K.L.N. COLLEGE OF ENGINEERING, POTTAPALAYAM
Department of Electrical and Electronics Engineering

Project Work Details – 2014-2015

Subject Code & Name: EE2452- PROJECT WORK (R - 2008)
Year/Semester: IV/ VIII

Sl. No	Project title	Students name	Guide name
1	Interleaved Boost and Buck Converter for AC-DC Hybrid Micro Grid	M.M. Vignesh M.R. Vivek K.K.Vignesh	Dr.S.M.Kannan Prof.&HOD/EEE
2	Industrial Automation using Blue Tooth Technology via Smart Application	Alagarpandian N Arunkumar P Ashok M Ashok Babu R R	Dr.S.Venkatesan Prof./EEE
3	Load curtailment using power world simulator.	S.H.Kumaran S.Madhu Mohan G.Narendran	
4	Fault Detection and Rectification in Tunnels using Teleoperated Robot	R.R.Ramprasath V.Selvaganesh P.S.Suraj Kumar	
5	Net Metering for Home Applications	Ashokkumar L R C Gridhar A Palraj M Karkuvel Raja M	Dr.K.Gnanambal Prof./EEE
6	Optimal Placement of Phasor Measurement Unit using PSO Algorithm	R.Sakthivel P.Saravanan R.Sivakumar	
7	Fractional Order PID Controller for Automatic Generation Control using PSO Algorithm	K.Shanthipriya J.R.Thakshaayene V.Vikaashini	
8	Voltage Stability Analysis Using Wind Farm	M.K.Revathy J.Sahela D.Sangeetha	Mr A.Marimuthu ASP/EEE
9	Power Quality Mitigation using Shunt Hybrid Power Filter and Facts Devices	M.V.Prabhu M.Jegan Marnad S.Sankar Balaji	
10	Speed Control of Cooling Tower Fans	Ashokkumar G M Balaji K J Ganesh Kumar N K B	Mr.P.Loganthurai ASP/EEE
11	A Hybrid Artificial Bee Colony assisted by Differential Evoluation For Optimal Siting and Sizing of Distributed Generation in Radial Distribution System	Balaji K S Deepak Prasanna M Y Gopinath M K	Mr.M.Jegadeesan ASP/EEE
12	Design and Implementation of Controller Based Cracker Manufacturing Machine	Azarudhin S Balamurugan A Dinesh Kumar P S Satheshkumar G	Mr.S.Partha Sarathy ASP/EEE
13	Enhancement of Output Voltage Quality in Multilevel Inverter using Arm Processor	Abdul Quadir S S M Aravinth J B Balaji M S Datchinamoorthy K D	

No.	Title	Students	Guide
14	Harmonic distortion estimation using advanced particle swarm optimization algorithm	M.Pavithra R.Priyanka R.Kiruthika	Mr.A.S.S.Murugan ASP/EEE
15	Design of Passive Filter using Firefly Algorithm.	A.Jenitta R.Jeyalakshmi N.Lakshmi Preethi	
16	Digital Control Of BLDC Motor using MODROBS Equipments	D.S.Santhosh K.R.Venkatesan S.Yuvaraja	Mr S.Venkata Narayanan ASP/EEE
17	Design and Modelling of FLYBACK Converter	B.S.Saran Kumar B.Varunkumar S.Vignesh M.R.Vijay Shankar	
18	Design And Implementation of SEPIC Integrated BOOST Converter	R.Vaishnudevi S.A.Vidhyavathi M.Vishnudurga	
19	Mitigation of Harmonics due to Driving Circuit of Light Emitting Diode(LED) Lamps	Arul Flawrence M A Hema Priyadharsini S Iswarya M	Mr.S.Manoharan AP(Sr.Gr)/EEE
20	Simulation of a Micro turbine Generation System as DG and Mitigate the Voltage Sag	G.Mayalagan T.S.Nagarajan N.R.Karthikeyan	
21	Optimal location , cost calculation and voltage stability improvement using SVC,TCSC and UPFC	J.Kavitha K.K.Nalini C.Radhina	Ms.C.Muthamil Selvi AP(Sr.Gr)/EEE
22	Optimal allocation of STATCOM for improving voltage stability margin using DE algorithm	G.Loga Priya T.R.Poornima Devi K.Rajalaxmi	
23	Implementation of DVR for Compensation of Voltage Sag	A.Saratha P.Sharmila S.Soumika N.Srilekha	Mrs M.Ganesh Kumari AP(Sr.Gr)/EEE
24	Power Quality Improvement using Distribution Static Compensator	R.Sathyabama M.Sowmya Preethi V.Vickneshwari	
25	A cascaded asymmetric multilevel inverter with minimum number of switches	S.Karthick Nivas B.Kulandaisamy M.Vadivel	Mr.M.Jeya Murugan AP(Sr.Gr)/EEE
26	Level module approach for harmonic reduction in fifteen level h bridge inverter	R.Prem Anand K.Prakash P.Subbiah	
27	Optimal Power Flow using Hybrid Teaching Learning based Optimization Algorithm	J.Josalin Jemima H.Juriya Banu S.Kirithika	Mrs.K.R.Jeyavelumani AP/EEE
28	A Single Phase Bridgeless Interleaved Boost Converter for PHEV using AVR	Anandhakumar N Avinash Babu V T Ibrahim R S M A Pandeeswaran P	Mr.M.Balamurugan AP/EEE
29	Hardware implementation of dynamic voltage restorer for power quality improvement	B.Balasubramanian M.Praveen Kumar A.J.Prasanth	Mr.P.K.Arun Kumar AP/EEE
30	A Novel Single Stage Boost Inverter for Photovoltaic Application	Arun Prasanth S P Ajayprasath T B Babu R Eswar K G	Mr.T.Gopu AP/EEE

31	Reactive Power Dispatch using Harmony Search Algorithm	Abirami G Baby Uthra M Hemapriya S	Ms.J.Merlin AP/EEE
32	An Isolated CUK Converter Based bidirectional DC-DC Converter for Micro Grid Application	Deepika M Dharani G (14.02.94)	
33	Bridgeless LUO Converter fed BLDC Motor Drive for Power Factor Correction	Arjun M Chaturbhusan N S Diwan Mohideen Ashik P Krishnaprabu M	Mr.R.Jeya Pandi Prathap AP/EEE
34	Maximum Power Point Tracking by Using Fuzzy Logic Controller Based SEPIC Converter	M.J.Ramprakash S.Shanmuganarayanan M.J.Vijayakumar	
35	Design of Controllers for Uninterrupted Power Supply	M.Santhanakumar S.S.Vivek Sarathi V.Yuvaraj	Mr S.Rajalingam AP/EEE
36	Solar Based Water Pump Controller for Irrigation System	P.Mugesh Sudharsan Babu R.Vengaimaran M.Vignesh T.R.Yogesh	
37	Remote Placed Transformer Fault Locating using GSM Technology	Balaji K G Bharath R Deepan A	Mr.N.Vimal Radha Vignesh AP/EEE
38	ARDUINO based Autonomously Stabilized Surveillance QUAD- COPTER	N.Manicka Raj D.V.Lalith Kumar R.S.Murali Krishna D.Prem Kumar	
39	Home Automation System using ARDUINO	Aparajitha N R Dharani G (24.09.93) Diana Preethi T	Mr.A.Manoj AP/EEE
40	Automatic wall painting robot	O.Karthick M.Karthikeyan S.D.Prasanna Venkatesh	
41	ARDUINO Based MPPT Solar Charge Controller	V.R.K.Ramkishore E.Rajan K.Prakash S.S.Vinoth Kumar	R.C.Hemesh AP/EEE
42	Power Factor Correction Using Low Power Converter	J.D.Pravinesh G.Rajesh Kumar K.Ram Kumar P.Nanmaran	
43	Enhancement of Steady State Voltage Stability Limit by using Gravitational Search Algorithm	M.S.Srinijanthan C.R.Srinivasan K.Vigneshwaran	Mr S.P.Rajaram AP/EEE

Title of the project

INTERLEAVED BOOST AND BUCK CONVERTER FOR AC-DC HYBRID MICROGRID

Project Members

VIGNESH K K	**(Reg. No. 910611105317)**
VIGNESH M M	**(Reg. No. 910611105110)**
VIVEK M R	**(Reg. No. 910611105115)**

Guided By

Dr. S.M.KANNAN, PROFESSOR & HOD /EEE

ABSTRACT

The main aim of this project is to design and implement the interleaved boost and buck converter for AC-DC hybrid microgrid. The unique feature of hybrid AC-DC microgrid facilitates the integration process of independent DC and AC sub grid that may contain various renewable energy resources and utility supply. The proposed converter is able to turn on both the active power switches at zero voltage to reduce their switching losses by operating it with soft switching and evidently raise the conversion efficiency. The interleaved approach reduces the ripple of the input current and output voltage. It provides the advantage that the power flow in both the direction and capability to buck or boost voltage as required. Thus it is best suitable for AC-DC hybrid microgrid with suitable control strategy for synchronization with both AC bus and DC bus. The proposed system is simulated using MATLAB software package and a hardware prototype of the proposed system is developed with a battery source.

Title of the project

INDUSTRIAL AUTOMATION USING BLUETOOTH TECHNOLOGY VIA SMART APPLICATION

Project Members

ALAGAR PANDIAN.N (Reg. No. 910611105004)

ASHOK.M   (Reg. No. 910611105011)

ASHOK BABU.R.R   (Reg. No. 910611105010)

ARUNKUMAR.P   (Reg. No. 910611105009)

Guided By

Dr.S.VENKATESAN, PROFESSOR /EEE

ABSTRACT:

This project aims to the overall design of Industry automation system with low cost and wireless remote control. This smart concept in the system improves the performance for industrial control. The main control system implements wireless Bluetooth technology to provide remote access from PC or smart phone. In order to provide safety protection to the user, the low voltage activating switches have replaced the current electrical switches. The switches status is synchronized in all the control system whereby every user interface indicates the real time existing switches status. The system intended to control electrical appliances and devices in both houses and industries with relatively low cost design, user-friendly interface and ease of installation. This project extends automation to the industrial level by controlling the speed of DC motor as well as AC motor. The speed controlling of motor by Bluetooth technology will provide better and simple controlling experience to the operator.

Title of the project

LOAD CURTAILMENT IN POWER WORLD SIMULATOR

Project Members

MADHUMOHAN.S	**(Reg. No. 910611105056)**
NARENDRAN.S	**(Reg. No. 910611105063)**
KUMARAN.S.H	**(Reg. No. 910611105052)**

Guided By

Dr.S.VENKATESAN, PROFESSOR /EEE

ABSTRACT:

This project presents the Load curtailment using power world simulator for congestion management. In our day-to-day life, load demand is increased so it is necessary to increase the generation. If we increase the generation for load demand the problem does not occur in generation side or load side but the problem is in transmission line because transmission line is already constructed with certain limits so if generation increases, it violates the transmission line limit which is known as congestion. It leads to overload and damages the transmission line. Hence to avoid transmission line damages, this project deals with congestion control by load curtailment using power world simulator.

Title of the project

FAULT DETECTION AND RECTIFICATION IN TUNNELS USING TELEOPERATED ROBOT

Project Members

    SELVAGANESH V   **(Reg. No. 910611105092)**

    RAMPRASATH R.R   **(Reg. No. 910611105081)**

    SURAJ KUMAR P.S   **(Reg. No. 910611105101)**

Guided By

   Dr.S.VENKATESAN, PROFESSOR /EEE

ABSTRACT

     In the future, it will become more common for humans to team up with robotic systems to perform tasks that humans cannot realistically accomplish alone. Even for autonomous and semiautonomous systems, Teleoperation will be an important default mode and a challenging task, because the operator is remotely located. As a result, the operator's situation awareness of the remote environment can be compromised and the mission effectiveness can suffer. This project presents a detailed examination human performance issues and suggested mitigation solutions. This work was motivated by the accidents in recent years that were caused by falling parts of the inner wall of concrete tunnels. This brought about serious damage to national property, In this method, we aim to inspect the tunnel manually and completely at high speed by using Manipulators to inspect the tunnel online in the dangerous environment. Usually, the cable tunnel is full of poisonous gases after fire, such as CO, CH4, and CO2 and so on. Then, the mobile robot is able to tell us whether the tunnel environment is safe or not then the architecture of the robot is designed at first to meet the motion requirement in the tunnel. These characteristics distinguish the mobile robot from others like compact structure, small size, little weight and easily being carried.

Title of the project

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NETMETERING FOR HOME APPLICATIONS

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Project Members

ASHOKKUMAR L R C	**(Reg. No. 910611105013)**
GRIDHAR A	**(Reg. No. 910611105036)**
KARKUVELRAJA M	**(Reg. No.910611105305)**
PALRAJ M	**(Reg. No.910611105308)**

Guided By

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Dr. K.GNANAMBAL, PROFESSOR /EEE

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ABSTRACT:

This Project is concerned about the Net-Metering concepts in Home applications using Sliding mode Algorithm. Environmentally friendly solutions are becoming more prominent than ever as a result of concern regarding the state of our deteriorating planet. The modelled combinations of renewable energy source (Solar Energy) and Primary source (EB), incorporated into the load systems. This configuration allows the two sources to supply the load separately or simultaneously depending on the availability of the energy sources. An adaptive Maximum Power Point Tracking Algorithm (MPPT) is used for the Photo-voltaic system. In Net-Metering arrangement, the focus is primarily on self-consumption of electricity generation by the consumer .The Load is shared equally by the two sources and the voltage and the respective current values from each source will be displayed. When a source is unavailable or insufficient in meeting the load demands, the other energy source can compensate for the difference.

Title of the project

OPTIMAL PLACEMENT OF PHASOR MEASUREMENT UNIT USING PSO ALGORITHM

Project Members

SAKTHIVEL.R   **(Reg. No. 910611105084)**

SARAVANAN.P   **(Reg. No. 910611105090)**

SIVAKUMAR.R   **(Reg. No.910611105095)**

Guided By

Dr. K. GNANAMBAL, PROFESSOR, KLNCE

ABSTRACT

This project deals with the optimal placement of phasor measurement units (PMUs) so as to make a system completely observable. Observability assessment is done by the aid of the topological observability rules. Moreover a new rule is added which can decrease the number of required PMUs for complete system observability. A modified binary particle swarm is used as an optimization tool for obtaining the minimal number of PMUs and corresponding configuration. In order to improve the speed of convergence, an initial PMU placement is provided by graph-theoretic procedure. The simulation results of proposed approach are presented for several IEEE test systems**.**

Title of the project

FRACTIONAL ORDER PID CONTROLLER FOR AUTOMATIC GENERATION CONTROL USING PSO ALGORITHM

Project Members

SHANTHI PRIYA K	**(Reg. No.910611105093)**
THAKSHAAYENE J R	**(Reg. No.910611105102)**
VIKAASHINI V	**(Reg. No.910611105107)**

Guided By

 Dr. K. GNANAMBAL, PROFESSOR, KLNCE

ABSTRACT

This project focuses on the optimal design of Fractional Order Proportional-Integral-Derivative Controller (FOPID) in Automatic Generation Control system using Particle Swarm Optimization. Fractional Order PID controller is a generalization of standard PID controller using fractional calculus. The particle swarm optimization (PSO) technique is used to optimize the integral controller gains for the automatic generation control (AGC) of the power system. Particle swarm optimization (PSO) has achieved considerable success as a global optimization method with a wide range of applicability, requiring no prior information, being appropriate for diverse objective functions, and offering the ability of recovery even after trapping on a local solution. The objective function of minimizing the Integral Square Error and maximum peak overshoot is applied to minimize the settling time, peak overshoot, rise time, steady state error. The dynamic response analysis of FOPID controller is compared with the Proportional-Integral-Derivative(PID) controller using PSO algorithm. Compared with PID controller the proposed FOPID controller is more efficient in improving step response of an AGC system.

Title of the project

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VOLTAGE STABILITY ANALYSIS USING WIND FARM

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Project Members

REVATHY.M.K	**(Reg No. 910611105082)**
SAHELA.J	**(Reg No. 910611105083)**
SANGEETHA.D	**(Reg No. 910611105085)**

Guided By

Mr. A.MARI MUTHU, ASSOCIATE PROFESSOR/EEE

ABSTRACT:

Power systems are operating closer to their limits, voltage stability assessment and control, although not a new issue, is now receiving a special attention. Voltage stability is the ability of a power system to maintain steady acceptable voltages at all buses in the system under normal operating conditions and after subjected to a disturbance. Here in order to analyze the voltage profile in power system after including the wind farm in 8th bus of the IEEE 14 bus system, this paper uses the Newton Raphson method and the Particle swarm optimization (PSO) algorithm for the optimum solution. After including wind farm in IEEE 14 bus system, the stabilized voltage is maintained under normal operating condition and being subjected to a sudden disturbance.

Title of the project

POWER QUALITY MITIGATION USING SHUNT HYBRID POWER FILTER AND FACTS DEVICES

Project Members

PRABHU M V   (Reg. No. 910611105066)

JEGAN MARNAD M   (Reg. No. 910611105304)

SANKAR BALAJI S   (Reg. No. 910611105312)

Guided By

Mr. A. MARIMUTHU, ASSOCIATE PROFESSOR /EEE

ABSTRACT:

A combined system of a thyristor-controlled reactor (TCR) and a shunt hybrid power filter (SHPF) which has been designed by MATLAB/SIMULINK approach for harmonic and reactive power compensation. The SHPF is the combination of a small-rating active power filter (APF) and a fifth-harmonic-tuned LC passive filter. The tuned passive filter and the TCR form a shunt passive filter (SPF) to compensate reactive power. The small-rating APF is used to improve the filtering characteristics of SPF and to suppress the possibility of resonance between the SPF and line inductances. Also control schemes based on proportional–integral controller and Fuzzy logic controller have been proposed to mitigate the harmonics and reactive power .The proposed methodology not only reduces the complexity but also offers simplicity to implement and increases reliability of the system. These control strategies also help in achieving a low cost highly effective control. The performance is also observed under influence of utility side disturbances such as harmonics with non-Linear load.

Title of the project

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SPEED CONTROL OF COOLING TOWER FAN

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Project Members

ASHOKKUMAR G M	**(Reg. No. 910611105012)**
BALAJI K J	**(Reg. No. 910611105019)**
GANESH KUMAR N K B	**(Reg. No. 910611105034)**

Guided By

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Mr. P. LOGANTHURAI, ASSOCIATE PROFESSOR/EEE

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ABSTRACT:

In this era, conservation of energy is trending all over the world. Especially many technologies were invented to conserve electrical energy. Electrical Energy should be conserved in industries, as they consume large amount of power. Variable speed drives are employed in industries in order to control the speed of the motors in industries automatically as a part of energy conservation. This project is mainly concerned about controlling the speed of the cooling fan in cooling towers. The cooling tower doesn't have any control mechanism for controlling the speed. By this method the power consumption of the cooling tower motor can be minimized and conserved according to the load variations. This project uses temperature sensor to sense the temperature and the speed of the motor is varied corresponding to that.

Title of the project

A HYBRID ARTIFICIAL BEE COLONY ASSISTED BY DIFFERENTIAL EVOLUTION FOR OPTIMAL SITING AND SIZING OF DISTRIBUTED GENERATION IN RADIAL DISTRIBUTION SYSTEM

Project Members

BALAJI.K.S   (Reg.no. 910611105020)

DEEPAK PRASANNA.M.Y   (Reg.no. 910611105025)

GOPINATH.M.K   (Reg.no. 910611105035)

Guided By

Mr. M.JEGADEESAN, ASSOCIATE PROFESSOR /EEE

ABSTRACT:

In this project, a novel hybrid algorithm based on artificial bee colony algorithm (ABC) and differential evolution algorithm (DE) called ABC-DE is proposed to inherit the advantages and overcome the drawbacks of ABC and DE. In ABC-DE algorithm, employed bees employ the mutation and crossover strategies of DE to enforce their exploration ability while onlooker bees keep their original updating strategy to retain the exploitation ability. Experimental results reveal that ABC-DE has a promising performance in the convergence rate and the exploration ability, real power loss reduction and improving voltage profile when compared with other improved evolutionary algorithms. The proposed method is tested and verified in IEEE 33 bus system which identifies the optimal location and size of DG for placement in the distribution network.

Title of the project

DESIGN AND IMPLEMENTATION OF CONTROLLER BASED CRACKER MANUFACTURING MACHINE

Project Members

AZARUDHIN S	**(Reg. No. 910611105015)**
BALAMURUGAN A	**(Reg. No. 910611105022)**
DINESH KUMAR P S	**(Reg. No. 910611105031)**
SATHESH KUMAR G	**(Reg. No. 910611105313)**

Guided By

Mr. S. PARTHASARATHY, ASSOCIATE PROFESSOR /EEE

ABSTRACT:

Automation is the use of machines and technology to make processes run on their own without manpower. Industrial automation plays a very important role in the manufacturing industry. Modern Automation trends provide opportunity to all entrepreneurs to increase their productivity and profit. Many crackers manufacturing industries depending man power   to manufacture crackers, so they are facing   many problems such as material handling process, fire accidents, malfunction and quality management. Such problems are deciphered by CNC machine in many manufacturing industries while those machines initial investment cost is high. This proposed work is for doodle a machine for roll cap fabrication, it overwhelms that cost problem in CNC machines. Normally in fireworks industries, manufacturing of the roll cap crackers are not easier because the workers did not properly maintain the distance between each chemical drop in roll cap and also they did not fill up the chemical in identical quantity for each drop by manual process.

In this proposed work, the Micro Controller based cracker manufacturing machine has been assigned to perpetuate the proper interval between each chemical drop, leading length and tail length in every roll cap crackers. Working method of the machine is converted into embedded language and stored into the microcontroller chip then the chip is interfaced to the logic board. This proposed work is to acquire the roll caps with the accurate chemical quantity and reduce the time for manufacturing the roll caps and also to affirm the quality of products as well as to ensures the life safety of workers in crackers industry.

Title of the project

ENHANCEMENT OF OUTPUT VOLTAGE QUALITY IN MULTILEVEL INVERTER USING ARM PROCESSOR

Project Members

ABDUL QUADIR S.S.M	**(Reg. No. 910611105001)**
ARAVNTH J.B	**(Reg. No. 910611105007)**
BALAJI M.S	**(Reg. No. 910611105021)**
DATCHINAMOORTHY K.D	**(Reg. No. 910611105024)**

Guided By

Mr. S.PARTHASARATHY, ASSOCIATE PROFESSOR/EEE

ABSTRACT:

Harmonics in the electrical system is a great concern, many steps have been taken to mitigate the harmonics created in the power system. Mainly the harmonics created by the inverter in its output troubles the electrical devices that are connected to it. Usually the electrical devices are operated in the sinusoidal power supply, but if they are connected to the inverter they get affected since the output of the inverter has a large amount harmonics present according to the poles of the inverter. Mostly the output of the inverter is highly distorted or square in shape, as it is not possible to produce a perfect sine wave. The distorted or the square shaped wave can be converted nearly sinusoidal. It is possible by stepping the wave using MULTILEVEL-INVERTER with the help of ARM Processor.

In this proposed work, the power electronic devices are used to form a Seven level inverter to reduce the THD (Total Harmonic Distortion) on the output side of the Multilevel-Inverter and thereby to improve the quality of the waveform. In order to give proper control signals to the power electronic devices and give an enhanced output of Multilevel-Inverter which is near to sine wave, ARM-processor is used. The hardware implementation will be verified with help of Digital Storage Oscilloscope (DSO) which defines the voltage Quality, the PROTEUS simulation of the following Multilevel-Inverter will also be implemented and executed.

Title of the project

HARMONIC DISTORTION ESTIMATION USING ADVANCED PARTICLE SWARM OPTIMIZATION ALGORITHM

Project Members

PAVITHRA M   **(Reg. No.910611105064)**

PRIYANKA R   **(Reg. No.910611105074)**

KIRUTHIKA R   **(Reg. No.910611105306)**

Guided By

Mr. A.S.S.MURUGAN, ASSOCIATE PROFESSOR/EEE

ABSTRACT:

The three phase voltage and current waveforms from a power system are not considered pure sinusoids due to the presence of harmonic distortion. This work presents an approach based on Advanced Particle Swarm Optimization (APSO) method for the harmonic distortion estimation in a power system. Advanced Particle Swarm Optimization (APSO) is a technique of optimization that models the social behavior in many species of birds, schooling fish and even human social behavior .This technique uses a population of particles to search inside a multidimensional search space thus seeking for the best solution within the search space. The results demonstrate that the Advanced Particle Swarm Optimization (APSO) method can precisely identify the harmonic distortion in waveforms and it shows considerable advantage when compared with the Particle Swarm Optimization (PSO) method.

Title of the project

DESIGN OF PASSIVE FILTER USING FIREFLY ALGORITHM

Project Members

    JENITTA.A   **(Reg. No. 910611105041)**

    JEYALAKSHMI.R   **(Reg. No. 910611105042)**

    LAKSHMI PREETHI.N   **(Reg. No. 910611105053)**

Guided By

    Mr. A.S.S.MURUGAN, ASSOCIATE PROFESSOR /EEE

ABSTRACT:

Both the electric utilities and end users of power system are becoming increasingly concerned about the quality of electric power. The objective of electric utility is to deliver sinusoidal voltage at fairly constant magnitude throughout their system. Power quality is ultimately a consumer driven issue, and the end users point of reference takes precedence. The term harmonics occurs when any manifested in voltage, current deviations that result in failure of customer equipment. This paper presents more efficient method to minimize the harmonics by using passive filter, without disconnecting any load from the network with the help of Firefly algorithm. Passive filter reduces harmonics at nonlinear devices. Passive LC filter have been employed to eliminate line current harmonics. This could be integrated in to commercially available power quality instruments to help handle harmonic and power quality issues.

Title of the project

DIGITAL CONTROL OF BLDC MOTOR USING MODROBS EQUIPMENTS

Project Members

SANTHOSH D. S   (Reg. No.910611105087)

VENKATESAN K. R   (Reg. No.910611105106)

YUVARAJA S   (Reg. No.910611105119)

Guided By

Mr. S.VENKATANARAYANAN, ASSOCIATE PROFESSOR /EEE

ABSTRACT

Brushless DC (BLDC) motor is attracting much interest due to its high efficiency, good performance and ease of control for many applications. Moreover, reducing of the drive components is more attractive for low cost applications. This presents the design and implementation of a reduced-parts BLDC motor drive using the micro 2812 controller Digital Signal Processor (DSP). Part reducing is achieved by the Hall Effect position sensors and reducing the number of power switches. The performance of the proposed reduced parts BLDC motor drive is verified via some simulations. Then, hardware and software details of the system are explored. The BLDC motor is controlled using Intelligent Micro 2812 controller with MICRO CONTROLLER software in computer. The Intelligent Power Module (IPM) is used to provide digital supply for BLDC motor and single phase autotransformer is used to provide voltage control. The voltage is adjusted up to 100 V using autotransformer. The Hall Effect sensor is providing for controlling position of rotor of BLDC motor. The programmed controller is adjusted to provide desired output. Thus, the hardware output is taken from Digital Storage Oscilloscope (DSO) which is verified with MATLAB / SIMULINK output.

Title of the project

DESIGN AND MODELLING OF FLYBACK CONVERTER

Project Members

SARAN KUMAR B S	**(Reg. No. 910611105088)**
VARUN KUMAR B	**(Reg. No. 910611105104)**
VIGNESH S	**(Reg. No. 910611105111)**
VIJAY SHANKAR M R	**(Reg. No. 910611105112)**

Guided By

Mr. S.VENKATANARAYANAN, ASSOCIATE PROFESSOR /EEE

ABSTRACT

The purpose of this project is to design a fly back converter that has an input voltage of 175V DC and output voltage of 35V DC. MATLAB simulink is used to simulate the circuit and waveforms are obtained and also the MATLAB simulink results for the SEPIC integrated boost converter are obtained. A prototype is developed for fly back converters that bucks the input voltage and verify the experimental results. Fly back converter is one of the switching DC power supplies applications with electrical isolation. The transformation of dc voltage is accomplished by using dc-dc converter circuit. The switching element used in this fly back converter is MOSFET (metal oxide semiconductor field effect transistor), which is operating off or completely on. This is because MOSFET has high power rating and high switching speed. The output of the MOSFET is fed to high frequency transformer..Consequently the design circuit will deliver accurate output value with low power losses. On the whole, the undertaken task would provide to understand the operation of the fly back converter circuit practically.

Title of the project

DESIGN AND IMPLEMENTATION OF SEPIC INTEGRATED BOOST CONVERTER

Project Members

    R VAISHNUDEVI   **(Reg. No. 910611105103)**

    S A VIDHYAVATHI   **(Reg. No. 910611105108)**

    M VISHNUDURGA   **(Reg. No. 910611105114)**

Guided By

    Mr. S.VENKATANARAYANAN, ASSOCIATE PROFESSOR /EEE

ABSTRACT

The main aim of the project is to implement the insufficient step-up ratio and distribute a voltage stress of a classical boost converter, a SEPIC-integrated boost (SIB) converter, which provides an additional step-up gain with the help of an isolated SEPIC converter. Since the boost converter and the SEPIC converter share a boost inductor and a switch, its structure is simple. The operational principle and characteristics of SIB converter are presented and verified experimentally. And also, for a non-isolated high step-up converter, the combination of a boost converter with a series output module is investigated. In this project, an integrated boost SEPIC (IDBS) converter is proposed as a high step-up converter. A detailed modelling of SEPIC and Boost converter is performed to attain the components and specifications. MATLAB simulink is used to simulate the circuit and waveforms are obtained and also the MATLAB simulink results for the SEPIC integrated boost converter are obtained. A prototype is developed for 12V DC as input and 48V DC as output and verify the experimental results. Digital storage oscilloscope is used to capture the output results. These waveforms are given in the report. The experimental results and simulated results are expected results. The SEPIC and Boost converter operation is verified.

Title of the project

MITIGATION OF HARMONICS DUE TO DRIVING CIRCUIT OF LIGHT EMITTING DIODE (LED) LAMPS

Project Members

HEMA PRIYADHARSINI. S (910611105037)

ISWARYA. M   (910611105040)

ARUL FLAWRENCE. M. A   (910611105302)

Guided By

Mr. S.MANOHARAN, ASSISTANT PROFESSOR(Sr.Gr) /EEE

ABSTRACT:

The detailed analysis of high power factor application based on SEPIC converter operating in discontinuous conduction mode which is found to be attractive for power factor application and reduced total harmonic distortion. In these design, the power and control stages of the single-phase SEPIC converter circuit was obtained. The DCM operation gives additional advantages such as zero-current turn-on in the power switches, zero-current turn-off in the output diode and reduces the complexity of the control circuitry. Due to this fact, the pulse width modulation (PWM) technique is studied.

During the recent years the residential lighting market has completely altered by the introduction of the new energy efficient lighting solid state lamp known as LED lamps. They are affected by harmonics produced by its drive circuits. Hence the harmonics are mitigated using SEPIC technology. The proposed system is confirmed by experimental implementation.

Title of the project

SIMULATION OF A MICROTURBINE GENERATION SYSTEM AS DG AND MITIGATE THE VOLTAGE SAG

Project Members

KARTHIKEYAN N R   (Reg. No. 910611105048)

MAYALAGAN G   (Reg. No. 910611105058)

NAGARAJAN T S   (Reg. No. 910611105060)

Guided By

S.MANOHARAN, ASSISTANT PROFESSOR (Sr.Gr) /EEE

ABSTRACT:

This project presents voltage sag mitigation and power quality improvement strategies of electronically interfaced distributed generation (DG) units. Distributed Generation (DG) is predicted to play an important role in the electric power system. In order to gain the benefits of interconnected operation of micro turbine generation system (MTG) with the utility network, their effective modeling and performance analysis are required. This project presents the recent research efforts in accurate modeling of MTG System and the investigation on power quality improvement particularly in voltage sag mitigation.

Title of the project

OPTIMAL LOCATION, COST CALCULATION AND VOLTAGE STABILITY IMPROVEMENT USING SVC, TCSC AND UPFC

Project Members

J.KAVITHA	**(Reg.No. 910611105049)**
K.K.NALINI	**(Reg.No. 910611105061)**
C.RADHINA	**(Reg.No. 910611105075)**

Guided By

Ms.C. MUTHAMIL SELVI, ASSISTANT PROFESSOR (Sr.Gr) /EEE

ABSTRACT:

This project is to improve the static voltage stability margin of the power system using three types of FACTS devices, Thyristor Controlled Series Compensator (TCSC), Static VAR Compensator (SVC) and Unified Power Flow Controller (UPFC) with the help of continuation power flow analysis. The voltages at various buses are calculated and weak bus is identified to locate above mentioned FACTS devices. The maximum loadability limits (λ) are analyzed before and after installation of FACTS devices in identified weak bus. IEEE 9 bus system has been considered as the test case for this analysis. The maximum loadablity limit of the given system with the UPFC installation is compared with SVC installation and TCSC installation. The best result is obtained with UPFC installation and the installation cost of SVC, TCSC and UPFC are calculated.

Title of the project

OPTIMAL ALLOCATION OF STATCOM FOR IMPROVING VOLTAGE STABILITY MARGIN USING DE ALGORITHM

Project Members

LOGAPRIYA G	**(Reg. No. 910611105055)**
POORNIMA DEVI T R	**(Reg. No. 910611105065)**
RAJALAXMI K	**(Reg. No. 910611105076)**

Guided By

Ms.C. MUTHAMIL SELVI, ASSISTANT PROFESSOR (Sr.Gr) /EEE

ABSTRACT:

This project is to improve the voltage stability margin of the power system with the help of DE algorithm. The voltages at various buses and voltage angles are calculated and weak bus is identified to locate STATCOM. IEEE 6 bus system has been considered as the test case for this analysis. STATCOM is located in the identified weak bus and improved loadability limit may obtained as compare to the before location of STATCOM using DE. The result may compared with the conventional CPF. Best result obtained using DE.

Title of the project

      IMPLEMENTATION OF DVR FOR COMPENSATION OF VOLTAGE SAG

Project Members

        A.SARATHA   **(Reg. No. 910611105089)**

        P.SHARMILA   **(Reg. No. 910611105094)**

        S.SOUMIKA   **(Reg. No. 910611105096)**

        N.SRILEKHA   **(Reg. No. 910611105098)**

Guided By

      Mrs. M.GANESH KUMARI, ASSISTANT PROFESSOR (Sr.Gr.)/EEE

ABSTRACT:

      Power quality is one of the major concerns in present era. Voltage sag disturbances are the most common power quality problems in the distribution system. Dynamic Voltage Restorer (DVR) is normally employed as a solution for mitigation of voltage sag because of its lower cost, smaller size, and fast dynamic response to the disturbance. DVR is connected in series by using the injection transformer to inject the appropriate voltage to mitigate voltage sag and maintain the load voltage constant. This project presents the simulation analysis of a DVR and its hardware implementation for voltage sag compensation. In MATLAB Simulation, Voltage Sag Compensation was done by using single phase ac-ac converters without DC link energy storage elements and a new control procedure is proposed by generating PWM signal. In hardware implementation, single phase converter based on MOSFET is employed and firing pulse to the device was generated by PIC micro controller. Here the Choke acts as an inductive load. The experimental and simulation results verify the capabilities of the proposed topologies in compensation of voltage sag.

Title of the project

POWER QUALITY IMPROVEMENT USING DISTRIBUTION STATIC COMPENSATOR

Project Members

SATHYABAMA R   (Reg. No.910611105091)

SOWMYA PREETHI M   (Reg. No.910611105097)

VICKNESHWARI V   (Reg. No.910611105107)

Guided By

Mrs. M.GANESH KUMARI, ASSISTANT PROFESSOR (Sr.Gr.)/EEE

ABSTRACT:

Voltage sag is becoming one of the most significant power quality problems as a result of increasing complexity in the power system. If the voltage sags exceed two to three cycles, then manufacturing systems making use of sensitive electronic equipments are likely to be affected leading to major problems. This project tends to look at solving the sag problems by using the custom power device Distribution Static Compensator (DSTATCOM). This proposed scheme implements a new algorithm to generate reference voltage for a Distribution Static Compensator (DSTATCOM) which operates in voltage-control mode. The compensator injects lower currents to reduce the losses in the feeder and voltage-source inverter. Further, a saving in the specification rating of DSTATCOM is achieved which reduces the cost and increases its capacity to mitigate voltage sag. Nearly UPF is maintained, while regulating voltage at the load terminal, during load change. The state space model of DSTATCOM is incorporated with the deadbeat predictive controller using MATLAB/SIMULINK software for fast load voltage regulation during voltage disturbances. With these features, this scheme allows DSTATCOM to tackle power quality issues by providing power factor correction and voltage regulation based on the load requirement.

Title of the project

A CASCADED ASYMMETRIC MULTILEVEL INVERTER WITH MINIMUM NUMBER OF SWITCHES

Project Members

KARTHICK NIVAS S	**(Reg. No. 910611105045)**
KULANDAISAMY B	**(Reg. No. 910611105051)**
VADIVEL M	**(Reg. No. 910611105316))**

Guided By

Mr. M.JEYAMURUGAN, ASSISTANT PROFESSOR (Sr. Gr)/EEE

ABSTRACT:

The non-sinusoidal output, high switching stress, more number of switches and high total harmonic distortion are the major problems of conventional inverters. Thus multilevel inverters are employed for high voltage and high power application, because of increased number of voltage levels with fewer harmonic. In this project, a cascaded asymmetric multilevel inverter with minimum number of switches is proposed. The proposed multilevel inverter uses 10 switches for 25 output levels. The simulation of Single phase five level and Twenty Five level Multilevel Inverter is done in MATLAB. The Single phase 25 level was analyzed by connecting with an Induction Motor. The speed characteristics of Single phase Induction Motor is simulated. The FFT analysis is carried out for Five level Inverter and Twenty Five level Inverter, the outputs are compared.

Title of the project

LEVEL MODULE APPROACH FOR HARMONIC REDUCTION IN FIFTEEN LEVEL H BRIDGE INVERTER

Project Members

PRAKASH K	**(Reg. No.910611105067)**
PREM ANAND R	**(Reg. No. 910611105072)**
SUBBIAH P	**(Reg. No. 910611105315)**

Guided By

Mr. M.JEYAMURUGAN, ASSISTANT PROFESSOR (Sr. Gr)/EEE

ABSTRACT:

Applications of multilevel inverter for high power equipment in industry have become popular because of its high-quality output waveform. In this project, a single phase 15 level multilevel inverter is proposed with reduced number of switches. Here a new multilevel scheme having level module and H-bridge is used. The same approach was further implemented for three phase fifteen level multilevel scheme. The three phase 15 level was analyzed by connecting with an Induction motor. The simulation of single phase and three phase fifteen level inverter is done in MATLAB. The speed characteristics of three phase induction motor are simulated. The FFT analysis is carried out for three phase five level inverter and fifteen level inverter, the output are compared.

Title of the project

OPTIMAL POWER FLOW USING HYBRID TEACHING LEARNING BASED OPTIMIZATION ALGORITHM

Project Members

JOSALIN JEMIMA.J	**(Reg. No. 910611105043)**
JURIYA BANU.H	**(Reg. No. 910611105044)**
KIRITHIKA.S	**(Reg. No. 910611105050)**

Guided By

Mrs. K.R.JEYAVELUMANI, ASSISTANT PROFESSOR /EEE

ABSTRACT:

The flow of electric power in an interconnection system is known as power flow. Optimal Power Flow (OPF) refers to load flow that gives maximum system security by minimizing the overload. The main objective of OPF is to reduce the total cost of active power generation and to determine the loss and meet the total demand. Teaching Learning Based Optimization is a rising star among meta heuristic techniques with highly competitive performances. This technique is based on the influence of teachers on learners. This algorithm is a population-based method and uses a population of solutions to obtain the global solution. The population is considered as the group of learners or a class of learners. In this project, the Teaching Learning Based Optimization technique along with cross over property of Genetic algorithm is used to solve the optimal power flow problem. The obtained results indicate that the Teaching Learning Based Optimization provides effective and robust high quality solution when solving the optimal power flow problem with different complexities.

Title of the project

A SINGLE PHASE BRIDGELESS INTERLEAVED BOOST CONVERTER FOR PHEV USING AVR

Project Members

ANANDHAKUMAR.N	**(Reg. No. 910611105005)**
AVINASH BABU.V.T	**(Reg. No. 910611105014)**
IBRAHIM. R.S.M.A	**(Reg. No.910611105039)**
PANDEESWARAN.P	**(Reg. No.910611105309)**

Guided By

Mr. M. BALAMURUGAN, ASSISTANT PROFESSOR /EEE

ABSTRACT:

The proposed work is a new front end ac–dc bridgeless interleaved boost converter topology for level II plug-in hybrid electric vehicle (PHEV) battery charging. The topology can achieve high efficiency, which is critical for minimizing the charger size, PHEV charging time and the amount and cost of electricity drawn from the utility. An AVR processor is used to generate PWM signals to the power switches. This converter retains the same semiconductor device count as the interleaved boost PFC converter. In comparison, it requires two additional MOSFETs and two fast diodes in place of four slow diodes used in the input bridge of the interleaved boost PFC converter. The prototype for the bridgeless interleaved boost converter to be developed and verified using digital storage oscilloscope.

A detailed analytical model for these topologies is developed, enabling the calculation of power losses and efficiency. Experimental results of several prototype boost converter converting universal AC input voltage to 400 V DC at 3.4 kW are given to verify the proof of concept, and analytical work reported in this thesis. The results show a power factor greater than 0.99 from 750 W to 3.4 kW, THD less than 5% from half load to full load and a peak efficiency of 98.94 % at 265 V input and 1200 W load.

Title of the project

HARDWARE IMPLEMENTATION OF DYNAMIC VOLTAGE RESTORER FOR POWER QUALITY IMPROVEMENT

Project Members

PRASANTH A J	**(Reg.No.910611105069)**
PRAVEENKUMAR M	**(Reg.No.910611105070)**
BALASUBRAMANIAN B	**(Reg.No.910611105303)**

Guided By

Mr. P.K. ARUN KUMAR, ASSISTANT PROFESSOR /EEE

ABSTRACT:

Quality of the output power delivered from the utilities has become a major Concern of the modern industries for the last decade. These power quality associated problems are voltage sag, swell, flicker, voltage imbalance, interruptions and harmonic problems. These power quality issues may cause problems to the industries due to malfunctioning of equipment's and leads to complete plant shut down. It has been identified that power quality can be degraded due to both utility Side abnormalities as well as the customer side abnormalities. To overcome the problems caused by customer side abnormalities so called custom power devices are connected closer to the load end. One such reliable customer power device used to address the voltage sag, swell problem is the Dynamic Voltage Restorer (DVR). It is a series connected custom power device, which is considered to be a cost effective alternative when compared with other commercially available voltage sag compensation devices. The main function of the DVR is to monitor the load voltage wave form constantly and if any sag or surge occurs, the balance (or excess) voltage is injected to (or absorbed from) the load voltage. To achieve the above functionality a critical (compensation) voltage waveform has to be created which is similar in magnitude and phase angle to that of the supply voltage. And then can detect by comparing the reference and the actual voltage waveforms. Thus we designed and implementation a 1 KVA DVR prototype and that can be tested under various sag and swell power quality problem.

Title of the project

A NOVEL SINGLE STAGE BOOST INVERTER FORPHOTOVOLTAIC APPLICATION

Project Members

BABU.R	**(Reg. No. 910611105016)**
ESWAR.K.G	**(Reg. No. 910611105033)**
ARUN PRASANTH.S.P	**(Reg. No. 910611105008)**
AJAY PRASATH.T.B	**(Reg. No. 910611105003)**

Guided By

Mr. T.GOPU, ASSISTANT PROFESSOR /EEE

ABSTRACT:

A single-stage photovoltaic system based on a boost inverter has been proposed. The single-stage system is able to minimize the problems with the two-stage power conditioning system. The objective of this work is to propose and report full experimental results of a single-phase photovoltaic system using a single energy conversion stage only. The single energy conversion stage includes both boosting and inversion functions and provides high power conversion efficiency, reduced converter size, and low cost. The boost inverter consists of two bidirectional boost converters and their outputs are connected in series. It can be observed that the output voltage V_o contains only the ac component.

Title of the project

REACTIVE POWER DISPATCH USING HARMONY SEARCH ALGORITHM

Project Members

ABIRAMI.G	**(Reg.No.910611105002)**
BABY UTHRA.M	**(Reg.No.910611105017)**
HEMAPRIYA.S	**(Reg.No.910611105038)**

Guided By

Mrs.J.MERLIN, ASSISTANT PROFESSOR /EEE

ABSTRACT:

Electric power is currently undergoing revolution in both industry and technology restructuring. As a consequence the optimization problem becomes vital. This work presents harmony search based optimal reactive power dispatch for real power loss in power system. The objective of this project is to minimize real power loss subjected to limits on generator real and reactive power outputs, bus voltages, transformer taps and shunt power compensated capacitors. It will introduce what harmony search is and represent the mathematical expression of optimal reactive power dispatch at first. This problem is formulated as a mixed integer nonlinear optimization problem. The algorithm has been tested on standard IEEE 30-bus system to find the optimal control variables. The result obtained shows that the harmony search algorithm is effective

Title of the project

AN ISOLATED CUK CONVERTER BASED BIDIRECTIONAL DC-DC CONVERTER FOR MICROGRID APPLICATION

Project Members

DEEPIKA.M	**(Reg.No.910611105027)**
DHARANI.G	**(Reg.No.910611105028)**

Guided By

Mrs.J.MERLIN, ASSISTANT PROFESSOR /EEE

ABSTRACT:

In the era of distributed generation, Renewable energy is widely used for power generation. The incorporation of the renewable energy is limited in many ways by the variable and intermittent nature of its output. Hence energy storage systems have been used to buffer the source variations. A bidirectional dc-dc converter is generally needed to actively control the power flow between energy storage and the dc bus in residential micro grid applications. In this project a new dc-dc converter topology has been proposed for residential micro grid. The proposed dc-dc converter has low number of switches compared to the converters usually applied to similar application, high power operations, high usage of stored energy in battery, long battery life time, low input and output current ripples, high voltage ratio. The simulations for both charging and discharging of storage system are carried out in MATLAB/SIMULINK environment using Sim Power Systems toolbox.

Title of the project

BRIDGELESS LUO CONVERTER FED BLDC MOTOR DRIVE FOR POWER FACTOR CORRECTION

Project Members

P.DIWAN MOHIDEEN ASHIK	**(Reg. No. 910611105032)**
M.ARJUN	**(Reg. No. 910611105301)**
M.KRISHNA PRABU	**(Reg. No. 910611105307)**
N.S.CHATUR BHUSAN	**(Reg. No. 910611105701)**

Guided By

Mr. R.JEYAPANDIPRATHAP, ASSISTANT PROFESSOR/EEE

ABSTRACT:

A single voltage sensor is used for the speed control of BLDC motor and PFC at AC mains. The voltage follower control is used for a BL-LUO converter operating in discontinuous inductor current mode (DICM). The speed of the BLDC motor is controlled by an approach of variable DC link voltage, which allows a low frequency switching of voltage source inverter (VSI) for electronic commutation of BLDC motor; thus offers reduced switching losses. The proposed BLDC motor drive is designed to operate over a wide range of speed control with an improved power quality at AC mains. The power quality indices thus obtained are under the recommended limits of IEC 61000-3-2. The performance of the proposed drive is validated with test results obtained on a developed prototype of the drive.

Title of the Project

MAXIMUM POWER POINT TRACKING BY USING FUZZY-LOGIC-CONTROLLER-BASED SEPIC CONVERTER

Project Members

M J RAMPRAKASH   (Reg. No. 910611105311)

S SHANMUGANARAYANAN   (Reg. No. 910611105314)

M J VIJAYAKUMAR   (Reg. No. 910611105319)

Guided By

Mr. R. JEYAPANDIPRATHAP, ASSISANT PROFESSOR/EEE

ABSTRACT

The main aim of this project is a fuzzy logic controller as a maximum power point tracker employing single-ended primary inductor (SEPIC) converter. The new controller improves perturb and observe search method with rules to fuzzify and eliminate its drawbacks. The performance of the proposed maximum power point tracker is demonstrated in both simulation at different operating conditions. This paper presents a FLC-based SEPIC for MPPT operation of a photovoltaic (PV) system. The FLC proposed presents that the convergent distribution of the membership function offers faster response than the symmetrically distributed membership functions. The proposed scheme ensures optimal use of PV array and proves its efficacy in variable load conditions, unity, and lagging power factor at the inverter output (load) side. The performance of the converter is tested in simulation at different operating conditions. The performance of the proposed FLC-based MPPT operation of SEPIC converter is compared to that of the conventional proportional–integral (PI)-based SEPIC converter. The results show that the proposed FLC based MPPT scheme for SEPIC can accurately track the reference signal.

Title of the project

DESIGN OF CONTROLLERS FOR UNINTERRUPTED POWER SUPPLY

Project Members

SANTHANA KUMAR   M   (Reg.No.910611105086)

VIVEK SARATHI S S   (Reg.No.910611105116)

YUVARAJ V   (Reg.No.910611105118)

Guided By

Mr. S. RAJALINGAM, ASSISTANT PROFESSOR/EEE

ABSTRACT

This project is to implement the 'Design of Controller for uninterrupted power supply'. This controller is implemented by using relays that are controlled by relay driver IC ULN2003 to select from the various available sources like solar, EB, inverter etc., for supplying continuous power, automatically. The relay driver is controlled by microcontroller (AT89S52/AT89C51). This operates as verifying the available sources and selects the optimum power source and gives control to relay through relay driver IC.

Four relays are connected to the different sources and on the other side uninterruptable load is connected. The output of the microcontroller is given to a relay-driver IC that switches appropriate relay to maintain continuity of power supply to the load.

LCD display is used to indicate the source which supplies power to load. A prototype is developed for 230V, 10W load as experimental set up. The output is verified for its operation. Also, this project can further be developed to connect the load to optimum available power supply regardless of number of available sources.

Title of the Project

SOLAR BASED WATER PUMP CONTROLLER FOR IRRIGATION SYSTEM

Project Members

MUGESH SUDHARSAN BABU P   (Reg. No. 910611105702)

VENGAIMARAN R   (Reg. No. 910611105105)

VIGNESH M   (Reg. No. 910611105109)

YOGESH T R   (Reg. No. 910611105117)

Guided By

Mr. S. RAJALINGAM, ASSISTANT PROFESSOR/EEE

ABSTRACT

India is an agricultural country and ranks second worldwide in farm output. At present, farmer manually irrigates land at regular interval. In this project, the presence of farmer is not necessary, the energy and the time of former can be utilized effectively by other ways as business etc. Solar based water pump controller system overcomes irrigation system problem. And   it also provide clean source of energy. Solar power is absolutely perfect for use with irrigation systems for garden, allotments, greenhouses, and polytonal. By adding a suitable deep-cycle leisure/marine battery, power can be made available 24 hours per day enabling watering in the evening the best time to water plants in the summer so that the water has a chance to soak into the ground ,Solar water pumping system operates on direct current. The output of solar power system varies throughout the day and with changes in weather conditions. Photovoltaic module, the power source for solar pumping, have no moving parts, requires no maintenance and last for decades. A properly designed solar pumping system will be efficient, simple and reliable. Solar based water pump controller system also reduces the Usage of grid power.

Title of the project

    REMOTE PLACED TRANSFORMER FAULT LOCATING USING GSM TECHNOLOGY

Project Members

       K.G.BALAJI   **(Reg. No.910611105018)**

       R.BHARATH   **(Reg. No.910611105023)**

       A.DEEPAN   **(Reg. No.910611105026)**

Guided By

    Mr. N.VIMAL RADHA VIGNESH, ASSISTANT PROFESSOR/EEE

ABSTRACT:

       This project is about design and implementation of a mobile embedded system to monitor and record key parameters of a distribution transformer like load currents, voltage and ambient temperature. The idea of on-line monitoring system integrates a global service mobile (GSM) Modem, with a standalone single chip microcontroller and different sensors. It is installed at the distribution transformer site and the above parameters are recorded using the analog to digital converter (ADC) of the embedded system. The obtained parameters are processed and recorded in the system memory. If any abnormality or an emergency situation occurs the system sends SMS (short message service) messages to the mobile phones containing information about the abnormality according to some predefined instructions programmed in the microcontroller. This mobile system will help the transformers to operate smoothly and identify problems before any catastrophic failure

Title of the project

ARDUINO BASED AUTONOMOUSLY STABILIZED SURVEILLANCE
QUAD-COPTER

Project Members

LALITH KUMAR D V   (Reg. No. 910611105054)

MANICKA RAJ N   (Reg. No. 910611105057)

MURALI KRISHNA R S   (Reg. No. 910611105059)

PREM KUMAR D   (Reg. No. 910611105073)

Guided By

Mr. N.VIMAL RADHA VIGNESH, ASSISTANT PROFESSOR /EEE

ABSTRACT:

The objective of our project is to build an Arduino based autonomously stabilized surveillance Quadcopter. Its purpose is to automatically stabilize the aircraft during flight and to monitor the area of flight using wireless camera.

In order to stabilize, the Quadcopter takes the signal from the three gyros on the Inertial measurement unit (IMU) board namely the roll, pitch and yaw signal and feeds the information into the Integrated Circuit (i.e. Arduino ATmega IC). Arduino processes the information according to the software and sends out a control signal to the Electronic Speed Controllers (ESCs) which are plugged onto the board and also connected to the motors.

Depending upon the signal from the IC the ESCs will either speed up or slow down the motors in order to establish level flight. The Arduino board takes a control signal from the Remote Control Receiver (RX) and feeds this into the IC via the aileron, elevator, throttle and rudder pins on the transmitter. After processing this information, the IC will then send out a signal to the motors (Via the motor pins on the Arduino board) to speed up or slow down to achieve controlled flight on the command from Transmitter (TX).

Title of the project

HOME AUTOMATION SYSTEM USING ARDUINO

Project Members

DIANA PREETHI T. (Reg.No.910611105030)

DHARANI G. (Reg.No.910611105029)

APARAJITHA N.R. (Reg.No.910611105006)

Guided By

Mr. A.MANOJ, ASSISTANT PROFESSOR /EEE

ABSTRACT:

Today we are living in 21st century where automation is playing important role in human life. Home automation allows us to control household appliances like light, door, fan, AC etc. It also provides home security and emergency system to be activated. Home automation not only refers to reduce human efforts but also energy efficiency and time saving. The main objective of home automation and security is to help handicapped and old aged people which will enable them to control home appliances and alert them in critical situations. Home appliances are connected to the ARDUINO and communication is established between the ARDUINO and Android mobile device or tablet. The home appliances are connected to the input/output ports of the ARDUINO board. The device with low cost and scalable to less modification to the core is much important.

Title of the project

AUTOMATIC WALL PAINTING ROBOT

Project Members

KARTHICK.O	**(Reg. No. 910611105046)**
KARTHIKEYAN.M	**(Reg. No. 910611105047)**
PRASANNA VENKATESH.S.D	**(Reg. No. 910611105068)**

Guided By

Mr. A.MANOJ, ASSISTANT PROFESSOR /EEE

ABSTRACT:

The primary aim of the project is to design, develop and implement Automatic Wall Painting Robot which helps to achieve low cost painting equipment. Despite the advances in robotics and its wide spreading applications, interior wall painting has shared little in research activities. The painting chemicals can cause hazards to the human painters such as eye and respiratory system problems. Also the nature of painting procedure that requires repeated work and hand rising makes it boring, time and effort consuming. When construction workers and robots are properly integrated in building tasks, the whole construction process can be better managed and savings in human labour and timing are obtained as a consequence. In addition, it would offer the opportunity to reduce or eliminate human exposure to difficult and hazardous environments, which would solve most of the problems connected with safety when many activities occur at the same time. These factors motivate the development of an automated robotic painting system.

Title of the Project

ARDUINO BASED MPPT SOLAR CHARGE CONTROLLER

Project Members

RAJAN E	**(Reg. No. 910611105077)**
RAMKISHORE V R K	**(Reg. No. 910611105080)**
PRAKASH K	**(Reg. No. 910611105310)**
VINOTH KUMAR S S	**(Reg. No. 910611105320)**

Guided By

Mr. R.C.HEMESH, ASSISTANT PROFESSOR /EEE

ABSTRACT:

In the recent years, the solar energy becomes one of the most important alternative sources of electric energy, so it is important to improve the efficiency and reliability of the photovoltaic (PV) systems. Maximum power point tracking (MPPT) plays an important role in photovoltaic power systems because it maximize the power output from a PV system for a given set of conditions, and therefore maximize their array efficiency.

This project work deals with the design of the solar charge controller rated at 50 Watts, by employing Maximum power point tracking (MPPT). A DC-DC Buck converter is designed to feed the load and the control of gate signals to the converter switches were given using Arduino package. The arduino is a single board microcontroller where hardware has a simple open source hardware board. A prototype model is designed in hardware and the results were taken. The experimental result validates the efficiency of the proposed work.

Title of the Project

POWER FACTOR CORRECTION USING LOW POWER CONVERTER

Project Members

NANMARAN P   (Reg. No. 910611105062)

PRAVINESH J D   (Reg. No. 910611105071)

RAJESH KUMAR   (Reg. No. 910611105078)

RAM KUMAR K   (Reg. No. 910611105079)

Guided By

Mr. R.C.HEMESH, ASSISTANT PROFESSOR /EEE

ABSTRACT:

In an electrical Power systems, a load with a low power factor draws more current than a load with a high power factor, for the same amount of useful power transferred. Linear loads with low power factor (induction motor) can be corrected with a passive network of capacitors or inductors. But Non-linear loads (rectifier) distort the current drawn from the system. So Active power factor correction method is followed. Here Boost converter topology is used to accomplish power factor correction using AVR Controller. This AVR works on the principle of Average Current Mode Control. Most appliances use a bridge rectifier associated to a huge bulk capacitor to derive raw D.C voltage from the utility A.C line. This technique results in a high harmonic content and in poor power factor ratios. Therefore active solutions are the most popular way to meet the legislation requirements.

Title of the Project

ENHANCEMENT OF STEADY STATE VOLTAGE STABILITY LIMIT BY USING GRAVITATIONAL SEARCH ALGORITHM

Project Members

    SRINIJANTHAN M S   **(Reg.No.910611105099)**

    SRINIVASAN C R   **(Reg.No.910611105100)**

    VIGNESHWARAN K   **(Reg.No.910611105318)**

Guided By

    Mr. S. P. RAJARAM, ASSISTANT PROFESSOR /EEE

ABSTRACT:

In competitive electricity market, transmission system needs to handle increased power transfers due to presence of large number of consumers. This increased volume of traffic causes network congestion in some of the transmission lines. If the congestion is not relieved, line outage may arise. In order to improve system loadability and remove network congestion, an improved gravitational search algorithm is proposed to increase the maximum transfer capability. Maximum Loadability Problem is seen as an optimization problem while the power factor of the load is assumed constant. Gravitational Search Algorithm (GSA) is a recent algorithm that has been inspired by the Newtonian's law of gravity and motion. In the proposed algorithm, the velocity of each agent is improved. If the agent's velocity is maximum, only then the optimum solution is obtained. All the solutions are contributing to select the best solution through mass determination of each agent. The maximum power loss of the system is used as a fitness function in GSA algorithm. Proposed algorithm is implemented on MATLAB platform using IEEE 14 bus test system. Viability of the proposed method is established and compared with the well-known technique Particle swarm optimization. From the test results that the proposed gravitational search algorithm approach converges to better solutions much greater than the PSO approach.