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PRINCIPAL MESSAGE

It gives me immense pleasure to welcome all the students, Staff and Reasearch Scholars from various colleges to our Second International Conference on Information, Embedded and Communication Systems, ICIECS 2019 to our St. Joseph College of Engineering. This fest aim is to develop knowledge, awareness of social implications of their respective disciplines, communications and Researchskills.

I hope that this International Conference would be much informative and fruitful to all participants, since which give opportunities for students, Staff and Reasearch Scholars to develop their level of confidence to work in any kind of environment. This Conference will definitely enhance basic fundamentals of subject and latest developments in the technology of their subjects. I am also particularly happy to observe that organizers have taken care to invite judges for different section of broad theme of Conference. Undoubted, it will be a great benefit to the participants and will enhance and strengthen their skills. It needs to be ICIECS 2019 said that will add feathers to the cap of our Institution.

I wish all grand success for ICIECS 2019.

ADMINISTRATOR MESSAGE

In this competitive world it has become the utmost necessity for students to get acquainted with the recent innovations and acquire an extremely good skill set in addition to their academic excellence. ICIECS 2019 is the perfect platform for the students, staff and Research scholars to prove their agility and bag their rewards. The main objective of this International Conference is to kindle the talents of the Engineering students, Research Scholars, Staff and to provide opportunities for them to know the technological developments in their field of specialization and share it with others.

Also, by organizing such Conference, students and scholars realize the worth of teamwork, which not only gives them a memorable experience but also will help them once they enter the corporate world. Hats off to the staff members and students, whose precious efforts have made ICIECS 2019 a success story. ICIECS 2019 will surely reveal new openings.

I wish all grand success for ICIECS 2019

CONVENOR MESSAGE

I welcome the participants of ICIECS 2019. The main goal of organizing this Conference is to share and enhance the knowledge of each and every participants. We have given a good opportunity for those who have a thirst in knowing the present technological developments and also share their ideas. Furthermore, this conference will also facilitate the participants to expose and share various novel ideas.

The International Conference aims to bridge the students and staff working in academia and other professionals through presentations in current technological trends. You will get opportunities to widen your knowledge and network.

I thank 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 ICIECS 2019

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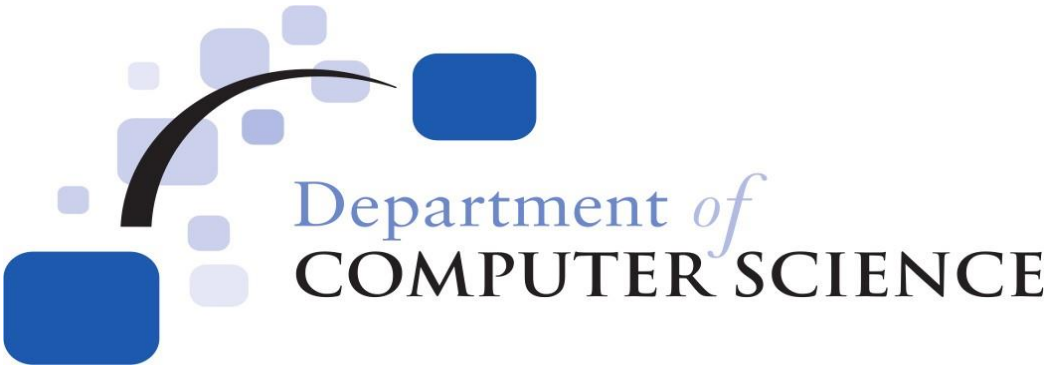
Department of
COMPUTER SCIENCE

WHIZZ BIN

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Abstract: Nowadays certain actions are taken to improve the level of cleanliness in the country. People are getting more active in doing all the things possible to clean their surroundings. Various movements are also started by the government to increase cleanliness. We will try to build a system which will notify the corporations to empty the bin on time. In this system, we will put a sensor on top of the garbage bin which will detect the total level of garbage inside it according to the total size of the bin. When the garbage will reach the maximum level, a notification will be sent to the corporation office, then the employees can take further actions to empty the bin. This system will help in cleaning the city in a better way. By using this system people do not have to check all the systems manually but they will get a notification when the bin will get filled.

Keywords: Smart City, Smart Bin, Urbanization, Waste Management, Machine Learning, RealTimeAnalytics.

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An Automated Object Detection for Urban Surveillance Systems using IoT

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Abstract: Automated object detection is an important challenge in the surveillance systems. Particularly, vehicle's license plates detection is a major issue. The proposed method is topic out the vehicle's license plates from the video sequences are captured by the raspberry pi3 camera module v2. The modules are frame extraction, image preprocessing and image enhancement. In the first module, the video sequences are extracted into frames. In the second module, the frames are given as an input to the preprocessing process by using the bilateral filter, gray scale conversion, canny edge detection. They are used to remove the un wanted noise in the frames. In third module, the license plate region is to be find out from the frames by using 2D filter, counter and the count the white pixel values in the frames. The system is used to detect the vehicle's license plates accurately in urban surveillance systems.

Keywords: Internet of Things (IoT), urban surveillance system, vehicle, vehicle's license plates

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Static Code Analysis and Taint Checking to Avert SQL Injection and Cross Site Scripting

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Abstract: The popularity of web applications is increasing to a greater extent in today's world. From a simple application consisting of text and images to complex applications such as a banking or a shopping application, web applications play a vital role for the concerned organization. The more the functionalities included in an application the more the application is subjected to vulnerability. Common vulnerabilities include SQL Injection and Cross-site Scripting. The web application must be coded in such a manner to prevent these vulnerabilities. The efficient method to analyze a code and detect for the presence of vulnerabilities is static code analysis which is done between the software development and testing phase. In addition to static code analysis taint checking is also performed where the user given values to the application are considered as tainted values, and they not inserted into the application without proper escaping or validation. The advantage of static code analysis is that all the lines in the application code are analyzed and taint checking does not include a non-escaped user input. Thus, the application is protected from the vulnerability to a greater extent.

Keywords: SQL Injection, Cross-site Scripting, Static code analysis, Taint Checking

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Android Quiz App for Blind People

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Abstract: A number of developing countries continue to provide educational services to students with disabilities in "segregated" schools. Also all students, regardless of their personal circumstances, have a right of access to and participation in the education system, according to their potential and ability. However, with the rapidly growing population and increasing number of people with blindness along with other disabilities, need for use of technology in the field of education has become imminent. With existing system of competitive examination, students face problems while interacting with the system, misunderstandings arising due to human mediator and also an ability to cope-up with the other students. Our project, through the use of speech technology, attempts to provide solutions for some of these issues by creating an interactive system. Thus, the application will help in creating an environment that provides equal opportunities for all the students in taking up competitive exams. This will improve the current educational system for blinds career.

Keywords: speech technology, interactive system, blinds career, disabilities

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Cost Maintenance and Increased Performance in CloudData Centres

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Abstract: Load balancing distributes the dynamic workload across multiple nodes, which is the major challenge in cloud computing. In the existing approaches of load balancing, they either solely focus on minimizing total cost for provider, or guaranteeing QoS for end-users. In the proposed model, the Software-Defined Networking (SDN) controller, which is an efficient technology to manage network utilization in the Data-Centre Networks (DCN), is applied to enable the central control of the entire network, and propose a joint optimization model to consider high bandwidth utilization for provider and low delay for users. The Genetic Load Balancing algorithm is used to model both the requirements of provider's high bandwidth utilization and end- users' low delay. The Genetic Algorithm (GA) thrives to balance the load of the cloud infrastructure while trying to minimise the make span of a given task sets. Specifically,the design of request allocation under those requirements as an optimization problem, which is load balancing. To solve such hard optimization problem, an efficient algorithm, GA is used to reduce the delay.

Keywords: Load Balancing, Joint Optimisation, Genetic algorithm

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Speech Based Examination Android App

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Abstract: The main challenging task for the virtually and physically challenged students is to take their exams. Volunteers are required for writing their exams on behalf of these students. These volunteers must be confidential and should not involve themselves in any kind of malpractices. These students are in need of a technology that makes their task easier. We have developed an Android application that conducts the exam, evaluates it and displays the result. This application reads the given questions from the soft copy to the students, their answer in the form of speech is captured and converted into text. This text is evaluated and marks are calculated. In this paper, we have reduced the workload of the virtually and physically challenged students with the help of the Android application.

Keywords: Android, Firebase, Speech engine, Google cloud API

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Eliminating Products Fake Reviews Using Network

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Abstract: Nowadays, online review plays vital role for making purchase decision. This provides trusted information about the products. Positive reviews increase the sales of the product wherein negative reviews leads to loss of the product. So, spammers may forge and produce fake reviews. So, the customers receive the fake information about the product and make wrong decision in purchasing. Hence in this model, we propose a system to eliminate the fake reviews and compare the reviews of the competitor companies. In this paper, we apply network parameters to identify the fake reviews made by the social media optimization team by identifying the IP address for PC and browser ID for mobile OS. System will find out the IP address of the user if the system observes fake review send by the same IP Address many at times it will inform the admin to remove that review from the system. The reviews from same geo location is also identified and eliminated. The positive and negative reviews are separated using keywords. Based on the review the level of competitors is identified so as to increase the quality of the product.

Keywords: IP address, Browser Id and Geo Location, Eliminating Products Fake Reviews.

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Design of Energy Efficient Multipath Routing Protocol for Mobile Ad-Hoc Network

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Abstract: Wireless Sensor Networks is an invented automation which is used inrecent years to perform multiple tasks in various domains intelligently. The unbalanced energy dissipation of Sensor Nodes results in the significant reduction of network lifetime which is the main problem in WSNs. Cluster based routing plays an inherent role in overcoming the energy dissipation problem and enhancing their network lifetime. In this paper, a new Energy Aware Cluster Based Multi-hop (EACBM) routing protocol for heterogeneous networks and Energy-Efficient and Robust Routing Scheme (EERS) for WSNs has been proposed which uses both the concept of clustering and multi-hop communication to reduce the energy consumption of SNs. Also Sub- clustering concept is used for those SNs which are not included in any cluster or which are out of the reach of CH. This protocol is implemented and compared with the existing routing protocols.

Keywords: WSN, EACBM, Robust Routing Scheme**,**Sub- clustering

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Congestion Control Mechanism using Rate Control Algorithm

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Abstract: Too many sources attempting to send data at too high a rate, causes Network Congestion. To treat the cause of Network Congestion, mechanisms are needed to throttle senders in the phase of Network Congestion. It is increasing due to the growth of usage of multimedia application. Thereby, causing unresponsive and misbehaving traffic flows. Few primitive scheduling were unable to prevent the congestion collapse as they work only at end-to-end network. A more flexible solution for building a congestion control scheme in network is made using network border protocol framework. The exchange of feedback between routers at the borders of a network is provided by the Network Border Protocol framework in order to detect and restrict unresponsive traffic flows before they enter the network, thereby preventing congestion within the network. To provide fair bandwidth allocations to competing flows, the NBP framework is proposed with enhanced mechanism.

Keywords: Network Border Protocol, Leaky Bucket Algorithm, Feedback Control, Rate Control Algorithm, Congestion free router.

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Radeon: An Innovative Malicious Discernment and Deterrance For Automaton Gadgets

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Abstract: Android clients are continually undermined by an expanding many malevolent (apps), conventionally called malicious. Malicious comprises a genuine danger to client security, cash, and gadget and record uprightness. In this work system note that, by concentrate their activities, system can arrange malicious into few social classes, every one of which plays out a constrained arrangement of mischievous activities that portray them. These mischievous activities can be characterized by checking highlights having a place with various Android levels. In this work, an innovative malicious location framework for Android gadgets whichever at the same time investigations the application by utilizing conduct models and keep an android application. An epic host-based application which recognizes and adequately squares over 96% of noxious applications, which originate in distinction to three substantial data files with 3,000 applications, by abusing the collaboration of dual simultaneous classifiers conduct behavior-based locator. Broad investigations, likewise incorporates the examination of a tried of 9,800 authentic applications, have been led to demonstrate the not high negative caution rates, the insignificant execution overhead, restricted cordless utilization.

Keywords: Automaton, Malicious, Host based, Signature based detection, Anomaly based detection.

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Energy Efficient Selective Remote Sensing in Cloud IoT

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Abstract: The Building owners and facility managers are often perplexed by the amount data collected and maintenance of Building management system. This data arises from the need to lower maintenance costs, increases their return on investment on energy management systems and decrease energy bill. Imagine a world where don't need to invest time, money and resources in running the IT server. This would help to focus on your core function of realizing of energy savings goals and increasing saving to invest on energy efficiency strategies. Where cloud computing is a promising technology which enables processing a great amount of data. In a large scale IoT infrastructure, optimum allocation of virtual machines to the physical hosts leadsto reduce energy consumption of data centers. Moreover, it may prevent pollution of the environment and improve the efficiency.

Keywords: Cloud database system, dynamic voltage and frequency scaling, energy efficiency, frequency selection, optimization.

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Obesity Reduction Physical Fitness Gaming

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Abstract: In this era of digital evolution, the nature of job often demands mental intelligence and not physical fitness. In fact we engineers trying to automate everything to reduce the human involvement in physical work. This work attempts to use the same digital evolution to remedy the physical fitness of a human being. A live digital video processingalgorithm will be developed to dynamically predict the human behaviours in front of the webcam and categorize into physical movements (jump, crouch, walk etc...).This predicted physical movement is used to control a character in the system game to mimic the human behaviour.

Keywords: Physical fitness, digital video processing, webcam.

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E-mail Spam Classification using Machine Learning Techniques

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Abstract: E-Mail is one of the most popular and frequently used ways of communication due to its world- wide accessibility, relatively fast message transfer, and low sending cost. In such a scenario email spam is a very serious problem. It has many consequences like causing low productivity, occupy space in mailboxes, extend viruses, Trojans, and as a result user spends a lot of time sorting incoming mail and deleting undesirable content. There are various classifiers like Naive-Bayes classifier, KKN classifier etc. for solving the issue. We propose to implement Naive-Bayes model and compare it with SVM model.

Keywords: Ham; Modified Naïve Bayes, Naïve Bayes, Spam, Supporting Vector Machine

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Analysis of Critical Factors in Manufacturing by Adopting a Cloud Computing Service

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Abstract: The advantages of a cloud computing service are cost advantages, availability, scalability, flexibility, reduced time to market, and dynamic access to computing resources. Enterprises can improve the successful adoption rate of cloud computing services if they understand the critical factors. To find critical factors, this study first reviewed the literature and established a three-layer hierarchical factor table for adopting a cloud computing service based on the Technology-Organization-Environment framework. Then, a hybrid method that combines two multi-criteria decision-making tools-called the Fuzzy Analytic Network Process method and the concept of acceptable advantage-was used to objectively identify critical factors for the adoption of a cloud computing service, replacing the subjective decision of the authors. The results of this study determined five critical factors, namely data access security, information transmission security, senior management support, fallback cloud management, and employee acceptance. Finally, the paper presents the findings and implications of the study. © This work is licensed under a Creative Commons Attribution 4.0 International License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Keywords: Cloud Computing, Fuzzy Analytic Network, Decision making tools

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Research Paper on Cyber Security

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Abstract : In the current world that is run by technology and network connections, it is crucial to know what cyber security is and to be able to use it effectively. Systems, important files, data, and other important virtual things are at risk if there is no security to protect it. Whether it is an IT firm not, every company has to be protected equally. With the development of the fresh technology in cyber security, the attackers similarly do not collapse behind. They are consuming better and enhanced hacking techniques and aim the weak points of many businesses out there. Cyber security is essential because military, government, financial, medical and corporate organizations accumulate, practise, and stock unprecedented quantities of data on PCs and other devices. An important quota of that data can be sensitive information, whether that be financial data, intellectual property, personal information, or other various kinds of data for which illegal access or acquaintance could ensure negative concerns.

Keywords: Cyber Security, Network connection, cloud data

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Cyber Security

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Abstract : Vertical Federated Learning (VFL) has many applications in the field of smart healthcare with excellent performance. However, current VFL systems usually primarily focus on the privacy protection during model training, while the preparation of training data receives little attention. In real-world applications, like smart healthcare, the process of the training data preparation may involve some participant's intention which could be privacy information for this participant. To protect the privacy of the model training intention, we describe the idea of Intention-Hiding Vertical Federated Learning (IHVFL) and illustrate a framework to achieve this privacy-preserving goal. First, we construct two secure screening protocols to enhance the privacy protection in feature engineering. Second, we implement the work of sample alignment bases on a novel private set intersection protocol. Finally, we use the logistic regression algorithm to demonstrate the process of IHVFL. Experiments show that our model can perform better efficiency (less than 5min) and accuracy (97%) on Breast Cancer medical dataset while maintaining the intention-hiding goal.

Keywords: Vertical Federated Learning, Intention-Hiding Vertical Federated Learning, Cyber security

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An efficient permutation approach for SBPN-based symmetric block ciphers

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Abstract : It is challenging to devise lightweight cryptographic primitives efficient in both hardware and software that can provide an optimum level of security to diverse Internet of Things applications running on low-end constrained devices. Therefore, an efficient hardware design approach that requires some specific hardware resource may not be efficient if implemented in software. Substitution bit Permutation Network based ciphers such as PRESENT and GIFT are efficient, lightweight cryptographic hardware design approaches. This paper proposes a novel software-based design approach for permutation operation in Substitution bit Permutation Network based ciphers using a bit-banding feature. The real-time performance comparison between conventional and the proposed approaches in terms of memory (RAM/ROM) footprint, power, energy and execution time has been carried out using ULINKpro and ULINKplus debug adapters for various code and speed optimisation scenarios. The proposed approach substantially reduces execution time, energy and power consumption for both PRESENT and GIFT ciphers, thus demonstrating the efficiency of the proposed method for Substitution bit Permutation Network based symmetric block ciphers.

Keywords : cryptographic, Permutation Network, KEIL MDK, ULINKpro and ULINKplus

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Generic attacks on small-state stream cipher constructions in the multi-user setting

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Abstract : Permutation Network Small-state stream ciphers (SSCs), which violate the principle that the state size should exceed the key size by a factor of two, still demonstrate robust security properties while maintaining a lightweight design. These ciphers can be classified into several constructions and their basic security requirement is to resist generic attacks, i.e., the time–memory–data tradeoff (TMDTO) attack. In this paper, we investigate the security of small-state constructions in the multi-user setting. Based on it, the TMDTO distinguishing attack and the TMDTO key recovery attack are developed for such a setting. It is shown that SSCs which continuously use the key can not resist the TMDTO distinguishing attack. The TMDTO distinguishing attack on TinyJAMBU with a 128-bit key can be mounted with time, memory, and data complexities of $2^{64}264$, $2^{48}248$, and $2^{32}232$, respectively. This attack is comparable with a recent work on ToSC 2022, where partial key bits of TinyJAMBU are recovered with more than $2^{50}250$ users (or keys). As DRACO's IV length is smaller than its key length, it is vulnerable to the TMDTO key recovery attack. The resulting attack has a time and memory complexity of both $2^{112}2112$, which means DRACO does not provide 128-bit security in the multi-user setting.

Keywords : Permutation Network Small-state stream ciphers, TMDTO, TinyJAMBU, DRACO

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Evicting and Filling Attack for Linking Multiple Network Addresses of Bitcoin Nodes

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Abstract : Bitcoin is a decentralized P2P cryptocurrency. It supports users to use pseudonyms instead of network addresses to send and receive transactions at the data layer, hiding users' real network identities. Traditional transaction tracing attack cuts through the network layer to directly associate each transaction with the network address that issued it, thus revealing the sender's network identity. But this attack can be mitigated by Bitcoin's network layer privacy protections. Since Bitcoin protects the unlinkability of Bitcoin addresses and there may be a many-to-one relationship between addresses and nodes, transactions sent from the same node via different addresses are seen as coming from different nodes because attackers can only use addresses as node identifiers. In this paper, we proposed the *evicting and filling attack* to expose the correlations between addresses and cluster transactions sent from different addresses of the same node. We mounted this attack on both our self-run nodes and multi-address nodes in real Bitcoin network, achieving an average accuracy of 96.9% and 82%, respectively. Furthermore, we found that the attack is also applicable to Zcash, Litecoin, Dogecoin, Bitcoin Cash, and Dash. We analyzed the cost of network-wide attacks, the application scenario, and proposed countermeasures of this attack.

Keywords: Bitcoin, cryptocurrency, Zcash, Litecoin, Dogecoin, Bitcoin Cash, and Dash

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Evicting and Filling Attack for Linking Multiple Network Addresses of cybercrime

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Abstract : Ethereum's high attention, rich business, certain anonymity, and untraceability have attracted a group of attackers. Cybercrime on it has become increasingly rampant, among which scam behavior is convenient, cryptic, antagonistic and resulting in large economic losses. So we consider the scam behavior on Ethereum and investigate it at the node interaction level. Based on the life cycle and risk identification points we found, we propose an automatic detection model named *Aparecium*. First, a graph generation method which focus on the scam life cycle is adopted to mitigate the sparsity of the scam behaviors. Second, the life cycle patterns are delicate modeled because of the crypticity and antagonism of Ethereum scam behaviors. Conducting experiments in the wild Ethereum datasets, we prove *Aparecium* is effective which the precision, recall and F1-score achieve at 0.977, 0.957 and 0.967 respectively.

Keywords: Bitcoin, Multiple Attack, crypticity, Ethereum datasets, *Aparecium*

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Detecting Compromised Email Accounts via Login Behavior Characterization

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Abstract : The illegal use of compromised email accounts by adversaries can have severe consequences for enterprises and society. Detecting compromised email accounts is more challenging than in the social network field, where email accounts have only a few interaction events (sending and receiving). To address the issue of insufficient features, we propose a novel approach to detecting compromised accounts by combining time zone differences and alternate logins to identify abnormal behavior. Based on this approach, we propose a compromised email account detection framework that relies on widely available and less sensitive login logs and does not require labels. Our framework characterizes login behaviors to identify logins that do not belong to the account owner and outputs a list of account-subnet pairs ranked by their likelihood of having abnormal login relationships. This approach reduces the number of account-subnet pairs that need to be investigated and provides a reference for investigation priority. Our evaluation demonstrates that our method can detect most email accounts that have been accessed by disclosed malicious IP addresses and outperforms similar research. Additionally, our framework has the capability to uncover undisclosed malicious IP addresses.

Keywords : Email Accounts, social network field, account detection framework

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Security Estimation of LWE via BKW Algorithms

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Abstract : The Learning With Errors (LWE) problem is widely used in lattice-based cryptography, which is the most promising post-quantum cryptography direction. There are a variety of LWE-solving methods, which can be classified into four groups: lattice methods, algebraic methods, combinatorial methods, and exhaustive searching. The Blum–Kalai–Wasserman (BKW) algorithm is an important variety of combinatorial algorithms, which was first presented for solving the Learning Parity With Noise (LPN) problem and then extended to solve LWE. In this paper, we give an overview of BKW algorithms for solving LWE. We introduce the framework and key techniques of BKW algorithms and make comparisons between different BKW algorithms and also with lattice methods by estimating concrete security of specific LWE instances. We also briefly discuss the current problems and potential future directions of BKW algorithms.

Keywords : Security Estimation, LWE, BKW Algorithms, post-quantum cryptography direction

DEPARTMENT OF
INFORMATION TECHNOLOGY

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Unique Id Based Verification of E-Certificate UsingBlock chain

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Abstract:A digital certificate is maintained by block chain process. Certificates are stored in the cloud by the user and the OTP is generated automatically. These corresponding documents/certificates are verified by the Government Authority and it is stored in the cloud. Whenever the user request for QR code, it is generated. Authentication is maintained between the user and scanner of the QR code. In case of interview process, If the company wants to verifythe original certificate the user shows the generated QR code. While scanning the QR code the OTP is generated to the particular user. User types the generated OTP for accessing the Digital Certificate. All the personal information and behavioral activities are updated in the blockchain concept. Even the illegal activities are updated from the administrator.

Keywords: Block chain, QR-Code, Digital Certificate.

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Design and Implementation of SIW Antenna for Ku Band Applications

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Abstract: The antenna realised in this paper has been based on substrate integrated waveguide(SIW).The SIW antenna has been designed to operate in the Ku band in the frequencyrange of(12 GHz-18 GHz).The substrate used in the antenna design posses a dielectric constant 2.2.The antenna has been simulated using CST STUDIO SUITE. The parameters such as return loss, radiation pattern validates the operation of the antenna in the Ku band.The radiation is found to be more effective on the regions of the slot. The transition has been achieved by integrating the SIW fed with microstrip antenna.SIWs are good for easy integration, low-loss and electromagnetically immunized characteristics. The SIW slot antenna resonate at the frequency of 13.7GHz.The antenna shows a return loss of -33.5dB and produces a gain of 8.15dB.

Keywords: SIW, Slot, Ku band applications, high gain.

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A Machine Learning Model for Robotic arm movement for physically disabled people

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Abstract: A number of situations exist where it is not possible for a human operator to do an activity on his/her own, due to amputation or neurological disabilities. Restoring a patient's ability to perform these basic activities of daily life with a brain-computer interface (BCI) artificial arm kind of device that would increase their independence and quality of life. This arm must be loaded with data to perform the actions. There are several existing techniques for robotic arm movement. But all these techniques are manually controlled and need some command to perform the basic activities. Our proposed system overcomes this by providing datasets to the robotic arm using machine learning algorithm. This allows people to perform the basic activity without any commands. The dataset provided to the arm is predicted data. The predicted data is generated using six events and these events occur in the same order. The aim of this project is to build a machine learning model to provide data for mechanical arm to perform the actions for physically disabled people.

Keywords: robotics, Brain-computer interface, Physically disabled people

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Pupil Detection Algorithm Based On Feature Extraction for Eye Gaze Using Image Processing

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Abstract: Exact real-time pupil tracking is an important step in a live eye gaze. Since pupil centre is a base point's reference, exact eye centre localization is essential for many applications.In this project, we extract pupil eye features exactly within different intensity levels of eye images, mostly with localization of determined interest objects and where the human is looking, since it's a digital world and digital transformation, everything is becoming virtual. Hence this concept has a huge scope in e- learning, class room training, analyse human behaviour. This project covers main process like Eye Ball and mentality & mood Recognition of Human Beings. Feature extraction method named Gabor ordinal measures (GOM) is used for Face Recognition process. Eye Ball recognition is done with the techniques of Black Matching and Low rancher cascade classifier was used to first locate the eye's area, and once found. We also include the state of emotions facial landmarks of the salient patches on face image using automated learning-free facial landmark detection technique.

Keywords: Pupil extraction; Features of human eye; Eye and pupil detection. Eye gaze detection.

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Prevention of flooding attacks using Honey encryption Algorithm

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Abstract: Wireless sensor networks (WSNs) include spatially allotted autonomous instruments that employ sensors to check environmental or physical conditions. These autonomous instruments or nodes blend with routers or gateway to make several WSN-based real-time applications. In many critical applications, an external user can directly access the real-time data from sensor node. In this context, before offering access, the legitimacy of the user is required to be verified through a Honey Encryption Algorithm. Since, in WSN- based real-time applications, the privacy of the user is greatly important, the, authentication scheme for such environment should be anonymous. Till now, impressive efforts have been made in designing lightweight anonymous authentication protocol for WSN-based real-time applications. However, most of such protocols are vulnerable to flooding attacks, which occur due to the loss of synchronization between the participants. In this article, we present a way to deal with flooding attacks by designing lightweight anonymous authentication protocol for WSN-based real-time applications without compromising any anonymity support. We argue that our proposed solution can easily be incorporated with the existing schemes to be resilient to flooding attacks.

Keywords: Flooding attack, WSN based real time applications, synchronization, and honey encryption.

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Expert System for E-Grievance

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Abstract: E-grievance is online transmitting system,where the queries are registered in e-form.And it is the platform based on web technology which primarily aims to enable submission of grievances by the aggrieved citizens from anywhere and anytime. E-grievance system should be built in the principles of governance like participation, transparency, responsiveness, equity and inclusiveness, effectiveness, efficiency and accountability. Hence, we develop a user-friendly web application for transmitting the e-complaints and to check the status of the e-complaints. We have a tendency to contend with the matter of rule-based entity resolution for e-grievance. ER is a widely explored analysis community. Earlier, transmitting the complaints and assisting the complaints to particular terms are done in manual process, in our proposed system, we have implemented the rule-based entity resolution for transmitting the E-grievance. As a result of the elapsing of your tie, records touching on an equivalent entity ascertained in numerous time periods could also be different. Besides ancient similarly-based ER approaches, by rigorously exploring many information quality rules, e.g., matching dependency and information currency, abundant info will be obtained to facilitate to address this downside. During this project, we have a tendency to use such rules to allocate the work to respective department automatically. And experimental results on each real and artificial information show that our entity resolution technique are able to do each high accuracy and potency on datasets with hidden temporal info.

Keywords: Data mining,E-transaction

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Repeat State Inputs Echo State Networking Environment Through Bash Script Kernal

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Abstract : Efficient and cost-effective measurement of echo state network characteristics is pivotal for distributed systems deployed on the internet. The echo state network characteristics are utilized by Internet-based distributed systems to provide better service to the user and enhance performance for the application.Provides a detailed analysis of existing techniques for the measurement of the four important echo state network characteristics which include latency, bandwidth, path detection and loss rate. The research describes key concepts related to echo state network measurements, including techniques for clock synchronization, strategies for time stamping of probes, methods for echo state network analysis, difference between active and passive measurements and comparison of round trip vs. one-way delay measurements. It elaborates the usefulness of different transport and echo state network layer protocols (i.e. TCP, UDP and ICMP) for obtaining echo state network measurements. The research explains the effectiveness and limitations of these tools with respect to the measurement of echo state network characteristics.

Keywords: OMT,OOAD

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Efficient Energy Management in Smart Homes

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Abstract: The Home energy maintenance system is the core of optimal operation for a smart home, representing an important component of the smart grid on the user side. We proposed an online event-triggering algorithm for energy maintenance of smart households in order to reduce the electricity cost, with a guarantee of comfort level for household members. The proposed energy maintenance solution can deal with the random demand of consumer and is implemented without user intervention. As a consequence, household members do not need to manually present the operation time interval of appliances. Optimization method is adopted in order to schedule the controllable load in the household based only on the current information. The aim of algorithm is to trigger the execution of the online algorithm, so as to cut down the execution frequency of voltage as to manage the maximum voltage. Simulation results show that the proposed solution could effectively decrease the electricity bill and guarantee the comfort level of users. Moreover, the required computational resource is small, which contributes to the low-cost energy maintenance of a smart home. A smart home to act on its own. This all seems ideal, but there still needs to be a way for the smart home to make suitable decisions.

Keywords: IOT,Smart home

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Heart Disease Diagnosis and Prediction Using Machine Learning

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Abstract :A popular saying goes that we are living in an "information-age". Terabytes of data are produced every day. Machine learning is the process which turns a collection of data into knowledge. The health care industry generates a huge amount of data daily. However, most of it is not effectively used. Efficient tools to extract knowledge from these databases for clinical detection of diseases or other purpose are not much prevalent. The aim of this paper is to summarize some of the current research on prediction heart diseases using data mining techniques, analyse the various combinations of mining algorithms used and conclude which techniques are effective and efficient. Also, some future directions on prediction systems have been addressed.

Keywords: CVD, LVQ, Machine Learning

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Diabetic Retinopathy Detection Using Support Vector Machine

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Abstract : The proliferation of spatial-textual data such as location-based services and geo-tagged websites, spatial keyword queries are ubiquitous in real life. One example of spatial-keyword query is the so-called collective spatial keyword query (CoSKAQ) which is to find for a given query consisting a query location and several query keywords a set of objects which covers the query keywords collectively and has the smallest cost with respect to the query location. In the literature, many different approaches were developed for the CoSKQ problem. In this paper, we study the CoSKQ problem systematically by proposing a unified cost function and is unified approach for the CoSKQ problem (with the unified cost function). The unified cost function includes all existing cost functions as special cases and the unified approach solves the CoSKQ problem with the unified cost function in a unified way. Experiments were conducted on both real and synthetic datasets which our proposed approach.

Keywords: SDR,CNN,SVM

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Exposing Vedio Forgery Detection Using Intrinsic Fingreprint Traces

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Abstract: In recently years, due to the advances of network technologies, low-cost multimedia devices, sophisticated image/video editing software and wide adoptions of digital multimedia coding standards, digital multimedia applications have become increasingly popular in our daily life. One of the principle problems in video forensics id determining if a particular video is authentic or not. This can be a crucial task when video's are used as basic evidence to influence judgement like, for example, in a court of law. This paper proposed to address passive forgeries detection in a digital video based on the statistical property of noise residue. To analyse the temporal correlation of block-level noise residue to locate the tampered region of a video. Extensive simulation results are presented to confirm that the technique is able to precisely individuate the tampered region and in addition, to estimate transformation parameters with high reliability.

KeyWords: CRF, Image processing

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Indication and Removal of Unnecessary Reports in Social Media.

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Abstract: Many types of social networking sites have emerging and contributed immensely to large volumes of real-world data on social behaviours .Recognizing anonymous, yet identical users among multiple SMNs is still an intractable problem . Moreover, since online SMNs are quite symmetric, existing user identification Schemes based on network structure are not effective . In this proposed system we use SVM classification algorithm to predict the unwanted message shared person from the Social media networks.SVM considered both profile attributes and network properties .We also developed two propositions to improve the efficiency of the algorithm.

Keywords: Datamining, User Interface

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Auditing for Data Storage Security in Cloud Computing

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Abstract: Existing semantically secure public-key searchable encryption schemes take search time linear with the total number of the cipher text this makes retrieval from large-scale databases prohibitive . To alleviate this problem, this proper proposes searchable public-key cipher texts with Hidden structures (SPCHS) for keyword search as fast as possible without sacrificing semantic security of the encrypted keywords. In SPCHS, all keyword-searchable cipher texts are structured by hidden relations, and with the search trapdoor corresponding to a keyword, the minimum information of the relations is disclosed to a search algorithm as the guidance to find all matching cipher texts efficiently. We construct a SPCHS scheme from scratch in which the cipher texts have a hidden star-like structure . We prove our scheme to be semantically . secure in the Random Oracle (RO) model. The search complexity of our scheme is dependent on the actual number of the cipher texts containing the queried keyword ,rather than the number of all cipher texts. Finally, we present a generic SPCHS construction from anonymous identity-based encryption and collision-free full-identity malleable identity-based key encapsulation Mechanism (IBKEM) with anonymity.

Keywords: Cloud computing, CSP

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Traffic and Energy Aware Routing for Heterogenous Wireless Sensor Network

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ABSTRACT : The most important issue that must be solved in designing a data gathering algorithm for wireless sensor networks (WSNS) in how to save sensor node energy while meeting the needs of applications /users. In this paper, we propose a novel energy-aware routing protocol(EAP) for a long-lived sensor network EAP achieves a good performance in terms of life time by minimizing energy consumption for in-network communications and balancing the energy load among all the nodes. EAP introduces a new clustering parameter for cluster head election ,which can better handle the heterogeneous energy capacities. Further more, it also introduces a simple but efficient approach, namely, intra cluster coverage to cope with the area coverage problem .We use a simple temperature sensing application to evaluate the performance of EAP and results show that our protocol significantly outperforms LEACH and HEED in terms of network lifetime and the amount of data gathered.

Keywords: Wireless network, EAP, NCS

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Acquiring Handy and Audit Based on Keyword Penetration

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St.Joseph college of Engineering

ABSTRACT: The proliferation of spatial-textual data such as location-based services and geo-tagged websites, spatial keyword queries are ubiquitous in real life. One example of spatial-keyword query is the so-called collective spatial keyword query (CoSKQ) which is to find for a given query consisting a query location and several query keywords a set of objects which covers the query keywords collectively and has the smallest cost with respect to the query location. The literature, many different approaches were proposed for defining the cost and correspondingly, many different approaches were developed for the CoSKQ problem. The CoSKQ problem systematically by proposing a unified cost function and a unified approach for the CoSKQ problem(with the unified cost function). The unified cost function includes all existing cost functions as special cases and the unified approach solves the CoSKQ problem with the unified cost function in a unified way. Experiments were conducted on both real and synthetic datasets which verified our proposed approach.

Keywords: spatial-textual data, CoSKQ

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Indian Shopping Cart Using Angular.Js

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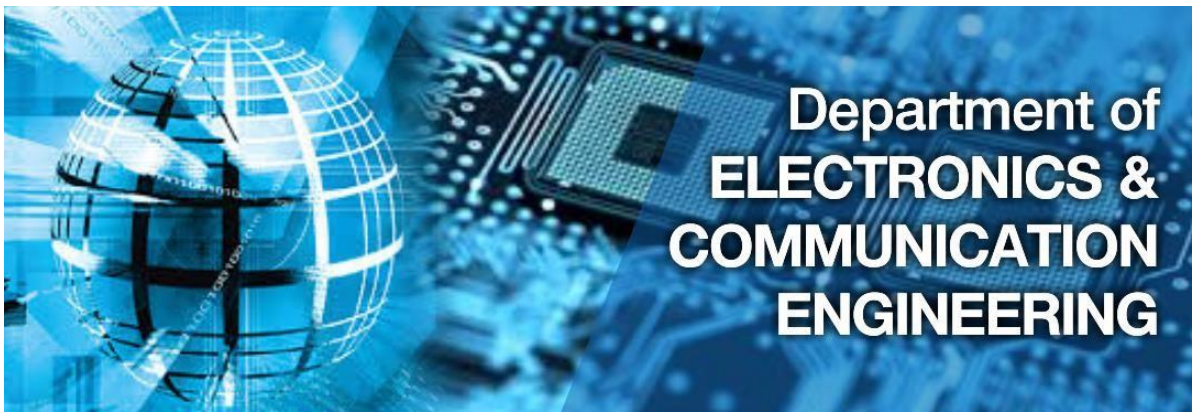
ABSTRACT: With ever increasing need for buying commodities, it has very essential that the delivery speed up to the mark. More and more products are sold via e-commerce because ease of access and efficiency of internet has made trading very popular. Angular-js provides used to develop a web application with many features, so here used angular as a front end and mongo db as a back end. Angular js is the best framework for developing RICH internet applications. Angular is a front end framework for client side application. It is used to develop a single page Application for both Android and desktop applications. The Indian product life is more benefits of buying Indian product the economic growth of India increases these economy use to our build up to the army because of security. If you buy Indian products then Chinese product rates will automatically decrease. So we developed online shopping cart specific for our Indian brands only. Use Indian brands to save and improve our economy

Keywords: Ecommerce, CRM


Department of
ELECTRONICS &
COMMUNICATION
ENGINEERING

Design of Frequency Reconfigurable Antenna Using a Defective Ground Structure for Wireless Applications

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Abstract:- In the proposed paper, a rigid (42.5 x 16 x 3.2 mm 3) and innovative shaped hexaband frequency reconfigurable antenna with a very wide tuning range, obtained by using a defective ground structure is designed. The designed antenna serves two single band modes (i.e 4.151 GHz and 4.6621 GHz) and two dual band modes (i.e 3.899 GHz, 5.81 GHz and 4.354 GHz, 6.153 GHz) rely upon the switching states. For achieving switching mechanism and frequency reconfigurability PIN diodes are used. The proposed antenna yields a VSWR which is less than1.25 for all resonant bands. The results are analysed using CST(Computer Simulation Technology) Microwave Studio 2016. The radiation efficiency of the proposed antenna structure for the corresponding frequencies ranges from 72.77% to 80.13%. The proposed antenna, due to its small and nominal geometry, can be easily unified in the recent communication devices serving as laptops, mobile phones and more compact electronic devices.

Keywords:- reconfigurable antenna, hexa band, defective ground structure, pin diodes,communication devices, radiation efficiency

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Performance Study of Cooperative Spectrum Sensing Using Network Coding for Cognitive Radio Networks

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Abstract: Network coding(NC) is a technique used for cogent and secure communication by enhance the network capacity, efficiency, security. Cognitive radio network(CRN) is a rising field which utilize the unused spectrum or whitespace efficiently and effectively. In CRNs, NC schemes are introduced to increase the spectrum utilization, shaping, sensing and to maximize the throughput for effective data transmission to reduce the primary user (PU) interference. The main objective of this project is to develop a NC algorithm for CRN to reduce the spectrum sensing error rate, which can successfully fill the spectrum holes and also serve without interference to the licensed user. In this project, we investigated the cooperative spectrum sensing method using optimal voting rule and also developed Random Linear Network Coding (RLNC) to reduce the spectrum sensing error rate and these performances were analyzed usingMATLAB.

Keywords:- Random Linear Network Coding, Cognitive radio network, NC algorithm

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Smart Warehouse Management System

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Abstract: In general, warehouses are used to store goods or products. In the Warehouses, if the user wants to locate any product it is very difficult, because user have to do a detailed search manually in all the available stockrooms this requires a lot of effort. So to avoid this problem the warehouse inventory management system is very helpful because it maintains the detailed product information and tells us in which stockroom the product is present. Though there are many wireless communication technologies the RFID suits the best for the warehouse inventory management system. The tag information is transferred from the transmitter section to open source hardware via a wireless link with the aid of internet. The warehouse inventory management system built on the architecture of the Internet of Things is developed to track the products attached to then tags with product information and their respective time stamps for further verification. The total system gives an archetype to correspond the information flow and material flow. The web page which is built in accordance to provide convenient and an interface to the user to track the products. The developed system results a very low cost system and works dynamically compared with the existing present warehouse inventory management systems.

Keywords:- warehouse inventory management systems, wireless communication, RFID

Verifiable Electronic Voting Machine to Avoid Malpractices

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Abstract: Electing an Eligible leader is a highest and prestigious responsibilities of every citizen of the country. Conducting the election and announcing the election results is a time and resource consuming task. Introduction of Electronic voting machines (EVM) greatly reduced theburden of operation but raises many concerns about the authentication of the results. Failure political parties often blames the functioning of the EVM is compromised with hacking techniques and intentional malpractice. Various practical demonstration of EVM hacking is available in online websites, which further increases the accusation over EVM. This project work endeavors to solve the continuous accusations over EVM through following multiple verification methods. Wireless voting copy machine and surveillance camera based voting counting. When a voter cast his/her vote a local copy of the data will be stored inside the EVM and also a surveillance camera will recognize the casting vote with motion estimation and it will be stored in a local storage. The storage will be updated along with the casting time. After the election data,during counting all the above three types of verification results will be compared to get a uniqueand authenticated result, which cannot be accused for Malpractice.

Keywords: Electronic voting machines, surveillance camera, Malpractice.

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Virtual Reality based Flood Rehabilitation ProductSelection

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Abstract: Floods are a standout amongst the most wide spread catastrophic events; they routinely cause huge quantities of setbacks with expanding monetary misfortune. This paper proposing the technique for structuring and actualizing the provisioning gadget to upgrade the flood recovery process. It upgrades the arrangement of essential items required by the general population who got caught in the flood. It is accomplished by catching the ideal reaction of the general population by Virtual Reality Module joined to the flying stage and preparing the precisedata to the emergency executive experts for legitimate affirmation through Zigbee Transceiver. The choice chosen by the client is identified dependent on the zone of the shadow thrown by the client's hand. So without much of a stretch decision of the probabilistic necessities, for example, prescriptions, nourishment materials, dress, bed sheets, and drinking water bundles inflood influenced areas are made. PIC 16F877A microcontroller can go about as the incorporated unit, since it plays out every single basic activity.

Keywords: Flood, Virtual Reality Module, Zigbee Transceiver, PIC 16F877A.

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Face Recognition System to Visually Blind People For Identifying Known Persons

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Abstract: In this paper we are mainly concerned about people who are visually impaired for identifying their known persons. Human face recognition is useful in many applications such as video surveillance and face image database management. In this project, Our main concern is about face recognition techniques. In face recognition, various algorithm used are Viola Jones for face detection, PCA (principal component analysis) and LDA in which we recognize an unknown test image by comparing it with the data base which are stored as a known training images and give information regarding the person recognized. Then, finally test image matched with the data set image of database it gives the name of the person through the APR voice model.

Keywords: APR voice model, principal component analysis, LDA

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Cost Effective Smart Home Based On FPGA

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Abstract: The houses of 21st century are about to becomemore human control and automated. The automation is upon us in a huge way and people are rapidly inventing new gadgets that enhance our lives. In the automation advancements, implementing the embedded systems for the purpose of home automation has led to an increase in the security and remote controlling of the appliances at home. The home automation system based on Field Programmable Gate Array (FPGA) Spartan is proposed to overcome the disadvantages of using Microprocessor and Microcontroller. FPGA is used as a core, instead of microcontroller, because of its flexibility, increase in better power efficiency and decreasing prices. This system is based on SMS technology and uses GSM network to establish the communication between mobile and controller. GSM system uses TDMA technique for communication purpose. Once the message is sent to GSM Module, it transmits the mobile voice and data services at the 850MHz, 900MHz, 1800MHz and 1900MHz frequency bands. FPGA Spartan receives input through I/O blocks and it transmits to GPIO Pins, which is connected to the load, lamp etc through driver circuit. This System is designed using VHDL in Xilinx 14.7 which is implemented in FPGA Spartan.

Keywords: FPGA, Spartan, Smart Home, SMS, Mobile, GSM.

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Traffic Density Analysis Using Background Subtraction Algorithm

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Abstract: Traffic monitoring and controlling has always been a challenge. The exponentially increasing vehicular traffic has led to many issues ranging from traffic congestion to increased road accidents. Improved traffic density estimation would help to curb the traffic before it becomes critical problem. The proposed image processing based traffic density analysis system reads a video captured by web cam and background subtraction would be applied on the converted frames. This process would lead us to get a binary image which would be processed for vehicle detection and further analysis. The software required is Open CV. The hardware required is Arduino, USB web camera, traffic light module, etc. The existing system is inefficient for the humongous traffic currently present on the roads and the non-linear behaviour of the traffic cannot be completely analyzed. In the proposed system the moving objects or vehicles are distinguished and hence vehicles would be detected easily. It can also reduce the traffic congestion rate.

Keywords: traffic density estimation, Open CV, Arduino

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Utilisation of Aquaculture in Agriculture Using Image Processing

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Abstract: High increment rate of human population brings about the necessity of efficient utilisation of world resources. One way of achieving this is by providing the plants with optimum amount of water with rich nutrients at the right time by supplying the aquatic effluent. The proposed system deals with finding the solution for improving the growth of the plant. The different images of the plant is captured and operations such as image pre-processing and image segmentation is done to know the condition of the plant like infected level. Two motors is used, where one motor connected to the fish pond, supplies the fish affluent water and the other motor, allows the normal water according to the need of the plant. The complete controlling operation is processed based on the pre-programmed operations in the AVR microcontroller. The system is very important to farmers, who find it hard to acquire fertilizer due to cost. It is significant because this method is organic, eco-friendly and a sustainable type of farming.

Keywords: Fish effluent, microcontroller, image processing, DC motor

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Extraction of Vein Characteristics for Herbal Medicinal leaves using Morphological Image Techniques

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Abstract: Plants play a major role in current scenario. Herbal plants have essential medical qualities from root to leaves. Every medical plant has a medicinal plant have a unique characteristic in curing the disease and they play a significant role in our day to day life. Digital imaging is the trending technique for medicinal application. Leaf image processing is the new approach in identifying the medicinal qualities present in the leaf. Each leaf is having a significant vein characteristic which is not same for all. Classifying the leaves based on its vein properties is quite important to differentiate the leaf from the look alike leaves. Obtaining the vein involves the image subtraction and other feature extraction process. Identification and classification of leaf's based on venation properties is carried out and stored in the data base andcompared with the test image in order to determine the accuracy.

Keywords: medicinal, Digital Imaging, Image Processing

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Design of Multilayer Stacked Patch Antenna for C and X Band Applications

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Abstract: This paper proposes a Stacked patch Antenna for C and X band applications. The multilayer aperture coupled stacked antenna is designed with corner truncation, embedding slits and introducing inclined slots for improving wider bandwidth. The proposed design provides good results with three layers, achieving good optimization. The dimensions of antenna are 33.14 mm x 33.14 mm, which operates at resonance frequencies 6.636 GHz and 9.048 GHz, and can be used for C and X band Applications. FR4-epoxy is used as dielectric substrate and CST microwave studio, is used to design and simulate the antenna.

Keywords: Microstrip, Stacked patch, Aperture coupled fed, C and X band.

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Survey on Raspberry Pi and Open Source OCR based Automatic Book Reader

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Abstract: An OCR (Optical Character Recognition) system which is a branch of computer vision and also a sub-class of Artificial Intelligence. Optical character recognition is that the translation of optically scanned bitmaps of writ-ten or hand written language into audio output by victimisation of Raspberry Pi OCRs developed for many world languages are already under efficient use. This methodology extracts moving object region by a mixture of Gaussians based background subtraction method. A text localization and recognition are conducted to acquire text information. To mechanically localize the text regions from the article, a text localization and Tesseract formula by learning gradient options of stroke orientations Associate in Nursing distributions of edge pixels in an Ada boost model. Text characters in the localized text regions are then binaries and recognized by off-the shelf optical character recognition software. The recognized text codes square measure output to blind users in speech. Performance of the proposed text localization algorithm. Tesseract algorithm and python programming, the audio output is listened.

Keywords: optical source, OCR, Raspberry pi, mems sensor, Temperature sensor

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Peer Discovery Mechanism for Device- To-Device Communication

K.Dhivya, T.Kohila, A.Lokanayagi, M.Mahalakshmi

Abstract: Massive amount of growing demands requires high speed data services for video, surfing over internet and social networking in wireless communication, where researchers are interested towards on growing ProSe (proximity services). Without degrading the performance of networks based on network science, our approach significantly reduces energy consumption by envisaging the node contacts in future. peer-to- peer communication plays crucial role as a optimistic technology in the future cellular systems,. Peer to peer communication is mainly focused on 5G in a network that is not under single control scenario, which means there is no communication or control from base station (gNodeB). So we started with the fundamentals of D2D communications then we went into deep details about peer discovery and selection of D2D pairs using different discovery algorithms .In that we choose different three algorithms to apply in multicell scenario and getting results using MATLAB. The three algorithms are based on the SINR, Distance and both on SINR and distance.

Keywords: Device discovery, peer-to-peer communication , SINR, Distance.

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Expulsion of DDoS attack in Software Defined Networking

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Abstract: Distributed denial-of-service defense is still a difficult problem though it has been extensively studied. The existing approaches are not capable of detecting various types of attacks. In particular, new emerging sophisticated attacks (e.g., Crossfire) constructed by low- rate and short-lived "benign" traffic are even more challenging to capture. Moreover, it is difficult to impose real-time defense to inhibit these detected attacks since the attack traffic can be concealed in benign traffic. SDN (Software Defined Network) provides flexible and scalable routing by separating control plane and data plane of the network architecture. With centralized control, SDN has been widely used in traffic and delay control, link failure recovery, and load balancing. This work considers the flow update problem, where a set of flows need to be migrated or rearranged due to change of network status. Whenever there is a traffic or congestion in the network the system will automatically reroute it various node. If the destination node is not busy due to traffic in the network means the source node will reroute the data to another node. If that is free then it will accept the data and hold it for certain amount of time and transfer it to destination node. If the second node is also busy it will reroute to other node and transfer to destination node. If the destination node is busy till the end then data will be deleted and the data will be available no more.

Keywords: Software Defined Network, network architecture, SDN

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Mini CNC Laser Engraver Using Arduino

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Abstract: Laser engraving is the act of utilizing lasers to imprint or stamp an item. A CNC control frame work is utilized to drive the development of the laser head. Laser engraver is a gadget that can imprint wood and plastic. Utilizing laser, the engraving procedure will be exact and clean can be accomplished. This undertaking was plan to manufacture a machine that can do laser engraving with a negligible expense in any event can do the expressed capacity. It is controlled utilizing an arduino which is the principle control place for the machine. The engraving test is joined to x-hub so it just moves in x course while the laser is appended to y hub so it just moves in heading.

Keywords: Arduino, Laser engraving, CNC control

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Microcontroller Based Drawing Robot

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Abstract: DRAWING ROBOT is implemented based on the principle of Computer Numeric Control (CNC). Normally, Computer Aided Design software (CAD) can be used as the replacement for manual drafting with an automated process. The hardware includes a simple embedded system with low cost microcontroller board. An Arduino Uno microcontroller is used to controls the proper synchronization of these three motors during printing/drawing process. The Arduino Uno is programmed with G-Code parser from PC that is connected to the Arduino via a USB cable to control the motors movement and synchronization. The robot is capable of drawing sketches similar to how a human perform with greater precision and accuracy.

Keywords: Drawing Robot, Computer Numeric Control, Computer Aided Design software

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High Speed Lookup Table Optimized Multiplier

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Abstract: This paper proposes a Lookup Table (LUT) based unsigned multiplication which is proven to be efficient in terms of high operating speed. For n bit input multiplication n*n memory array of 2n bit size is required to memorize all the possible input and output combination. This paper address this problem, by reworking the multiplier architecture with a parallel operating pre-processing unit which used to change the multiplier and multiplicand order with respect to the number of computational addition and subtraction stages required. Direct LUT coefficient multiplication is not always possible if the multiplicand is not a multiplicand of 2. This work proposes a match boundary processor to find the minimal polynomial coefficient to perform shift and add stages of multiplier.

Keywords: Direct LUT, Multiplier architecture, match boundary processor

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Water Quality Monitoring and Waste Management Using IOT

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Abstract: Since the effective and efficient system of water quality monitoring (WQM) are critical implementation for the issue of polluted water globally, with increasing in the development of Wireless Sensor Network (WSN) technology in the Internet of Things (IoT) environment, real time water quality monitoring is remotely monitored by means of real-time data acquisition, transmission and processing.

Keywords: Internet of Things (IoT); Wireless Sensor Network (WSN); Water Quality Monitoring (MQM)

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Gain Enhancement Of Planar Micro strip Array Antenna Geometry For S-Band Applications

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Abstract: Design the prototype of microstrip array antenna at S-Band frequency for radar communication. The design methodology has several stages such as calculation of antenna parameters mathematically, parameters simulation using HFSS. Fabrication of antenna array using FR4 substrate. Parameter values will be tested in the laboratory using VNA and compared with the simulation result. The antenna performance at 3 GHz frequency need to be implemented with < 7.07 dB gain ,VSWR <=1, return loss < -40 dB, and bandwidth 163.7 MHz. Fabricated array microstrip antenna will have approx size - 210 x 84.5 mm.

Keywords: array antenna, S-Band frequency, radar communication

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A Survey on Assistive Aid for Elderly Dementia Patients

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Abstract: Dementia is one of the most common "cognitive decline" diseases and is seen as a progressive condition, currently being detected in an increasing number of people. Traditional approaches in care for elderly people has usually been through restraint of the patient. Thus, the relatively modern approach of overseeing and monitoring the activities of the dementia people creates a revolution in the assistive technology realm. However, since it has gained popularity only recently, there is no clear evidence if the caregivers find this technology useful and if this is indeed replacing the restraint approach. The evidence available shows that the professional caretakers have provided three ways they believe the monitoring technology could prove beneficial - To ensure safety in general, to provide added security in terms of behavioral monitoring, and to allow more freedom to the people. The professional also stated four limitations of this technology - it doesn't prevent them from hurting themselves, it does not promise timely help during emergencies, it does not guarantee accuracy, and it could be a breach of privacy.

Keywords: Dementia, Technology, Monitoring, Safety.

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Mri Image Analysis of Schizophrenia

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Abstract: Schizophrenia is a mental disorder. The current diagnosis of schizophrenia is based on DSM-IV criteria. To find quantitative diagnostic method, MRI images of 10 schizophrenia and 10 normal are analyzed. Features such as mean, standard deviation, correlation coefficient and complexity are determined. The extracted features are used to differentiate schizophrenic subjects from that of normal ones.

Keywords: Schizophrenia, DSM-IV, correlation coefficient

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Digital Elevation Model and Terrain Mapping Using Lidar

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Abstract: In this paper, we propose Digital Elevation Model (DEM) and Terrain Mapping from the 3D map which is obtained from the dataset obtained from the outside environment using LiDAR. Human life is surrounded by a variety of sensors. Through the combination of different sensors, a designer can carry out environmental testing and then replace the human perception system. This application deals with the interfacing of LiDAR with Robot operating Software (ROS). The point cloud is calibrated from XML format to YAML format. The propertiesof the desired environment can be studied and calculated. Results can be obtained with more performance and accuracy using the data obtained from LiDAR.

Keywords: Terrain Mpping,3D map, Digital Elevation Model, LiDAR, Robot Operating Software.

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Performance Analysis Of Meandered Line Frequency Selective Surface For Window Rf Shielding

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Abstract: The concept of this paper is to block the electromagnetic signal which enters through the windows of the buildings in the frequency range of 1.5-2.5 GHz. This paper proposes the deployment of screen printed FSS (Frequency Selective Surface) on the windows of the buildings and analyze the shielding effect through these structures. FSS is a periodic surface with identical two dimensional arrays of element arranged on a dielectric substrate. An incoming plane wave will be reflected back when the frequency of EM wave matches with resonant frequency of FSS elements. The shielding surface is an array of meandered square shaped unit cell on a transparent substrate (polyimide) of relative permittivity of 3.4. This sheet will be deployed on the window glass. This sheet block the signal at 2 GHz resonant frequency, while allowing all the other bands to pass with little attenuation. This FSS window has better rejection of 38db in the frequency range of 1.5-2.5 GHz when compared to unshielded window.

Keywords: Frequency Selective Surfaces (FSS), meandered square, screen printing.

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Emergency Broadcast by Wireless Nodal Network Using Nrf24l01 Module

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Abstract: The main objective of personal communication is to provide access to enable the people to call or to access the services independent of geographic location but the communication in critical situations like natural disasters and in places like forest provides lack of network coverage in such situations this module provides the new network coverage area which help to provide the better way of emergency communication by texting. This can be achieved by using nrf24L01 module for the transmission of text as radio frequency signals. This communication process focuses on reliability, adaptability, operability to fulfil the operator's requirement. Popularity and usability fulfils the end users requirement. To energize the device easily during this laborious situation we use the solar energy which is more attractive to be used in embedded device since it is abundant in nature.

Keywords: communication in critical situations, nrf24L01

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Artificial Intelligence based Geoponics system

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Abstract: Artificial Intelligence can power up the whole of global earth into its best version. Its applications are bound beyond visions. Here we fuse the science of Geoponics with technology to grow plants with zero percent risk of failure by stimulating the environmental conditions and supplementing the requirements in adequate quantity without the need and interference of human labour in a controlled greenhouse environment. A prototype designed for the solution to the above using Artificial Intelligence and, data analytics monitors controls the entire natural process artificially to achieve the goal of cultivating and enhancing various species of the community-Green.

Keywords: Artificial Intelligence, the science of Geoponics, Community Green

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IoT Based Safe Driving For an Intelligent Transport System

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Abstract: Road safety is important for all road users with concern to make road transportation more secure and safer through IOT and sensors. Intelligent Transportation Systems (ITS) is the application of computer, electronics, and communication technologies and management procedure in an integrated way to provide travel information to increase the road safety and travel efficiency of the road transportation systems. This involves vehicles, drivers, passengers, road, and manages all interfacing with each other, and linking with the complex infrastructure systems to improve the safety and road systems. The main concept of the project is to prevent road accident using sensors .To avoid road accident control sensors such as alcoholic sensor, eye blink sensor, ultrasonic sensor, touch sensor, crash sensor are used by interfacing these sensors with Arduino and updating every data in cloud using IOT

Keywords:alcoholic sensor, eye blink sensor, IOT, touch sensor, ultrasonic sensor, crash sensor, ITS.

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Built in Self-Testand Comparison of Test Response For Faults Injected Coding

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Abstract: In this paper we present a testing of arithmetic and logical unit by using linear feedback shift register (LFSR).Digital system are evolving now a day in VLSI technology. The test process needed a deliberate knowledge of fault in the circuit under system (CUT). The proposed architecture is developed in order to intentionally inject faults in the Verilog code design of CUT. In this approach the injected faults in CUT are stuck-at 1 and stuck-at 0 faults. It Covers almost all faults in possible location and provides high fault coverage.

Keywords: LFSR, VLSI, CUT, Digital System

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Advanced Portable Handheld Ticketing Machine

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Abstract: The electronic ticketing machine is playing a very useful role in an area where particular counts of people are taken for generating tickets, tokens as a proof of charges paid for using the services provided to people. Public transport helps reduce traffic congestion with vehicular pollution. Therefore reduced vehicles increased the number of passengers inside a transport which lead to overcrowding, footboard, forgeries by not paying the fare amount. For avoiding these kinds of problems ticketing checking and easy printing process is implemented for buses. The smart handheld ETM used by conductors will generate tickets consisting of a QR code using MATLAB. Through the IOT technology we are able to update live moments of passenger's exponential count to the web server.

Keywords: ETM, IR sensor, MATLAB, IOT, QR code.

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Design And Development Of Drivers Driving Pattern Analysis For Automatic License Issuing System

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Abstract: Risky driving is a major cause of traffic accidents. In this paper, we propose a new method is used to record the driving pattern analysis for the license issuing system. The system can be implemented using Bayesian logic algorithm and Feature extraction algorithm. Theproposed system is the elimination process to issue Indian driving license. For this applicant willbe allotted the test vehicle for test drive with the number of sensors connected embedded in vehicle sending data using wireless sensor network to remote server to get processed. Result analysis is done by comparing the received data with previous data.

Keywords: PIC microcontroller, pattern recognition, risky driving, ADAS, RTO office.

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Home Automation System for People With Communication Disability

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Abstract: The article describes designing, modeling and testing of automated gesture recognition system, with access and control from their gestures and from temperature sensors. It will help people with disabilities to communicate with people who do not understand gesture language and also for people who are far from the patient. For example, during a painful attack on train or bus to ask doctor help. The developed system consists of subsystems that perform tasks of authorization, recording, storage and conversion of audio, sending data to the server and recognition. The implemented system of the used neural network is the perceptron. This is the developed prototype system that works under light conditions, and in the future will be refined.

Keywords: Cloud computing, neural network, portable devices, gesture recognition, mobile automated system, perceptron

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Traffic control based on density with Emergency Override

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Abstract: In urban cities traffic is becoming one of the critical issues with increasing population and automobiles. Traffic jams causes delays and stress for drivers and pedestrians. The Traffic signal based on time is one of difficult factor in affecting traffic flow. Traditional traffic control signal fails in time management. This paper, propose about traffic control signal based on density using ultrasonic sensors. With this receivers are used in emergency override.

Keywords: Density Based Traffic, traffic control signals, safety and convenience.

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Automatic Face Recognition Based Attendance System

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Abstract: Automatic face recognition (AFR) technologies have seen dramatic improvements in performance over the past years, and such systems are now widely used for security and commercial applications. An automated system for human face recognition in a real time background for a college to mark the attendance of their students. So Smart Attendance using Real Time Face Recognition is a real world solution which comes with day to day activities of handling students. The task is very difficult as the real time background subtraction in an image is still a challenge. To detect real time human face are used and a simple fast Principal Component Analysis has used to recognize the faces detected with a high accuracy rate. The matched face is used to mark attendance of the student. Our system maintains the attendance records of students automatically. Manual entering of attendance in logbooks becomes a difficult task and it also wastes the time. So we designed an efficient module that comprises of face recognition to manage the each student will be updated in a database. You can have your own roll number as your student id which will be unique for each student. The presence results showed improved performance over manual attendance management system. Attendance is marked after student identification. This product gives much more solutions with accurate results in user interactive manner rather than existing attendance and leave management systems.

Keywords: Automatic face recognition, Smart Attendance

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A Hybrid energy efficient trust model for analysis of packet loss in MANETs

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Abstract: Existing trust-based security schemes for MANETs consider packet loss an indicator of possible attacks by malicious nodes. We have several reasons for packet losses, such as interference, queue overflow, and node mobility. Finding the real underlying cause of a packet loss event is important for any security solution. To identify truly malicious nodes, it is necessary to carry out a fine-grained analysis to determine the underlying cause of such loss. Without this analysis, the performance of any security solution may degrade due to the punishment of innocent nodes while actual malicious nodes may remain undetected. Hence, approaches are required that can correctly identify the reason of packet losses and can react accordingly. In this paper, we are presenting a scheme able to correctly identify malicious nodes,using network parameters to determine whether packet losses are due to queue overflows or node mobility in MANETs. Our contributions in this paper include a hybrid energy efficient trust model for analysis for packet loss and the development of a comprehensive trust model for malicious node identification and isolation.

Keywords: MANETs, packet loss, malicious nodes, hybrid energy

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Design and Implementation of Pattern Reconfigurable antenna for Microwave application

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Abstract: This paper proposes the radiation pattern reconfigurable antenna using delay line feeding technique for meteorological applications. Using Computer Simulation Technology (CST), the proposed antenna consists of 2x2 antenna array pattern. The size of the radiating patches are reduced to minimum by etching a dumbbell shape structure at the ground, used to couple the coupling network at the lower substrate and radiating patch at the upper substrate to get the desired working frequency. Working at 7.5 GHz for meteorological applications, three directions of radiation pattern are obtained from the proposed reconfigurable antenna according to the OPEN and SHORT of the feeding line networks. The proposed antenna provides high gain, high efficiency, better radiation pattern and achieve good return loss, VSWR,directivity by using CST Microwave studio.

Keywords: Reconfigurable antenna, Computer Simulation Technology, VSWR

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Efficient Spectrum Sharing Using Femto cells

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Abstract: Cellular phones faces issues of poor signal strength and reduced call quality when used in indoor environment. Though Traditional method of using distributed antenna systems, somehow overcomes this issue but has many limitations too. Hence we have proposed a model to overcome the drawbacks of the above mentioned system (Distributed antenna system). Hence we implement a wireless framework in order to overcome the reduced signal quality in indoor communication. This framework consists of a small, low- power cellular base station (Femtocells), which allows service providers (Base stations) to extend indoor service coverage. Itdoes not require any centralized hub as required in distributed antenna system. In this paper we discuss about the efficient utilization of spectrum and increasing number of users thereby providing efficient communication.

Keywords: Cellular phones, Distributed antenna system, Femtocells, Base stati

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Cloud Based Automatic Ration Distribution & Monitoring System

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Abstract: An efficient, accurate and automated technique of ration distribution using RFID (Radio Frequency Identification) based technology/using of AADHAR number, which is an innovative approach in PDS (Public Distribution system).Public distribution system is also named as rationing distribution system, which is one of the widely disputable issues that involve malpractices. The existing ration distribution system has high level of corruption like inaccurate measurement of goods, large waiting time, and material theft in ration shop and manual distribution is not easy to handle crowd. In this paper, the proposed system replaces the manual work in public distribution system. The main objective of the designed system is the automation of ration shop to provide transparency by using, RFID number & networking which is similar to the ATM. This automated ration system replaces the conventional ration card system by RFID tag/AADHAR number, the government Authority provides the customer's database stored in microcontroller. Customer needs to scan tag to RFID reader or enter the AADHAR number, along with the PIN assigned to it, and then microcontroller checks customer's details with stored database to dispense the material in ration shop. After delivering proper material to consumer, proposed ration shop system I connected to the IoT database via Ethernet module to provide information to customer as well as PDS authorities. The use of Aadhaar number in the system eases the management of distribution for the government.

Keywords: Radio Frequency Identification, Public Distribution system, Automation

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Plastic Waste Management

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Abstract:A trend of significant increase in plastic waste generation has been recorded worldwide. This has been found due to over population growth rate, industrialization, urbanization and economic growth which have ultimately resulted in increased plastic accumulation. In India 70 percent of total plastic consumption is discarded as waste. Around 5.6 million tons annum (TPA) of plastic waste is generated in country, which is about 15,342 tons per day (TPD). An efficacious management needs to be materialized for better planet to live in. The proposed work implements an automated waste segregator household level using microcontroller to control the entire process with ease and simplicity. The sensing unit consists of a capacitive proximity sensor to detect and segregate plastic wastes. The proposed systems would be best applied in industries that handle plastic shipped in from many sources including multiple numbers of municipal recycling facilities. Each of the sorting methods currently being researched would show a great promise in the future.

Keywords: Automated waste segregator, a capacitive proximity sensor, industrialization, urbanization, recycling.

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Design of Meta surface Wide Band Antenna for C Band Applications

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Abstract: This paper proposes the design of low profile 3x3 metasurface wide band antenna for C band applications. One of the most pressing demands in wireless and satellite communication is designing a compact antenna with optimized antenna characteristics. The micro strip patch antenna possesses multiple meritorious characteristics yet has certain disadvantages such as spurious radiation and low gain. Hence it has been heavily studied and is continuously developed. The meta structure would help to optimize the gain of the antenna and increase the bandwidth while still maintaining a compact antenna structure. The proposed antenna has achieved bandwidth of 2.5158GHz and wideband characteristics at5.41GHz and 6.84GHz.

Keywords: Metasurface, wideband, low profile.

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Intelligent Traffic Signal Control for Smart Ambulance Using Iot And Cloud

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Abstract: The advanced traffic clearance system can be implemented in any urban areas quite easily with less time and low cost. In this system the Ambulance is fitted with a RF transmitter and controlled by a microcontroller. The traffic light is fitted with a RF receiver and Traffic signals are controlled by a microcontroller based on the receiver data .whenever the ambulance switches ON the siren, the RF transmitter transmits the RF signal. The nearest signal is identified based upon the current position of the ambulance. And that signal is made green till the ambulance passes by and later it regains its original flow of control. In this way it acts like a life saver project as it saves time during emergency by controlling the traffic lights .Thus this project allows us to save the time of major delay aspects in more efficient and economical manner and save the life .In emergency system, the transfer of patients to the hospital should be in fast and save manner to increase the rescue and survival rates.

Keywords: Internet of things(IOT), Heart beat sensor, GPS module, Embedded C, Arduino IDE

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Virtual Reality Based Food Supply System Management

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Abstract: Virtual Reality is seen as the high-end of human computer interactions and it has the potential to target a wide range of applications. To improve the standardization and automation of disaster operation management, a new method of emergency management based on the activity network technology is presented. Firstly, the emergency plan is built upon emergency response activities by using the activity network technology. While a virtual trajectory may be represented using straight lines connecting waypoints of interest, this simple model does not accurately represent typical user behavior. We implemented the model within a framework that can be used for redirect food distribution within different virtual and physical environments. It is useful for the evaluation of redirected of parameters under varying conditions.

Keywords: Virtual Reality, human computer interactions, activity network technology

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Bone conduction auxiliary voice data processing for hearing impaired users

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Abstract: In today's world most of the people are suffered from hearing problem. The hearing impairment is mainly due to the hole in the ear drum. If the hole is small in size, it may cured by air conduction hearing aid. But people with large size of hole in the ear drum should undergo surgery. Bone conduction hearing aids are the best solution to avoid this type ofsurgery. This paper proposes GSM based smart earplug system integrated with non-invasive bone conduction technique which is capable of doing some advanced features of audio processing to provide voice enhancing, noise filtered audio for the hearing impaired people. This bone conduction hearing aid does not bother about the hole present in the ear drum. It transmits the sound by converting it into vibration and send it directly to the cochlea.

Keywords: Ear drum, Cochlea, Bone conduction, GSM, Non-invasive.

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Global Automated Debit System using Image Processing

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Abstract: The ATM is an electronic telecommunications device that enables customers to perform financial transaction such as cash withdrawal, deposits, transfer funds, or obtaining account information, at any time and without the need for direct interaction with bank staff. Presently, ATM systems uses an ATM access card which usually have magnetic stripe and a chip along with a private PIN for identity verification. This information is communicated to a GSM module embedded into the ATM machine. But the current ATM transaction paves way for more fraud which is insecure. These drawbacks are overcome in this paper which is approached to have features like color bands instead of magnetic stripe and OTP to ensure more security and privacy. There is no risk of band being hacked or read by a magnetic stripe reader. To enhance much more privacy, virtual keyboard is introduced to avoid tracing of PIN numbers. In addition to the above features when unauthorized transaction is detected, alert message is send to the user's mobile number and the nearest police station, simultaneously the ATM door is closed with an alarm sound.

Keywords: ATM machine, Secure, Privacy

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Smart Gloves for Communication Using Sensors

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Abstract: Communication is a very important tool used to convey information. However, it becomes a barrier for the disabled due to their impairments. Hence there is a need to effectively enable communication between them as well as the outside world. The proposed system aims at solving this issue. The system comprises of a microcontroller which utilizes the flex sensors to recognize the American Sign Language (ASL) and maps the recognized sign with corresponding letter in the English language. This technique allows the impaired user to generate their own texts to communicate with other people. This text is then displayed on a Liquid Crystal Display (LCD) to help the people with hearing impairments and people with no knowledge of ASL comprehend what the person is trying to convey. In order to help the visually challenged comprehend as well, the system has a text to speech conversion unit that runs on a Raspberry Pi to convert the corresponding text into speech. This system can therefore help establish communication among the people with speech, hearing and visual impairments and with normal people.

Keywords: ASL, Arduino, Deaf, Flex sensors, Mute, Text to speech

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Design and Analysis of Low Power CMOS Flip-flop for Datapath Circuits

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Abstract: In this paper, an ultra low power true single- phase clocking flip-flop for data transmission is proposed. The data is passed through SR flip- flop which have master- slave typelogic structure comprising of static CMOS and complementary pass- transistor logic. The scheme used for reduction of transistor is Logic Structure Reduction Scheme which reduces the number of transistor and achieves power efficiency. Virtual V DD is proposed for faster state transition in slave latch. The number of transistor has been reduced from 28 to 19. Thus layout area is reduced and power consumption minimized.

Keywords:TSPC, Static CMOS, Complementary pass transistor logic.

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Medibox-Iot Enabled Patient Assisting Device

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Abstract: IoT is making strong inroads in the medical industry with the introduction of relevant sensors and devices. The complexity and cost associated with more elaborate systems led to the development of a new portable device in this paper named as "MEDIBOX"– an intelligent medication dispensing device. It is designed to help the elderly people who often forget to take their medications or take the wrong pills or dosage. It also helps people who used to travel frequently. Hence, we proposed a multi- purpose, portable IoT -enabled MEDIBOX which is used purposely to address those pertinent issues. MEDIBOX is designed to alert the patient at the right times along with the right dosage in prescription. so in the design of MEDIBOX an appropriate environment is created to maintain the drug efficacy MEDIBOX is also capable enough to alert its user about their next appointment with the doctor. Ambient Assisted Living (AAL) encompasses technical systems to support elderly individuals in their daily activities to allow an independent and safe lifestyle as long as possible. MEDIBOX is focused on assisting the elderly and patients in adhering to the medications regularly without fail, thus helping them to avoid any future difficulties.

Keywords: IoT, IoMT, Ambient Assisted Living.

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Pedestrain Safety Device In Automobiles

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Abstract: This paper presents an IOT device that monitors human behavior at pedestrian crossing. Road accidents are quite often in India. Rash driving and even the carelessness of the pedestrian are the main cause of accident. so manual effort cannot help in saving lives. In this system, sensors are mounted on the vehicle to constantly check the human behavior at pedestrian crossings and if there is any unusual behavior the vehicle slows down and a alert message is sent to the pedestrian's mobile using an IOT interfacing android application. Since the vehicle slows down its speed the pedestrian even after hit by vehicle will have only minor injuries. This system when implemented in vehicle can gradually drop accident rates in India

Keywords: Internet Of Things, IOT interface, android application, Passive infrared sensor (PIR),WIFI module, motor

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Implementation of EBG-Backed Planar Monopole for WBAN Applications

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Abstract: The Ultra wide-band Wireless Body Area Networks have rapidly progressed in recent years, due to its short-range, high bandwidth communications at a very low energy consumption level, which is quite attractive for wireless body area networks (WBAN). Here a Wearable UWB Antenna is implemented. The Antenna is made to operate at 2.45GHz with a bandwidth of5% and gain of 6.88dBi. The proposed antenna is fabricated on a 68×38×1.57 mm3 Board of semi-flexible Rogers Ultra Lam 1250™ substrate. The unlicensed range of UWB antenna is from 3.1 to 10.6 GHz by FCC. In such a system, the presence of the human body brings huge challenges for both the design of the wearable antenna and the propagation model. The couplingbetween the wearable antenna and the human body should be considered even in the initial steps of the design, in terms of maximum allowable specific absorption rate (SAR) is also addressed. The antenna is subjected to human body loading in all cases the EBG-backed monopole antenna retains its high performance. The high efficiency, robust radiation performance with very low specific absorption rate (SAR), the compact size, and the high gain make the proposed antenna suitable for wearable applications.

Keywords: wireless body area networks (WBAN), specific absorption rate (SAR), Wearable UWB

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Design of reconfigurable multiband microstrip patch antenna

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Abstract: Micro strip patch antennas has become very fashionable in modern decagon due to their unwavering delineation which can be incorporated into the surface of consumer products, aircraft and missiles,etc. These are uncomplicated to fabricate using printed circuit board (PCB) technique. The availability of many spectrum band has been a cobblestone for the modern antenna design for multiple application within an antenna thus a multiband micro strip patch antenna has been propounded. In this tender work rectangular micro strip patch antenna has been depicted with a rectangular slotted patch placed on the substrate. The dimensions of the particular design is calculated by using respective design equations. The substrate used is FR4 having dielectric constant of 4.4. The proposed technique is to make use of the frequency spectrum resources and work collectively well along with the current and future generation wireless device. The designed antenna can be used for various combination of wireless applications such as S, C, X frequency band in electromagnetic spectrum, hence overcomes the drawback of Narrow Bandwidth of Micro strip patch Antenna. Pin diode an EM switch isadopted and intervened in the slots in order to attain frequency diversity. The slotted rectangular patch antenna is fed by a coaxial feedline matched with 50ohm impedance. The design tool used is Ansoft HFSS.

Keywords:FR-4,Reconfiguration,HFSS,Frequencydiversity,Return loss.

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Multi-Sensing Autonomous Robot with GSM Technology

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Abstract : Multi sensing Autonomous Robot with GSM Technology is a Multiple Sensing robot that can perform various tasks based on the area and the task given to it. This uses arduino as core processor for this robot The maze solver in he industrial line where autonomous robot carrying of the products from one place to another. The various detectors have their own uses. The respective sensors are used for their own specific purposes. Such as IR sensor as path finder, Ultrasonic sensor for obstacle avoidance, flame Sensor for detecting fire,Gas sensor for detecting harmful gaseous substances. Another usage other than industrial maze solver robot is defining path for blind peoples in office or house incorporating some buzzer or vibrator. In factories it can be used for loading and unloading hazardous chemicals industries to perform hazardous job.

Keyword : Multi sensing ,GSM ,Sensor

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Smart Green House

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Abstract : The rapid development and miniaturization of sensor devices, the recent advances sensor technologies, are allowing scientists and engineers to develop small sensors that can be used to continuously monitor the health and stability of the Plants Environment. Sensors with computing, processing and communication capabilities that can continuously sense and Triggers the Solenoid value, where automatically can be processed and observed in real time. This project provides a detailed study and implementation of a sensor for monitoring of Green House parameters like humidity, soil moisture levels, etc.... A Sensor network was implemented using an Arduino based AVR microcontroller Agriculture plays a vital role in developing countries. In India, most of the population is depend on agricultural farming. Many issues hindering the development of agriculture in developing countries. Hence the project aims at making agriculture smart using automation and IOT technology. Nowadays water scarcity is a big concern for farming. This project helps the farmers to irrigate the farmland in an efficient manner with automated irrigation system based on soil humidity. Automation of farm activities can transform agricultural domain from being manual and static to intelligent and dynamic leading to higher production with lesser human supervision. This paper proposes an automated irrigation system which monitors and maintains the desired soil moisture content via automatic watering.

Keyword : Arduino based AVR microcontroller, Smart green house

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VR Based Smart Vehicle Driving Using Embedded Technology

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Abstract : Virtual reality is a well known concept and has been proven to be beneficial in various areas. Virtual reality may be used to display and analyze abstract data. This project addresses some of the Principles that may be employed in creating mapping between abstract data and dimensions of a Virtual reality. This project is majorly used to prevent accidents by the display of messages, calls, temperature of the engine, determine the distance of the previous vehicle etc...by keeping the focus of the driver on driving itself. The temperature of the engine is detected by the temperature LM35 sensors and the distance between the previous vehicle by ultrasonic sensor for every 30 seconds a regular intervals routinely. The incoming calls and messages are received by usin the GSM module and display it by using LED display. The zigbee transceiver i used for transmitting and receiving the signals. For an embedded technology w are using PIC microcontroller 16F877A to centralize all our device and networ and it has only one transmitter, so we are using relays for the efficient connecti establishment. In this project, the real time data are collected by the sensors attached the vehicle once the sensors measured the values then it is processed and send the user virtual reality glass through wireless and indicate the data to the routinely .This design of virtual reality glass is aims to proving the a safe, se and high quality of life that everyone can enjoy.

Keyword : sensors ,LED ,zigbee ,microcontroller

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Red Lesion Detection Of Diabetic Retinopathy Based on Region Based Segmentation and DSF Algorithm

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Abstract : The development of an automatic telemedicine system for computer-aided screening and grading of diabetic retinopathy depends on reliable detection of retinal lesions in fundus images. In this project: propose an automatic method to detect microaneurysms and haemorrhage in retina photographs. Microaneurysms haemorrhages are the most frequent and usually the first lesions to appear as a consequence of diabetic retinopathy. So, their detection is necessary for both screening the pathology and follow up(progression measurement).Automating this ask which is currently performed manually, would bring more objectivity and productivity. Previous methods failed to perform equally over all regions of retinal images to detect regulations. So, there is still challenge to accurate detection of sions in all part of images. In proposed work, consider region based segmentation with previous DSF analysis. Here, red lesions are detected region wise that it can be easily graded. It is done by dividing the image of the retina in different regions according to the international standard. In this method search region for detection of red lesions is adaptive to the size of the image. Removal of OD and vessels resultant image is also applied region wise using erosion and dilation. Finally siders hybrid kernel SVM classifier to differentiate lesion or non-lesion. Thus performance in terms of sensitivity, specificity and accuracy can be improved by proposed method.

Keybord: detection, segmentation, DSF

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Classification of Magnetic Sonance Images Using Neuro Fuzzy Technique for AIN Tumor Detection

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Abstract : Multi Sensing Autonomous Robot with GSM Technology is a Multiple Sensing robot that can perform various tasks based on the area and the task given to it. This uses arduino as core processor for this robot. The maze solver in the industrial line where autonomous robot carrying of the products from one place to another. The various detectors have their own uses. The respective sensors are used for their own specific purposes. Such as IR sensor as path finder, Ultrasonic sensor for obstacle avoidance, flame Sensor for detecting fire,Gas sensor for detecting harmful gaseous substances. Another usage other than industrial maze solver robot is defining path for blind peoples in office or house incorporating some buzzer or vibrator. In factories it can be used for loading and unloading hazardous chemicals industries to perform hazardous job.

Keyword : Robot ,arduino ,Ultrasonic

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Flood Monitoring System for Dams with High Security Alert Using IOT

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ABSTRACT : The downstream flooding from dams due to environmental disasters leads to failure of evacuation of nearby living people cause high mortality rates and casualties. It is essential to record the height reached by the water and leakage of water through the walls of dams in real time to avoid flooding, thereby reducing casualties and mortality rates. The traditional manual monitoring are discommodious and scattered nowadays. has also certain shortcomings that includes high cost and if the condition of wat volume increases suddenly and if the manual water level monitoring is not available the scenario the flood information is not quickly conveyed. This project presents ar time Wireless Sensor Network based early flood detection and water level monitor system designed with a function of real time monitoring. Here the water level monitored as well as the pressure level of the dam is periodically updated to authorities and the common people of that area. Call alerts are given if the pressure the water level goes beyond the normal level for all the nearby people with high alert This is implemented using an ESP8266 module to get the data from the s such as water level sensor, pressure sensor, turbidity sensor, pH sensor and it is the cloud storage for processing.

Keyword : IOT, Flood Monitoring

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Compact and Portable Device for Assessing Of Psychological Parameters Using Iot Technology Fixed In Wheel Chair

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Abstract : In this project, the technology advances on sensors, connected to human body enables the design of health monitoring system. The system was developed to monitor the vital signs such as body temperature. Heart beat rate, blood glucose level and blood pressure. It presents the design and implementation of sensor network for health monitoring system. It includes temperature, blood pressure. heart beat monitoring. The architecture for this system is based on smart devices and wireless sensor networks for real time analysis of various parameters of patients. This system is aimed at developing a set of modules which can facilitate the diagnosis for the doctors through tele-monitoring of patients. It also facilitates continuous investigation of the patient for emergencies looked over by attendees and caregivers. A set of medical and environmental sensors are used to monitor the health as well as the surrounding of the patient. This sensor data is then relayed to the server using a smart device or a base station in close proximity. The doctors and caregivers monitor the patient in real time through the data received through the server. The medical history of each patient including medications and medical reports are stored on cloud for easy access and processing for logistics and prognosis of future complications. The architecture is so designed for monitoring a unitary patient privately at home as well as multiple patients in hospitals and public health care units.

Keyword : Heart beat rate ,blood pressure, network tele-monitoring

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Automatic Gas Detector Using Arduino with Exhaust Fan

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Abstract : In this project we have proposed LPG monitoring and leakage detection system, with the large demand and use of LPG, this system would be helpful to monitor the usage of LPG on a regular basis and to alert about any hazards that may occur due to LPG usage. The aim of this project is to develop such a device that can automatically detect gas leakages in those permeable areas and avoid further accidents. The system detects the leakage of the LPG (Liquefied Petroleum Gas) using a gas sensor and ses the GSM to alert the person about the gas leakage via SMS. When the LPG concentration in the air exceeds a pre determined level, the gas sensor senses the gas leakage and the output of the sensor goes LOW. This is detected by the microcontroller and the LED and buzzer are turned ON simultaneously. The system en alerts the customer by sending an SMS to the specified mobile-phone. In this project; propose an automatic gas detection also using load sensor. In this proposed stem load sensor is used to measure the weightage of the LPG gas. The load sensor the weightage of the LPG gas, when the LPG gas mix 20% in the air then sensor gives the alert through message and warning display.

Keyword : LPG ,buzzer ,SMS ,weightage

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Soldier Positioning And Health Monitoring System Using Raspberry PI

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Swetha. J,

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Abstract : The project proposes the design of Internet of Things(IOT) for Soldier Positioning and health monitoring system using Raspberry Pi 3.In a fast-paced contemporary environment that people are living in today, our lifestyle demands for advanced devices to improve it and a network of these devices to enable exchange of data between them. This is where IOT plays a major role in improving lifestyles. IoT devices range from robot-like units to tiny chips that hook into industrial or office machines allowing the user to fully control the device, or merely collect specific data from it. There have been several soldier positioning models proposed previously, but they do not fulfil the requirements of an ordinary millennial who looks for a centralised system. Thus, Raspberry Pi 3 is used here to centralise all our device networks. For the IoT connected healthcare applications, the wireless body area network (WBAN) is gaining popularity as wearable devices spring into the market. This project proposes a wearable sensor node with solar energy harvesting and Bluetooth low energy (BLE) transmission that enables the implementation of an autonomous WBAN. Multiple sensor nodes can be deployed at different positions of the body to measure the subject's body temperature contribution, heartbeat and detect falls. A web based Smartphone application is al eloped for displaying the sensor data and fall notification.

Keyword: Raspberry ,WBAN,Smartphone

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Integration Of Graphic User Interface for Banking Domain Using Biometric Access On SOC Development Board

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Abstract : The ability to verify the identity of specific individuals is of critical importance in reducing acts of fraud and increasing security. Traditional automated verification methods of ATMs such as ATM cards cannot provide positive identification, they may be lost or stolen, while PINS, passwords and account numbers may be stolen or intercepted by unauthorised users through electronic means and other ways. A concerted effort to stop this crime requires a more reliable method of identification that is person's identity. This paper proposes a new system for ATM using aadhar numbers linked with the fingerprint of the person for access. In this project GT511C3 sensor is interfaced with RASPBERRY PI3 dule, which serves a major part and it works under the LINUX platform.

Keyword : PINS,RASPBERRY ,LINUX

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Classification of Magnetic Resonance Images Using Neuro Fuzzy Technique for Brain Tumor Detection

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Abstract : Here the 3D video on the brain will be taken as input so that we can attain the exact shape of the tumor. For the access of image video is converted into image Automatic defects detection in MR images is very important in many diagnostic and therapeutic applications. Because of high quantity data in MR images and blurred boundaries, tumour segmentation and classification is very hard. This work has introduced one automatic brain tumour detection method to increase the accuracy and yield and decrease the diagnosis time. The goal is classifying the tissues to three classes of normal, benign and malignant. In MR images, the amount of data is too much for manual interpretation and analysis. During the past few years, brain tumour segmentation in magnetic resonance imaging (MRI) has become an emergent research area in the field of medical imaging systems. Accurate detection of size and location of brain tumour plays a vital role in the diagnosis of tumour. The diagnosis method consists of four stages, pre- rocessing of MR images, feature extraction, and classification. After histogram equalisation of image, the features are extracted based on Dual-Tree Complex wavelet transformation (DTCWT).

Keyword : DTCWT, magnetic resonance imaging (MRI)

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Innovative Disabled People Using Approach to BCI (Brain Computer Interfacing) Wheelchair

Ms. S. Lenin Preeshith M.E AP/ECE, Monika.S, Poojakani.C, Roopa.A.

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Abstract : Movement is an important aspect of any human being's life therefore lack of it has adverse effect on their overall development. Physically disabled people unfortunately are devoid of this privilege. Mechanical wheelchairs provided some form of mobility but they relied on external help for moving around. Moreover, people with tetraplegia couldn't benefit from it due to loss of all four limbs. Brain computer Interface (BCI) is construed as interacting with an electronic device solely with brain with the help of Electroencephalogram (EEG) Signals. This technology is applied to existing mechanical wheelchairs to control it using the brain to overcome the limitations of conventional wheelchairs. This paper proposes cost effective application of BCI technology to aid in mobility of physically disabled people. The proposed system utilizes the voluntary eye blink as an event to trigger an action. An eye brain pattern is mapped to a context based physical action like moving the wheelchair in a particular direction.

Keyword : BCI, Electroencephalogram (EEG)

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The Role of Smart System Assisted Using RFID Computed Vehicle's on Road

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Abstract : Mamive Radio Frequency Mensification (KP) disses are expected to become commonplace in VANET systems Vehicle ad-hoc and mining this data is an essential problem with great potential benefits for security, nation tracking, and information exchange between vehicle processes. Since XD sp cat be used to identify each individual item, enormous amounts of location tracking data are generated. With such dats, object movements can be modelled by movement graphs, where nodes correspond to locations and edges second the history of item transitions between locations.The integrated vehicle tracking research has been on the rise as both public and private sectors use the facilities in acquiring real time management information to enhance their business processes. The proposed work is designed effectively to communicate from the vehicle any incident which may happen on the highway. In order to achieve this, the design involved the combined wireless technology using Radio Frequency Identification (RFID) and Xbee wireless module. This system also had an integration of obstacle finding and control based on its distance using ultrasonic sensor. The design is based on the use of RFID as a communication tool from the driver of a vehicle to a local database server.

Keyword : Radio Frequency Identification, Smart system

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Smart Green House

MRS. Maria Princy.A,M.E.AP/ECE, Arkathbi.M, Emmarani.C, Hena.S, Kanmani.S,

Department of ECE, St. Joseph College of Engineering, Chennai

Abstract : The rapid development and miniaturization of senior devices, the recent advances sensor technologies, are allowing scientists and engineers to develop small sensors that can be used to continuously monitor the health and stability of the Plants Environment. Sensors with computing, processing and communication capabilities that can continuously sense and Triggers the Solenoid value, where automatically can be processed and observed in real time. This project provides a detailed study and implementation of a sensor for monitoring of Green House parameters like humidity, soil moisture levels, etc.... A Sensor network was implemented using an Arduino based AVR microcontroller Agriculture plays a vital role in developing countries. In India, most of the population is depend on agricultural farming. Many issues hindering the development of agriculture in developing countries. Hence the project aims at making agriculture smart using automation and IOT technology. Nowadays water scarcity is a big concern for farming. This project helps the farmers to irrigate the farmland in an efficient manner with automated irrigation system based on soil humidity. Automation of farm activities can transform agricultural domain from being manual and static to intelligent and dynamic leading to higher production with lesser human supervision. This paper proposes an automated irrigation system which monitors and maintains the desired soil moisture content via automatic watering.

Keyword : Smart Green House, IOT

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Equal Power and Channel Sensing over Multi-User Cognitive of DM System

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Abstract : This concept represents a solution with cognitive radio network over the secondary users who are bound on to the new network via external frequency sensing. Here a flow based approach for network selection for secondary users in cognitive radio networks. Most approaches in the current literature on cognitive radio do not consider network selection is not established over the secondary users to select. This concept represents a network flow framework for network selection. The approach shown can enable re-assignment of networks to secondary users and also re-assignment of channels to secondary users within the same network and accessing of external accessing network systems. The assignments and re-assignments take into account, the interference caused to primary users, the price each secondary user is willing to pay and the quality of service (QoS) obtained by each secondary user in the external networks systems. The allocation happens between the secondary and primary.

Keyword : Cognitive radio network, quality of service, DM System

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EAR & IRIS Recognition Using a Novel Feature Extraction Approach

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Abstract : Most of traditional ear recognition and iris recognition methods that based on local features always need accurate images alignment, which may severely affect the performance. In this paper, we investigate a novel approach for ear recognition and iris recognition. The features extraction of iris is done by Local Binary Pattern (LBP).The ear recognition based on Polar Sine Transform (PST); PST is free of images alignment. First, we divide the ear images into overlapping blocks. After that, we compute PST coefficients that are employed to extract invariant features for each block Second, we accumulate these features for only one feature vector to represent ear image. Third, we use Support Vector Machine (SVM) for ear recognition. To validate the proposed approach, experiments are performed on the USTB database and results show that our approach is superior to previous works. Iris recognition is amongst the most robust and accurate biometric technologies supporting databases in excess of millions of peoples. With the need for security system going up, Iris recognition is emerging as one of the important methods of biometrics-based identification system.

Keyword : IRIS**,** Support Vector Machine, Polar Sine Transform

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Real Time Vehicle Tracking Using ARDUINO UNO

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ABSTRACT : To design a module based on the concept of IOT which can track the geographic location of the vehicle and to monitor the health status of the patient inside the vehicle through the Arduino UNO, the GSM/GPRS module, the GPS module, heart beat sensor. The real time location of the patient can be tracked and their health status can be viewed through short message services and the web page is also created using the SQL. language. This web sage access supports hospitals to monitor the patients' health while arriving and to Personalize the first aid treatments according to their needs. This module can be designed very cost efficient way and it provides an ease to access and can be developed which could support the future technical developments in Bio medial environment

Keyword : Vehicle Tracking, Arduino UNO, GSM/GPRS

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Fire Detection Robot Using Raspberry PI

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ABSTRACT : This paper examines the design and implementation of a system to support firefighting exercises based on tools and ideas of pervasive computing. Through this development a range of technologies and conceptual tools were used, such as sensors, wireless communication, and the programming framework Move; as well as context-awareness, situation management, and activity detection. In this development, the notion of implicit human- computer interaction was of particular relevance. The use of a programming framework for interaction through motion was central, and this implementation is one of its proofs of concept, as it presented opportunities to improve it and recommendations to adapt it for future applications.

Keyword : Fire deduction, Raspberry PI, Robot

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Health Monitoring System for Paralytic Patients

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ABSTRACT : This project work is aimed at measurement of heartbeat and fall detection of the person under subject. Falls are dangerous for the aged population as they can adversely affect health. Therefore, many fall detection systems have been developed. However, prevalent methods only use accelerometers to isolate falls from activities of daily living (ADL). This makes it difficult to distinguish real falls from certain fall-like activities such as sitting down quickly and jumping, resulting in many false positives. In recent technological innovations in the field of disease prevention and maintenance of patient health have enabled the evolution of fields such as monitoring systems. Heart rate is a very vital health parameter that is directly related to the soundness of the human cardiovascular system. It can be measured either by the ECG waveform or by sensing the pulse the rhythmic expansion and contraction of an artery as blood is forced through it by the regular contractions of the heart. The pulse can be felt from those areas where the artery is close to the skin. This paper describes a technique of measuring the heart rate through a fingertip and Arduino.

Keyword : ADL, Health Monitoring, ECG

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Biped Humanoid Robot Along With Virtual Assistant (PICROFT)

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Abstract : A humanoid robot is a programmable robot with a body shape, which is built to resemble the structure of the human body. The robots functional purpose is to interact with its surrounding, and for experimental purposes such as displaying the different motions which resemble the actions of humans. Humanoids have a head. torso, legs and arms which were constructed in the forms of mechanical parts. Humanoid robots provide us with a better understanding of the human structure. Very advanced robotics facilities aim to design robots which can perform human tasks such as: washing the dishes, providing assistance to the elderly, and performing dangerous jobs such as firefighting, along with many other tasks. A new dawn of robotics is displayed in simple design of the 17 DOF robot which was created in this project. The humanoid robot which was created in this project consists of many mechanical parts. These parts were programmed and designed in the shape of humans. Parts include the use of servos to represent the joints and cardboard/aluminium for the structure (body) of the robot. The servo control board is used to control the servo motors. The Raspberry pi was programmed to generate and guide the actions of the robot such as moving forward, turning around and interacting with its surroundings.

Keyword : PICROFT, ROBOT

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Fundamental Actions of Humanoid Robot Using PYTHON

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ABSTRACT : The main objective of this project is to create coding for the humanoid robot, humanoid robot is a programmable robot with a body shape which is built to resemble the structure of the human body. The robots functional purpose is to interact with its surrounding, and for experimental purposes such as displaying different motions by using given python coding which resembles the actions of human. This project describes Pyro, a robotics programming environment designed to allow inexperienced undergraduates to explore topics in advanced robotics. Pyro, which stands for Python Robotics, runs on a number of advanced robotics platforms. In addition, programs in Pyro can abstract away low-level details such that individual programs can work unchanged across very different robotics hardware. Pyro, It is a library that enables you to build applications in which objects can talk to each other over the network, with minimal programming effort. You can just use normal Python method calls to call objects on other machines. Pyro is written in 100% pure Python and therefore runs on many platforms and python versions. In this project we completely depend on python for several advantages provided by it such as python is very easy to use, python's built the data types for strings, list and more. Java or C++ requires the use of special classes for this.

Keyword : Python, ROBOT

Electrical and Electronics Engineering

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Design and Implementation of Five Level to Seven Level Front End Converter for Electric Vehicle

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Abstract: The increasing consumption of conventional energy in the world with increasing costs of fossil fuel is justifiable reason for using fuel cell technology with high performance. However, the output voltage of fuel cell stack is very low and it is not sufficient to drive the electric vehicle. The three level hybrid boost dc-dc converter, which can be step-up the fuel cell output voltage with high voltage gain. The working principle of the converter is based on the traditional neutral clamped multi-level inverter. Here, MOSFET based three level converter is designed and the steady state of filtering capacitors are simulated with MATLAB software. Fuel cell stack is designed in the place of normal dc battery. Hybrid boost dc-dc converter is connected to Multi level inverter for AC output to drive the Electric Vehicle (EV). The hardware of the above converter as a laboratory setup is implemented and the results are obtained.

Keywords: Front end converter, Fuel Cell, DC-DC Converter, Seven-Level, Electric Vehicle, Battery.

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An Electric Vehicle Application withPV Battery Charger using Fourth Order [L3c] Resonant Converter

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Abstract: In electric vehicles with rooftop PV panels, the solar irradiance and surface temperature can affect their performance and output voltages. In these systems, the maximum energy must be extracted from the variable input voltage (PV panel), boosted by different gains, and stored in high-voltage battery packs. Furthermore, depending on the battery state of charge, the charger should operate in constant voltage, constant current, or constant power modes, all the way from complete discharge condition, up to the charged floating voltage phase. This combination of the variable PV input voltage and different states of charge creates a significant regulation challenge for the converter. In this paper, a high-efficiency fourth-order L3C resonant converter is proposed with an extreme voltage regulation capability that can effectively extract the maximum power from the PV panels and respond to the battery states of charge at different voltage and current levels, Full Soft switching condition

Keywords: Photovoltaic panel, Electric vehicle, Wide (DC-DC) voltage regulation, Full Soft switching condition.

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Design and Implementation of Energy Management for AC/DC Microgrids Using Fault Current Limiter

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Abstract: In recent years DC micro grids are introduced for distributed generation and rapidevolution from AC to DC loads and it is used as a remarkable practical solution for many real time application. So in order to avoid faults in micro grid, fault current limiter is used which control the magnitude of fault current and also able for power management in normal and abnormal condition. This proposal is to connect both AC system and DC system for controlling magnitude of fault current by DC reactor current control and management of power flow from AC system to DC system. A boost converter is utilized in this structure that its output is connected to a DC bus to control DC reactor current it also provides sinusoidal input current. Even though it ensures a high protection does not have any impact voltage and load currents. The simulation results is presented to clarify feasibility of proposed FCL that manifest the structure and feasibility of FCL.

Keywords: Agent based controller, Flywheel energy storage system, Hardware implementation, Micro grid, Power conditioning.

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Hybrid Cascaded Multilevel Inverter Based On Coupled Inductor and H-Bridge Topology

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Abstract: Multi-level inverters have been a great concern of many researchers, for more than three decades, for the growth of many successful industrial applications. Among those types, Cascaded H-Bridge (CHB) Multi-Level Inverter technology is rapidly gaining due to many of its Advantages. The multilevel inverter utilization has been increased since the last decade. These new type of inverters are suitable in various high voltage & high power application due to their ability to produce waveforms with better harmonic spectrum and output. This paperpresents a multilevel inverter configuration which is designed by capacitive voltage sources and conventional H- bridge module. The main objective is to produce 13 level output by usingMOSFET and other components. The analysis of the output voltage harmonics is carried out. Cascaded H-bridge multilevel technology is more appropriate for this particular application as the input is in the form of four separate batteries, which are used to achieve a stepped AC voltage waveform at the output. Proper charging mechanism for the batteries plays a vital partin this design.

Keywords: multilevel inverter, MOSFET, sinusoidal pulse width modulation, low powerapplications.

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A low Energy Prismatic Street Light Using Integrated Boost – LLC AC-DC Converter

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Abstract: This project proposes a hybrid modulation strategy which consists of a bus voltage control loop using asymmetric pulse width modulation (APWM) and an output voltage control loop using PFM. The stable output voltage and quasi-constant bus voltage can be simultaneouslyachieved. Furthermore, by increasing bus voltage ripple and employing the Twin-Bus configuration, the short-lifetime electrolytic capacitors are eliminated and the efficiency of the total LED driver can be greatly improved. Therefore, universal-input operation, high efficiency, low cost, and long lifetime, are the key innovations of the proposed solution. A universal-input 100-W prototype is built to demonstrate the feature of the proposed solution. The experimental results will show that the converter achieves a peak efficiency of 92.5% at the input voltage of 130V and a high power factor (PF) value above 0.95 over the whole input voltage range. Stable output voltage and quasi-constant bus voltage can be simultaneously achieved.

Keywords: Single Stage Integrated Boost –LLC Soft switched AC-DC Converter, Multiple twin bus buck converter, Hardware implementation, Micro grid, Power conditioning, Simulation

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Design and Implementation of Step-Up Resonant Dc-DcConverter fora Photovoltaic Fed Microgrid

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Abstract: In this paper, we propose a high step-up resonant dc-dc converter with ripple-free input current for renewable energy systems. We use an input-current doubler and a switching mechanism employed at an output-voltage doubler to achieve high step-up voltage gain without having to use a transformer with high turns ratio. An active-clamp circuit installed on the primary side suppresses the surge voltage at the switch components and recycles the energy stored in the leakage inductance. A resonance that occurs at the secondary side of the converter is used to reduce the turn-off current and switching loss significantly, and to achieve high power conversion efficiency.

Keywords: PV panel, Resonant DC-DC Converter, LC filter , Simulation, Inverter.

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Industrial Electrical Machine Safety Enhancement Using Mega Arduino

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Abstract: The machines which are at Industries need to be controlled and monitored from any other place. This project builds such a system which can control and monitor functioning of the machines globally with the help of (IIOT) Industrial Internet of Things. Here Mega Arduino acts as main controller which obtains input from user through internet and takes appropriate action. Mega Arduino controller will be connected to the motor, IIOT gateway services enables a secure internet connection and the user can connect to the internet server and can monitor the machine at anywhere. In our project we monitor and control the machine condition by acquiring real-time data on motor temperature, vibration, current and voltage, speed, current signature (MCSA) through industrial grade sensors using Mega Arduino and IIOT gateway.

Keywords: Smart manufacturing; Machine to Machine communications; Condition Based Monitoring; Noise and vibration sensing; Cloud service.

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Reduction of Harmonic in Single Phase Quasi-Z-SourceInverter Using APF

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Abstract: Single-phase quasi-z-source rectifiers have second harmonic current and corresponding ripple voltages on the dc bus. To filter voltage ripple, bulky capacitor bank is needed. This paper proposed an active power filter (APF) for single phase quasi – Z- source rectifier. It eliminated the second harmonic power with small capacitor and inductor. This topology is suitable to integrated electric vehicle (EV) on board charger, which can use EV's inverter hardware has its own rectifier hardware. Thus, this proposed topology can save much space and weight. Simulation and experimental results verified the proposed system.

Keywords: Active power filter, integrated charger, quasi-Z-source. Single phase rectifier.

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Advanced Microgrid Control Technology with Nano piUsing Honeypot IoT

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Abstract:- In this paper, advanced hybrid microgrid was controlled and regulated using the microcontrollers and the IOT, here the solar and the wind power is integrated and analyzed using the MPPT (INC) maximum power is tracked and given to the dc- dc converters for the fixed voltage in turn dc voltage is converted to the ac by tie based inverter. This paper further deal with the power monitoring using the CT/PTt which is integrated with IOT. Integration with IoT allows micro grid systems to perform data logging over the cloud and provide remote control of the grid. The security of the data logging and transmission was done by Honey pot with MQTT v 5.0 protocol. Simulation results shows the successive operation of the converters and the monitored power is analyzed.

Keywords: Tie Inverter, High Gain dc-dc converter, Synchronization, WIFI, Nano pi, Microgrid, Honeypot.

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Analysis and Implementation of Solar Water Pumping System with Zeta Converter Using BLDC Motor

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Abstract: Solar energy is readily available source of heat which is abundant in nature. This renewable source of energy has been utilized for the generation of electricity. In order to optimize the Solar Photo Voltaic (SPV) generated power using a Maximum Power Point Tracking (MPPT) technique. A dc-dc conversion stage is usually required in solar PV fed water pumping which is driven by Brushless Dc (BLDC) motor. This drive has been chosen and advantageous over the other drive sine it possesses higher torque, high reliability, gives the required steady state and dynamic performance. The output results in minimization of torque ripple Zeta converter have been proposed in this system to facilitate the dc-dc conversion. The proposed system produces high efficiency, less maintenance and easy installation. The evaluation results are simulated using MATLAB/SIMULINK

Keywords: Solar Photo Voltaic, Maximum Power Point Tracking, Dc-Dc conversion, Torque Ripple, Simulation

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Soil Productivity and Fertility Using Neuro-Fuzzy Logic Inference

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Abstract: Soil nutrients testing methodologies are still a concern as most of them are time consuming and require laborious sampling which is expensive. Soil sensing stations installed ina precision agriculture farm can generate real time soil data online to keep on, tracking about soil status such as macronutrients (NPK), temperature, moisture, humidity, flow and ph. These types of soil data can be analyzed with the respective sensor and feed through the microcontroller. The system utilizes an NODEMCU for data acquisition therefore the output from the transducer is converted into a digital display reading. Wireless sensor network is one ofthe key technologies for monitoring and regulating crop parameters towards efficient farming as it has been shown that the sensors provides indigenous platforms in various fields. The inference rules are framed using expert knowledge in the form of IF...THEN structures. Fuzzy logic tool in LabVIEW is used for building a prediction model. Neuro-Fuzzy model is used forthe prediction of soil productivity.

Keywords: Agriculture, Fuzzy, Neuro Fuzzy, Soil sensing

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Design and Development of Energy Management for Hybrid Renewable Power System

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Abstract: Optimal power usage and consumption involve continuous monitoring, forecasting electric energy consumption and renewable generation. To assist the integration of renewable power sources and optimize their resources with the required load power, utility grid power and the system backup power, a classical based control scheme is proposed. The main objective of the paper is to design and develop an energy management system for a Hybrid Renewable Power System (HRPS) which comprises of solar photovoltaic (PV) array as a main source and an energy storage system based on Supercapacitor (SC) and battery bank. Three controlled non-isolated DC–DC converters are used to link the solar photovoltaic (PV) array, Supercapacitor (SC) and the battery bank with a common DC bus. To progress the whole reliability of the system, the Hybrid Renewable Power System is synchronized to the utility grid through three phase hysteresis current controlled inverter. MATLAB/Simulink results are provided to test the effectiveness of the proposed system in terms of power transfer, load sharing, stability, power quality and priority load scheduling.

Keywords: Hybrid Renewable Power System (HRPS), solar photovoltaic (PV) array, Supercapacitor (SC) and battery bank.

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Implementation and Control of Solar Fed Variable Frequency Drive with HMI and MODBUS Protocol

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Abstract: This paper describes the Implementation and control of Solar fed variable frequency drive with HMI and MODBUS protocol. The Speed of the induction motor will change as per increase or decrease in the load. It can be varied as per the requirement of load. Thus the project deals with the speed controlling of Induction Motor by using a variable frequency drive (VFD).It certainly leads to the best performance and high frequency of Induction Motor. As a result, the implementation of VFD helps in saving a large amount of energy by reducing the sudden jerks happening at the starting of the motor. VFD can also control the direction, acceleration & de-acceleration of them motor. The control is done by implementing HMI and MODBUS protocol, where the project has been simulated using MATLAB and hardware of the same has been done.

Keywords: squirrel cage induction motor, variable frequency drive, HMI and MODBUS Protocol and solar panel.

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ANFIS based Maximum Power Point Tracking controller forvariable speed Wind Energy Conversion System

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Abstract: This paper presents a comparative analysis of performance enhancement in a Variable Speed Wind Energy Conversion System (VSWECS). The Maximum Power Point Tracking (MPPT) control technique is used for the performance enhancement and it's done with both Fuzzy Logic Controller (FLC) and Adaptive Neuro-Fuzzy Inference System (ANFIS). The system is designed with Wind Energy Conversion System (WECS) consisting of a Wind Turbine (WT), a Permanent Magnet Synchronous Generator (PMSG) and a DC/DC converter supplying a DC load. The system was designed and simulated in MATLAB/SIMULINK software and from results, it is clear that the ANFIS controller gives better controllability and performance improvement over the Fuzzy Logic Controller.

Keywords: Wind Turbine, Permanent Magnet Synchronous Generator, Wind Energy Conversion System, Fuzzy Logic Controller, Adaptive Neuro-Fuzzy Inference System, Maximum Power Point Tracking.

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IoT based Flood warning and water quality monitoring system

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Abstract: Flood warning and water quality-related incidents are attracting attention globally as they threaten human lives and cause many health hazards. The current detection and monitoring methods are inadequate because of their long operation time, high cost, and complex process. In this context, there is an increasing demand for low-cost, multi parameter, real- time, and continuous-monitoring methods at a higher temporal. The proposed system focuses on early prediction of flood and periodical real time monitoring of water quality using simple microcontroller integrated with network processor (Wi-Fi).An IDE will be suitably programmed to process the sensed biological, physical, chemical parameters and water margin. This processed data is sent to the microcontroller through which the data gets added up to the cloud server (IoT) for global access. The entire system will be tested for ensuring accuracy and reliability in serving for the intended purpose.

Keywords: Sensors; Arduino UNO, Node MCU, GSM, Alert

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Vehicle Ignition Override System To Avoid Drunken Drive

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Abstract: Safety is one of the very important aspects while driving. Drunken driving can cause accidents of higher intensity with a huge damage to the vehicle and the people travelling in it. In this paper we propose a vehicle ignition override mechanism that will help in avoiding drunk and drive accidents to a huge extent. We propose a system that uses an ethyl alcohol sensor more commonly known as alcohol sensor to detect the presence of alcohol in the driver's breath and a pulse sensor to collect the heart rate of the driver. The system is controlled by a microcontroller which is also interfaced with GPS and GSM modules to send the details of the location of the car to the emergency contacts and owners in case of rented cars. Also, the main aim of the proposed system is to switch of the car engine to avoid any further damage to the life.

Keywords: GPS, GSM, Alcohol Sensor, Pulse Sensor.

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Smart Movement Using Eyeball Techniques

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Abstract: There are different reasons for which people need an artificial of locomotion such as a cursor. The number of people, who need to artificially move with the cursor. Moreover implementing a controlling system in it enables them to move without the help of any other hardware. The idea of eye controls of great use to not only the future of natural input but more importantly the handicapped and disabled. Camera is capturing the image of eye movement. First detect pupil centre position of eye. Then the different variation on pupil position get different command set for cursor. The signals pass through the PC to automatically cursor move itself. The movement of the cursor capture and control the direction to enable the cursor to move forward, left, right and stop.

Keywords: Artificial of locomotion, Automation, Disabled

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IoT Sourced real time PV, Wind and Fuel Cell models for micro and nano grids.

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Abstract—Integration of Renewable energy in Grid is increasing enormously. The main Grid comprises of multiple Micro Grids and numerous Nano Grids. Micro Grid is a localized Grid that can disconnect from the Main Grid to operate autonomously when the Main Grid fails. Nano Grids consists of small Micro Grids which supplies power to single building or a small area. In order to pre-determine the electrical system parameters in the Nano and Micro Grids, the mathematical model of proposed RE sources (Photovoltaic PV, Wind, Fuel cell) are developed and analyzed through real time data. The IOT (Internet of Things) based cloud system is to be used for acquiring real time data from various locations. The designed mathematical model is to be simulated by suitable software package and experimentally evaluated through the recent embedded TEXAS INSTRUMENTS LAUNCH PAD's (MSP432E401Y, CC3220SF), Arduino Due and (Raspberry pi) hardware. The both simulated and emulated outputs are compared and equated in real time.

Keywords: Texas Instruments Launch Pad, Internet of Things, Nano and Micro Grids, Integration of Renewable energy

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Automated Controlling System forHydroponic Cultivation Using PLC

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Abstract: Urbanization is happening rapidly. It drives and alters various aspects and aesthetics concerning a place. It affects a commons man's habits, living style, and eating preferences. As the population goes on increasing within an urbanizing area, the resources to adequately maintain the needs of the growing population decreases. Living area, Food and waterare utilized tremendously making them the vulnerable resources. Due to scarcity of space and clean water, sustainability of these resources with time will be difficult. People in urban areas desire to have a small garden (e.g. Balcony Garden) as well as want to have healthy and clean food resources. A system which utilizes optimum space in such conditions and can support plants is needed. People in urban area often don't have enough time to take care of the plants; hence the system which is automated can help in promoting the agriculture (e.g. Hydroponics based) in urban areas or living spaces.

Keywords: Urban Farming, Automated controlling Systems, Hydroponic System.

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Voltage Source Converter for Wind Energy Applications

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Abstract:-Renewable energy is the need of the hour, as perishable natural resources are getting depleted at an alarming rate Examples of renewable power include biomass, solar, wind, geothermal, and water. Wind is more efficient power source than solar. On comparison with solar panels, wind turbines release less CO2 to the atmosphere, consume less energy, and produce more energy. Overall the wind energy has predictable power output in some locations than any other renewable source. The types of Wind Energy Conversion System are stand alone and grid based structures. In a wind turbine as the speed varies it produces variable voltage variable frequency supply which cannot be applied to any power system. Hence they needed to be converted into an fixed voltage fixed frequency source, where the source can either be ac or dc. For this purpose a voltage source converter is being used which converts the voltage to any form such as ac-ac, ac-dc, dc-dc etc. A Voltage source converter can therefore feed power to an AC network consisting only of passive loads, something which cannot be done with Line Commutated Converter.

Keywords: voltage source converters, renewable energy, line commutated converter

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Weather and Traffic Monitoring System Using IoT

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Abstract: Traffic in the city has increased drastically with time. Every city with high population in the country faces traffic congestion in each and every corner of it. Weather and bad road conditions worsen the situation. This in turn leads to many minor and sometimes major accidents. Tamil Nadu has the highest number of road accidents as per report. So solution to these difficulties is creating a system with the help of detecting sensors connected to a microcontroller which processes the data and shows the analyzed data on mobile phone with the help of IOT (Internet of Things). This will gradually decrease the time a person spends on traffic. As he can choose an alternate route for him. This will also decrease the accidents occurring due to bad weather conditions.

Keywords: IoT, weather monitoring system, congestion monitoring, sensors, microcontroller

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A Modern Technique Enabling Object Parameter Tracking and Monitoring

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Abstract: It is known that the technological advancements are increasing at a faster pace. But the utilization of technologies in various sectors are very low. We know that the blind peoplefind it very difficult to locate an object inside their home. They are always dependent on another human for any kind of help. So, we propose a system where we can locate an object's direction. The direction is indicated using vibration motors. The object name is indicated using commandsby the user.

Keywords: Image segmentation, Image processing, object detection

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Implementation of Multi LED with Isolation usingIntegrated boost LLC Converter

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Abstract: Single-stage boost-LLC ac-dc converters are popularly utilized as the front-end stage of multi-channel LED street-lighting drivers. Pulse frequency modulation (PFM) strategy with a duty cycle of 0.5 is commonly utilized in these ac-dc converters. However, PFM has the following drawbacks: (1) High bus voltage limits the ac input voltage range, which makes it only suitable for input voltage range of 85~135V. Therefore, universal-input operation, high efficiency, low cost, and long lifetime, are the key innovations of the proposed solution. The experimental results show that the converter achieves a peak efficiency of 92.5% at the input voltage of 130V and a high power factor (PF) value above 0.95 over the whole input voltage range. With the proposed modulation strategy, the maximum bus voltage is just 500V under universal input voltage condition, which is greatly lower than that of traditional PFM controlled boost-LLC converters.

Keywords: Quasi-Constant, Universal-Input, Boost-LLC, Electrolytic Capacitor-free, Bus Voltage, LED Driver

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Smart Energy Monitoring and Management Using PLC and SCADA for Industrial Automation

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Abstract: Automation has a wide range of applications from household controlling toa large industrial control system which deals with thousands of input and output operations at a time. Itis used to reduce the human work and helps in increasing the production. It tends to reduce the complexity, increases safety and cost efficient. It requires continuous monitoring and inspection at frequent intervals. This project, Energy monitoring system deals with simple and effective way by auditing the energy usage by the industry using PLC (Programmable Logic Controller) and SCADA (Supervisory Control and Data Acquisition). The main reason why we opted for SCADA and PLC is because of the large amount of data can be stored in memory and retrieved when required. The system sequence of operation is designed by ladder diagram. This system is applicable in industries like packaging, manufacturing, automobile industries. In addition to this, the use of SCADA has also been implemented for the monitoring of the entire system. These programs were either written in assembly language or relay logic. Using SCADA we can visualize the graphical view of the entire process and also control from the remote place or control room. Thus this project takes a sincere attempt to optimize the energy consumption in industry.

Keywords: PLC, SCADA, Energy monitoring, Ladder diagram.

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Smart 5g Industries Using MIS-PRO-SMA Tools

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Abstract: In contrast, a zero QC system pursues the active objective of eliminating; The main objective of this project is to monitor the operator performance in industries using PLC logic by using some advanced tools called as 'poke-yoke' tools that helps in reducing the operator mistakes in industries which may be fatal in some cases. The implementation of IOT is also done here for remote monitoring.

Keywords: Herutu, MCB, Pokayoke, riverter, Ladder logic, Ubidots, GOT, Node MCU, ESP 8266……

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Implementation of PV Based Energy Storage for Electric Vehicle Application Based On Interleaved Flyback Converter Using VMC

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Abstract: an internal combustion engine collaborates with an electric motor, powered by energy stored in the battery to evolve an automobile called Hybrid electric vehicle. The battery of the hybrid vehicle is charged through regenerative braking as well as the internal combustion engine. Power during initial torque and low torque conditions is provided by the battery. In this paper, photovoltaic cells are utilized in charging the battery. The PV based conversion contributes major role in renewable energy domain for efficient conversion. The Flyback converter plays a significant role of charging the system in the hybrid electric vehicle. The output from the flyback converter is further stepped up using Voltage multiplier cell. Incorporating the proposed technology along with VMC, hybrid electric vehicle establishes reduced pollution in the atmosphere over the conventional vehicle.

Keywords: interleaved flyback converter, PI controller, solar cell, voltage multiplier cell

Health Monitoring Of Distribution Transformer Parameteres Using IoT

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Abstract: The main aim of this project is to continuously monitor the parameters of distribution transformer using Internet of Things (IOT). A distribution transformer is commonly subjected to faults like over-voltage, over- current, decrease in oil level, increase in temperature and other incipient faults. The health of the transformer can be monitored using ACS712, DS18B20, HC-SR04 and Arduino voltage sensor. The ATMEGA 328p microcontroller in the Arduino acquires the data from the sensors. The data is sent to the cloud (Think speak). If it exceeds the critical value, the central database will be notified through an Android application. This proposed idea will help to optimally utilize the transformer and keep the asset in operation for a longer period and also provide significant cost savings.

Keywords: Internet of Things (IOT), ATMEGA, ACS712, DS18B20

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Design and Implementation of Modified SEPIC Converter for Solar Powered HBLED Applications

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Abstract: In recent years, light emitting diode (LED) has changed the scenario of residential and commercial lighting. Day lighting application has huge scope for power saving by use of solar photovoltaic (PV) based LED lighting. However, the output power of a PV panel is largely determined by the solar irradiation and the temperature of the panel. To maximize the power output of the PV system, a high efficiency, low-cost DC/DC converter is commonly employed to control the terminal voltage of the PV system at optimal values in various solar radiation conditions. In this project, a modified Single Ended Primary Inductor Converter (SEPIC) topology is implemented for a solar powered HBLED lighting system. The output obtained from solar panel is boosted by the converter and is used for LED lighting. This converter design have the advantages such as low ripple, high efficiency and low electrical stress on the components.

Keywords: LED; photovoltaic system; sepic converter

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A Solar Power-Assisted Dual Battery Balancing System for Electric Vehicles

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Abstract: Abundance of renewable energy sources in the Form of solar energy provides opportunity for its usage in automobiles. This project aims in developing a solar power- assisted electric vehicle battery with dual balancing system. It has three operating modes: solar- balancing, storage- balancing, and charge balancing. The solar-balancing mode charges the battery module with the lowest state of charge (SOC) using the solar power during vehicle driving; the charge-balancing mode is operated when the vehicle is parked and being charged by the conventional charger. Under this mode, the balancing circuit discharges the battery module with the highest SOC by transferring the energy to an additional storage cell while the solar panel also charges the storage cell independently at the same time if solar power is available. When the solar power is low, the storage balancing mode will be selected to charge the battery module with the lowest SOC using energy stored in the storage cell. This system eliminates the energy loss. A prototype system is developed to prove the concept. The simulation and experimental results verify that the proposed system.

Keywords: Battery Balancing, SOC, Solar Energy

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Generation of Electricity from Flue Gas Using Electrochemical Cell

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Abstract: The flue gas from the motor cycle consists of carbon dioxide, carbon monoxide. The conversion of flue gas to electricity is done with the help of oxygen-assisted aluminium/carbon dioxide electrochemical cell that uses chemical reactions to both sequester carbon dioxide and produce electricity. Harmful gases such as carbon dioxide and carbon monoxide can be captured and can be utilized as an electrode. Aluminium is used as the anode and the mixture of carbon dioxide and oxygen as the cathode for the reaction.

Keywords: Flue Gas, Electrochemical Cell, Electricity

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Arduino Controlled Surgical Assistance Robot

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Abstract: In an urban city, approximately there are 7 to 8 operative cases in a period of 24 hours. In this operative environment, one in a five operations goes wrong. There are several cases recorded where these operations costs several million dollars. To overcome this fatal condition a robotic arm which comes in handy and decreases the ambiguity in surgical applications is utilized. The robotic arm used in the surgery has accurate precision. A technique called shadowing allows the controller to manipulate the arm. This method decreases the human error that occurs in the surgeries. The major components used in this project are Micro- controller, stepper motor, servo motor, Rotary encode, Magneto meter. The crux of this project is to decrease the cost while maintaining the precision. Existing robotic arms in medical field aremuch costlier. Hence a cost efficient and accurate robotic arm controlled by shadowing technique can be used for surgeon assistance. This reduces the complexities in usage of robotic arm when compared to the existing robotic arm.

Keywords: Aurdino, Surgigal Assistant, robotic arm

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Intelligent Induction Battery Charger for Moving Electric Vehicle Using Multiple Sources

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Abstract: In this project our proposed system is to present a complete outlook for innovative charging of electric vehicle battery during running condition. While travelling in highways, there is a lot of time consumption in tollbooth, where distribution transmission line cannot generate sufficient power rating in order to avoid this time consumption our proposed system is used to charge their electrical vehicle battery during standstill position and also in running condition. The main objective is to charge the vehicle battery by the principle of inductive power transfer method under emergency conditions. In the view of wireless electric methods are identified only in low power rating. But our proposed system is to overcome the above criteria and to generate a high power rating battery charger. Proposed method is to design and develop the mathematical model of a renewable resource photovoltaic cell hybrid inductive charging unit. Our propose system which will be develop and verify through the suitable software package, prototype hardware module which emits the characteristics of our system. The experimental setup consists of high switching frequency MOSFET along with C2000 Digital Signal Controller bias with raspberry pi based signal communication through IOT.

Keywords: Electric vehicle, Battery Hybrid inductive charging

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Voice Based Agro-bot

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Abstract: Agriculture is the backbone of a country. Nowadays many robots and devices are introduced to keep the plants healthy and to achieve full life cycle without any chemical effects tohuman and environment. In this project, a robot is designed based on speech semi-autonomous to achieve agricultural tasks with more efficiency and preciseness by using current trends. The main motive of this project is to develop a low-cost mobile based robotic system to perform following actions: fertilizer spraying, automatic seed sowing and ploughing which is attained by using voice-based system using Bluetooth module. All these operations can be done by human voice intervention.

Keywords: seed sowing, fertilizer spraying, agribot, bluetooth, ultrasonic sensor, edge detection, voice commands.

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A Novel Technique for Text To Speech Signal Conversion System Using Raspberry Pi

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Abstract: It is known that the technological advancements are enhancing at a faster rate. But the utilization of technologies in various sectors are very low. It provides solutions to discomfort of people in understanding languages of unknown in various regions when theytravel and to the people those who are illiterate. It also addresses the problem faced by the people to detect the text from the paper and books. Hence it is proposed to provide a technique where the text images can be captured and extracted by the system and given to the Pi. The pi processes the text images and reads out the content using speaker. This enables the use of text tospeech conversion.

Keywords: Text Signal, Speech Signal, Pi

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Auto Directing Solar Panel with Energy Metering System

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Abstract: The proposed system is used to improvise the efficiency of energy output from a solar panel. This is done with the help of a setup that consists of the panel mounted on a grill whose position is controlled by a DC motor. Series of light sensor mounted on the assembly is used to detect the intensity of the light incident on it and accordingly adjust the position of the panel. An additional algorithm is used in conjunction with the sensor to improve the efficiency of the setup further to derive maximum generation of power from the panel. The power generated is observed through a special energy meter that is interfaced with the system, this is further used to observe the VI and power graphs of the panel at time period. The data acquired for the generation of the real-time graph is produced by the interfacing a Current sensor to the node MCU ESP-12E Module. The VI graphs and power generated can be viewed anytime on electronic devices through IoT. The main aim is to implement this method in domestic and industrial areas to minimize the use of electricity from distribution companies.

Keywords: DC motor, Energy Meter, Current sensor, node MCU ESP-12E Module, IoT.

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Improvisation of Power Quality Using UPQC

Jayaprakash Chinnathambi(AP),Sajaiprathap Palani,Saravanabhavan Namasivayam,Sivaprasad Munusamy,Vignesh Gnanashankar(UG scholar)

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Abstract: Design and performance of a three-phase solar PV (photovoltaic) integrated UPQC(PV-UPQC) are presented. The proposed system combines both the benefits of distributed generation and active power filtering. The shunt compensator of the PV-UPQC compensates for the load current harmonics and reactive power. The shunt compensator is also extracting maximum power from solar PV by operating it at its maximum power point (MPP). The series compensator compensates for the grid side power quality problems such as grid voltage sags/swells by injecting appropriate voltage in phase with the grid voltage. The dynamic performance of the proposed system is simulated in Matlab-Simulink under a nonlinear load consisting of a bridge rectifier with voltage-fed load.

Keywords: Photovoltaic, PV-UPQC, Maximum Power Point

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Three Phase Five Level T-Type Multi Level Inverter Using Hybrid Source

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Abstract: In this paper a five level T-type MLI as been purposed to improve the performanceof the hybrid system and it is injected in grid . five level T-type MLI is obtained by combining two 3-level T-type MLI with common emitter and common collector configuration . PV and wind energy is used as a source of energy to the level T-type MLI . It has advantages such as, lowswitching losses, less THD, less filter requirement and superior output quality when compared to 3-level T-type MLI. PWM technique is employed to generate output voltage. The proposed system is simulated using MATLAB simulink model and the results are validated through hardware proto-type.

Keywords: Multi level Inverter**,** PWM technique, hybrid system

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Reshaping Of Metal with Swaging Machine Using ArduinoMega 2560

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Abstract: In this paper, the conventional swaging process altered into a controlled electronic modal by implementing the Arduino Mega 2560. The design and implementation of the electronic control system in the hydraulic swaging machine gives a high accuracy and high surface finish on the reshaping of the metal rods and tubes for the industrial purposes. Reshaping of the metal rods and tubes influenced in the automobile, aviation and manufacturing industry to use an efficient swaging machine instead of mechanically operating conventional machines. We get the high- quality work piece due to the overall control of the machine by an electronic control circuit. As the result, we get the more precision on thenet reshaping of the metal tubes and rods. The proposed system provides the flexibility and follows the proper safety measures for the working person with the machine in the industrial environment. It also controls the pressure and the overall parameters arise during the reshaping and the deformation of the metal surface. The experimental setup of the swaging machine using Arduino mega 2560 is described elaborately below and it is validated with theproper comparison of the conventional swaging machine gives an improved result in the reshaping and the deformation process of the metals in the best way known.

Keywords: Swaging machine, Arduino mega 2560, Bluetooth HC 05, ULN 2803 relay driver, motor, Reshaping, Metal rods, hydraulic pressure.

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A Novel Design to Prevent and Monitor Bike AccidentsUsing Arduino

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Abstract: According to CADD(The Community Against Drunk and Drive),70% of road accidents in India occur due to drunk and drive. This novel design ensures that the vehicle does not start unless the rider wears the helmet and passes the alcohol test . The accident detection system placed in the bike, senses the occurrence of an accident using a vibration sensor and passes the signal to Arduino and then the controller extracts the location and time of accident and sends to the cloud and also to the emergency number. If the rider is detected with alcohol the buzzer goes on and with the help of PWM, the speed is reduced slowly and then only the bikestops. The additional feature of our proposed model is that speed, time stamp and location of the accident that is uploaded to the cloud can be accessed by the concerned insurance company to decide, if the victim is eligible for insurance.

Keywords: Avoid Accident, Aurdino, PWM

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Quasi Z Source Inverter for Renewable Energy Applications

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Abstract: In this project, the analysis and design of Quasi Z-Source Inverter (QZSI) for renewable energy application is presented. ZSI has both buck and boost voltage capability, which is suitable for grid connected PV system. Maximum boost voltage is possible by controlling the shoot-through duty ratio and the modulation index, which are the two control variables of QZSI. Performance parameters of Quasi Z- Source Inverter with different Pulse Width Modulation (PWM) contro techniques are analyzed. The closed loop control of QZSI is implemented with proper inner current controller and outer voltage controller to regulate the load voltage for varying load condition. The performance parameters like Total Harmonic Distortion (THD), power factor, voltage regulation and efficiency are analyzed using MATLAB/SIMULINK software. To validate the simulation results, an experimental model is developed.

Keywords: Quasi Z-Source Inverter, renewable energy, ZSI, THD

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Powering Smart Cities Using Visible Light Communication (VLC)

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Abstract: Our project for developing a smart street light system is reviewed. In this project , the street light system, in which lights on when needed and light-off when not needed. Currently, in the whole world, enormous electric energy is consumed by the street lamps, which are automatically turn on when I becomes dark and automatically turn off when it becomes bright. This is the huge waste of energy in the whole world and should be changed. Our smart street light system consists of a LED light, a brightness sensor, a motion sensor and a short- distance communication. The authors use motion sensors to detect surrounding movements to turn a street light on or off, while the authors propose the development of WSN for smart street light to minimize the energy consumption, turn on the lights ahead of a moving vehicle and turn off the lights behind it to reduce energy consumption. VLC is an emerging field in OWC which utilizes LED to transmit data. By combing illumination and communication, VLC provides ubiquitous communication while addressing the limitations of RF communication. The future scope of VLC will be presented.

Keywords: VLC, motion sensor, illumination and communication

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IOT Sourced Real Time PV, Wind and Fuel Cell Models For Micro and Nano Grid

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Abstract: Integration of Renewable energy in Grid is increasing enormously. The main Grid comprises of multiple Micro Grids and numerous Nano Grids. Micro Grid is a localized Grid that can disconnect from the Main Grid to operate autonomously when the Main Grid fails. Nano Grids consists of small Micro Grids which supplies power to single building or a small area. In order to pre-determine the electrical system parameters in the Nano and Micro Grids, the mathematical model of proposed RE sources (PV, Wind, Fuel cell) are developed and analyzed through real time data. The IOT (Internet of Things) based cloud system is to be used for acquiring real time data from various locations. The designed mathematical model is to be simulated by suitable software package and experimentally evaluated through the recent embedded TEXAS INSTRMENTS LAUNCH PAD's (MSP432E401Y, CC3220SF) and (Raspberry pi) hardware. The both simulated and emulated outputs are compared and equated in real time.

Keywords: Texas Instruments Launch Pad, Micro Grids, Nano Grids

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Impact of Pollution on High Voltage Insulators: Research Status and Recommendations

P.Arulkanthan, S.Jeyanthan, S.Hariharan, N.Madasamy & R.Saravanakumar

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Abstract: Fast urbanization and industrialization in India over most recent two decades has brought about expanded interest for dependable electric power. The unwavering quality thus is enormously affected by the grid system and its segments being legitimately kept up. One of the imperative parts is the high voltage insulators utilized as a part of the switchyards, overhead lines, substations and power stations. The seriousness of defilement on the high voltage insulator surfaces is the huge consider deciding the level of open air protection and in picking the sorts of insulators. The contamination flashover saw on encasings utilized as a part of high voltage transmission, is a standout amongst the most vital issues for power transmission. Control blackouts because of contaminated encasings that results in flashover are a costly issue: control supply unwavering quality is lessened, industry endures creation downtime and the cost to repair flashover harm is high. Keeping up the cleanliness of insulators through rehashed upkeep is likewise an expensive work out. A structure to appreciate the assortment of factors that rule the settling/amalgamation of dust and probable all aviation process have been examined in this paper.

Keywords: Electric Power, high voltage transmission, Insulators

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A Neural Network Embedded System for Real-Time Estimation of Muscle Forces

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Abstract: This work documents the progress towards the implementation of an embedded solution for muscular forces assessment during cycling activity. The core of the study is the adaptation to a real-time paradigm an inverse biomechanical model. The model is well suited for real-time applications since all the optimization problems are solved through a direct neural estimator. The real-time version of the model was implemented on an embedded microcontroller platform to profile code performance and precision degradation, using different numerical techniques to balance speed and accuracy in a low computational resources environment.

Keywords: Microcontrollers, Neural Networks, Muscle Forces, Cycling, Inverse Dynamics, Inverse Problems Solution.

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Development of a Real-Time Web-Based Power Monitoring System for the Substation of Petrochemical Facilities

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Abstract: Petrochemical industry not only consumes a large amount of electricity every year but also requires high-quality power supplies. Any unexpected power failure could shut downthe entire production line and cause significant financial loss. Meanwhile, due to the large electricity consumption and intensive power demand, in-house cogeneration plants have been equipped for most petrochemical facilities. Therefore, having high power quality becomes one of the most critical parts for petrochemical facilities. d. A novel Real-Time Web-Based Power Monitoring system on field-programmable gate array (FPGA) platform is developed in this paper for a power substation at the petrochemical facility. Besides the data collecting with event triggering mechanism and measurement data recording functions, Sub synchronous Oscillation (SSO) detection application is also developed in this system. This monitoring system could provide precise data to help engineers with insightful analysis of the electric system to prevent a power failure, and it also could help system operators to have a better understanding of the system operation characteristics.

Keywords: FPGA, monitoring system, petrochemical, power systems, subsynchronous oscillation (SSO), Subsynchronous control interaction (SSCI), subsynchronous torsional interactions(SSTI).

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AGC for three area renewable energy interconnected power system

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Abstract: In recent days renewable energy plays vital role in the world electrical energy in the form of standalone and grid connected. Grid connected renewable energy power systems are widely preferred because the energy storage devices are not essential for this power system. Maintaining frequency in an interconnected power system plays significant role in a quality of power. Automatic generation control plays crucial role in maintaining power quality in an interconnected power system. In this paper automatic generation control is analysed for grid connected Solar power system and wind power system are interconnected with the conventional hydro thermal power system. The proposed system is analysed using Matlab.

Keywords: Hydro-thermal, Solar power system, Wind energy, Automatic generation control, frequency control.

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Design of Solar Power LED Lighting System using Horizontal Two-Axis Arduino Based Solar Tracking System

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Abstract: This project deals with design of solar power LED lighting system using Horizontal Two-Axis Arduino based Solar Tracking System. The main goal of this project is to design a very precise solar tracker. The project is divided into two parts; hardware and software. Hardware part generally composed of solar panel, two-DC motors with gearbox, LDR sensor module and electronic circuit. Software part represents the thinking behavior of the system, that is how the system acting under several weather conditions. If the weather is cloudy or dusty, the tracking system uses primary stage or sun-earth geometrical relationships only to identify the location of the sun; so the system tracks the position of the sun regardless the weather condition.. Solar tracking system improves substantially the energy efficiency of photovoltaic (PV) panel. In this paper, an automatic dual axis solar tracking system is designed and developed using Light Dependent Resistor (LDR) and DC motors on a mechanical structure with gear arrangement. The results indicated that the automatic solar tracking system is more reliable and efficient than fixed one.

Keywords: Arduino UNO Controller, Light Dependent Resistor, Photo-Voltaic, Solar Tracking System

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A Multi Input and Multi Output Zeta Converter for Renewable Energy Application

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Abstract: This project proposes a structure for multi input multi output (MIMO)dc to dc boost converter. There are three given input sources one as generated energy of renewable energy source (PV cell) battery and super capacitor .The proposed technology has the advantage of both DC-DC boost and switched capacitor converters .The ZETA converter also needs two inductors and series capacitors sometimes called a flying capacitor unlike this SEPIC converter. The converter is controlled by sliding mode controller(SCM) and it is very fast response system and it controls peak overshoot (damping) equal to Artificial Neural Network (ANN).It boost low input dc voltage to high outputdc voltage without any losses.The ZETA converter topology provides a positive output voltage from an input voltage, which is configured with a standard boost converter .To minimize board space a coupled inductor can be used .The voltage drop of the diodes and switches on the voltage gain is investigated. Finally, the correctness operation of the proposed converter is reconfirmed by the simulation and experimental results.

Keywords: ZETA converter, SEPIC converter, sliding mode controller

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Hysteresis Theory to Mitigate Voltage Sag and Swell Without Maintaining DC Link Voltage

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Abstract: DVR (Dynamic Voltage Restorer) is a device used in various transmission and distribution systems for series compensation. It safeguards sensitive electrical loads from power quality issues like voltage sags, swells, unbalance, and distortion. It achieves this through power electronic controllers that employ voltage source converters (VS). However, one main challenge in DVR is controlling the injected voltage into the grid, which often necessitates large filter sizes. This project focuses on series compensation to enhance the voltage quality of loads to optimize the use of a DVR. It addresses sag and swell issues in series injection mode. The control technique employs the HYSTERESIS reference frame theory to compensate for sags and swells. Importantly, it achieves this without needing to maintain the DC link voltage. The proposed approach relies on the instantaneous voltage signal magnitude and introduces a virtual equivalent impedance in series with the distribution feeder during voltage sags. This compensates for the difference between faulty and nominal voltages.

Keyword: DVR (Dynamic Voltage Restorer), Transmission and distribution systems, Series compensation, Voltage sags, Voltage swells, Power quality

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Microcontroller Based Power Management System for Electric Bike Using Hybrid Power Supply

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Abstract : This project introduces a bidirectional converter for electric bikes. The primary structure is a cascade buck-boost converter, responsible for transferring energy from the battery to drive the motor. Additionally, it can recover energy from the back electromotive force (BEMF) and use it to charge the battery by changing its operational mode. Furthermore, the proposed converter can function as a charger when directly connected to an AC power source. The design of the vehicle incorporates various renewable energy sources, including solar energy, chemical energy from fuel, and batteries. This multifaceted approach aims to achieve high fuel economy, low emissions, and silent operation. The vehicle's performance is enhanced through regenerative braking, which allows the recovery of useful energy for storage in the battery or ultra-capacitor.

Keywords : Bidirectional converter, Electric bike, Cascade buck-boost converter, Regenerative braking, Renewable energy sources

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Modelling of Boost Converter for Power Point Tracking in Solar PV System

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Abstract : Renewable energy represents a promising alternative to reduce our reliance on petroleum-based energy sources. Solar energy, in particular, stands out as a widely available and cost-free renewable energy source. A typical solar generation system comprises a solar array and a DC-DC converter. The DC-DC converter plays a critical role as it acts as an interface between the load and the photovoltaic (PV) module, optimizing power transfer from the solar PV module to the load. To create an effective photovoltaic (PV) power generation system with an appropriate converter topology, it is essential to thoroughly analyze the converter. This paper focuses on the modeling and physical design of a DC-DC boost converter tailored for solar PV systems, which is then tested using the SIMSCAPE library in MATLAB.

Keyword : Renewable energy, Solar energy, DC-DC converter, Photovoltaic (PV) system

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Design of Solar Power Led Lighting System using Horizontal Two-Axis Arduino Based Solar Tracking System

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Abstract : The primary goal of this project is to create a highly accurate solar tracker, which is divided into two main components: hardware and software. The hardware portion includes solar panels, two DC motors with gearboxes, an LDR (Light Dependent Resistor) sensor module, and electronic circuits. The software aspect defines how the system behaves under various weather conditions.Sensing the position of the sun is a key aspect of this work, and it's achieved through two stages: primary and secondary sensing. The primary stage utilizes the sun-earth relationship for coarse adjustments, while the secondary stage employs a set of LDR sensors to fine-tune the azimuth and altitude angles. Even in cloudy or dusty weather conditions, the system continues to track the sun's position using the primary stage based on sun-earth geometrical relationships. In this paper, an automatic dual-axis solar tracking system is designed and developed using Light Dependent Resistors (LDR) and DC motors, along with a mechanical structure and gear arrangement. This system enables two-axis solar tracking (azimuth and altitude angles) based on the principles of Sun-Earth Geometry, controlled by an Arduino UNO controller. The results of the study demonstrate that the automatic solar tracking system is more reliable and efficient than a fixed one.

Keywords : Solar tracker, Hardware and software, Sun position sensing, Energy extraction, Photovoltaic panel

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Design of UPS Management System Using Solar Energy For PC

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Abstract : From rooftop Photovoltaic (PV)-battery system employs an inverter to drive various home appliances. This conversion from low voltage DC to AC invariably causes an increase in both losses and cost. This paper presents a back-to-back DC-DC converter topology for a PV-Battery standalone system that can cater to various daily home appliances, eliminating the need for an inverter system. Source-side and load-side power management schemes are developed to regulate the load voltage within limits and the PV array output while considering the battery's state of charge. The proposed system is simulated in the MATLAB/Simulink environment. The objectives of this study include investigating the reliability of the Electric Solar System (ESS) and estimating ESS equipment specifications capable of powering selected household electrical appliances. The ESS generates electricity from solar energy as its source. This electricity is supplied to a house with a capacity of 1600 Wh per day, utilizing ten solar panel photovoltaic and four battery banks. The system includes solar panel photovoltaic (95 Watt), a solar charge controller, inverter, battery bank (12 V, 38 AH), and a Power Quality Analyzer meter. For a domestic house, the minimum load requirement is 400 Wh. A Data Logger is used to capture the solar irradiation pattern, with the best performance observed on a warm day. The ESS is capable of producing 160 Wh of energy using a single solar panel (95 W) and storing it in one of the battery banks (12 V, 38 AH).

Keywords : Photovoltaic (PV)-battery system, DC-DC converter topology, Solar energy, Electric Solar System (ESS), Energy generation and storage.

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Modelling Of Boost For Power Point Tracking in Solar PV System

Jothi Basu.S, Mr.R.Selvamanikadan

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Abstract : Renewable energy is an alternative way to reduce our dependence on petroleum-based energy sources. Among renewable energy sources, solar energy is particularly promising as it is abundant and available worldwide at no cost. A typical solar power system comprises a solar array and a DC-DC converter. The DC-DC converter acts as an interface between the load and the photovoltaic (PV) module, optimizing power transfer from the PV module to the load. To create an efficient photovoltaic (PV) power generation system with an appropriate converter topology, it's crucial to analyze the converter. This paper focuses on modeling and physically designing a DC-DC boost converter for solar PV systems and tests it using the SIMSCAPE library in MATLAB.

Keywords : Renewable energy, Solar energy, DC-DC converter, Photovoltaic (PV) system, MATLAB simulation.

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A Four Port Non-Isolated Multi Input Single Output DC-DC Converter Fed Induction Motor

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Abstract : This project introduces a four-port, non-isolated multi-input single-output DC-DC converter used to power an induction motor. The converter is designed for renewable sources, with one bidirectional storage and non-isolated load port for energy systems. Renewable sources hold promise for the future, and this non-isolated, high-efficiency converter is well-suited for low-voltage applications. Its key advantage is the reduced number of switches required, making it an efficient choice. The four ports of the converter consist of two input ports, one bidirectional port, and one output port. Switches are used to control the voltage across all four ports. Independent duty cycle values regulate the input ports. The converter incorporates four regulators: voltage regulators for Maximum Power Point Tracking (MPPT), battery current regulators for controlling maximum charging current, battery voltage regulator for maximum voltage charging, and an output voltage regulator for controlling the output voltage. This type of converter is compact and highly efficient, capable of managing charging, discharging states, and input-side disturbances. The simulation of the four-port DC-DC converter is presented independently.

Keywords: DC-DC converter, Renewable sources, Non-isolated, Bidirectional storage, Efficiency.

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Multi Input and Multi Output Zeta Converter for Renewable Energy Application

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Abstract : This project introduces a multi-input multi-output (MIMO) DC-DC boost converter with three input sources: a PV cell, a battery, and a supercapacitor. The proposed technology combines the advantages of both DC-DC boost and switched capacitor converters. In contrast to the ZETA converter, which requires two inductors and series capacitors, sometimes referred to as a flying capacitor, this SEPIC converter is configured from a buck controller that drives a high-side PMOSFET. It offers an alternative for regulating an unregulated input supply, such as a low-cost wall wart, and operates in continuous conduction mode with a coupled inductor (CM). The converter is controlled by a sliding mode controller (SCM) known for its rapid response, and it effectively controls peak overshoot, equal to Artificial Neural Network (AN). This converter efficiently boosts low input DC voltage to high output DC voltage without losses. The ZETA converter topology is used to generate a positive output voltage from an input voltage and can be configured with a standard boost converter. To save board space, a coupled inductor can be employed. The voltage drop across the diodes and switches on the voltage gain is investigated. The operation of the proposed converter is validated through simulation and experimental results.

Keywords : MIMO DC-DC converter, PV cell, Battery, Super capacitor, Sliding mode controller.

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Advanced Microgrid Technology with Node MCU using Honeypot IoT

Leelavathi.V, Mr.P.Arokiya Prasad

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Abstract : In this paper, an advanced hybrid microgrid is controlled and regulated using microcontrollers and the Internet of Things (IoT). The integration of solar and wind power is analyzed using Maximum Power Point Tracking (MPPT) to maximize power output, which is then fed to the DC-DC converters to maintain a fixed voltage. The DC voltage is subsequently converted to AC by a grid-tie inverter. The paper also addresses power monitoring using current transformers (CT) and potential transformers (PT), which are integrated with IoT. The integration with IoT enables microgrid systems to perform data logging in the cloud and allows for remote control of the grid. The security of data logging and transmission is ensured through the use of Honey Pot with MQTT v5.0 protocol. Simulation results demonstrate the successful operation of the converters, and the monitored power is analyzed.

Keywords : Hybrid microgrid, MPPT (Maximum Power Point Tracking), IoT (Internet of Things), Data logging, Grid-tie inverter.

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DC- Link Capacitor Current Ripple Reduction in DPWM - Based Back to Back Converters

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Abstract : This project introduces an improved offset selection method for discontinuous-pulse-width-modulation (DPWM)-based back-to-back converters with the aim of reducing the de-link current ripple. DPWM is employed in power converters to mitigate stress on power transistors and extend their operational lifespan. However, the use of DPWM can lead to increased de-link current ripple in the non-switching regions of power transistors. Furthermore, in DPWM-based back-to-back converters, the DC-link current ripple peaks when both inverters' transistors are clamped in opposite directions. As a result, the de-link capacitors endure more stress, leading to a reduced operational lifespan. To address this issue, the switching method needs to take into account the clamping periods when the current ripple is at its highest.

Keywords : DPWM (Discontinuous Pulse-Width Modulation), Back-to-back converters, De-link current ripple, Power transistors, Switching method.

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Synchronization of Two or More Renewable Energy Sources for Injection to the AC Grid in Smart Grid Applications

Jayaprakash.S, Mr.P.Arokiya Prasad

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Abstract : The current boom in the development of renewable energy use is poised to trigger a fourth industrial revolution. Photovoltaic power generation plays a pivotal role in the broader renewable energy framework. Within the realm of solar inverters, micro solar inverters hold significant importance. The increasing adoption of renewable energy and the integration of electronic loads into the electric power system emphasize the need for effectively integrating renewable power into the grid. This paper outlines how a Zero Crossing Detector can be employed to design a small-scale solar inverter that is both cost-effective and high-performing. The primary objective is to align the phase sequence of generated AC voltage with the existing grid voltage. The integration of the smart grid involves the use of a voltage source converter connected to renewable sources, conventional energy generators, and storage systems. Furthermore, the paper discusses the utilization of an SCR full-bridge to create a micro solar inverter with a 220-W output. It also provides insights into the entire system's firmware architecture and control strategy. Finally, the paper includes waveform comparisons in both simulation and real-time scenarios.

Keywords : Renewable energy, Photovoltaic power generation, Micro solar inverters, Smart grid integration, Voltage source converter.

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