K.L.N. COLLEGE OF ENGINEERING, POTTAPALAYAM

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

SUB.CODE&NAME: EE6811 – PROJECT WORK(R-2013)   **YEAR/SEM: IV/VIII**

List of Projects-2018-19

Sl.No	Title of the Project	Name of the Student (Register Number)	Name of the Guide
1	Optimizing the efficiency of the solar panel	Ajith P (910615105006) Boominathan C (910615105014) Meenakshi Sundaram C (910615105305) Nandha Kumar S (910615105042)	Dr.M.Jegadeesan ASP/EEE
2	Design and analysis of PV based interleaved Boost converter.	Harihara Sudhan S (910615105021) Nithin Noah R (910615105044) Gowtham K (910615105019)	S.Manoharan AP(Sr.Gr.)/EEE
3	Real time mobile inspection robot for drainage system.	Ajith B (910615105005) Aravindasamy R (910615105010) Karna Prakash A (910615105103)	M.Jeyamurugan AP(Sr.Gr.)/EEE
4	Portable robot system for cleaning solar panel	Anand Raj K (910615105009) Gokul S M K (910615105018) Logesh S (910615105304) Gunasekaran S (910615105020)	Dr.S.Venkatesan Prof./EEE
5	Monitoring and controlling of energy level in Lead-acid batteries.	Bharathi Pandian G (910615105013) Dinesh Kumar P (910615105301) Elavarasan P (910615105302)	Dr.P.Loganthurai ASP/EEE
6	Modeling and analysis of modular multilevel inverter to improve power quality.	Arivigneshwar D N (910615105022) Ajith Kumar P (910615105008) Ahamed Ibrahim F (910615105003) Ajith Kumar M (910615105007)	N.Vimal Radha Vignesh AP 2/EEE
7	Automatic single phasing detection and correction in three phase induction machine in industries.	Kuberan T (910615105032) Muthu Bharathi M (910615105039) Kartheeswaramani C (910615105030)	Dr.S.Venkatesan Prof./EEE
8	Optimal capacitor placement and sizing in RDN using Grey-Wolf algorithm	Aarthi M (910615105001) Azhagumari A (910615105011)	Dr.S.M.Kannan HOD&Prof./EEE
9	DC micro grid management strategy with the integration of solar energy using IoT.	Jaipoorani T (910615105028) Divya S (910615105017) Lakshmi P (910615105033)	R.Sridevi AP 2/EEE
10	Load frequency control of grid inter-connected electric vehicle.	Muthu Monisha E (910615105040) Nachammai A (910615105041) Nisha A M (910615105043)	Dr.K.Gnanambal Prof./EEE
11	Design of electricity pole line multi-fault monitoring system using IoT.	Malathi R (910615105034) Baby Salini K (910615105012) Kalaranjini S (910615105029) Nivetha S (910615105045)	Dr.C.Vimalarani ASP/EEE
12	Design of interleaved boost converter for single stage LED driver.	Dharini S (910615105016) Hemalatha S (910615105023) Hemanth Kumari M R (910615105024)	M.Ganeshkumari AP(Sr.Gr.)/EEE

13	Design and implementation of hospital patient monitoring system and ICU room automation using IoT	Jaffrin Banu J (910615105027)	A.Manoj AP 2/EEE
		Manodharshini S (910615105035)	
		Mathumetha K (910615105036)	
		Meharunnisha S (910615105037)	
14	Energy management automatic vigilant strand less metering system employed with GSM.	Abarna C (910615105002)	Dr.S.P.Rajaram ASP/EEE
		Iswariya N (910615105026)	
		Kaviya V (910615105031)	
		Merunaline S (910615105038)	
15	Online monitoring of power and Automatic maximum demand cutter.	Chandralekha K (910615105015)	Dr.K.Gnanambal Prof./EEE
		Indhu Priya K (910615105025)	
		Aiswarya N (910615105004)	
16	Assist pedestrian to cross road by density based traffic control.	Vignesh A S (910615105311)	Dr.M.Kannan HOD&Prof./EEE
		Venkatesh Kumar J (910615105080)	
		Vigneshwaran P (910615105082)	
		Surya Prakash G (910615105075)	
17	Premature detection of breast carcinoma	Yogeswari M (910615105087)	Dr.C.Vimalarani ASP/EEE
		Ramyameenakshi T S (910615105059)	
		Sweety Ziony S (910615105066)	
18	Smart electrical energy management unit (SEEMU)	Omnath S L (910615105046)	Dr.S.Parthasarathy Prof./EEE
		Praveen Kumar L H (910615105051)	
		Surya Narayanan K B (910615105074)	
		Syed Badrudeen G (910615105309)	
19	IoT based human health parameters tracking system.	Sowmiya S (910615105073)	Dr.P.Loganthurai ASP/EEE
		Ponmuthu Lakshmi S (910615105049)	
		Sangeerthana (910615105062)	
20	ANFIS controller based custom power device for power quality.	Priyalakshmi K S (910615105053)	M.Ganeshkumari AP(Sr.Gr.)/EEE
		Sankareswari R (910615105061)	
		Sangeetha M (910615105063)	
		Vijo A (910615105083)	
21	Smart garbage segregation and indication Bin.	Saranya Lakshmi R (910615105065)	K.R.Jeyavelumani AP 2/EEE
		Soniya K (910615105071)	
		Umamaheswari R (910615105077)	
22	IoT based automation and energy management in buildings.	Yuvamareeswaran J (910615105089)	Dr.S.Parthasarathy Prof./EEE
		Sivabalan M (910615105069)	
		Vasantha Vikash P (910615105078)	
		Saravanan S (910615105067)	
23	Enhanced unearthing Cyborg wireless mechanism-QUADX	Vidhyatharan B (910615105081)	Dr.M.Mahalakshmi AP 2/EEE
		Yuvalakshmanan K (910615105088)	
		Vinoth M (910615105312)	
		Vimalrajasekar M (910615105085)	
24	Harmonic Mitigation Using Active Power Line conditioner.	Ramya R (910615105058)	V.Sindhu AP 2/EEE
		Saranya M (910615105064)	
		Sowmiya M (910615105072)	
		Yogapriya K (910615105086)	
25	Slide mode controlled two stage three level grid connected photovoltaic inverter.	Prabu P (910615105306)	R.Jeyapandiprathap AP 2/EEE
		Poorvadharsan T (910615105050)	
		Rahul J (910615105054)	
		Vijay Jose W (910615105701)	
26	Performance analysis of Battery	Venkateshan M (910615105079)	Dr .S.Venkatanarayanan Prof./EEE
		Seenivasan M K (910615105068)	

	powered medical devices	Vimal B S (910615105084)	
		Sivachandran V (910615105308)	
27	Optimal allocation of DG for active power loss reduction using Ant-Lion optimization algorithm.	Rajamanickam K (910615105055)	A.Marimuthu ASP/EEE
		Ramesh Balaji R (910615105056)	
		Sivaram A (910615105070)	
		Ramprabu K R (910615105057)	
28	Smart control and monitoring of irrigation system using IoT.	Palpandi (910615105047)	T.Gopu AP 2/EEE
		Rajkumar P (910615105307)	
		Venkatesh C (910615105310)	
29	Accident detection and post protection system	Rishinathkumar K R (910615105060)	M.Balamurugan AP 2/EEE
		Saravanakumar A (910615105066)	
		Priyadharsan N (910615105052)	

1. OPTIMIZING THE EFFICIENCY OF THE SOLAR PANEL

Submitted by

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Guided by

Dr. M. JEGADEESAN, M.E, Ph.D.,/ASP/EEE

ABSTRACT

Mostly, Electrical energy is directly produced by photo-voltaic cell from the solar energy. The photo-voltaic cell absorbs the sunlight which is converted into electrical energy with efficiency is in the range of 9-12% depending on the solar cell type. Hence the PV cell (solar cell) converts only a small fraction (~ less than 25%) of the irradiance into electrical energy and more than 80% of solar radiation falling on PV cells is not converted into electricity and the remain reflected or converted to thermal energy. This leads to an increase in the PV cell's working temperature and consequently, a drop of electricity conversion efficiency

In this work, the solar panel is continuously cooled by Water. Hence the temperature of solar panel can be maintained nearly constant. It is most efficient because of it doesn't need any high cost device. The result shows that by cooling of solar cell it gives the higher efficiency when compared to without cooling of solar cell.

2. DESIGN AND ANALYSIS OF PV BASED INTERLEAVED BOOST CONVERTER

Submitted by

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ABSTRACT

Nowadays, DC-DC converters are widely used in electric vehicles, trolley cars, marine hoists, Photovoltaic (PV) system; Uninterruptable power supplies (UPS) and fuel cell system. A dc –dc switching converter converts directly from fixed DC voltage to variable DC voltage. In this work, the performance parameters of the interleaved DC-DC boost converter are analyzed. Reductions in size with reduced ripple at output voltage and output current along with an increase in efficiency and reliability. The experimental results clearly showed that interleaved designs can provide significant benefit. The converter is tested with variable input voltage and constant duty cycle in continuous conduction mode (CCM).

3. REAL - TIME MOBILE INSPECTION ROBOT FOR DRAINAGE SYSTEM

Submitted by

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ABSTRACT

The main focus of our project work is to deploy a robotic architecture to avoid direct human being contact inside the drainage system by monitoring the air quality and water quality inside the drainage using a sensorial system. In order to monitor the clog and blockages inside the drainage system, Wifi-based camera is mounted on the robot. Man controlled pick and place robotic arm is equipped in front of the robot to clear the blockages. Air Quality Index (AQI) chart and Water Quality Index (WQI) chart are references in identifying and measuring the air quality and water quality inside the drainage system respectively. Automatic drainage inspection system provides complete eradication of manhole accidents and deaths due to harmful gases and other toxic substances inside the closed drainage system. In addition to the above, it also provides removal of blockages and clogs by the continuous real- time monitoring system and in taking timely action for avoiding the overflow in the drainage system. To validate the proposed system, experiments have been conducted and deploy the robot to the real drainage system and captured the real-time robot performance. The sensorial system provided a precise output.

4. PORTABLE ROBOT SYSTEM FOR CLEANING SOLAR PANELS

Submitted by

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ABSTRACT

Dust and dirt elements gathering on PV panels decrease the solar energy accomplishment the cells, thereby dropping their overall power output. Hence, cleaning the PV panels is a problem of great applied engineering interest in solar PV power generation. In this project, the problem is revised and methods for dust reduction are discussed. A portable robotic cleaning device is developed and features a multipurpose platform which travels the entire length of a panel. An Arduino microcontroller is used to instrument the robot's control system.

Initial testing of the robot has provided advantageous results and shows that such a system is practicable. Future developments on the design are discussed, predominantly the different methods of transferring the robot from one panel to another. In conclusion, it is found that robotic cleaning solution is practical and can help in continuing the clean PV panel efficiency.

5. MONITORING AND CONTROLLING OF ENERGY STORAGE LEVELS IN LEAD ACID BATTERIES

Submitted by

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ABSTRACT

The monitoring of lead acid batteries based on Internet of things is proposed and evaluated. Our proposed system monitors and stores parameters that provide an indication of the lead acid battery's state of charge. The Inverter design consists of LED bulbs to indicate the state charge of the batteries connected to it. But it is less accurate, because the charge is just assumed by the users based on the LED indication. They are not sure about the charge percentage of the battery. The charging does not wind up. Because, when it is completely charged; the supply to the unit is not stopped at Instant. Hence, it leads to consumption of excess power rather than regular usage. The continuous charging also leads to loss in the form of heat. At the end electricity bills becomes higher than before due to unnecessary power consumed. So, by using Displays this shows batteries state charge, that users can get aware of their batteries charge accurately. By sensing battery charge, automatically opening and closing the switch to connect and disconnect from supply to avoid unnecessary charging, which reduce excess consumption of power which is beyond need.

6. MODELING AND ANALYSIS OF MODULAR MULTI LEVEL INVERTER TO IMPROVE POWER QUALITY

Submitted by

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ABSTRACT

This project is to explain the effects of Harmonic in the power system and steps to reduce the effects of Harmonics. It will also explain how Harmonic distortion is one of the most important problems associated with power quality and creates several disturbances to the power system. It includes the Harmonic reduction techniques to improve the power quality and it also includes the simulation for the same.

Multilevel inverters are effective means of reducing harmonic distortion and dv/dt of the output voltages, which makes this technology applicable to utility interface and drives. In an inverter DC voltage is converted into an AC output. During this transformation from DC to AC, harmonics affect the power quality a lot. How harmonic reduction will improve the power quality is explained in detail. The voltage balancing at the terminal is achieved through proper selection of switching states. The switching scheme is defined by Pulse Width Modulation. In our project 8 switches are used to get 8 to 15 level output voltage waveform so harmonics can be reduced. The model can be used for the applications like drives, inverter etc. The proposed idea is implemented in simulation to evaluate the validity of the concept in MATLAB.

7. AUTOMATIC SINGLE PHASING DETECTION AND CORRECTION IN THREE PHASE INDUCTION MACHINE IN INDUSTRIES

Submitted by

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ABSTRACT

On behalf of the worker's safety and machine and environment safety more steps has been taken by the Industries. But the problem can occur at any time and at any occasion due to more modes and mistakes occur in the Industries; this causes the loss of the life of workers and machines. Among them most of the machine used in the industries are Induction Machines. In which it is used in all the load side due to its moderate efficiency and needs only grid supply. In Industries Over-voltage, Over-current, Under-voltage, Under-current, Over temperature will usually occur in the Industries. In Industries in Three phase induction machine the problem mostly occur is SINGLE PHASING, which causes drastic effects in the industry. Our project is to automatically detect and prevent the single phasing in the machine by using **Microcontroller without any power quality issues and harmonics obtained by using Optocoupler.**

8. OPTIMAL CAPACITOR PLACEMENT AND SIZING IN RDF USING GREY WOLF ALGORITHM

Submitted by

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ABSTRACT

The objective of the work is to place the suitable capacitors on a radial distribution feeder to reduce the losses and improve the voltage profile. Grey Wolf Optimizer (GWO) is a new meta-heuristic swarm intelligence algorithm, which has shown effective capacitor sizing in radial distribution feeders not only to minimize the real power loss, but also help in maintaining the voltage profile within acceptable limit. Candidate buses for capacitor placements are decided by a set of rules given by the fuzzy expert system and the sizing of the capacitors is modeled by the objective function to obtain maximum savings using grey wolf optimizer (GWO). GWO approach used for searching global optimum solution focuses on leadership hierarchy and hunting behavior of grey wolves in multi-objective search spaces. A case study with IEEE 69 bus radial distribution feeders is presented to illustrate the applicability of the newer algorithm. The qualitative and quantitative results show that the proposed algorithm is able to provide very competitive results and outperforms other algorithm.

9. DC MICROGRID MANAGEMENT STRATEGY WITH THE INTEGRATION OF SOLAR ENERGY USING IoT

Submitted by

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ABSTRACT

In residential load side, power cutoff and electricity bill is increased because of using inverter, losses of any other equipment need to manage a power in real-time. This project presents a new system, PV-on time, which has been developed to supervise the operating mode of a grid –connected Utility-Scale PV power plant in order to ensure the reliability and continuity of its supply. This system presents the architecture of acquision devices, including wireless sensors (PIR, LDR) distributed around the plant, which measure the required information. It is also equipped with a high protocol for synchronizing the data that is necessary for relating the each event. System is used for monitoring and supervising all of the distributed systems. The system that converts sunlight energy into electrical energy like (PV) has been becoming widespread worldwide. The wireless sensor networks (WSN) is in the field of monitoring and supervising .the knowledge of the status and good working condition of each PV module separately as well as of any PV system component will lead in a more efficient way for power management. There are several advantages of self-healing, self-organization and flexibility. The versality, ease of use and reliability of a mesh network topology that is based on the IEEE 802.15.4 Standard, is used here to offer its maximum advantages on a system that is capable for real time measurements and event alerts.

10. LOAD FREQUENCY CONTROL OF GRID   INTER-CONNECTED ELECTRIC VEHICLES

Submitted by

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ABSTRACT

As the demand and cost of the fossil fuels are increasing, the automobile World starts switching to electric vehicles. This paper widely concentrates on the charging and discharging aspects of the electric vehicle. During charging and discharging the vehicles has to be connected with the grid. When thousands of vehicles are charging from the grid simultaneously, frequency oscillations and some power quality issues may occur. This can affect the stability of the system. So, in order to maintain the frequency as constant , load frequency control is necessary. To achieve this control , an optimized controller is used to arrest such oscillations . In this paper , the two area system , PID controller and the battery of electric vehicle are simulated. The tuning of controller is automated by using Grey – Wolf Algorithm. These simulations are done by using MATLAB Simulink.

11. DESIGN OF ELECTRICITY POLE LINE MULTIFAULT MONITORING SYSTEM USING INTERNET OF THINGS

Submitted by

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ABSTRACT

This project discusses some of the new wireless communications technology and advance development in the areas of transmission line with identification of faults. However, the project has proposed various schemes to wireless communication system using Internet of Things (IoT) also Detection and location of faults on power transmission line is essential to the protection and maintenance of a power system and an Electricity pole line multi fault monitoring system on IoT.

In this project the current flow in transmission line at pole point and to monitor the parameters like voltage, current in street lamp with pole slanting position. If any one of the parameters level goes exceeds its normal value like wire disconnection, lamp failure or pole slanting; it will be informed to the respective EB station without human intervention and cut the power supply at that point.

IoT has helped many organizational systems to improve efficiency, increase the speed of processes, reduce error and avoid theft by coding and tracking the objects. Computing and communications has its future in the technological transformation brought by the IOT. From this, the possibility to save human lives and protect them from electric shock.

12. DESIGN OF INTERLEAVED BOOST CONVERTER FOR SINGLE STAGE

LED DRIVER

Submitted by

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Guided by

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ABSTRACT

The current trend in power electronics is to avoid the use of electrolytic capacitor in LED driver. This electrolytic capacitor reduces the expected life span of the entire LEDs and also reduces the reliability of the LEDs. Thus, this project presents a digitally controlled Power Factor Correction (PFC) based on two Inter-leaved operating with Pulse Width Modulation (PWM). This interleaved boost converter where the current is divided which minimizes the I^2R losses and reduces the current stresses. It is an interesting topology for High Power Factor (HPF) LED drivers due to its high power factor, high efficiency and also minimizes current ripples. The experimental results for 25W LED shows the power factor of 0.92 with a Vrms and Irms of 14V and 0.94A respectively.

13. DESIGN AND IMPLEMENTATION OF HOSPITAL PATIENT MONITORING AND ICU ROOM AUTOMATION USING IOT

Submitted by

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Guided by

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ABSTRACT

Patient Health monitoring is gaining attention among health care in industries due to the rapid growth in the field of internet. Increase in a number of patients will require more medical needs and care giving, which will ultimately place more and more pressure on Hospital Management. The main objective of our project is to test, validate the data and create a personalized profile for the patient and to provide 360° data to the clinician, patient and care taker. 0ur project has two modules. The first module is to Improve the quality of life, independent living and to provide the status of the patient by transferring the following parameters like Heart Beat and Temperature from IRCU rooms to their blood relations. Here each patient will be given a personalized login in ThingSpeak where the data from Arduino mega is transferred to thingSpeak for every 30 seconds by using the Internet of Things (IoT). If the heart pulse is below the threshold pulse rate the alarm signal will be sent to the hospital management by the Arduino. The second module is to enhance the patients stay experience by monitoring the air quality in the ward (Co2 level monitoring). There may be an increase in the co2 level in the Hospital ward due to the too many patient, pollution, etc., This module contains two co2 sensors. A co2 sensor will be kept inside the hospital ward .Another co2 sensor is kept outside the hospital environment near the tree. When the co2 content in the hospital environment exceeds the threshold value the PWM signal is sent to the controller to control the speed of the CPU fan according to the co2 value. The oxygen from the outside environment will be used to ventilate the hospital ward.

14. ENERGY MANAGEMENT AUTOMATIC VIGILANT STRAND LESS METERING SYSTEM EMPLOYED WITH GSM

Submitted by

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ABSTRACT

The energy meter technology used presently in India is not highly reliable and requires substantially labour and time to read, calculate and distribute bills. The need to digitize the existing analogue meter and the increasing demand for smart energy compatible meter necessitated. In this paper, design and fabrication of a low cost multi function smart energy meter, is proposed for domestic electricity consumers. The proposed design of smart energy meter has been first implemented in software environment and then a prototype model has been developed, which communicates the consumed energy data through GSM network. In addition to this, time of use(TOU) metering, data logging and the Demand Side Management (DSM) during peak hour's techniques are utilized consumer to make electricity metering system more efficient. The meter tampering detection feature is also added to handle power theft challenges. The design methodology is presented with other details in the body of this paper.

15. ONLINE MONITORING OF POWER AND AUTOMATIC MAXIMUM DEMAND-CUTTER

Submitted by

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Guided by

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ABSTRACT

With the advancement in technology, researchers are making more attention towards smart energy meter to make life of mankind comfortable. This project presents the design, development and fabrication prototype of Smart meter using Arduino UNO for online monitoring of the demand. This smart meter prototype operates in autonomous mode as well as in manual mode along with additional features like scheduling for specific time and cutting of the load when the preset maximum demand value have exceeded the limit. This helps the customer to avoid the penalty. The recent development in smart grid and smart meter has enabled monitoring technology to solve many practical problems that humans encounter in day-to-day activities. But, even today manual readings are taken in India, where a man checks and notes the meter readings. This method is complicated and takes more time. Therefore, a smart meter is essential to replace the human intervention. The maximum demand is very important parameter and plays a vital role in electricity bills. Many HV industries are paying more bills due to exceeding their maximum demand even for small period of time. A survey in Spain says that the consumers are paying 20% of their bills as penalty for exceeding the maximum demand for 15 minutes. Our proposed energy meter will calculate the current demand and display the voltage and demand in the LCD. The IOT platforms such as ThingSpeak and IFTTT are used to communicate with the operator in the industries. The demo model will generate the SMS alert to the operator when the demand is going to reach the maximum demand by using IFTTT.

16. ASSIST PEDESTRIAN TO CROSS THE ROAD BY DENSITY BASED TRAFFIC CONTROL

Submitted by

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Dr. S.M. KANNAN, M.E., Ph.D.,/Prof.&HOD/EEE

ABSTRACT

In this modern world automobile is necessary thus there is numerous increase in vehicles. On the other hand rapid increasing population makes traffic dense. Due to this, pedestrian accident is also high. The main objective of this project report is to reduce the occurrence of accident due to pedestrian crossing the road. The primary objective of this traffic management is to improve pedestrian safety. It is predominantly concerned with understanding and modeling pedestrian behavior so as to increase walkability. And also to reduce the interaction between pedestrians and vehicles at signalized intersections under mixed traffic control. By sensing the pedestrian and the vehicle with the use of IR sensor, the higher density side can be identified. Then the higher density side is given as first priority. By this we can save the life of the pedestrian and control the traffic. In case of an emergency like ambulance, VIPs, etc given as higher priority by receiving the RF signals which is transmitted by these vehicles with an added additional circuit.

17. PREMATURE DETECTION OF BREAST CARCINOMA

Submitted by

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ABSTRACT

This work proposes a novel approach to the initial lesion detection in ultrasound breast images. The objective is to automate the manual process for the Region of Interest (ROI) labeling in Computer-Aided Diagnosis (CAD). This work proposes the use of hybrid filtering, multi fractal processing, and thresholding segmentation in the initial lesion detection and automated ROI labeling. This work supposes to use the ultrasound breast images to evaluate the performance of the proposed approach. Images are pre-processed using thresholding segmentation which is applied on the image. Finally, the initial lesions are detected using a rule-based approach. The accuracy of the automated ROI labeling is improved .The result compares the performance on the proposed method of Improved FCN Alex net. The proposed work is more accurate and performs more effectively than the benchmark algorithms considered.

18. SMART ELECTRICAL ENERGY MANAGEMENT UNIT (SEEMU)

Submitted by

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Guided by

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ABSTRACT

Alternative energy sources are becoming more cost effective and many utilities are now providing incentives for alternative power. Placing these alternative energy sources, as well as other smaller traditional energy sources, in the power system, allows the development of a new paradigm related to Distributed Generation. This proposed project manages the conserved energy sources in an efficient manner.

Energy Management can be best defined as the conservation, control, and monitoring of energy in industry. Energy management involves efficient utilization of energy consumed on a daily basis and engineering innovative methods to conserve that energy for better utilization. Energy Management is monitored at every stage of the industry, ensuring that maintenance costs, pollution, and operational costs reduce across the board. The major problem on using that various energy resources, an active power losses its quality and that leads to cause various problems on the load side. The proposed project able to control and co ordinate the generation and distribution system based on the load profile and also able to improve the quality of the supply. This project dealt with energy management based on per unit cost of power, and also selection of the sources based on the efficient cost manner and give reliable power supply to the load.

19. IoT BASED HUMAN HEALTH PARAMETERS TRACKING SYSTEM

Submitted by

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ABSTRACT

Technological innovations in the field of disease prevention and maintenance of patient health have enabled the evolution of fields such as monitoring systems. One of the main advances is the development of real-time monitors that use intelligent and wireless communication technology. In this paper, a system is presented for the remote monitoring of the body temperature and heart rate of a patient by means of a Wireless Sensor Network (WSN) and Mobile Augmented Reality (MAR). The combination of a WSN and MAR provides a novel alternative to remotely measure body temperature and heart rate in real time during patient care. The system is composed of hardware such as CC3200 microcontrollers (in the patient nodes), personal computers (for the nurse server), smartphones (for the mobile nurse monitor and the virtual patient file) and sensors (to measure body temperature and heart rate), a network layer using WiFly technology. The results obtained from tests show that the system can perform effectively within a range of 20 m and requires ten minutes to stabilize the temperature sensor to detect hyperthermia, hypothermia or normal body temperature conditions. Additionally, the heart rate sensor can detect conditions of tachycardia and brady cardia. Among the panoply of applications enabled by the Internet of Things (IoT).Networked sensors, either worn on the body or embedded in our living environments, make possible the gathering of rich information indicative of our physical and health. Captured on a continuous basis, aggregated, and effectively mined, such information can bring about a positive transformative change in the health care.

20. ANFIS CONTROLLER BASED CUSTOM POWER DEVICE FOR POWER QUALITY IMPROVEMENT

Submitted by

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ABSTRACT

This project proposes a adaptive neuro-fuzzy interference system for power quality disturbances. It uses modified point on wave technique instead of D and Q component technique. By using point on wave [POW] Technique voltage sag and voltage swell is detected quickly and it is corrected or compensated by producing a compensation wave by h-bridge inverter. The fault type is detected and information about the type of compensation wave to be produced is sent from adaptive neuro-fuzzy interference system[ANFIS] which is a artificial intelligent controller that saves all information about the power quality issues. From this the increase in voltage and decrease in voltage is corrected before the next cycle itself. Dynamic Voltage Restorer [DVR] is used to restore the voltage to its specifications. When a sag or swell occurs the phase-locked loop [PLL] find and verify the difference between error and cyclic error then it conforms the fault occurrence. After that ANFIS Controller searches the similar fault which we have stored in it, then the it compensates the faulted area using injected wave which is injected with right stability using POW and restored at correct point and with correct specification using DVR. Thus, quality of power is maintained and uninterrupted power supply is given to the customers.

21. SMART GARBAGE SEGREGATION AND INDICATION BIN

Submitted by

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ABSTRACT

A huge amount of solid waste is generated in urban area. The amount of waste produced on a daily basis goes on increasing .The solid waste consists of various waste materials such as food waste, rubbish, commercial waste, institutional waste, street sweeping waste, industrial waste, construction and demolition waste and sanitation waste. This collection of waste should be treated in a proper manner to reduce the landfills and to protect our environment. Till now, human intervention is needed to segregate this collection of waste materials. So that we proposed a new method called automated segregation which reduces the physical efforts of human. This method is based on the concepts of Machine Learning, Image Processing which can be done with the help of Convolution Neural Network (CNN).The main objective of this project is to capture the images of a single waste material and effectively identify and segregate into bio-degradable (Eg: paper) and non bio-degradable (Eg: plastic).This system will not only have positive environmental effects but also beneficial economic effects.

22. IoT BASED AUTOMATION AND ENERGY MANAGEMENT IN BUILDINGS

Submitted by

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ABSTRACT

The demand for electricity is increasing day by day. Depending on increase in of the demand the production of the electricity is also to be increased. Energy is to be conserved to meet out the demand. Lot of home appliances are made to run all the time even it is not needed. The proposed work is mainly concentrated on the energy conservation and home automation. The proposed work is on the energy conservation and the home automation of Air Conditioner (AC) in the residential buildings. The running time of the Air Conditioner (AC) is reduced instead of running it for the whole day. Based on the surrounding temperature the Air Conditioner is made to turn ON/OFF either automatically or manually by using the android application (APP). The surrounding temperature is sensed by the temperature sensor, depending on this temperature value the AC is made to turn ON/OFF with the help of the microcontroller in the IoT platform. The power consumed by the AC is compared between when it is made to operate for the specific time duration after the installation of the proposed controller and the power consumed by the AC when it is made to operate continuously for the longer time duration. With the help of the current sensor, which is connected to the load side gives the rate of current consumed by the AC and from that power consumed by it can be calculated and compared.

23. ENHANCED UNEARTHING CYBORG WIRELESS MECHANISM-QUADX

Submitted by

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ABSTRACT

In recent years, many organizations and universities in different countries have increasingly recognized the significance of low cost and sustainable technologies for mine detection and extraction aiming at the security of the public. With the rise in aerial vehicles, also known as drones, and artificial intelligence tools, the mining sector has slowly started to take advantage of these resources to help them improve operations and streamline operations for the better. Be it for efficiency, mapping or surveillance, companies in this sector are turning to drones. Hence, the main objective of the paper is to design and develop a prototype quad copter/drone that can sense landmines ahead of it on its path and hazardous gas underground thereby ensuring the safety of the personnel involved in mining. A Beagle Bone Black controller kit of Texas Instruments (TI) is the main controller used for the desired operation of the robotic vehicle. The designed project consists of soil hygrometer, temperature sensor, gas sensor to detect soil moisture content, the temperature and the hazardous gas present in mining pit respectively. As soon as the quadx senses this data it generates an alarm sound to the operator in order to take necessary preventive actions. Further the project has been enhanced by mounting a quad cam on the quadx, so that the operator can control the movement of the drone remotely by watching it on a screen and also detect shallow targets and discriminate between an hazardous gas and other objects present in the land.

24. HARMONIC MITIGATION USING ACTIVE POWER LINE CONDITIONER

Submitted by

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ABSTRACT

The demand for power quality (PQ) improvement has been growing in recent years, mainly due to the increase of nonlinear loads connected to the electrical power system causing distortions in the utility voltages at the point of common coupling. In order to mitigate the issues with the power quality in this project a fuzzy based a versatile unified power quality conditioner (UPQC), which can be connected in both three-phase three wire or three-phase four-wire distribution systems for performing the series-parallel power-line conditioning. Different from the control strategies used in the most of UPQC applications in which the controlled quantities are non- sinusoidal, this UPQC employs a dual compensation strategy, such that the controlled quantities are always sinusoidal. Thereby, the series converter is controlled to act as a sinusoidal current source, whereas the parallel converter operates as a sinusoidal voltage source. Thus, because the controlled quantities are sinusoidal, it is possible to reduce the complexity of the algorithms used to calculate the compensation references. Static and dynamic performances, as well as the effectiveness of the dual UPQC are evaluated by means of experimental results.

25. SLIDE MODE CONTROLLED TWO PHASE THREE LEVEL GRID CONNECTED PHOTOVOLTAIC INVERTER

Submitted by

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ABSTRACT

This Project proposes a high-efficiency slide mode controlled two stage three- level grid-connected photovoltaic inverter. The proposed two-stage inverter comprises a three-level step up converter and a three-level inverter. The three- level step up converter not only improves the power-conversion efficiency by lowering the voltage stress but also guarantees the balancing of the dc-link capacitor voltages using a simple control algorithm, it also enables the proposed inverter to satisfy the VDE 0126-1-1 standard of leakage current. The three- level inverter minimizes the overall power losses with zero reverse-recovery loss. Furthermore, it reduces harmonic distortion, the voltage ratings of the semiconductor device, and the electromagnetic interference by using a three- level circuit configuration; it also enables the use of small and low cost filters. To control the grid current effectively, we have used a feed-forward nominal voltage compensator with a mode selector; this compensator improves the control environment by presetting the operating point. The proposed high-efficiency two-stage three-level grid-connected photovoltaic inverter overcomes the low efficiency problem of conventional two-stage inverters, and it provides high power quality with maximum efficiency.

26. PERFORMANCE ANALYSIS OF BATTERY POWERED MEDICAL DEVICES
A PROJECT REPORT

Submitted by

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ABSTRACT

Rechargeable batteries are widely applied in medical devices, medical batteries, energy storage systems, etc. To meet the load voltage requirements the batteries are usually connected in series. Because of the manufacturing variance of cells, series-connected batteries without a proper balancing method suffers serious unbalanced problems, which lead to safety issues, shortened lifetime or decreased usable capacity. To improve the battery life and usage capacity a novel balancing method for series-connected batteries applications is proposed. The H bridge method uses a transformer to couple the energy from charger or discharger to batteries for energy balancing. The proposed method has the advantages of high efficiency, compact size, suitable for any type of switching converter, load-related balancing energy and extremely simple structure without any active switch for voltage balance function. The proposed balancing method has the following advantages. It does not suffer from inrush current and is capable of State of charge balancing since the coupled energy from charging or discharging current can be regarded as a current source. Additionally, the proposed method can be applied to any type of switching converter, making it suitable from low-power to high- power applications .In series connected battery systems the operating characteristics of the batteries will not be ideal to each other .In this project we have developed a experimental setup which by equalizing cell increases battery life by about 32%.

27. OPTIMAL ALLOCATION AND SIZING OF DG FOR ACTIVE POWER LOSS REDUCTION USING ANT LION OPTIMIZATION ALGORITHM

Submitted by

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ABSTRACT

Our proposed project is focused on the impact of distributed generation (DG) placement on distribution system. The integration of DG is transforming the traditional radial distribution system into a multi-source system. Distributed generation is a term that refers to the production of electricity near the consumption place. The effects of distributed generation are short circuit levels are increased, load losses change, reliability change and voltage profiles change along the network. The above advantages can be accomplished by ideal position and sizing of DG units. The ideal positions are obtained from index vector method. Ant Lion Optimization (ALO), a meta-heuristic algorithm is used to determine the optimal DG size. ALO is modeled based on the unique hunting behavior of ant lions. The ALO algorithm is evaluated on IEEE 33-bus test system.

28. SMART CONTROL AND MONITORING OF IRRIGATION SYSTEM USING IoT

Submitted by

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ABSTRACT

The main objective of this paper is to reduce human intervention and increase the irrigation efficiency by control and monitoring of irrigation system using IOT. Interconnection of number of devices through internet describes the Internet of things (IoT. Every object is connected with each other through unique identifier so that data can be transferred without human to human interaction. The project is to control the agriculture Water pump motor by using IOT based controller. By sensing the water flow and running time of Motor. By analyze statues of motor. The time of situation water problem occurs in the agriculture area. Then the motor running time is reduced due to the waste of water in the irrigation system. Our concept to monitoring and control the motor and also reduce some difficulty to ON/OFF. Supply given to node MCU. Supply is separated through the soil moisture sensor, water flow sensor and motor. The moisture sensor collects data from soil water content level and sent to the node MCU. If soil water content level is less than 70% the motor will start and then water flow rate is measured. If level is less than the define value will be automatically stop. The motor status and sensor status are collected. The collected data for mobile from node MCU (micro controller unit) using Wi-Fi.

29. ACCIDENT DETECTION AND POST PROTECTON SYSTEM

Submitted by

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ABSTRACT

In recent years lots of accidents happens due to revolution of motor vehicles worldwide. Rapid growth of population coupled with increased economic activities has favored in tremendous growth of motor vehicles. This is one of the primary factors responsible for road accidents. Consequently, road safety has become an issue of National concern. Every year over 1 million people are died and 50 million people are injured on road accidents around the world. This project proposes a new dimension in order to allow early response and rescue of accident victims saving lives and properties. In Most of the cases loss of life due to poor emergency facilities. These lives could have been saved if medical facilities are provided at the right time. Our research provides a solution for accident detection and prevention of human life safety. Bluetooth module is used to send the accident notification from victim's android phone where an android application will get the GPS location of accident spot through message. After the accident occurs door is initially locked it is hard to open the lock and give the first aid to the victim at right time is not possible. So we added the feature once the accident is detected by the sensor automatically the car door lock is open for saving the victim quickly. It can also overcome the issue of lack of automated system for the detection of the site of accident. The time for detecting the site is reduced and the person can be treated as soon as possible which will save many lives.