khan Bahamani

Convener-ICESTM-2023

Message from HOD, Electrical and Electronics Engineering, NEC::Nellore

It gives me an enormous pleasure in penning down this foreword for the proceedings of 4th International Conference on Engineering Science Technology and Management from 28th to 29th April 2023 organizing by Narayana Engineering College, Nellore . The actual definition of an engineer is "term applied to the profession in which knowledge of the mathematical and natural sciences, gained by study, experience, and practice is applied to the efficient use of materials and forces of nature".

Research is the embellishment of this innovation and I am glad to announce that NECN embarked upon important task of engaging in research culture as part of our academic responsibilities and bring in the knowledge to the world. This conference would provide a forum for interaction between scientist at R&D organizations, Academician Universities and technocrats at industry to sharpen their skills and bridge the gaps in the application of technology.

I take this opportunity to convey my best wishes to the participants and wish the event a grand success.

Dr. G. Venkateswarlu

HOD EEE, Narayana Engineering College, Nellore

Message from HOD, Computer Science and Engineering,NEC::Nellore

I am pleased to have honour of acting as coordinator for the 4th International Conference on Engineering Science Technology and Management from 24th to 25th April 2023 organizing by Narayana Engineering College, Nellore . I congratulate all the participants or submitting their papers for the conference. I hope that deliberations of the key notes and presentation will be fruitful to you.

Dr. C. Rajendra

HOD, CSE, Narayana Engineering College, Nellore

Message from HOD Electronics and Communication Engineering, NEC::Nellore

In any Engineering College, It is customary to conduct extracurricular activities like both technical and cultural activities. As a conference chair of this conference, I would be grateful in organizing such an important event 4th International Conference on Engineering Science Technology and Management from 28th to 29th April 2023 organizing by Narayana Engineering College, Nellore . I congratulate all the participant and wish you all the best.

Dr. K. Murali

HOD, ECE, Narayana Engineering College, Nellore

Message from HOD Civil Engineering, NEC::Nellore

This 4th International Conference on Engineering Science Technology and Management from 28th to 29th April 2023 organizing by Narayana Engineering College, Nellore is an attempt to focus the attention of all concerned professionals to discuss at length concerned with the Emerging trends in engineering& technology, to seek solutions wherever possible and identify areas where further research is needed.

Information provided in various papers are reproduced in the proceedings is aimed at benefiting the Engineers and professionals. It is expected that the purpose would be served in a satisfactory manner through in-depth discussion and interaction among participants during the conference. I take this opportunity to record my heartfelt appreciation and gratitude to all the authors, delegates, conference chairman and all others participating.

Prof. K. Venkatalakshmi

HOD, CE, Narayana Engineering College, Nellore

Message from HOD Mechanical Engineering, NEC::Nellore

4th International Conference on Engineering Science Technology and Management from 28th to 29th April 2023 organizing by Narayana Engineering College, Nellore to provide an opportunity to research scholars, delegates and students to interact and share their experience and knowledge in technology application. ICESTM -23 will provide an excellent international forum for sharing knowledge and results in Recent Challenges in Engineering Technology. The aim of the Conference is to provide a platform to the researchers and practitioners from both academia as well as industry to meet and share cutting-edge development in the field. I congratulate all the participant and wish you all the best.

Dr. A.V.S. Sridhar Kumar

HOD, ME, Narayana Engineering College, Nellore

CONTENT

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DISTRIBUTED SYSTEMS WITH PRIVACY-PRESERVING MULTI-KEYWORD SEARCHABLE ENCRYPTION

Dr. P. Venkateswara Rao[1], Dr. V. Sucharitha[2], Dr. D. Pramod Krishna[3]

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ABSTRACT

As cloud storage has been widely adopted in various applications, how to protect data privacy while allowing efficient data search and retrieval in a distributed environment remains a challenging research problem. Existing searchable encryption schemes are still inadequate on desired functionality and security/privacy perspectives. Specifically, supporting multi-keyword search under the multi-user setting, hiding search pattern and access pattern, and resisting keyword guessing attacks (KGA) are the most challenging tasks. In this paper, we present a new searchable encryption scheme that addresses the above problems simultaneously, which makes it practical to be adopted in distributed systems. It not only enables multi-keyword search over encrypted data under a multi-writer/multireader setting but also guarantees the data and search pattern privacy. To prevent KGA, our scheme adopts a multi-server architecture, which accelerates search response, shares the workload, and lowers the key leakage risk by allowing only authorized servers to jointly test whether a search token matches a stored ciphertext. A novel subset decision mechanism is also designed as the core technique underlying our scheme and can be further used in applications other than keyword search. Finally, we prove the security and evaluate the computational and communication efficiency of our scheme to demonstrate its practicality.

Keywords: Keyword guessing attacks (KGA)

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USE OF MACHINE LEARNING TECHNIQUES FOR REAL-TIME COLOUR DETECTION

Dr. P. Venkateswara Rao[1], Dr. D. Brightanand[2], Dr. D. Nagaraju[3]

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ABSTRACT

K-closest neighbors (KNN) is a generally utilized brain organization and AI order calculation. As of late, it has been utilized in the brain organization and computerized picture handling fields. In this review, the KNN classifier is utilized to recognize 12different varieties. These varieties are dark, blue, brown, woodland green, green, naval force, orange, pink, red, violet, white and yellow. Utilizing variety histogram highlight extraction, which is one of the picture handling strategies, the elements that recognize these not entirely settled. These highlights increment the adequacy of the KNN classifier. The preparation information comprises of saved outlines and the test information is acquired from the camcorder continuously.

Index terms – KNN, Color Detection, Open CV, Machine Learning.

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A ESCROW-FREE IDENTITY BASED AGGREGATE SIGNCRYPTION SCHEME TO SECURE DATA TRANSMISSION IN SMART HEALTH CARE SYSTEMS

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ABSTRACT

Based total signcryption (EF-IDASC) plan to get information transmission, which is additionally proposed in this article. The proposed savvy medical services framework brings the clinical information from The capability of the Web of Clinical Things (IoMT) innovation for interconnecting the biomedical sensors in e-wellbeing has improved individuals' expectations for everyday comforts. One more innovation perceived in the new e-medical services is re-appropriating the clinical information to the cloud. There are, in any case, a few expectations for embracing these two advances. The most troublesome is the protection of clinical information and the test coming about because of the asset limitation climate of sensor gadgets. In this paper, we present the cutting edge secure and proficient cloud-driven IoMT-empowered savvy medical services framework with public certainty. The framework oddity executes a szans escrow personality different sensors embedded on the patient's body, signcrypts and totals them under the proposed EF-IDASC conspire, and reevaluates the information on the clinical cloud server through cell phone.

Index terms – Cloud computing, MIoT, Healthcare System.

CLASSIFICATION AND PREDICTION OF DDoS ATTACKS USING MACHINE LEARNING ALGORITHMS

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ABSTRACT

Dispersed network assaults are alluded to generally as Appropriated Forswearing of Administration (DDoS) assaults. These assaults exploit explicit limits that apply to any plan resource, like the structure of the approved association's site. In the current examination study, the creator dealt with an old KDD dataset. It is important to work with the most recent dataset to recognize the present status of DDoS assaults. This venture utilized an AI approach for DDoS assault types grouping and expectation. For this reason, utilized SVM, Guileless Bayes and arrangement calculations. To get to the exploration proposed a total structure for DDoS assaults expectation. For the proposed work, the UNWS-np-15 dataset was separated from the GitHub store and Python was utilized as a test system. In the wake of applying the AI models, we produced a disarray lattice for ID of the model exhibition.

Index terms – Machine Learning, KDD Dataset, DDoS Attacks.

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AN EFFICIENT SPAM DETECTION TECHNIQUE FOR IOT DEVICES USING MACHINE LEARNING

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ABSTRACT

The Internet of Things (IoT) is a group of millions of devices having sensors and actuators linked over wired or wireless channel for data transmission. IoT has grown rapidly over the past decade with more than 25 billion devices expected to be connected by 2020. The volume of data released from these devices will increase many-fold in the years to come. In addition to an increased volume, the IoT devices produces a large amount of data with a number of different modalities having varying data quality defined by its speed in terms of time and position dependency. In such an environment, machine learning (ML) algorithms can play an important role in ensuring security and authorization based on biotechnology, anomalous detection to improve the usability, and security of IoT systems. In proposed system, we use home spam dataset is implemented as input was taken from dataset repository. Then, the collected input data's are subjected to preprocessing. After that, we have to reduce the dimensionality from the preprocessed data by using the Principle Component Analysis (PCA). Then, we have to implement the machine learning algorithms such as Xgboost and Bayesian Generalized Linear Model (BGLM). Then , the Simulation results shows that the performance metrics such as MSE and RMSE values and compare the results for both algorithm in the form of graph.

Index terms – Generalized Linear Model (BGLM).

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MACHINE LEARNING FOR EFFECTIVE EMAIL PHISHING DETECTION

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ABSTRACT

Messages are habitually used as a method of individual and expert correspondence. Banking data, credit reports, login information, and other touchy individual data are ordinarily communicated over email. This makes them important to cybercriminals, who can take advantage of the information for their benefit. Phishing is a strategy utilized by swindlers to take delicate data from individuals by imitating notable sources. The source of a phished email can convince you to unveil individual data under misrepresentations. The discovery of a phished email is treated as a characterization issue in this examination, and this paper shows how AI strategies are utilized to classify messages as phished or not.

Keywords: Email Phishing attacks, Machine Learning, SVM, Random Forest.

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DEEP TRANSFER LEARNING FOR DIABETIC RETINOPATHY DETECTION

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ABSTRACT

Diabetic Retinopathy (DR) is an entanglement brought about by diabetes that influences the natural eye. It is brought about by the mutilation of the veins of the light-delicate tissue at the rear of the human retina. It's the most repetitive reason for visual impairment in the working-age gathering and is almost certain when diabetes is ineffectively controlled. Despite the fact that, strategies to recognize Diabetic Retinopathy exist, they include manual assessment of the retinal picture by an Ophthalmologist. The Proposed approach of DR discovery means to identify the entanglement in a computerized way utilizing Profound Learning. The model is prepared utilizing a GPU on 35126 retinal pictures delivered openly by eyePACS on the Kaggle site and accomplished an exactness of roughly 81%.

Index terms – Diabetic retinopathy, Deep learning, VGG 16, Inception.

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FACE RECOGNITION-BASED IMAGE SHARING

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ABSTRACT

Image sorting and organization can be a challenging and time-consuming task, especially when dealing with a large number of images. This paper presents an automated system for face recognition and sorting of images based on the faces present in them. The proposed system uses a combination of OpenCV and machine learning algorithms to detect and recognize faces in images and then sorts them into the appropriate folders. The system was tested thoroughly, and the results showed that it could accurately detect faces in a wide range of images and sort them into the correct folders. Integration and system testing were also carried out to ensure that the system components were working correctly. The face recognition and sorting system offers several benefits over manual sorting, including improved accuracy and time savings. The system can be deployed by converting the Python code into an executable file, making it easy for users to install and use. The limitations of the system, such as the accuracy of the face recognition algorithm and the hardware requirements, are also discussed. Overall, the proposed system provides a useful tool for automatically organizing images based on the faces present in them and has the potential for future improvements and applications.

Keywords: Face recognition, image sorting, computer vision, machine learning, Python, OpenCV, image processing, object detection, automated sorting

USING MACHINE LEARNING ALGORITHMS, KIDNEY DISEASE MAY BE IDENTIFIED

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ABSTRACT

Constant Kidney Illness (CKD) is one of overall clinical difficulties with high grimness and demise rate. Since there is no side effect during the beginning phases of CKD, patients frequently neglect to analyze the infection. Patients with HIV have more opportunities to be impacted with CKD in basic condition. Early recognition of CKD assists patients with getting expeditious consideration ald postpones the further movement of illness. With the accessibility of pathology information, the utilization of AI strategies in medical care for order and expectation of illness has become more normal. This paper presents the arrangement of CKD utilizing AI models. In light of the glomerular filtration rate, the CKD stages are likewise determined for patients determined to have CKD. DNN model outflanks with the vast majority of exactness in arranging CKD patients with HIV

Keywords: Kidney disease detection, Machine learning, SVM, KNN.

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AI-BASED CROP HARVEST PREDICTION USING ESSENTIAL FERTILISERS

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ABSTRACT

Since India is a developing nation that relies heavily on agriculture, its economy is also largely dependent on agro-industrial goods. Agriculture places a great priority on maintaining high production. Knowing the anticipated output is important for any farmer. Examine a number of relevant factors, such as the location and the pH level used to calculate the soil's alkalinity. Location is utilized In addition, the usage of third-party apps like APIs for weather and humidity, soil type, local soil nutrient value, local storm frequency, and soil composition is recommended. Additionally, it is utilized in conjunction with the amounts of nutrients like nitrogen (commonly known as N), phosphorus (also known as P), and potassium (also known as K). All of these data attributes will be examined and taught using various machine learning techniques with the goal of creating a model. methods. The system includes a model to be exact and accurate in providing the end consumer with suitable suggestions regarding necessary fertilizer ratio depending on environmental and soil factors of the field which enhance to boost crop yield and raise farmer revenue. Furthermore, it suggests using a gel, oil, or other kind of chemical agent that is necessary for optimal growth of crops.

Keywords: Learning under supervision, crop productivity, fertilizers, gels, and oils, etc.

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FRAUD REVIEW DETECTION USING MACHINE LEARNING

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ABSTRACT

With the continuous evolve of E-commerce systems, online reviews are mainly considered as a crucial factor for building and maintaining a good reputation. Moreover, they have an effective role in the decision- making process for end users. Usually, a positive review for a target object attracts more customers and lead to high increase in sales. Nowadays, deceptive or fake reviews are deliberately written to build virtual reputation and attracting potential customers. Thus, identifying fake reviews is a vivid and ongoing research area. Identifying fake reviews depends not only on the key features of the reviews but also on the behaviors of the reviewers. This paper proposes a machine learning approach to identify fake reviews. In addition to the features extraction process of the reviews, this paper applies several features engineering to extract various behaviors of the reviewers. The paper compares the performance of several experiments done on a real Yelp dataset of restaurants reviews, we compare the performance of machine learning classifiers; KNN, Naive Bayes (NB), Logistic Regression. The results reveal that Logistic Regression outperforms the rest of classifiers in terms of accuracy achieving best. The results show that the system has better ability to detect a review as fake or original.

KEYWORDS: Machine learning, fake, reviews, Logistic Regression

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MODELS FOR SOFTWARE DEFECT PREDICTION USING CODE VECTORIZER BASED MACHINE LEARNING

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ABSTRACT

Despite careful preparation, meticulous recording, and correct process throughout software development, certain faults are inevitable. Such software flaws can result in a reduction in quality, which might be the root cause of failure. Scientists have developed a variety of methods for predicting software defects. The prediction of the presence of defects or bugs in a software module can help accelerate the testing process by enabling developers and testers to focus their efforts and resources on modules that are prone to flaws. In this research, we offer Code Victimizer, a unique approach for defect prediction that extracts traits from the language of the program's code itself.

KEYWORDS: Software metrics, machine learning, and software defect prediction.

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MACHINE LEARNING METHODS FOR LIVER DISEASE DIAGNOSIS

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ABSTRACT

Suffering from liver disease has been rapidly increasing due to excessive drink of alcoholic Inhale polluted gas drugs contamination food and packing food pickle, so that medical expert system will help a doctor to automatic prediction, with the repeated development machine learning technology, reinforcement learning for diagnosis of liver disease such as SVM, KNN Decision tree etc. liver diseases by various authors and the analysis based on accuracy, sensitivity, precision and specificity.

Keywords: Liver diagnosis, machine learning, expert system.

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CYBER HACKING BREACH PREVENTION

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ABSTRACT

The prediction of cyber hacking breaches involves using various methods and techniques to anticipate potential security threats and vulnerabilities in computer systems and networks. This process involves analysing historical data, current trends, and emerging threats to identify potential attack vectors and develop countermeasures to mitigate risk. Predictive models, such as machine learning algorithms, can be trained on large datasets of historical cyber incidents to identify patterns and trends that may indicate future attacks. Additionally, threat intelligence feeds and real-time monitoring tools can be used to detect and respond to active threats in real-time. While no system is completely fool proof, the use of predictive analytics and proactive security measures can help organizations stay ahead of potential cyber threats and minimize the impact of any breaches that do occur.

Keywords: Cyber security, Hacking, Machine Learning, Threat Intelligence, Predictive Modeling, Risk Assessment.

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DETECTION OF OBJECTS USING VOICE FEEDBACK

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ABSTRACT

Object recognition is one of the challenging application of computer vision, which has been widely applied in many areas for e.g. autonomous cars, Robotics, Security tracking, Guiding Visually Impaired Peoples etc. With the rapid development of deep learning many algorithms were improving the relationship between video analysis and image understanding. All these algorithms work differently with their network architecture but with the same aim of detecting multiple objects within complex image. Absence of vision impairment restraint the movement of the person in an unfamiliar place and hence it is very essential to take help from our technologies and trained them to guide blind peoples whenever they need.

Keywords: Object recognition, Computer vision, Multiple object detection, Image understanding

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VITAMIN DEFICIENCY DETECTION USING NEURAL NETWORK AND IMAGE PROCESSING

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ABSTRACT

A wide range of lacks of nutrient can show at least one outwardly discernable side effects and signs that show up in various areas in the human body. The application gives people the capacity to analyze their conceivable lacks of nutrient without the need to give blood tests through the investigation of photographs taken of their eyes, lips, tongue, and nails. This interaction is carried out utilizing the profound learning based CNN calculation. Here we have considered the dataset of eyes, lips, tongue and lips. When after the thought of dataset, the pre- handling is performed and afterward CNN calculation is utilized to prepare the information. When after the preparation, model is saved and the testing is performed utilizing the Open Cv.

Index Terms – Vitamin deficiency, deep learning, CNN, Open CV

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EMBEDDED BASED WIRELESS TECHNOLOGY BASED VEHICLE SPEED CONTROL SYSTEM

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ABSTRACT

As accidents are very prone nowadays so there is an increased need to prevent them. This project presented here is an approach towards vehicle navigation & safety implementation. In this smart zone sensing system, with the help of wireless network module and sensors the parameters of the vehicle are controlled by sending and receiving the signals accordingly. This project aims at automatically controlling the speed of vehicles at speed restricted areas such as schools, hospital zones etc. Nowadays the drivers drive vehicles at high speed even in speed limited areas without considering the safety of the public. The traffic police are not able to control them with full effect. Also, it is not practical to monitor these areas throughout. This paper paves way for controlling the speed of the vehicles within certain limit in restricted zones without interruption of the drivers.

Keywords: ARDUINO, GPS, LCD, L239 Driver, Buzzer.

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IOT-BASED AUTOMATIC FAULT DETECTION OF TRANSMISSION LINES

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ABSTRACT

A smart GSM based fault detection system was used to adequately and accurately indicate fault had occurred. This will ensure a shorter response time for technical crew to rectify these faults and thus, help save transformers from damage and disasters. The system uses a current sensor, Arduino, current detector, voltage sensing circuit (for overload cases), and a GSM modem. Finally, the faulty information is transmitted to the control room. In conclusion, the time required to locate a fault is drastically reduced, as the system automatically and accurately provides accurate fault location information. By using this project, we can detect the faults of three phase transmission lines one can monitor the Temperature, Voltage, Current by means of GSM modem by sending message.

Keywords: ARDUINO UNO, GSM, LCD, Voltage Sensor, Current Sensor, Relay, Transformer, Buzzer.

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VEHICLE TRACKING AND ACCIDENT DETECTION ANALYSIS AND DEVELOPMENT USING EMBEDDED SYSTEM

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ABSTRACT

This project presents review on the accident detection techniques and some future possibilities in this field. Now-a-days lots of accidents happen on highways due to increase in traffic and also due to rash driving of the drivers. And in many situations the family members or the ambulance and police authority is not informed in time. This result in delaying the help reached to the person suffered due to accident. Road accidents constitute the major part of the accident. The purpose of the project is to find the vehicle where it is and locate the vehicle by means of sending a message using a system which is placed inside of vehicle system Most of the times, we may not be able to find accident location because we don't know where accident will happen. Our project Real Time Vehicle Safety and Accident Detection with GSM is designed to avoid such situations.

Keywords: Global positioning system (GPS), Global system for mobile communication (GSM), Micro-electro mechanical system (MEMS) sensors, Arduino UNO, Liquid crystal diode based on display (LCD), Buzzer.

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CREATION OF A PNEUMATIC SHEET-CUTTING MACHINE: DESIGN AND CONSTRUCTION

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ABSTRACT

This paper presents the design and development of a pneumatic sheet cutting machine, which overcomes the failures of traditional machines. The proposed machine utilizes the components of a compressor, solenoid valve, pneumatic piston, step-down transformer, and cutter to achieve efficient and reliable cutting of various sheet materials. The pneumatic system provides a higher cutting force and speed compared to traditional machines, while the use of a solenoid valve enhances the system's responsiveness. The step-down transformer ensures safe and stable voltage supply to the machine. Overall, the proposed pneumatic sheet cutting machine provides a cost-effective and efficient solution for sheet cutting applications.

Keywords: Pneumatic sheet cutting machine, compressor, solenoid valve, pneumatic piston, step-down transformer, cutter, efficient cutting, reliable cutting, precise control, cutting force, cutting speed, higher cutting force, higher cutting speed, cost-effective, sheet cutting applications

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DESIGN& FABRICATION OF PAPER PLATE MAKING MACHINE

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ABSTRACT

This project presents a design and development of a paper plate making machine using a motor and pulley system. The machine is aimed to provide a solution to the manual process of making paper plates, making it more efficient and reducing the time and effort required. The motor drives the pulley system. The design of the machine is compact and portable, making it suitable for small-scale production and easy to use by anyone. This machine will be effective in producing paper plates with uniform size and shape.Single power source to generate multiple plates at a time is a highly innovative and efficient approach to paper plate production. This technology involves the use of a single motor or power source that drives multiple paper plate making machines simultaneously, resulting in a higher production rate and lower operating costs.

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THE CREATION OF A MULTI-SPINDELL DRILLING MACHINE

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ABSTRACT

Multi-spindle drilling machines have become increasingly popular in the manufacturing industry due to their ability to increase productivity and reduce cycle time. This paper presents the design and development of a multi-spindle drilling machine that is more efficient compared to a regular single spindle drilling machine. The machine is capable of drilling multiple holes simultaneously, ensuring consistency and accuracy in the drilling process.

The design incorporates several features, including multiple spindles, customizable drilling patterns, and reduced manpower requirements, making it a cost-effective option for high-volume production runs. The performance of the machine was evaluated through drilling tests and compared to a regular drilling machine. The multi-spindle drilling machine is a valuable investment for any manufacturing operation that requires high-volume, consistent, and accurate drilling operations.

Key words: Multi-spindledrilling, Manufacturing industry, Productivity, Cycle time, Design and development, Simultaneous drilling, Consistency, Accuracy,Cost-effective,Valuable investment.

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DESIGN AND CONSTRUCTION OF A TABLE FOR A JIGSAW MACHINE

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ABSTRACT

The jigsaw machine table project aims to design and construct a stable and versatile cutting platform for a jigsaw machine. The project involves selecting appropriate materials, designing the table and supporting arm, cutting and welding the metal sheet, and assembling the components. The final product is a functional and durable jigsaw machine table that provides improved cutting accuracy, safety, and versatility compared to handheld jigsaw machines. The project results demonstrate the benefits of using a jigsaw machine table in various applications, such as woodworking, metalworking, and DIY projects. The project also highlights the importance of careful planning and design to ensure the table's stability, adjustability, and ease of use. Overall, the jigsaw machine table project provides a practical and cost-effective solution for anyone seeking to enhance their cutting capabilities and efficiency in their workshop or hobby projects.

STUDY ON COMPRESSIVE STRENGTH OF CONCRETE BY USING ALCCOFINE AND QUARRY DUST AS A PARTIAL REPLACEMENT OF CEMENT AND FINE AGGREGATE

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ABSTRACT

This paper presents the study on compressive strength of concrete using Alccofine and Quarry Dust as a partial replacement of cement and fine aggregate of M-25 grade of IS cube specimen. We partially replaced cement by weight of binder with Alccofine replacement with percentages of 1% ,3%,5%,7% and 9% similarly, we partially replaced fine aggregate by the weight of quarry dust replacement with percentages of 5%,10%,15%,20% and 25% and also combination of both the above two cases. Also, we have investigated strength in compression for all various cases. The comparison is carried between the compressive strength of the conventional concrete, Alccofine concrete, Quarry dust concrete and Alccofine and quarry dust concrete

KEYWORDS: Alccofine ,Quarry Dust ,strength ,supplementary cementious material, fine aggregate.

REINFORCED CONCRETE BEAM WITH ARTIFICIAL PLASTIC FIBRE (APF) AS PARTIAL REPLACEMENT OF COARSE AGGREGATE'S STRUCTURAL PERFORMANCE

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ABSTRACT

Previous research involves on how the utilization of recycled plastic in concrete is an effective solution to enhance sound and thermal insulation. The aggregate comprises the largest and heaviest portion of concrete, which accounts for 85% of its weight. Besides, the plastic has a low density compared to the aggregate. As a result, the use of plastic waste as a partial replacement (50% to 75%) for the total aggregate significantly boosts the efficiency of thermal and sound lightweight concrete insulation. In our Present work consisted on the one hand in the formulation of a concrete made of Artificial plastic fibre based on local materials: cement, gravel and sand, and on the other hand in the study of the effect of the Artificial plastic fibres on the behaviour of the beams concrete. The formulation was obtained in the search for the optimal percentage of the Artificial plastic fibres and by adopting as a criterion the handling of the concrete for the optimum dosage retained in Artificial plastic fibres, the influence of the Artificial plastic fibre on the mechanical behaviour of the M25 grade concrete such as the resistance to compression, tensile strength and flexural strength.

The results of this study have highlighted the reduction of plastic waste in the environment for an improvement of the mechanical properties of concrete as well as the concrete bond strength is improved and the cracks in the concrete decrease the use of fibres and reduce plastic waste. And the suitability of Artificial plastic fibres as lateral reinforcement in concrete beam is investigated. Crack pattern due to shear failure is also studied for beams with lateral reinforcement and Beams with Plastic fibres as lateral reinforcement.In future work involves the optimum usage of artificial plastic fibres and it can be tested for durability conditions and effect of various chemical reactions on it. It can also be tested for higher grades of concrete. The strength of concrete containing APF for a longer age of curing can also be tested.

Keywords: Concrete, Artificial fibres, cube and cylinder, compressive strengths, tensile strength ,flexural strength.

IMPACT OF STEEL SLAG AS A PARTIAL REPLACEMENT FOR COARSE AGGREGATE ON THE MECHANICAL CHARACTERISTICS OF CONCRETE

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ABSTRACT

Concrete is the third largest material consumed by human beings after food and water as per WHO. Concrete plays a vital role the design and construction of the nation's infrastructure. Almost three quarters of the volume of concrete is composed of aggregates. These are obtained from natural rocks and river beds, thus degrading them slowly. This issue of environmental degradation and need for aggregates demands for the usage of any other alternative source. Thus the concept of replacement of coarse aggregate with steel slag seems to be promising. Previously many researchers performed their research works on steel slag as partial replacement for coarse aggregate with various mix proportions of 25%,50%,75% and 100%. They studied mechanical properties such as compression and flexural behaviour of concrete with partial replacement of steel slag as coarse aggregate. In this study an attempt is made to use steel slag, a by-product from steel industry as replacement for coarse aggregate in concrete. M30 grade of concrete was used. The aim of this project is to study on optimum replacement of steel slag by coarse in concrete results. Mix design is based on IS:10262-2019 and characteristic study of aggregate. Various mix proportions of 15%,30%,45% and 60% were made. Tests like compression, split tensile and flexural behaviour of concrete is studied. In future work involves the effective usage of steel slag and it can be tested for durability conditions. It can also be tested for higher grades of concrete. Bond pattern between steel slag and cement paste is also studied by conducting Scanning Electronic Microscopy(SEM) and Elecronic Dispersive Spectrography(EDS) tests.

Keywords: Compressive strength, Tensile strength and Flexural strength

INSTRUMENT PANEL CLUSTER VALIDATION FOR AUTOMOTIVE EMBEDDED SYSTEMS USING THE CANOE CONFIGURATION TOOL

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ABSTRACT

The rapid increase of technology and advancements in automobiles has introduced software in the automotive industry. Nowadays, embedded systems and software have become a backbone and created a revolution in the automotive industries. Thus every component in a car depends on software for its functioning. Electronic Control Unit (ECU) is the heart of an automobile, the development of software to control the ECU plays a major role. The development of ECU includes both hardware and software development. To attain a greater level of confidence during the development of software, software testing is necessary. Nowadays testing of software became a crucial task because with multiple lines of code the complexity of software has escalated. This project is about how the automotive industries prepare and test their software before delivering to the customers. There are many software testing methods in different stages of the software development process.

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UTILISING MICROSCOPIC IMAGES, CANCER CELL DETECTION IN HUMAN BLOOD SAMPLES

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ABSTRACT

In modern medicine, blood testing is regarded as a vital clinical examination due to the critical information it can provide about a patient's health. The properties of blood cells, including their volume, shape, and color, are essential indicators of various health conditions. However, manual inspection of blood cells is a laborious process that requires specialized technical knowledge. Therefore, there is a need for automatic medical diagnosis technologies to assist clinicians in quickly and accurately identifying disorders. One crucial aspect of this process is blood cell segmentation, which involves separating defective or abnormal cells from a complex background and segmenting them into distinct components using image processing techniques such as contrast enhancement, thresholding, and morphological operations. This study presents a novel technique that minimizes noise and enhances the visual quality of segmentation. Compared to previous approaches that used different segmentation strategies, the proposed method showed higher efficacy. The proposed technique can be implemented using the Matlab environment.

Keywords— Blood cell, Abnormal cell, Image processing, Image segmentation, Image enhancement, Thresholding techniques.

REVERSIBLE LOGIC-BASED ENERGY EFFICIENT AES FORWARD MIX COLUMN

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ABSTRACT

Reversible logic is one of the most important issues at the moment and has a wide range of applications, such as low power CMOS, quantum computing, nano technology, cryptography, optical computing, DNA computing, and -digital signal processing (DSP), quantum Dot automata for mobile, communication, computer graphics. It is not possible to detect quantum computing without the implementation of a postponed brain operation. The main objectives of design are logical thinking to reduce quantum costs, circuit depths and the amount of waste disposal. Reversible circuits form the basic building block of quantum computers as all quantum functions are reversed.

Key Words: Reversible Gates, AES Mix Column.

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SECURE HEALTH MEDICINE REMINDER AND MONITORING SYSTEM

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ABSTRACT

In modern society, busy life has made people forget many things in day-to-day life. The elderly people and the people victims of chronicle diseases who need to take the medicines timely without missing are suffering from dementia, which is forgetting things in their daily routine. Considering this situation study has been done in this. Paper reviewing the technologies of home health care which are currently used for improving this situation by reminding the scheduled of medicine, remote monitoring and update new medicine Consumption data of patients, which can be done by prescriber through IOT. Many medical errors are due to the fact that people in charge of patient or elder's medication have to deal with sorting huge amounts of pills each day. Our smart pill box is programmable that enables medical caretakers or clients to determine the pill amount and timing to take pills, and the service times for every day.

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THE EFFECTIVENESS OF UNDERWATER WIRELESS OPTICAL COMMUNICATION UNDER TURBULENT CONDITIONS

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ABSTRACT

We propose the impact of turbulence on performance of UWOC systems and investigate capacity and bit-error rate (BER) of underwater wireless optical links under weak and strong turbulence by deriving the expressions of average capacity and BER. Numerical results suggest that turbulence degrades both capacity and BER performance as expected. This work provides a theoretical analysis tool for system design and performance evaluation of UWOC systems. Under water optical wireless Communication (UOWC) has recently emerged as a unique technology facilitating high data rates and Moderate distance communication in undersea environment underwater optical wireless communication (UWOC) is an emerging technology for under water wireless sensor networks.

IndexTerms—Underwater wireless optical communication, channel capacity, BER, turbulence.

MULTIPURPOSE IOT-BASED SECURITY ROBOT SYSTEM

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ABSTRACT

Security systems are essential during any emergencies that occur at banks, houses, ATMs, commercial areas, women safety at nights and at national borders etc. This proposed work is IoT based multipurpose security system by using embedded system and GSM module with GPS to send an emergency message with location and generate an alarm in order to mitigate and ensure the security and as well as which we can activate the device to monitor at closing hours of banks and respective commercial areas. This device notifies the inappropriate actions to the police control Centre, as well as family and friends for the women safety. The wireless interface is appropriate and can be triggered by the victim simply by pressing a push button when they are abused and it can also be used to detect at inappropriate actions at banks, national borders and commercial places by using PIR sensor. This work provides the safety at banks, ATMs and safety for the women. This proposed work is cost effective, user-friendly, this proposed work is cost effective, user-friendly, easy to access, efficient and multipurpose security system

Index Terms: This proposed work is IoT based multipurpose security system by using embedded system and GSM module with GPS to send an emergency message.

FEATURE ENHANCEMENT PYRAMID (FEP) AND SHALLOW FEATURE RECONSTRUCTI ON (SFR) NETWORKS FOR SAR SHIP DETECTION IN MATLAB

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ABSTRACT

The feature enhancement pyramid and shallow feature reconstruction network (FERSFRN) is a deep learning-based approach proposed for the SAR Ship Detection project. The FER-SFRN method aims to improve the accuracy and efficiency of ship detection in SAR images by enhancing the features in the images and reconstructing shallow features. The FER-SFRN method is based on a pyramid structure that enhances the features in SAR images at multiple scales. The pyramid structure consists of a feature enhancement module (FEM) and a shallow feature reconstruction module (SFRM). The FEM module enhances the features in SAR images by using a convolution neural network (CNN) to extract features and a feature pyramid module to enhance the features at multiple scales. The SFRM module reconstructs the shallow features by using a shallow feature reconstruction network that maps the enhanced features back to the original image space. The FER-SFRN method is trained and tested on SAR ship detection datasets to evaluate its performance. The results show that the FER-SFRN method outperforms other state-of-the-art methods in terms of accuracy and efficiency. The FER-SFRN method also has potential applications in other areas that require feature enhancement and shallow feature reconstruction in image processing.

Overall, the proposed FER-SFRN method is a novel and effective approach for SAR ship detection that can enhance the features in SAR images and reconstruct shallow features, leading to improved accuracy and efficiency. The successful implementation of the FER-SFRN method can contribute to the advancement of SAR-based ship detection technology and have practical applications in various fields.

Keywords: Feature Enhancement Pyramid, Shallow Feature Reconstruction Network, Matlab software.

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LOW POWER AND AREA EFFICIENT TIMING ERROR TOLERANT SYSTEM DESIGN AND IMPLEMENTATION

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ABSTRACT

In recent years, the increasing rate of error occurrence on semiconductors, timing error is currently receiving more attention due to the technological advancements. Timing error refers to the difference in the expected and actual timing behavior of a digital circuit or system. In other words, it is the deviation of the actual delay in the circuit from the desired or expected delay. Timing errors can result in incorrect data processing or transfer and can lead to functional failures or degraded performance in the circuit or system. Timing errors can be caused by a variety of factors, including process variations, temperature fluctuations, power supply noise, and parasitic capacitances and resistances. Timing analysis and optimization techniques are used during the design process to minimize timing errors and ensure the correct operation of the circuit or system. To deal with a timing error, many techniques have been introduced. Nevertheless, existing methods that mitigate a timing error mostly have time-delaying mechanisms and too complex operation, resulting in a timing problem on clock-based systems and hardware overhead. In this paper we propose a novel timing-error-tolerant method that can correct a timing error instantly through a simple mechanism. To prevent timing errors, VLSI designers use timing analysis tools to verify that the circuit meets its timing requirements. These tools take into account the timing constraints of the design and simulate the circuit behavior to ensure that all timing parameters are met. In addition, designers use techniques such as clock skew optimization, clock tree synthesis, and buffering to minimize timing errors and ensure that the circuit operates correctly.

Index Terms: Error detection and correction, timing error, timing-error-tolerant system

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EFFICIENT METHOD TO CLASSIFY BRAIN DISEASE AND BRAIN AGE USING SVM AND CNN

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ABSTRACT

This project aims to estimate brain age and brain disease classification using convolutional neural networks. Brain morphometric pattern analysis has been increasingly investigated to identify age-related imaging biomarkers from structural magnetic resonance imaging (MRI). MRI is a non-invasive means of potentially identifying abnormal structural brain changes in a more sensitive manner. Abnormality/normality like Mild Cognitive Impairment (MCI), Alzheimer Disease (AD) and Healthy Control (HC) were classified using brain MRI images. Accuracy of traditional method, Support Vector Machine (SVM) is analyzed, implemented and compared with the novel Convolutional Neural Network (CNN) which is of deep learning technique. After these process, range of brain age is estimated which is based on type of abnormality/normality.

Keywords – Convolutional neural network, Deep learning, Support vector machine, Magnetic resonance imaging.

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VIDEOBASED EVIDENCE ANALYSIS AND EXTRACTION IN DIGITAL FORENSIC INVESTIGATION WITH YOLO V7

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ABSTRACT

The use of video-based evidence in digital forensic investigations has become increasingly important in recent years. This paper proposes an enhanced system for video-based evidence analysis and extraction using YOLO v7, compared to the existing system that utilizes YOLO v3. The proposed system offers improved accuracy and efficiency in detecting and tracking objects in surveillance videos, thus facilitating the extraction of relevant evidence for forensic investigation. The YOLO v7 model incorporates advanced features such as improved object detection algorithms, larger and more diverse training datasets, and increased processing power, resulting in higher accuracy and faster processing times. This paper presents a comparative analysis of the performance of YOLO v3 and YOLO v7 in video-based evidence analysis and extraction, demonstrating the superiority of the proposed system in terms of accuracy, precision, recall and F1 Score.

Keywords- Object detection, extraction, bounding box, Yolov7, precision, recall, Accuracy.

EARLY DETECTION OF ILD USING FUSION TECHNIQUES

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ABSTRACT

There are several conditions that cause lung fibrosis (scarring), collectively known as "interstitial lung disease" (ILD). Nodule, Idiopathic Pulmonary Fibrosis (IPF), Sarcoidosis, and Honeycomb are the four main groups of ILDs. Some image enhancement methods based on wavelet transform and IHS transform-based image enhancement can be used to make an early detection of these ILDs. Edges and textures are examples of characteristics that may alter at different sizes for photographs using wavelet transforms, a mathematical method. One of the most often employed sharpening methods is the IHS method. To convert a colour picture from the RGB space to the IHS space, many transformations have been created. Applying image enhancement techniques and comparing them using evaluation parameters like Peak Signal to Noise ratio (PSNR), Volume of Interest (VOI), Structural Similarity Index Method (SSIM), Mean Square Error (MSE),and Global Consistency Error (GCE) for the various pulmonary image modalities will allow for more accurate abnormality extraction. The SVM classifier uses extracted characteristics from improved pictures that were produced using image enhancement techniques to categorise the illness. This promotes improved prognosis, prevents severe diseases, and aids in the early diagnosis of ILDs.

KEYWORDS: Nodule, Wavelet Transform, HIS Transform, Mean Square Error (MSE), Structural similarity index method, (SSIM), PSNR, VOI, SVMC, MATLAB.

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COMPACT MICROSTRIP PATCH ULTRA-WIDEBAND ANTENNA FOR INDUSTRIAL APPLICATIONS

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ABSTRACT

The tiny microstrip UWB antenna with step impedance microstrip line is a revolutionary design that is put forth in this study. The antenna is composed of a rectangular patch with slits on the top face and a partial ground with slots at the back end and. The antenna, whose dimensions are 28 mm 32 mm (L W), is fabricated on Rogers RT/Duroid 5880 TM, which has a 2.2 relative permittivity dielectric. The planned antenna can operate between 3 GHz and 10.26 GHz, when the bandwidth(fh-fl) is within the range of 7.26 GHz. On the majority of operating bands, this antenna emits radiation in every direction. In the antenna anechoic chamber, a radiation pattern is measured. To determine whether the suggested antenna is suitable for UWB applications, both time and frequency domain analyses are performed on it. For feeding, a BNC female connector is employed. Antenna characteristics like loss of return and radiation pattern reveal fair agreement with the results of the simulation.

Keywords- Antenna Array, Microstrip Patch, Ultra-Wide Band (UWB), Slots, Gain, Radiation Pattern, HFSS

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LOCKER SECURITY SYSTEM WITH VOICE AND IMAGE AUTHENTICATION

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ABSTRACT

Security and identification of people, particularly in bank lockers, are crucial for daily life. As we develop as people and acquire numerous items that are critical to each person, such as important documents, jewels, personal belongings, and more, we need an acceptable level of security in banks. The globe has seen significant transformation, from the early mechanical devices to the modern electronics industry. A new type of door-locking system that uses facial recognition, voice recognition, and user data to validate digital information has been developed by technology. In this method, the bank gathers each person's biometric information for locker access. Only individuals who have been confirmed are permitted to collect the funds; for each individual's unique identification, records of their faces and biometrics are stored. The choices for facial recognition and detection have only been taken into account because they are frequently utilized on interactive user interfaces and are crucial to computer vision. Face sensing algorithms must be reliable and effective. By the employment of ESP32 cameras for face detection and face tracking as well as a GSM module, we suggested a voice identity and face recognition system.

Keywords: GSM, ESP32, ARDUINO, OTP.

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CREDIT CARD FRAUD DETECTION USING MACHINE LEARNING

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ABSTRACT

Credit card fraud is a significant issue that financial institutions are always attempting to address. Financial institutions can avoid financial losses and safeguard their consumers from financial harm by detecting fraudulent transactions early. In this research, we offer a strategy for detecting fraudulent credit card transactions that use machine learning algorithms, specifically Decision Tree, Random Forest, and Extreme Gradient Boosting. We assess the performance of our model on public data samples as well as real credit card transaction data from a financial institution. In addition, we introduce noise into the data samples to assess the system's robustness. Our method entails building a decision tree based on user activity and utilizing it to detect possible fraudulent transactions. In addition, we build a forest of decision trees based on user behaviour to improve the accuracy of detecting fraudulent transactions. Our experiment results show that these strategies are highly accurate at detecting credit card fraud. Overall, our solution appears to be a promising method for detecting fraudulent credit card transactions.

Keywords—Decision Tree, Random Forest and Extreme Gradient boosting algorithms.

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DESIGN OF MULTI-FUNCTIONAL CAMOUFLAGE MILITARY ROBOT

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ABSTRACT

In today's world,a significant portion of the nation's capital has been used for defence to set up basic and advanced security measures and protect border guards from people who don't belong there. Few military organisationsutilise robots in the region of defence, and robots beat humans in terms of efficiency. Camouflaged robots play an important part in preventing humans and property damage during natural disasters. As a result, it will become more important in the coming period. The robot is simply a prototype equipped with a 360 degrees camera that records pictures and identifies colour as part of the camouflaging feature. The robot may approach an enemy location discreetly and communicate information to the adversary via the camera to the microcontroller. This article's primary objective is to strengthen defence through the use of robots, which will aid in safeguarding human lives. In this article, a system using an Arduino Uno, Metal Detectors, Buzzer , and Gas Sensors, PIR sensor, Ultrasonic sensor is suggested, which enables the robot to perform various operations.

Keywords: Arduino Uno, Ultrasonic Sensor, Metal Detector, Node MCU, Colour Sensor, Buzzer

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SLOTTED MULTIBAND MICROSTRIP ANTENNA FOR ULTRA WIDEBAND APPLICATIONS

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ABSTRACT

It has been a design issue to address the requirement for numerous bands in a single patch antenna that will be used for ultrawideband (UWB) applications. To address the same, a center-fed microstrip antenna(MA) is presented in this study. To improve the overall performance, modifications like radiating slots and Defected Ground Structure (DGS) have been implemented. The proposed antenna, with an operational frequency of 3.5 GHz, is discovered to resonate at six frequencies, including 3 GHz, 4.1 GHz, 4.7 GHz, 7.0 GHz, 7.1 GHz, and 9.4 GHz. Its overall gain and directivity are 3.4877 dB and 3.7494 dB, respectively. The performance is examined using variables such as return loss (S11), VSWR, bandwidth, and radiation patterns. Analyses and simulations have been performed using ANSYS HFSS software.

KEYWORDS: Ultrawideband, Defected Ground Structure, Microstrip Antenna, Return Loss, VSWR, HFSS

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COMPACT WIDEBAND PATCH ANTENNA FOR MILLIMETER WAVE APPLICATIONS

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ABSTRACT

In this study, a Microstrip Patch Antenna(MPA) with increased bandwidth is designed for millimeter wave(mmW) applications. Due to its low dielectric loss, a relatively thin Rogers RT/Duroid 6002, with a dielectric constant of 2.94 and a height of 0.76 mm, is employed as the substrate. To further improve the overall antenna performance, Defected Ground Structure(DGS), parasitic patch, and slots have been applied. Following the application of all these adjustments, it is discovered that the proposed antenna achieves an overall gain and directivity of 4.6 dB and 6.5 dB, respectively, along with an S11 of -23.20 dB and Voltage Standing Wave Ratio(VSWR) of 1.12. Ansys High Frequency Structure Simulator(HFSS) is used for simulation and design..

KEYWORDS: Defected Ground Structure, Microstrip Patch antenna, millimeter wave, Parasitic Patch, Slots, HFSS.

THE CHALLENGE OF PAPR REDUCTION IN OFDM – AREVIEW

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ABSTRACT

Orthogonal Frequency Division Multiplexing (OFDM) is a spectrally effective multicarrier modulation approach. This approach is used over multipath fading channels for high-speed data transmission. The OFDM systems are used in different applications such as wireless networks, digital television, power line networks, audio broadcasting and 4G (fourth generation) mobile communications. Multiple Input and Multiple Output Orthogonal Frequency Division Multiplexing (MIMO-OFDM) is a popular technique for 4G (fourth generation) mobile radio communication. Future wireless communication network systems will integrate MIMO with OFDM to transfer high-speed data across several carriers. Main problem with OFDM is its high Peak-to-Average Power Ratio (PAPR), as a result of which the complexity of power amplifiers is affected. The transmitted signal strength, bit error rate (BER), complexity etc. are all sacrificed to lower the OFDM signal's PAPR. Using peak insertion (PI), partial transmit sequence (PTS), linear block coding (LBC), selective mapping (SLM), clipping and filtering techniques, the PAPR of the OFDM signal at the transmitter is reduced in this study. The same methods are used in the MIMO-OFDM system to lower PAPR.

KEYWORDS: Orthogonal Frequency Division Multiplexing, peak-to-average power ratio, Bit Error rate, Complementary Cumulative Distribution Function, Single Input Single Output, Multiple Input Multiple Output.

UNDERWATER OBJECT (FISH) DETECTION USING IMAGE SEGMENTATION

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ABSTRACT

Object detection is a computer vision approach for identifying and locating things in images and videos. Object detection, in particular, creates bounding boxes around identified items, allowing us to see where they are in (and how they move through) a scene. Because object detection and picture recognition are frequently confounded, it's critical to understand the differences between the two before moving forward. An image is labelled using image recognition. The term "fish" is used to a photograph of a fish. The label "fish" is still applied to a photograph of two fishes. Object detection, on the other hand, draws a box around each fish with the word "fish" written on it. The model forecasts the location of each object and the label that should be applied.

There have been tons of research done over a decade in the field of underwater segmentation but it is always difficult to get accuracy for this provided the pixel intensity under the water is uniform throughout the image, unlike the ground-based segmentation. To carry out this effectively under the water, two features were integrated into the level set. Transmission and region-level saliency features. The existing method was proposed to segment image into 2 partition – object and background. In which local segmentation is concerned with a certain area or portion of image and global segmentation is with respect to the entire image. Since energy functions are been used, a smaller energy solution is received by minimizing the lower-order function which was the result of higher order energy function being transformed by Taylor expansion First or second order. The proposed method does not require any specific forms of energy. Since the existing order reduction method is been a successful approach to a polynomial of higher order binary function, to accommodate a lower energy we need to transform them into polynomial first. However, the approach which is been considered in this report can be applied to both polynomial and non-polynomial functions. We have used this segmentation process to detect the Cetaceans and Animalia from underwater image to get a satisfactory result.

Keywords: Object detection, Underwater Segmentation, Transmission map, Saliency map

MULTIPLE DISEASE PREDICTOR USING MACHINE LEARNING

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ABSTRACT

In the today busy world, people are suffering from many diseases due to the negligence. Even though there are suffering with few symptoms, they will just ignore them as they don't find time to go to hospital and meet doctors. Few thinks that they are just common due to weather changes and etc., so neglect their health. This is the reason why many patients are suffering from chronic diseases as because they are not detected at early stage. So, we are developing an app through which users can find the disease they are suffering from by just entering the symptoms they have. In this study, we're identifying the disease based on the symptoms they reported and suggesting a hospital that's close by. For this we have considered a dataset that consists of 95 symptoms and 41 diseases. Detection of the disease can be done using Machine Learning Models. Three machine learning algorithms were employed. Naive Bayes, Decision Tree, and Random Forest are the first three algorithms.

Keywords: – Machine Learning, Naive Bayes, Decision Tree, Random Forest.

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A SEPIC CONVERTER IS USED WITH A SOLAR PV ARRAY TO POWER AN INDUCTION MOTOR

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ABSTRACT

Solar energy is one of The most promising non-conventional sources of energy and has gained a lot of attention in recent years due to its potential to reduce carbon emissions and dependence on fossil fuels. However, as mentioned in the statement, conventional DC-DC converters such as Buck, Boost, and Buck-Boost converters may not be suitable for low and medium voltage Induction Motor (IM) drive applications due to various limitations.To overcome these limitations, three advanced DC-DC converters - SEPIC, Zeta, and Landsman converters - have been studied in this article. These converters can work as Buck-Boost converters based on the load requirements and are capable of providing power factor correction, constant output voltage, and reduced harmonic distortion.To track the fast changes in solar irradiances, the P&O MPPT technique has been used, which is an iterative process that adjusts the output of the solar panels to maximize power output. Additionally, these converters are also used for the soft starting of squirrel cage induction motors.

The output of these converters is given to a three-phase Voltage Source Inverter (VSI) to run the Induction Motor (IM) drive. The performance of the three converters has been compared for IM drive applications using MATLAB Simulink software.Overall, the study highlights the importance of using advanced DC-DC converters for solar energy-based Induction Motor (IM) drive applications, and the comparison of different converters can provide insights into the most suitable converter for a given application.

Keywords: Photo voltaic, SEPIC, Zeta, and Landsman converters, Induction Motor (IM), Voltage Source Inverter (VSI), MATLAB Simulink software.

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CONTROLLING AND ARRANGEMENT OF A VIRTUAL STATCOM SYSTEM BASED ON DISTRIBUTED GENERATION

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ABSTRACT

Over the past few years, with the rise in the number of links to spread out generation (DG),the challenge of declining voltage stability in the distribution system has become a cause for concern. Reactive power facilitators, like Static Synchronous Compensators (STATCOM),can be employed to address the difficulty of voltage stability diminishment. Nevertheless, due to the intricacy of the distribution system, it is difficult to pick the installation location for STATCOM. Moreover, if wrongly located, problems related to economic efficiency and availability may take place.This paper suggests a Virtual STATCOM Configuration and Control technique that would act as a single STATCOM based on many DGs connected to the framework. The proposed Virtual STATCOM has the advantage of being economical by using pre-existing facilities without adding new power facilities, and it resolves the problem of trouble in deciding the installation location due to the complexity of the distribution.

Keywords: Voltage stability, Static Synchronous Compensators

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DESIGN OF A SEPIC CONVERTER TO POWER AN INDUCTION MOTOR

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ABSTRACT

This paper presents the design of a SEPIC (Single-Ended Primary Inductor Converter) converter for powering an induction motor. The objective is to develop an efficient and reliable power supply system that meets the specific requirements of the motor. The design focuses on key aspects such as power requirement determination, voltage regulation, input power factor correction, control and protection mechanisms, efficiency optimization, compactness, cost-effectiveness, and compliance with standards and regulations. The power requirement is calculated based on the motor's rated power and efficiency specifications, ensuring adequate power output. Voltage regulation is achieved to maintain a stable and regulated output voltage, which is essential for optimal motor performance. Power factor correction techniques are employed to improve overall efficiency and reduce harmonics injected into the power grid. The design incorporates a control strategy that enables smooth and reliable motor operation. Protection mechanisms are implemented to safeguard the motor and converter against overvoltage, overcurrent, and other fault conditions, enhancing system reliability. Efficiency optimization techniques, including component selection, loss minimization, and control algorithm optimization, are employed to achieve high efficiency throughout the operating range. The designed SEPIC converter system is validated through simulations and prototyping, followed by comprehensive testing to verify performance, efficiency, and reliability. The results demonstrate the successful implementation of the converter, providing a stable and efficient power supply to the induction motor, thereby enabling optimal motor performance in various applications.

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EIGHT BUS SYSTEM DPFC USE FOR POWER QUALITY IMPROVEMENT USING CERTAIN CONTROLLERS

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ABSTRACT

This article "Power Quality Improvement Utilizing DPFC In Eight Bus System Using Certain Controllers" aimed at obtaining the control is carried out by the Distributed Power Flow Controller (DPFC) recently presented is a powerful device within the family of FACTS devices, which provides much lower cost and higher reliability than conventional FACTS devices. It is derived from the UPFC and has the same capability of simultaneously adjusting all the parameters of the power system: line impedance, transmission angle, and bus voltage magnitude. Within the DPFC, the common dc link between the shunt and series converters is eliminated, which provides flexibility for independent placement of series and shunt converter. The DPFC uses the transmission line to exchange active power between converters at the 3rd harmonic frequency. Instead of one large three-phase converter, the DPFC employs multiple single-phase converters (D-FACTS concept) as the series compensator. This concept not only reduces the rating of the components but also provides a high reliability because of the redundancy.

Keywords: Flexible AC transmission System (FACTS), Distributed Power Flow Controllers(DPFC)

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DC MICROGRID HYBRID ENERGY MANAGEMENT SYSTEM USING RENEWABLE ENERGY SOURCES

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ABSTRACT

This work proposes the open loop DC Micro-Grid containing renewable energy sources, storage elements and loads are presented. The controller ensures hybrid energy power balance and grid stability even when some devices are not controllable in terms of their power output, and environmental conditions and load vary in time. Open loop DC micro-grid system framework with disturbance, DMG frameworks are formed; shown and simulated using Simulink in MATLAB and their results are presented. Assessment is done regarding settling time and steady state error. The assessments exhibit the unmatched execution of controlled DC-MGS framework. The proposed framework has tendency like minimising the consonant substance and quick reaction.

Keywords: Renewable Energy Sources1, Solar-Wind Hybrid Power System 2,DC Microgrid 3

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A NEW REBOOST CONVERTER WITHOUT TRANSFORMERS AND GRID-CONNECTED INVERTER FOR A PV SYSTEM

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ABSTRACT

This paper introduced An Innovative Transformer free reboost converter and grid connected inverter for a PV system. The PV array can be directly connected to the Reboost converte and proposed grid-connected inverter closed loop PID and Hysteresis controlled systems. The proposed grid-connected power converter consists of a dc–dc power converter and a dc–ac inverter. The salient features of the proposed power converter are that some power electronic switches are simultaneously used in both the dc–dc power converter and dc–ac inverter, and only two power electronic switches operate at high switching frequency at the same time (one is in the dc–dc power converter and the other is in the dc–ac inverter). The leakage current of the photovoltaic generation system is reduced because the negative terminal of the solar cell array is connected directly to the ground. The circuit will be simulated using MATLAB Simulink

Keywords: Renewable Energy Sources1, Reboost converter2, Power converter3

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SEPIC CONVERTER-BASED HYBRID ENERGY MANAGEMENT SYSTEM FOR AC GRID SYSTEMS

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ABSTRACT

This project deals AC micro-grid connected buck boost converter with inverter existing method compared to proposed AC micro-grid SEPIC converter with inverter system in mat lab simulink. AC micro grid system has been proposed as a SEPIC converter with inverter power network that enables the introduction of a large amount of solar energy using distributed photovoltaic and battery units source side input. The voltage flow battery, a key component for supply-demand adjustment in the AC micro grid system.

Keywords: MC – Microgrid, SEPIC Converter, PV-Photo voltaic

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THE FORM AND MAKE OF A ROBOTIC ARM BLUETOOTH-CONTROLLED VEHICLE TECHNOLOGY

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ABSTRACT

In this new era, robots are used in various areas such as welding, painting, assembly etc. Robotic arms are used in various areas such as military, defense, Medical Surgeries, pick and place function in industrial automation applications. This is due to the vast potential it holds in reducing human effort in performing tasks faster will still maintaining operational accuracy. By sending the robotic vehicle to hazards environment like chemical analysis, firework manufacturing industry, bomb diffusing etc. This system consists of a mechanical based robotic arm comprise of a Bluetooth module which work as the receiver for vehicle by sending commands to the microcontroller. Which executes according to the signals received by Bluetooth technology. This steps require for developing and designing the arm's structure and mechanical components, such as joints, links, and end-effectors. Implementing control algorithms to achieve the desired motion. In this project work, choosing the right type of electric motors to drive the arm's movement and integrating the sensors with other feedback devices, to improve the arm's accuracy. On successful completion on this project, Precise, Repeatable motions, Increased Efficiency, Increased Dexterity, Improved Interaction, Adaptability, Enhanced Safety and Integration with Other Systems.

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GPS-BASED QUAD COPTER CALCULATION FOR DELIVERY APPLICATION

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ABSTRACT

Quadcopter are widely used in various other applications including agriculture because the design is simple and the concept of motion is easy to understand. The present work aims to develop a quadcopoter capable of carrying a weight of 1.5kgs excluding the self weight of the drone. In this project to achieve the objective Pixhawk 2.4.8 flight controller is used to plan the delivery missions using mission planner software. The quadcopter is also equipped with four 1400KV brushless motors which are capable of generating a thrust equal to 2kgs when the thrust to weight ration is considered as 3:1. A 10 inch propeller is used to provide the necessary lift for the drone. A 40 amps ESC provides the necessary current to run the brushless motors smoothly. A six channel transmitter and reciver along with GPS is used to communicate with the quadcopter, A telemetry module is installed to mark the flight path to achieve the delivery applications, support various quadcopter applications for smart and precision farming on fix agricultural lands. The trajectories are predetermined in accordance to the location of the delivery.

Keywords: UAV(Unmanned aerial vehicle),Drone develivery,Pixhawk flight controller 2.4.8,GPS.

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DESIGN AND CONSTRUCTION OF A LOW-COST ELECTRIC WHEELCHAIR FOR SENIORS

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ABSTRACT

Electric wheelchairs, also known as power chairs, are mobility devices designed to assist individuals with mobility impairments and aged people. Electric wheelchairs use a battery-powered motor to drive the wheels and are controlled by a joystick or other control devices like Smartphones. The project aims at developing a low cost electric wheel chair that is capable of converting into bed. The electric wheel chair is designed insolidworks and electric wheel chair is fabricated with improved mobility capable of carrying a weight of 80120kg with a speed of 5-8kmph. The purpose of this project is to create an electric wheelchair that is user-friendly, efficient, and cost-effective. The mobility of electric chair is achieved with the help of smart phone to help the movement of the disabled and the elderly people. By combining Smartphone and Wi-Fi technology, Electric wheelchair that can be controlled wirelessly using a Smartphone and therefore solve the problem mentioned above since it is easy to move the wheelchair around without requiring too much energy. This project uses NODE MCU as the main controller to control the DC motor that is attached to the wheelchair.

Keywords*:* Solidworks, Electric Wheel Chair, NODE MCU.

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CREATION AND CONSTRUCTION LOW-COST 3D PRINTING TECHNOLOGY FOR FUSED DEPOSITION MODELLING

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ABSTRACT

In present scenario manufacturing plays a major role to manufacture a component. Manufacturing is a process which converts the raw material into useful product. During the manufacturing a component on traditional machining process it is difficult to manufacture the complex shapes and also lot of material is wasted during the process. Regarding to this problem the process called additive manufacturing is invented. The additive manufacturing is a process that a product is manufactured by adding the material layer by layer by taking 3D model as reference. There are different processes present in the additive manufacturing process like FDM, LOM, SLS, WAAM, EBM, Material jetting, Sheet lamination etc. But the cost of the machine is high. In this project the Fused Deposition Modelling is fabricated and different types are products is designed in SolidWorks software and using Flash print software designed parts are manufactured PLA material in minimum cost.

Keywords: Fused Deposition Modelling, SolidWorks, Flash print, PLA.

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DESIGN, MANUFACTURE, AND ERGONOMIC ANALYSIS OF E-BIKES FOR DIFFERENT SEASONS

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ABSTRACT

Due to rising Automobile emissions, global warming, rising levels of greenhouse gases and widespread usage of fossil fuels are now a major concern to the environment. The main objective of this project work is to fabricate an e-bike and design it using Solid Works that satisfies the desired specifications and requirements. Modern world demands High-tech solutions that can address both current and future environmental issues. E-Bike is the best technical application for the better world.An e-Bike is a vehicle that is powered by electricity and has two wheels. Existing e-bike systems include hub motor drive, mid drive motor system and pedal assisted. The developing systems for e-Bike are Wireless Charging, Advanced Battery management system and High Torque Motors. The components like the BLDC motor 48V, motor controller, electric throttle along with respective battery for the motor are selected and assembled. The above components combine to form a complete e-bike, which is a better option than a conventional vehicle in terms of reducing environmental issues.

KeyWords : Global Warming, Battery, High torque motors, Throttle.

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ARDUINO UNO SOLAR TRACKER: INCREASING PERFORMANCE AND EFFICIENCY

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ABSTRACT

Usage of Energy fossil fuels is creating havoc to our environment. This is the primary cause of greenhouse effect which is felt all over the world. It is required to avert this crisis by using renewable sources of energy. One such alternative is solar energy. Apart from this there is a huge gap between energy demand and generation. The main objective here is to make a modern solar tracking system with the help of Arduino, the solar panels are fixed on the structure that moves according to the position of the sun. We are fabricating single axis solar tracker run using Arduino uno. Generally solar panels are stationary. Due to revolution of the earth the position of sun changes and as a result solar panel does not align with the sun continuously and hence less electricity is produced. The proposed model of solar tracking device is developed which automatically changes the position of the solar panel and tracks the sun accordingly to maximize the power output. By using this Solar energy device, the efficiency of solar panel may increase from 15 to 36% more efficient than fixed one.

Keywords: Solar Panels, Tracking, Efficiency

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MAGNETIC RESONANCE IMAGE (MRI) SEGMENTATION FOR THE DETECTION OF BRAIN TUMOUR

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ABSTRACT

It is very difficult for doctors to detect a brain tumor at an early stage. MRI images are more susceptible to noise and other environmental disturbances. Therefore, it becomes difficult for doctors to determine the tumor and its causes. So came up with a system in which the system will detect a brain tumor from images. Here we are converting an image to a grayscale image and apply filters to the image to remove noise and other environmental clutter from the image. The system will process the selected image using preprocessing steps. At the same time, different algorithms are used to detect the tumor from the image. But the edges of the image will not be sharp in the early stages of a brain tumor. So here we are applying image segmentation to the image to detect the edges of the images and have proposed an image segmentation process and a variety of image filtering techniques to obtain image characteristics. Through this entire process, accuracy can be improved. This system is implemented in the Matlab.

Keywords: Mri, Histogram. Segmentation. GLCM

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THERMOMETER AND ONE-HOT CODING-BASED EFFICIENT MODULAR ADDER DESIGNS

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ABSTRACT

Modular adders are very crucial components in the performance of residue number system-based applications. The main advantage in using RNS is that several small word- length Processors are used to perform operations such as addition, multiplication and accumulation, subtraction, thus needing less instruction execution time then that needed in conventional Digital Signal Processing's. This paper describes the representation of integer in RNS which is carry free that helps in speed up of arithmetic operations. The key features of RNS benefiting modern embedded systems and IOT edge devices is its energy efficiency. Modular addition is the most important and frequent operation applied on the components of RNS, including arithmetic units in the channels as well as forward and reverse converters. The small and medium dynamic range requirements of low power embedded and edge devices make usage of thermometer coding and one hot coding viable, reducing power consumption and improving energy efficiency of modulo addition. Further we are implementing proposed techniques such as proposed thermometer and one hot code, in order to overcome the drawbacks in thermometer and one hot code and made comparisons between the proposed and regular codes based on different performance parameters such as delay, area and so on.

Keywords: Computer arithmetic, modular addition, onehot coding (OHC), residue number system (RNS), thermometer coding (TC).

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PLANT LEAF DISEASE DETECTION USING AN IMAGE PROCESSING APPROACH

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ABSTRACT

Agricultural productivity is something on which economy highly depends. This is the one of the reasons that disease detection in plants plays an important role in agriculture field, as having disease in plants are quite natural. If proper care is not taken in this area, then it causes serious effects on plants and due to which respective product quality, quantity or productivity is affected. For instance, a disease named little leaf disease is a hazardous disease found in pine trees in United States. Detection of plant disease through some automatic technique is beneficial as it reduces a large work of monitoring in big farms of crops, and at very early stage itself it detects the symptoms of diseases i.e., when they appear on plant leaves. This paper presents an algorithm for image segmentation technique which is used for automatic detection and classification of plant leaf diseases. It also covers survey on different diseases classification techniques that can be used for plant leaf disease detection. Image segmentation, which is an important aspect for disease detection in plant leaf disease, is done by using genetic algorithm.

Keywords: Image Processing, Genetic algorithm, Plant disease detection

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RASPBERRY PI-BASED VEHICLE ACCIDENT REPORTING AND ALERTING SYSTEM

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ABSTRACT

The high demand of automobiles has also increased the traffic hazards and the road accidents. Life of the people is under high risk. This is because of the lack of best emergency facilities available in our country. An automatic alarm device for vehicle accidents is introduced in this paper. This design is a system which can detect accidents in significantly less time and sends the basic information to first aid center within a few seconds covering geographical coordinates, the time and angle in which a vehicle accident had occurred. This alert message is sent to the rescue team in a short time, which will help in saving the valuable lives. In this project, we propose a Raspberry pi Based Vehicle Accident Alert System using GPS, GSM and Vibration Sensor. Vibration Sensor detects the vibration of vehicle and GSM module send the alert message on your Mobile Phone with the location of the accident. The advancing technology has made our day to day lives easier. Since every coin has two sides similarly technology has its benefits as well as its disadvantages. The rise in technology has increased the rate of road accidents which causes huge loss of life. The information acquired is further processed to detect road accidents. Furthermore, a navigation system is also developed to report the accident to the registered mobile number. This scheme is fully automated thus finds the accident spot, helping to reach the helpers in time. This system can help in reducing the loss of lives of human which happen by the accident.

Keywords : Accident alert, Raspberry Pi, GSM, GPS, Vibration Sensor, Navigation.

GRAY-LEVEL CO-OCCURRENCE MATRIX ALGORITHM FOR FAKE CURRENCY NOTE DETECTION

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ABSTRACT

The main objective behind this project is to detect the fake Indian currency notes. With the evolution of technology, there is an increase in the ways in which fake forms of currencies are created. Counterfeit notes are printed with the utmost precision level to par with the original. These fake or counterfeit notes have various ill-effect on society. So fake currency detection is a difficult task by simple visual inspection. Hence, this project is designed to check the genuine Indian currency notes with the use of image processing techniques. Image processing techniques have been embraced to expose the highlights of Indian currency notes, for example, security thread, RBI logo, identification marks present in the currency note. As most of the fake currency notes are also being printed with the same features of currency notes with the improved technology, it diminishes the ease to detect the fake currency note exactly. Hence, in the proposed method, along with the detection of security features in the currency note using image processing techniques, secondary texture features like contrast, correlation homogeneity, mean square error, etc are also been detected using GLCM algorithm. The program consists of steps such as edge detection, splitting, etc., which are made using appropriate methods and statistical measures like contrast, correlation etc., are extracted using GLCM (gray-level co-occurrence matrix) algorithm.

Keywords: Edge detection, Fake Indian currency, GLCM (gray-level co-occurrence matrix algorithm), Image processing.

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IMAGE PROCESSING BASED SELF-DRIVING CARS WITH LANE AND TRAFFIC SIGN DETECTION

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ABSTRACT

The main objective of this project is to achieve autonomous car driving in stimulator conditions. Within the simulator, preprocessing the image obtained from the camera placed in the car imitates the driver's vision and then the reaction, which is the steering angle of the car. Self-driving cars use high-resolution digital camera images to visualize their environments and interpret environmental details such as signs, traffic lights, and animals in ways that approximate human vision (aka computer vision). Developers of self-driving cars use vast amounts of data from image recognition systems, along with machine learning and neural networks, to build systems that can drive autonomously. The neural networks identify patterns in the data, which are fed to the machine learning algorithms. Navigation algorithms for self- driving cars use multimodal input such as high-resolution cameras and lidar data. The basis of such algorithms is the integration of the image processing results obtained from high-resolution cameras, as well as lidar data. Such fusion method based on nonlinear filtering of detected and identified fixed landmarks.

Keywords: deep learning, neural network, convolution neural network, Stimulator, NVIDIA model.

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DESIGNING A 3-BIT ENCODER TO REDUCE POWER DISSIPATION IN DIGITAL CIRCUITS USING MEMRISTORS

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ABSTRACT

The main purpose of this paper is to explore the use of memristors in digital circuit design as an alternative to current integrated circuit design. The idea is to reduce power dissipation in digital circuits by incorporating memristors into the design of digital logic gates. This approach offers a promising development in computing architecture, with the added benefit of straightforward manufacturing processes for memristor-based gates.By designing memristors on top of the polysilicon gate of NMOS transistors, we can increase transistor density on a chip. The increased transistor density can lead to faster processing speeds and improved performance of digital circuits. However, increasing the transistor density on a chip often leads to increased power consumption. To achieve even lower power consumption, the memristor's Ron, Roff, and Rint values are adjusted in this project.The memristor-based design can be utilized to model various combinational logic circuits, and our primary objective is to analyze and design a 3-bit encoder with different logics using LTspice. An encoder is a digital circuit that converts a set of inputs into a coded output. The 3-bit encoder is a specific type of encoder that encodes three binary inputs into a coded output. We will use different logics to design the encoder and analyze the results using LTspice, a widely-used software tool for simulating and analyzing digital circuits.

Keywords: Digital design, Encoder, Logic circuits, Memristor.

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DESIGN OF A VIVALDI ANTENNA FOR 8–18 GHZ

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ABSTRACT

A Vivaldi antenna is a type of directional antenna with a wide bandwidth that is commonly used in UWB applications. The proposed design aims to improve upon the base paper's design by using an RT duroid series dielectric substrate. RT duroid materials have excellent dielectric properties, such as low dielectric loss and high permittivity, which make them ideal for microwave applications like antenna design. The proposed antenna is intended to operate over a frequency range of 8-18 GHz, which is well within the UWB frequency range. The Vivaldi antenna is designed on an RT duroid series dielectric substrate with a thickness less than one millimetre. The compact size of the antenna makes it an ideal choice for war applications where size and weight are critical factors. To design the antenna, the Vivaldi structure is first modelled in simulation software such as HFSS or CST. The antenna's dimensions, including the width and length of the Vivaldi arms, are optimized to achieve the desired bandwidth and radiation characteristics. The RT duroid substrate's dielectric properties are also considered during the design process. Once the design is finalized, the antenna is fabricated on the RT duroid substrate using standard printed circuit board manufacturing techniques. The completed antenna is then tested to verify its performance, including its bandwidth, gain, and radiation pattern

Keywords: Vivaldi antenna, RT duroid, dielectric substrate, HFSS.

WOMEN'S TRIGONOUS SHIELDING SYSTEM

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ABSTRACT

Now-a-days the main issue throughout the worldwide is women security. Even though there are so many proposed systems for women, they are not much efficient. So, we decided to design a security system by considering different perspectives of physical protection are a crucial problem for everyone and especially for Women. These days because of late response, assault was occurred in many cases on women. So our framework gives a feasible victim. Currently, savvy answer for many issues. The framework utilizes the Global Positioning System (GPS) to discover the area of Women's as usual, & we focused to provide the protecting shield for women. It contains a stun component to deliver non-deadly electric current in crisis circumstances to stop the assailant and also buzzer to get help from local people.

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HDLC PROTOCAL DESIGN AND IMPLEMENTATION USING VHDL TECHNOLOGY

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ABSTRACT

Data transmission for high energy physics experiments is carried out widely and efficiently using various protocols. One of its kind is High-Level Data Link Control (HDLC) protocol which is widely accepted by the International Organization for Standardization (ISO) for the data link layer of the OSI model of reference. There are uplink and downlink data paths for controlled data communication. In our system we have implemented this HDLC protocol using VHSIC High Level Descriptive Language (VHDL) and simulated the data packet transmission using the Intel-ModelSim platform to demonstrate the transmission patterns. Here we have generated data packets which are wrapped at the transmitter and decoded at the receiver end to retrieve the original data.

Keywords: High-Level Data Link Control Protocol (HDLC), VHSIC High-Level Descriptive Language (VHDL), OSI reference model, ModelSim.

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IOT-BASED SYSTEM FOR MONITORING KITCHEN PARAMETERS

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ABSTRACT

The kitchen is one of the most important places in a house. The safety factor is the main aspect that must be taken into account during the activity in the kitchen. In this project, an IOT based smart kitchen is proposed with automation and monitoring system using Node MCU ESP8266. The existence of gas leakage, uncontrolled fire must be quickly identified and addressed. Also excessive temperatures and humidity can be monitored and when it is above threshold value, it sends notifications to the user. Apart from this, it is necessary to monitor and control kitchen appliances. The main aim of this project is to make a prototype of an IoT based smart kitchen using the internet of things. The system uses multiple sensors and Node MCU ESP8266 board. All the sensor data can be monitored graphically on the web dashboard. It also send the commands to control kitchen appliances from the webserver.

Keywords: Node MCU ESP8266, IOT, Sensors, Threshold.

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FACE RECOGNITION AND EYE BLINK COUNT RECOGNITION IN A DOUBLE AUTHENTICATION SYSTEM

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ABSTRACT

Authentication plays a major role in maintaining security in data access. It is the process of recognizing a user's identity and providing data access. It is a mechanism of associating an incoming request with a set of identifying credentials and providing access to data. Traditional password authentication could not provide enough security. Even though many other authentication methods were introduced but unfortunately they couldn't prevent all types of security attacks, because traces like fingerprints, touch marks, etc., were left during authentication. Hence we come up with an idea named "Double Authentication System Integrating Face Recognition and Eye Blink Count Recognition". This system provides double-layered authentication for a user, which makes authentication more secure. The two layers of authentication are face recognition followed by eye blink count recognition.This system first verifies the user's face and then takes the eye blink count from the user.

Keywords: Eye blink, deception detection, GHQ, Face analysis

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A SYSTEM FOR MANAGING HEALTH CARE USING A LINE FOLLOWER ROBOT

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ABSTRACT

In this Paper, the techniques for analyzing, designing, controlling and improving the health care management system are described. A line following robot carrying medicine has been designed for providing the medicine to the patient whenever needed. A Line follower robot is an electronic system that can detect and follow the line drawn on the floor. Generally, the line specifies a predefined path that is visible like a black line on a white surface with a high contrasted color. An IR sensor has been attached with the robot whose resistance varies with light intensity. The line following robot follows the line and reaches near the patient and provide the medicine to the patient with the help of dc motor. An IR sensor also has been attached with the robot so that robot can detect any obstacle on its way and can stop. This technology focuses on the delivery of safe, timely, efficient, effective, patient-centered and equitable health care.

Keywords: Arduino uno, IR Sensors L293D motor Driver, BO motors, Caster Wheel, Metal Chassis, Bread Board, Jumper Wires.

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DEEP LEARNING FOR THE DETECTION OF CARDIAC ARRHYTHMIAS

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ABSTRACT

An Electrocardiogram (ECG) is a commonly used diagnostic tool to assess cardiac arrhythmias. Accurately diagnosing and classifying cardiac conditions from ECG signals is crucial for determining the appropriate treatment plan for patients. In recent years, deep learning has emerged as a powerful tool in medical image analysis, and it has shown great potential in automatic ECG arrhythmia diagnostics. A deep learning framework that was previously trained on a general image dataset was transferred to carry out automatic ECG arrhythmia diagnostics. This transfer learning approach eliminates the need for training a deep convolution neural network (CNN) from scratch, which can be time-consuming and computationally expensive. The proposed framework was evaluated on three different ECG waveform conditions from the MIT-BIH arrhythmia database. These findings suggest that transferred deep learning is an efficient automatic cardiac arrhythmia detection method, which can significantly reduce the burden of training a CNN from scratch. The proposed method can be easily applied to a wide range of ECG datasets and can help clinicians accurately diagnose and classify cardiac conditions, ultimately leading to better patient outcomes. The use of deep learning in medical image analysis, particularly in ECG arrhythmia diagnostics, has significant potential. The transfer learning approach can significantly reduce the burden of training a CNN from scratch and can provide an easily applicable technique for automatic ECG arrhythmia diagnostics. These findings hold promise for improving patient care and outcomes in the field of cardiology.

Keywords: Cardiac Arrhythmias, Deep Learning, Electrocardiogram, Transfer Learning.

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VIRTUAL DOCUMENTARY ROBOT

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ABSTRACT

Doctors are usually needed to work at every hospital and emergency center every now and then. But it is not feasible for every doctor to be available at every place at desired time. To help solve this issue we here develop a virtual doctor robot that allows a doctor to virtually move around at a remote location at will and even talk to people at remote location as desired. The system makes use of a robotic vehicle with 4-wheel drive for easy navigation. The robot also includes a controller box for circuitry along with surveillance camera. The camera is used to monitor patients. The required hardware components are: NODEMCU (esp-8266), BUZZER, L298N MOTOR DRIVER, DC Motors, Emergency push button, Temperature sensor, pulse oxmeter, V380 pro Camera.The doctor can use an IOT based panel to control the robot. The directions sent online are received by the robot controller. The robot controller operates over WIFI internet. The received directions are received in real time and the robot motors are operated to achieve the desired movement commands. Overall system is controlled and monitored using Microcontroller and IOT.

Keywords: Nodemcu, Buzzer, L298n motor driver, Dc motors, Emergency push button, Temperature sensor, Pulse oximeter, V380 pro camera.

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CONVERTER SUPER BOOST DC-DC FOR SOLAR POWERED ELECTRICAL VEHICLE

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ABSTRACT

The electric vehicle (EV) is growing in popularity as a substitute for fossil fuels in India. In a commercial EV, the solar PV charges the battery while the battery also powers the car. The typical buck-boost bidirectional DC-DC converter's design prevents the solar PV power from being fully utilised when the battery state of charge (SOC) reaches its ideal level. This study suggests a revolutionary dual input super boost (DISB) DC-DC converter for electric vehicles that are fuelled by solar energy in order to get around this restriction. By functioning in six different modes, the suggested converter efficiently utilises solar PV power. Additionally, it benefits from a wide speed control range and decreases the quantity of conduction devices in each mode, increasing efficiency.

Keywords: Software Development Kit, Electric Vehicles, Plug-in Hybrid EVs and Solar Powered Operated EVs

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RCC GIRDER AND PRESTRESSED GIRDER COMPARISON ANALYSIS FOR BRIDGES USING STAAD.

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ABSTRACT

A bridge is a structure providing passage over an obstacle without closing the way beneath. The required passage may be for a road, a railway pedestrains, a canal or a pipeline. In India R.C.C structures are commonly used for residential as well as commercial buildings, it has high compressive strength compared to other building materials. Prestressed concrete consists high strength concrete and high tensile steel which has greater advantages in bridge construction. This study presents the Comparative analysis of R.C.C girder and Prestressed girder of roadway bridge for the span of 50m. It determines the distribution of live load and dead load among the longitudinal T-beam girders by using STAAD. Pro software (V8i version). From the analysis it observed that the results of Bending moment, Shear force, Deflectionetc., by comparing the T-beam girders of R.C.C and Prestressed bridge. This project determines the durability, economical sections with increased aesthetic appearance and time for construction of bridges by using STAAD. Pro software (V8i version).

KEYWORDS: Prestressed concrete (PSC), Reinforced cement concrete (RCC), STAAD. Pro software (V8i version).

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EMPLOYING JUTE AND GLASS FIBRE TO RESEARCH THE CONCRETE'S STRENGTH PROPERTIES

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ABSTRACT

This study investigated the characteristics of concrete by incorporating jute and glass fibers. Various percentages of jute fibers (0.25%, 0.35%, 0.45%) and glass fibers (1%, 1.5%, 2%) were added to M30 grade concrete, and compressive strength and split tensile strength were evaluated at 7 and 28 days. The results showed that the optimum jute fiber percentage for compressive strength and split tensile strength was 0.35%, with values of 40.44 N/mm2 and 4.54 MPa, respectively. The optimum glass fiber percentage for compressive strength and split tensile strength was 1%, with values of 42.56 N/mm2 and 4.84 MPa, respectively. Furthermore, the combination mix of both optimum percentages of jute and glass fibers was tested, and its strength was compared with that of conventional concrete. The findings indicated that the incorporation of jute and glass fibers improved the strength characteristics of concrete, and the combination mix exhibited failed strength when compared with conventional concrete. Overall, the study demonstrated that the addition of jute and glass fibers to concrete can significantly enhance its strength, reduce cracks, and maintain adequate workability. These findings have important implications for the construction industry, as they provide a more sustainable and durable alternative to conventional concrete.

KEYWORDS: concrete, jute fibers, glass fibers, compressive strength, split tensile strength, M30 grade, durability.

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INVESTIGATION OF WOOD SHAVING GEOTEXTILES FOR STABILISATION OF VARIOUS SOIL TYPES

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ABSTRACT

Soil stabilization is the process of improving the load bearing capacity and engineering properties of sub grade soil to support pavements and structure. Most geo textiles consist of polymers of polyolefin, polyester or polyamide family. Geo textiles can be used for at least one of the following functions Separation, reinforcement, filtration, drainage, stabilization, barrier, and erosion protection. Due to the characteristics of high strength, low cost, and easy to use, geo textiles are widely used in geotechnical engineering such as soft foundation reinforcement, slope protection, and drainage system. This work examined the stabilization of three different soil samples by using wood shaving geo textile and mixed in soil with 0%, 2%, 4%, and 6% and the jute fiber cuts into different sizes. Geotechnical tests were carried out to determine Atterberg Limits, moisture content, specific gravity, Compaction test. The experimental results give a clear indication that the presence of geo textiles increases the properties of the soil thus, geo textile should be employed as a modernized form of improving construction on poor soils.

KEYWORDS: Red soil, Black Cotton Soil,Clay Soil, Wood Shavings,Max Dry Density,Shear Strength.

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EVALUATION OF THE QUALITY PARAMETERS OF WATER PASSING THROUGH VARIOUS MATERIALS ACTING AS FILTER MEMBRANES

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ABSTRACT

Water is one of the most important element for the mankind. As the pollution is increasing day by day the pollutant and toxic concentration in the water is also increasing in a great manner. This increased concentration of pollutants in the water causing various kinds of problems to the human beings. The parameters of the water like alkalinity, Hardness are the major parameters which decide the usage of water. The alkalinity is due to the presence of negative ions in the water and the hardness is due to the positive ions. The excess concentration of these ions in the water can make the water unfit for the drinking and 0ther purposes as well. In this project the ultra-filtration techniques would be broadly explained. Five different materials like coconut shell, sugarcane waste, Gravel, sand, coal are used as the filtration membranes and the reduction in the alkalinity and hardness in raw water to filtered water are tabulated. The water which is used being tested and the improvement of those water parameters are mainly concentrated in this project The alkalinity and the hardness tests were performed on the water passing through the membranes and the results are tabulated which is used for the comparison purposes as well.

KEYWORDS: Toxic, ultra filtration, alkalinity, hardness, filtration membranes.

ACCELERATED CURING METHOD FOR CONCRETE MIX PROPORTION BY PARTIALLY REPLACING CEMENT WITH GGBS, FLYASH, AND SILICA FUME

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ABSTRACT

Curing is the process of maintaining satisfactory temperature and moisture conditions in concrete long enough for hydration to develop the desired concrete strength. The curing period usually lasts for 28 days to attain its full strength. So we need to wait for 28 days for concrete to attain its full strength. In order to get high early strength and also to reduce time for economical quality control, accelerated curing is adopted. The strength development of concrete is very rapid in this method. It fastens the process of hydration of cement and attains the strength of nearly 28 days curing in 28 hours. Accelerated curing for conventional concrete is provided in codal provision IS 9013-1978.Usage of admixture concrete is increased rapidly these days. The mineral admixtures like Fly ash, Silica fume and Ground Granulated Blast Furnace Slag (GGBS) are widely used as cement replacement in the construction industry. So, it is important to study their behavior under different conditions in order to use them more efficiently. Our study provides the information about the accelerated curing for admixture concrete, which is not provided in the codal provisions. In this study, the method of accelerated curing is tested on admixture concrete by adding Fly ash with varying percentages of 15%,20%,25% and 30%, silica fume with percentages of 8%, GGBS with percentages of 5% with suitable water cement ratios. The Compression tests are conducted on M25 grade of concrete for different mix proportions. On an overall note, this study provides the work comprises of determining the strength for fly ash, GGBS and silica fume specimens for accelerated curing method and conventional concrete. A graphical representation will be provided in comparison with admixtured concrete and conventional concrete.

KEYWORDS: Accelerated curing method, Fly ash, Silica fume, Ground Granulated Blast Furnace Slag (GGBS), Compression test.

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ANALYSIS OF CONCRETE PROPERTIES FOLLOWING PARTIAL REPLACEMENT OF CEMENT AND GGBS WITH SAND

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ABSTRACT

Into day world waste production has massively increased due to rapid population,industrial and agricultural activities that damage and degrade the environment through the emission of pollutants and the building of landfills to dispose of waste. Therefore the utilization of waste is necessary in these days. By means of using Eco-Friendly Materials like Egg-shell as partial replacement of Fine Aggregate and Ground Granulated Blast Furnace Slag (G.G.B.S) as partial replacement to Silica in Cement. By using Egg-Shell as partial replacement to Fine Aggregate it will reduce the Alkali-Silica and Sulfate Expansions which will leads to degrade the life of Structure and also initial cost will be reduced to minimum. By Using G.G.B.S as partial replacement to silica ,it will be the Eco-Friendly waste that are emitted from Blast Furnace Slag which will increases the strength and durability of the concrete structure. By adopting this kind of innovations in mix design of M30 grade concrete by using this alternative materials like Egg-shell & G.G.B.S as partial replacement we can gain more i.e (strength , Durability, Crack resisting Structure, workability & Flexural strength).Therefore by utilizing these raw waste Eco-Green Materials used in Different proportions the pollution will be optimum by utilizing less amount of F.A & C.A an Green Revolution of Eco-Friendly structures are been Developed.

KEYWORDS: Eggshell, GGBS.

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ROUTES EXPERIMENTING WITH PERVIOUS CONCRETE

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ABSTRACT

Pervious concrete has become an increasingly popular alternative to traditional concrete due to its unique ability to allow water to pass through it. In this study, a pervious concrete mixture of 1:3 (cement: aggregate) was developed with the addition of styrene-butadiene rubber (SBR) latex admixture to improve its properties. In this project we used SBR latex of 5%, 10%, 15% with respective to the weight of cement and also, we took very less fine aggregate of 5% with respect to the weight of coarse aggregate which proved optimum from the journal "experimental study on the effects of fine sand addition on differentially compacted pervious concrete". The paper also discusses the design considerations for pervious concrete with SBR latex. The importance of proper surface preparation, jointing, and sealing is also emphasized. Overall, the use of SBR latex in pervious concrete provides a promising solution for improving the compressive strength. The results showed that the compressive strength increased compared to the nominal mixture. With proper design and construction practices, these pavements can provide a sustainable and durable alternative to traditional impervious pavements. The findings suggest that the addition of SBR latex admixture is an effective way to enhance the properties of pervious concrete and make it a viable option for various applications, including pavement, sidewalks, and other high-traffic areas.

KEYWORDS: Pervious, styrene-butadiene rubber (SBR) latex, compressive strength

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UTILISING THE ESP8266 MICROCONTROLLER TO DETECT AND ISOLATE POWER GRID SYNCHRONISATION FAILURES

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ABSTRACT

The project aims at developing a system capable of identifying abnormalities in voltage or frequency in order to detect a synchronization failure of a power source. Real life power grids consist of Hydro, thermal, solar etc power sources connected in synchronization to power the plant. These sources are supposed to supply power in accordance to grid rules. These rules include voltage and frequency variations within certain limits. A deviation of these limits must lead to that data source being disconnected from the grid with immediate effect. This is known as isolation. This is used to avoid a huge brown out or black out through the power grid. Our system is designed to warn the grid in advance of a power failure so that the grid may use other backup data sources when needed so as to avoid total power failure. Our system demonstrates this using a microcontroller of the 8051 family. Two Microcontroller's are used to detect the voltage and frequency from a set of detectors. Since the potentiometers are used in order to vary the input voltage and frequency in the system. A normal load/lamp is used to demonstrate a predicted black out or power failure in case of out of limit voltage/frequency variance.

KEYWORDS: Power grid synchronization, Abnormal voltage/frequency detection, Isolation, Microcontroller

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CAMPUS SURVIELLANCE AND ASSISTANCE ROBOT USING ESP866 WI-FI MODULE

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ABSTRACT

This project involves the creation of a mobile robot designed to carry a weight of up to 80kg using wiper motors sourced from a car. The main goal of this project is to develop a highly adaptable robot that can perform multiple tasks, including carrying heavy objects and conducting remote surveillance in difficult-to-reach areas. The Campus Surveillance Assistance Robot is an innovative solution that utilizes various technologies such as the ESP8266 WiFi module, solar panels, wiper motor, ultrasonic sensors, and Arduino Nano to enhance campus safety and security. This robot is designed to operate autonomously and perform tasks such as monitoring campus premises, detecting intruders, and sending alerts to security personnel. The integration of the ESP8266 WiFi module enables the robot to connect to the internet and transmit data, while the solar panels provide a sustainable power source. The wiper motor is used to clear any debris or obstructions on the robot's path, ensuring smooth navigation. The ultrasonic sensors detect any obstacles in the robot's path and allow it to avoid collisions. The Arduino Nano serves as the brain of the robot, controlling its various functions and ensuring smooth operation. Overall, the Campus Surveillance Assistance Robot offers a reliable and effective solution for enhancing campus safety and security.

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UNINTERRUPTIBLE POWER SUPPLY DESIGN AND APPLICATIONS

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ABSTRACT

Uninterruptible power supply (UPS) can range from a 9 volt battery all the way to an extremely large and costly battery system. The standby UPS is a battery backup to fill in the void of power loss, while the ferroresonant stand by couples the battery back up with the power supply by a transformer, where the transformer acts as a buffer from the power supply to the stand by supply. The line interactive UPS uses an inverter converter only, with a power supply the stand by battery is charged up, and with a loss of the primary power supply, the inverter converter switches over to the battery back up with a much quicker switching time that the stand by UPS. The surge protection circuits is that it can withstand the spikes at a defined specific level. After a duration, the circuit may get destroyed.. A signal can be separated very easily at demodulation and noise can be also separated easily .The lead acid batteries are used in UPS systems which are oversized and this batteries are not suitable for high temperatures. So, These are replaced by the Lithium-ion batteries which are used to work in harsh environmental conditions. These lithium-ion batteries gives long life when compared to the lead acid battery based system.

COLLEGE CANTEEN APP

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ABSTRACT

The College canteen system is a mobile application that aims to provide convenient and efficient platform for students and staff to order food from college canteen. The app will allow users to browse the menu, place orders and users will get order id after placing the order. The app will also enable canteen staff to manage orders, update the menu. The project will leverage the latest mobile app development technologies to create a seamless and user-friendly experience for both students and canteen staff. The implementation of this app is expected to significantly improve the efficiency of the canteen operations and enhance the overall canteen experience for students. This project is to streamline the food ordering process and provide a convenient solution for college students and staff members to access the canteen services efficiently.

Keywords : Mobile Application, Menu, Order ID

COLLEGE NEWS PORTAL

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ABSTRACT

Now-a-days we live in an age of information, communication, and technology. We can't think a single moment without technology. From morning to night, we need the help of technology. This is the revolutionary time of computer technology. Most of the work depends on web applications. For this reason, anytime, anywhere, anyone can access a website by the internet at low cost and we can find our expected and most updated information from the website. Nowadays, Building a news portal for college purposes is very important to share the college information. In the current system, college events and educational information have been shared through notice boards only. This is not effective to communicate with the students. In this project, we develop a website in which we publish college events and educational information as articles. And this system sends the email notifications to all students who register to the website to get the latest news updates. And this system allows all the students to write the articles of their own.

Keywords: User profiling, personalized templates, mail notification.

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COLLEGE PLACEMENT PORTAL

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ABSTRACT

The College Placement Portal is used to organize the job notifications so that the details might not be lost and it becomes easy to find. Through this portal, students can login and view different job releases and apply to those companies. All the students are required to sign up so that the details can be stored in the database of the college. When the notification is released or posted by the management then an e-mail will be sent to the email-id of the student which was enrolled while signing up. Students should also provide information regarding application such as whether they have applied or not, by clicking the button to the placement cell. Whenever the student clicks the 'Apply' button then the status gets changed to "Applied". Students can also access the resources such as materials, lecture videos, previous question papers, exam pattern, interview preparation tips and tricks of every company which they have applied. If any student gets an offer letter or they have got selected in any company they should contact the coordinator who has posted that drive so that status gets changed to 'placed' and their details are entered in Alumni module so that juniors can view and contact for any guidance. There will be a list of Alumni on the portal as well. This helps management to categorize how many students are placed in every year. Having Alumni details present on the website will also help students to interact with them and contact them for any suggestions. This makes the work easy to find the Alumni.

Keywords: Placement portal, job notifications, students, management, job releases, resources, Alumni.

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SMART VOTING SYSTEM USING DEEP LEARNING & COMPUTER VISION

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ABSTRACT

An online voting system for Indian election is proposed for the first time in this application. The proposed model has a greater security in the sense that voter high security password is confirmed before the vote is accepted in the main database of Election Commission of India. The additional feature of the model is that the voter can confirm if his/her vote has gone to correct candidate party. In this model a person can also vote from outside of his/her allotted constituency or from his/her preferred location. In the proposed system the tallying of the votes will be done automatically, thus saving a huge time and enabling Election Commissioner of India to announce the result within a very short period.

Keywords: Deep Learning, Election Commission, Constituency, Voting

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NIGHT PATROLLING ROBOT

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ABSTRACT

This project aims to design and develop a robot that can be used for night patrolling. The robot is equipped with Obstacle avoidance, Motion detection, Clap sensors and a ESP 32 Cam Live Streaming sensor to provide visual monitoring of the environment. The robot's main objective is to patrol designated areas, detect any obstacles in its path, and avoid them while following a predetermined path. The robot uses ultrasonic sensors to detect obstacles in its path. sound sensors are used to detect any unusual sounds and alert the patrolling team if any potential threat is detected. The ESP32 Sensor enables real-time visual monitoring of the environment.This project provides an effective solution for night patrolling, reducing the need for human intervention and enhancing the overall safety of the patrolling team. The robot is powered by a NodeMCU microcontroller and can be controlled using a mobile app via WiFi. In manual mode, the robot can be controlled using the mobile app, while in autonomous mode, it uses its proximity sensor to avoid obstacles and moves in a random fashion.

Keywords: Ultra sonic sensors, real-time visual monitoring, proximity sensors

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METERING, BILLING, AND ENERGY PROTECTION FOR RESIDENTIAL ENERGY CONSUMPTION USING IOT

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ABSTRACT

The fairness of electricity services lies in the provider being able to deliver the expected quality power, and recover the returns on investment. Energy theft, metering lapses, billing errors, and cumbersome payment procedures constitute the bulk of the non-technical power losses and contribute majorly to the in capacity of the electricity vendors to run a profitable business, and serve the customers effectively. A real-time approach has been identified as the innovative need at resolving the enumerated issues within the electricity value chain. This study is leveraging on the Internet of Things (IoT) technology to propose an extended modelled system capable of providing real-time data management, residential power system control, interactive platform for the vendors and consumers. The energy billing was modelled and developed from resourceful components. A website was developed with user-friendly interface. The unique features of the system design are the possibility of customers to load their electricity credit online, and the supplier being able to lock or disconnect any defaulting customer remotely.

Keywords—Electricity billing, energy theft, internet-of-things,residential power system, smart metering.

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RASPBERRY PI-POWERED SMART IRRIGATION SYSTEM USING IOT

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ABSTRACT

IOT is a shared Network of objects where these objects interact through Internet. One of the important applications of IOT is Smart Agriculture. Smart Agriculture reduces wastage of water, fertilizers and increases the crop yield. Here a system is proposed to monitor crop-field using sensors for soil moisture, humidity and temperature. By monitoring these parameters the irrigation system can be automated if soil moisture is low.

KeyWords: Soil moisture sensor, IOT, Cloud networking, Wi-Fi networking, Raspberry Pi

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FUZZY CONTROL FOR HYBRID AC-DC MICROGRID POWER FACTOR MITIGATION

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ABSTRACT

This study details the modelling and simulation of a single-phase AC-DC Hybrid Micro-power Grid's flow management method (HMG). The suggested HMG system architecture uses a full-bridge IGBT structure that is a standard H-Bridge inverter/rectifier, and it is divided into separate AC and DC zones by a bidirectional interlinking converter (BIC). Using DQ transformation theory, two power control loops and one voltage loop (Vdc) provide the switching pattern for the BIC. By using this method, both active and reactive electricity may be transferred from the HMG to the public AC Grid in a regulated manner. With the help of a fuzzy logic controller based on fuzzy set theory, it is possible to efficiently regulate a wide variety of complicated processes without resorting to either heuristic or mathematical approaches. The most crucial and challenging aspect of fuzzy logic is undoubtedly the discovery of adequate control rules for any given system. In this research, we use a fuzzy logic controller to adjust for load asymmetry in an electric power management system with a current imbalance utilising power factor correction to get it closer to the value demanded. Fuzzy is used in the control system to establish the reference reactive power value at different times of the day in response to fluctuating load patterns.

KeyWords: H-Bridge inverter, fuzzy logic controller, bidirectional interlinking converter, Microgrid

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A MACHINE LEARNING-BASED OPTIMAL CELL BALANCING MECHANISM FOR ELECTRIC VEHICLE BATTERIES

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ABSTRACT

Battery management systems (BMS) utilize cell balancing to extend battery run time and service life. A variety of cell balancing techniques are being developed to meet the growing demands of larger and more efficient battery packs. Passive balancing is the most popular approach due to its low cost and ease of implementation. In this paper, optimum selection of balancing resistor with respect to degree of cell imbalance, balancing time, C-rate, and temperature rise is proposed using machine learning (ML) based balancing control algorithm to improve the balancing time and optimize power loss management. Variable resistors are utilized in the passive balancing system, in order to optimize the power loss and to obtain optimal thermal characterization. The Back propagation neural network (BPNN),radial basis neural network (RBNN), and long short term memory (LSTM) isused to evaluate the performance of the proposed system. To optimize balancing parameters and the proposed algorithms are compared using performance indices such as mean square error (MSE), root mean square error (RMSE), and mean absolute error (MAE) to validate the balancing model performanceby considering the Error analysis of the balancing system. The Matlab-Simscape platform is used to experiment with the potential optimization scope for implementing passive balancing using machine learning methods.

Keywords: Battery Management System,Back Propagation Neural Network (BPNN),Radial basis neural network (RBNN), and long short term memory (LSTM),Mean Square Error(MSE).

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A PYRO-SENSOR BASED AI CURRENT MEASUREMENT METHOD FOR HV POWER TRANSMISSION AND DISTRIBUTION LINES

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ABSTRACT

The key component in moving electricity from a power plant or system to consumers is high voltage transmission lines. The absolute quality of power transmission depends on the frequency, current, and voltage, and sustaining such high performance calls for clever solutions and tools like current transformers (CT) and potential transformers (PT). The proposed study provides a framework for the use of pyro sensors, machine learning (ML), and artificial intelligence (AI) approaches to monitor current in the high voltage transmission lines. Data on the heat waves (infrared waves) produced by the electric current in the transmission/distribution line will be acquired using pyro-sensors along the lines of transmission and distribution. The suggested methodology makes use of this data to run an artificial Neural Network algorithm to calculate the amount of current flowing through the transmission line. The MATLAB simulation neural network toolkit tests and validates the claim regarding the veracity of the suggested technique.

Keywords: Artificial Intelligence(AI), Machine Learning(ML), PT, CT,MATLAB

BALL BEARING FAULT DETECTION USING MACHINE LEARNING TECHNIQUES

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ABSTRACT

One of the primary reasons rotating machines fail is ball bearing defects. Therefore, for a ball bearing to operate consistently, mechanical defect identification and diagnostics are quite important. The goal of this project is to employ support vector machines(SVM) and artificial neural networks(ANN) to diagnose ball bearing faults. A high-speed test rig supported by rolling bearings is employed. The vibration response of the ball bearings' various faults is measured and examined. The exact flaws are a break in the outer race, a rough inner race, and corrosion pitting in the balls. The dimensions of the original vibration features are reduced and features are extracted using statistical methods. An experimental comparison of the performance of ANN and SVM is conducted. The outcomes demonstrate that automated diagnosis of bearing defects is possible using the machine learning algorithms outlined above. Additionally, it has been noted that under bearings with a rough inner race surface and balls with corrosion pitting, the strong (chaotic) vibrations occur.

Keywords: Support Vector Machines(SVM) and Artificial Neural Networks(ANN)

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SUN STRENGTH HARVESTING FROM SOLAR ASTEROID FOR PC

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ABSTRACT

Electronic circuits are now commonly used and the need for power in the future will increase. Sun Energy may be considered as substitute for conventional energy resources because of its renewability nature. But the earth receives only 1/100th of complete solar power. There are numerous asteroid in space aimed at serving many applications on earth. Aasteroid with special adaptation to generate electricity from solar radiation is proposed, which is used to transmit the stored energy to the ground station in the form of microwaves (RF signal). The Solar panels in the asteroid collects heat energy and transforms to DC power and stores in a battery reserve. This DC power from the battery reserve is transformed to RF energy of required frequency using a device called Magnetron and the converted power is transmitted to earth station antenna, which is coupled to rectifier circuits that are arranged as array. Rectifier converts received power (RF) to energy (DC) that is stored in battery. The motive behind the proposed solar powered asteroids is to get completely through environmental pollution which is because of the emission of harmful gases from thermal power plants. The proposed work also provides a solution to global warming and simple energy production using natural assets(solar energy).

KEYWORDS: Sun Energy ,asteroid, Photo Voltaic System, Rectifier, Microwave Wireless Power Transmission Technology**.**

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BATTERY SUPPORTED SOLAR WATER PUMPING GADGET WITH ADAPTIVE FEED-AHEAD CONTEMPORARY ESTIMATION

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ABSTRACT

This work offers an adaptive feed-forward contemporary fed battery-supported sun water pumping system using a synchronous reluctance motor (SYRM).It incorporates the impact of cross saturation in real time with the position sensor less vector control technique of SYRM. Moreover, a continuous estimation of direct axis inductance (Ld) is incorporated to ensure saturation in SYRM. the load of the DC link voltage PI controller is relieved by the feed-forward time period of an adaptive battery present day, that is calculated from the photovoltaic (PV) array power, expected output strength and the envisioned motor efficiency. A DC-DC boost converter is used for maximum power point tracking (MPPT) of the solar photovoltaic array. A voltage source inverter is employed to control the SYRM-pump drive, and to charge/discharge the battery, a bidirectional DC-DC converter is used. The system provides a cost-effective solution for an uninterruptable and rated discharge of the water supply. The solar PV array behaves as a primary energy source, whereas battery is used as a backup source and is charged by PV array when pump operation is suspended or operating at a lower rating. The first-rate overall performance of developed device is confirmed via experimental effects taken on the evolved laboratory prototype.

KEYWORDS: Synchronous reluctance motor (SYRM), MPPT, solar photovoltaic array, feed-forward, bidirectional DC-DC converter, battery storage, hybrid generation.

PREDICTIVE MANIPULATE TECHNIQUE OF TORQUE RIPPLE DISCOUNT FOR BLDC MOTOR

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E Praveena, Asst.professor, Ramachandra college of Engineering

ABSTRACT

The commutation torque ripple of a brushless dc motor (BLDCM) in a six-step riding mode generates vibration noise. To limit the commutation torque ripple of the BLDCM, this text analyzes the cause of torque ripple and establishes the version of torque ripple suppression by way of the use of the section modern predictive method primarily based at the trapezoidal back electromotive force (EMF). In addition, based on the prediction model of the non-commutation phase current, the pulse width modulation model predictive control (PWM-MPC) algorithm is proposed. By means of converting the responsibility cycle with prior evaluation, the predictive manage avoids commutation modern hopping, thereby decreasing torque ripple all through commutation. This control approach is more accessible to be implemented, because it does not require changing the topology of the motor driving circuit. Simulation models of the proposed control scheme constructed in the MATLAB/Simulink environment are given, compared with the conventional square-wave driving method. Moreover, experiments are performed to verify the feasibility. The output torque all through experiments is transmitted to the pc software through the torque transducer. compared with the traditional driving strategies, the simulation and experimental effects show that the proposed novel algorithm to suppress the torque ripple correctly.

KEYWORDS: Commutation torque ripple, MATLAB/Simulink, non-commutation current, pulse width modulation model predictive control (PWM-MPC),brushless dc motor (BLDCM), electromotive force (EMF).

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AN AUTONOMOUS SOLAR WATER PUMPING SYSTEM BASED ON PMSM TECHNOLOGY

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ABSTRACT

This paper presents a single stage standalone solar photovoltaic (SPV) array fed water pumping system using a permanent magnet synchronous motor (PMSM). The vital contribution of this work includes: (i) development of the novel modified vector control (MVC), which improves the torque response of the system, (ii) development of a novel single stage variable step size incremental conductance (VSS-INC) technique, which provides a fast maximum power point tracking (MPPT) and eliminates the need of intermediate stage DC-DC converter and (iii) introduction of SPV power feed-forward term (FFT), which accelerates the overall response of the system under dynamic conditions. This system includes a SPV array, a three-phase voltage source inverter (VSI), a PMSM and a pump. The SPV array converts solar energy into electrical energy. The VSI acts as power processing unit (PPU), which supplies desired currents to drive the PMSM. As the PMSM rotates, the pump coupled to the motor accomplishes the objective of water pumping. This system is modeled and simulated using MATLAB/ Simulink with available simpower system toolbox and the behavior of the system under varying atmospheric conditions are validated experimentally on a developed prototype in the laboratory.

Keywords: Solar water pumping, Incremental conductance algorithm, Maximum power point tracking, Permanent magnet synchronous motor, Vector control.

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DFIG BASED GRID- INTERACTIVE WECS FOR REGULATED POWER FLOW

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ABSTRACT

This paper presents the sharing of reactive power between two converters of a doubly fed induction generator (DFIG) based wind energy conversion system interacting with the grid. The rotor side converter (RSC) control of DFIG is designed for sharing of reactive power at below rated wind speeds, which essentially reduces the amount of rotor winding copper loss. However, at rated wind speed, the RSC control is designed to maintain the unity power factor at stator terminals and to extract rated power without exceeding its rating. Further, the reduction in rotor winding copper loss due to reactive power distribution is demonstrated with an example. Moreover, the grid side converter (GSC) control is designed to feed regulated power flow to the grid along with reactive power support to DFIG and to the load connected at point of common coupling. Moreover, the GSC control is designed to compensate load unbalance and load harmonics. The battery energy storage connected at DC link of back-to-back converters, is used for maintaining the regulated grid power flow regardless of wind speed variation. The system is modeled and its performance is simulated under change in grid reference active power, varying wind speed, sharing of reactive power and unbalanced nonlinear load using Sim Power Systems toolbox of MATLAB. Finally, a prototype is developed to verify the system steady state and dynamic performance. Moreover, system voltages and currents, are found sinusoidal and balanced, and their total harmonic distortions are as per the IEEE 519 standard.

Keywords: DFIG, reactive power sharing, flux oriented control, regulated power flow, wind energy conversion system, battery energy storage, power quality.

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BALANCED SUBMODULE OPERATION OF MODULAR INDUCTION MOTOR DRIVE WITH MULTI LEVEL CONVERTER

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ABSTRACT

Operation of the conventional modular multilevel converter (MMC) at low frequencies for the induction motor drive is difficult. The peak-to-peak voltage ripple of submodule (SM) capacitor increases abnormally at low frequencies of the drive. Recently, the problem of high voltage ripple has been solved by using back-to-back MMC without overloading the converter till very low frequency of the drive. In this back-to-back configuration, the grid-side MMC generates constant dc current source at its output instead of dc voltage source. Using this current source as input, the motor-side MMC drives a three-phase induction motor. It is shown that the voltage ripple of SM capacitor remains constant till very low frequency due to the dc current source. However, the average capacitor voltage controllers do not guarantee balanced operation of individual SM. In this article, the need for balancing controller of individual SM capacitors of back-to-back MMC is established experimentally. Therefore, this article proposes additional voltage-balancing controllers for the individual capacitor of grid-side MMC and motor-side MMC without disturbing the average controllers. The operating principle of this balancing controller has been presented analytically and verified experimentally. Finally, the operation of the drive with the proposed balancing controller is presented for wide speed range.

Keywords: Capacitor voltage ripple, modular multilevel converter (MMC), voltage-balancing control.

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ACTIVE - REACTIVE POWER CONTROL WITH AN ELECTRIC SPRING APPLIED TO A SINGLE PHASE SYSTEM

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ABSTRACT

This paper primary focus is developing a fuzzy controller for use that can regulate both active and reactive power. This work provides an Active power regulation scheme for single-phase electric springs of the "second generation" (ES-2) that is an improvement over the conventional approaches to this problem. By using an Active and Reactive power controlling that is effective in both transients, the unpredictability of the power generated from RES is split in two: the portion absorbed by the ES-2, which still varies, and the portion injected into the grid, which turns out to be controllable. Such a regulator is thought to be useful for residential distributed power production. The theoretical underpinnings of the suggested fuzzy control are laid forth in the study. First, its efficacy is verified by simulations. This is accomplished by analyzing a generic RES application. In electric spring, a 49-rule base-controlled fuzzy analyzing system has been designed to increase the reaction speed of the controller in comparison to the standard PI controller.

Keywords: Fuzzy controller, electric springs, power controller

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ARDUINO BASED OBSTACLE AVOIDER ROBOT USING VOICE COMMAND AND BLUETOOTH

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ABSTRACT

The main aim of this project is to operate the obstacle avoidance robot and the device is controlled by using the voice command and Bluetooth signals. It has an ultrasonic sensor which is used to sense the obstacle coming in between the path of robot and it notify object detection to the user. when a command for the robot is recognized, then voice module sends a command message to the robot microcontroller(ATmega328P). Based on the signal, microcontroller analyses the message and takes appropriate actions and working of the robot controlled by servo motor. The voice control technique consists of an Android app which communicates with the robot via Bluetooth module. The Hardware part is done and Software part is implemented in Arduino IDE module.

Keywords—Obstacle detection, Voice command, Arduino UNO, Ultrasonic sensor, Motor driver(L293DIC), DC series gear motors, HC-05 Bluetooth module, Servo motor

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DESIGN OF CONDUCTIVITY CHARGING SYSTEM FOR HYBRID ELECTRIC VEHICLE AND STUDY OF SIMULATION RESULTS

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ABSTRACT

These PEVs get their go from the juice they store in their batteries. Electric vehicle supply equipment (EVSE) is attached to an EV in order to charge the battery through a conductive AC charging technique. In addition to recharging, it may aid in the development of a reliable equipment ground track and facilitate the transfer of control data between EV and EVSE. In this article, we will go through the design of a fast-charging on board charger for a hybrid electric car, as well as the electrical and physical interface between the EV and the EVSE that makes conductive charging possible. The goal of this project is to use MATLAB software to create a prototype of a 3.45kilowatt on-board charger that conforms to automotive industry standards and can communicate with charging stations. In order to charge the Li o n battery , which supplies the propulsion thrust, a charger model is required. The charger's voltage and current are regulated at different stages to achieve the optimal charging conditions.

KeyWords: Control Pilot Circuit, Electric Vehicle(EV), Electric vehicle supply equipment(EVSE), International Electro Technical Commission(IETC), Plug in hybrid Electric vehicle(PHEV),Powerfactorcorrector(PFC),InternationalStandardOrganization(ISO).

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POWER QUALITY IMPROVEMENT BY USING DYNAMIC VOLTAGE RESTORER

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ABSTRACT

In the modern power system, power quality is a crucial topic that can have an impact on consumers and utilities Electricity system that may have an impact on utilities and consumers Many issues were brought about by the growing usage of power electronics equipment, the smart grid integration, and renewable energy sources. Sensitive equipment is subject to input voltage changes brought on by interference with other components of the system, which can cause current and voltage harmonics, voltage sag, and swell damage to these devices. Power quality is therefore crucial in the present period with an increase in sensitive and expensive electronic equipment for the power system's reliable and safe operation. A prospective Distribution Flexible AC Transmission system (D-facts) tool that has been widely adopted to address the issues is the Dynamic Voltage Restorer (DVR). It injects voltage into distribution lines to maintain the voltage profile and provide continuous load voltage in the presence of non-standard voltage, current, or frequency in the distribution grid. To demonstrate the usefulness of the DVR-based Suggested technique to smooth the distorted voltage caused by harmonics, simulations were run in MATHLAB/SIMULINK. To incorporate 3rd and 5th harmonics, a voltage system model with a customizable power supply is used. Both situations with and without a DVR are examined for the system's reaction to load voltage. The proposed DVR-based technique has been observed to have successfully managed the voltage distortion, resulting in a smooth corrected load voltage. With the insertion of the third and fifth harmonics in the supply voltage, the load voltage THD percentage was roughly 18% and 23%, respectively. In both instances, the planned DVR's addition reduced THD by about 4%

Keywords: Dynamic Voltage Restorer, Active and Passive Filters

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A SYSTEM FOR DETECTING SPYWARE IN ANDROID APPLICATIONS USING MACHINE LEARNING METHODOLOGIES

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Abstract

One of the most popular operating systems for smart phones is Android. This is the key reason why hackers and attackers have started to favor Android as a target. The most challenging task for security companies has become detecting and recognizing an application as malware due to the clever ways malicious software is being integrated into Android applications. Android malware has advanced to the point where it is increasingly resistant to common detection methods in terms of intelligence and cognition. Machine learning-based strategies have become a significantly more effective technique to deal with the complexity and uniqueness of emerging Android threats. In order to discriminate between recognized risks and unidentified threats with uncertain behavior, they first determine current patterns of malware activity. First, we provide a model that, compared to traditional approaches, integrates more novel static feature sets with the greatest current datasets of malware samples. Second, to enhance the performance of our model, we employed ensemble learning with machine learning methods such as AdaBoost, Support Vector Machine (SVM), etc. With a 0.3 False Positive Rate (FPR), our trial results and conclusions demonstrate 96.24% accuracy in extracting malware from Android applications.

Keywords: Android applications, benign, feature extraction, malware detection

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A COMPREHENSIVE SYSTEM FOR TRAINING MILITARY PERSONNEL IN CYBER SECURITY

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Abstract

Cyber warfare is more common than we realize and can happen at any time, anywhere on earth. The military as well as every part of our daily lives are suffering because of this new kind of conflict. The military community heavily relies on the private sector to ensure cyber mission assurance, as cyber security has just recently emerged as a crucial component of the military. Such dependency could increase the risk of mission degradation or failure given the military's secrecy. The military has made an effort to develop a special cyber security training system in order to internalize cyber security training and address this issue. However, current cyber security training programmers frequently fall short of providing all the necessary resources for efficient and effective instruction. In this study, we suggest ICSTASY, a scenario-based, interactive, and immersive platform for cyber security training that supports a wide range of training elements comprehensively. Based on an analysis of previous work, the key requirements and design principles needed to address the difficulties involved in creating a cyber training system were identified. Through the exhibition of our prototype, we have established the viability of effective and incredibly realistic cyber training, not only for the military environment but also for the business sector.

Keywords: Cyber security training, cyber security training system, cyber trainer, prototype demonstration.

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Displaying and Computerized Recreation of DPFC Framework utilizing Matlab Simulink

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Abstract:

This paper deals with modeling and simulation of Distributed Power Flow Controller (DPFC) system. Circuit models are developed for two bus system with and without DPFC. The DPFC employs a shunt based Static Compensator (STATCOM) and multiple series converters to improve the power quality. DPFC has advantages like improved voltage profile and reduced power loss. The simulation results of two bus system with and without DPFC are presented in this paper.

Keywords: Distributed Power Flow Controller

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