TITLE OF THE PROJECT

Railway Safety System

PROJECT MEMBERS

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GUIDED BY

Dr.J.Bastin Solai Nazaran

ABSTRACT

The train accidents are among the most serious disasters to human lives. The fire or railway track damage, etc may occur in any form of activities such as short circuit in the electrical wires, prohibited activities of carrying diesel, petrol, gas stoves and smoking nearby them will cause train accidents.

To overcome this, we propose a system of having an automatic sensor monitoring of gas sensor, fire sensor, laser sensor, and crack detector. In this project all sensors are fixed in train compartments. Gas sensor can detect combustion gases immediately and also temperature sensor detects any inflammable material or fire in trains. In case any fire accidence are happened this information is sent to the microcontroller, via wireless technology, and these all inner problems can be solved by output components like water pump, emergency motor, gap fill arrangement etc, This project will focus on the system will detect and control the accidents on running train The project is automatic detection by using sensors to detect the crack in railway tracks and fire accident avoidance, etc in trains.

TITLE OF THE PROJECT

Automatic Control Of Multiple Generators Using Arduino

PROJECT MEMBERS

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ABSTRACT-

If a power shutdown time automatically generator will switch ON according to the last power used. Arduino measures the signal from the CT coil. The generator is ON by arduino signal. If power generator shifts when the load increasing time. The gear motor is used in operate to the power panel contactor.

TITLE OF THE PROJECT

Autonomous Temperature Controlling Using Phase Controller In Tyre Industry

PROJECT MEMBERS

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ABSTRACT

This project is used in monitoring and controlling the temperature in bead winding process of tyre industry. Bead winding process is the first important step in tyre manufacturing.By this process tyre obtains rigid shape. In this process 2mm diameter is inserted into the tyre. During this process rod is maintained particular temperature. If there is fluctuation in temperature level then the rubber will not stick to the rod and this leads to wastage of rubber, rod, electricity and time.

The System can be divided into data acquisition part, controlling part and data sending part. The data acquisition part collects the present temperature of rod and amplifies it. The controlling part controls the voltage level and accordingly the temperatures is maintained. The data sending part sends the message to local supervisior about the fault.

TITLE OF THE PROJECT

Simulation of grid connected induction generators for power quality improvement

PROJECT MEMBERS

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ABSTRACT

The performance of wind power systems for two types of induction generators to have better performance and maximum extraction of power using FACTS devices. Doubly fed induction generator (DFIG) and squirrel- cage induction generator (SCIG) are the two types of generators classified. The FACTS devices used are STATCOM and UPFC

Direct grid integration, independent power control and droop phenomena of distribution line are the techniques used for two types of induction generators. All these systems are modeled and simulated in MATLAB/Simulink software.

In wind power systems the straight forward power conversion technique, direct grid integration methods are used for squirrel cage induction type generators which is of fixed speed application with low efficiency, control of power flow and requires reactive power compensator externally to prevent system from over load.

Doubly fed induction type of generator of improved power quality, high energy capturing efficiency is used for variable speed applications. DFIG has back to back converter with two bidirectional converters and DC link in between them for optimal operation tracking interface between grid and the generator.

TITLE OF THE PROJECT

Reducing electricity cost of appliances based on Time of utilisation (TOU)

PROJECT MEMBERS

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Abstract

As a critical step toward smart cities, it is essential to intelligently manage and coordinate the building operations to improve the efficiency and reliability of overall energy system. With the advent of smart meters and two-way communication systems, various energy consumptions from smart buildings can now be coordinated across the smart grid together with other energy loads and power plants. In this paper, we propose a comprehensive framework to integrate the operations of smart buildings into the energy scheduling of bulk power system through proactive building demand participation. This new scheme enables buildings to proactively express and communicate their energy consumption preferences to smart grid operators rather than passively receive and react to market signals and instructions such as time varying electricity prices. The proposed scheme is implemented in a simulation environment.

TITLE OF THE PROJECT

A module integrated Isolated solar micro inverter

PROJECT MEMBERS

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ABSTRACT

This paper presents a module-integrated isolated solar microinverter with pseudo-dc link. The studied grid-tied microinverters can individually extract the maximum solar power from each photovoltaic panel and transfer to the ac utility system. High conversion efficiency and high maximum power point tracking accuracy can be achieved with the studied pseudo-dc link topology. The operation principles and design considerations of the studied solar inverter are analyzed and discussed. A laboratory prototype is implemented and tested to verify its feasibility. Index Terms—Maximum power point tracking (MPPT), module-integrated isolated solar microinverter, pseudo-dc link.

A solar micro inverter or simply micro inverter is a device used in photovoltaic's that converts DC generated by a single solar module to AC.The output from micro-inverter is combined and often fed to the electrical grid.Micro inverter contrast with conventional string and central solar inverters, which are connected to multiple solar modules or panels of the pv system

The objective of this paper to design of a low powered portable and cost effective solar micro inverter.The solar panel is able to run the AC and DC loads, the system consists of a solar panel, DC-AC inverter, LC filters, and the test loads.High conversion efficiency and high maximum power point tracking

accuracy can be achieved with the studied pseudo-dc link

TITLE OF THE PROJECT

Design And Development Of Wireless Networked Electricity Pole Multifault Monitoring System

PROJECT MEMBERS

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ABSTRACT

A newly formulated fault detection system for electrical pole components is designed, developed and described in this work. The aim of designing and developing fault detection system is to provide an immediate and effective solution when any part of the electrical system of a utility pole component is detected faulty. To solve the problem addressed, proposed system is integrated with the fault detection system, network communication system and global service mobile (GSM) communication to establish a completion methodology for the proposed system. In this proposed system, a new formalized system integrating a smart microcontroller which is able to process various deviation signals from the fault sensing circuitry to quickly manage the fault and minimize the outage time for maintenance. So whenever a fault is likely to occur , it is easily identified and cleared by using GSM.

TITLE OF THE PROJECT

Water harvesting from atmospheric air

PROJECT MEMBERS

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ABSTRACT

World desperately needs an alternative “water cultivation” method and producing water from air is one of the most viable and sound solutions presented as the world’s fresh water needs increase daily. Atmospheric water generator is a device that can convert atmospheric moisture directly into usable drinking water. Water Maker extracts pure, safe drinking water straight from the air. Our atmospheric water generators (AWGs) are perfect for water stressed or water contaminated areas. They provide a decentralized, local source of clean potable water without any connection to pipes or catch basins. All they require is electricity or an alternate source of power to extract, condense, purify and dispense crystal - clear fresh drinking water. Water Makers are being used in many countries today as a source of alternate water. This paper presents a method to reduce water scarcirty and also provide “sustainable clean drinking water from fresh air”.

TITLE OF THE PROJECT

Power automation using open source Electronics

PROJECT MEMBERS

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ABSTRACT

The technology of power monitoring and controlling has gone through rapid technological advancements and there is increased demand for a reliable and efficient. This paper involves automated power monitoring system, data logging and GSM based controlling of Industries/Institution in real time. It utilizes the ESP-8266 Microcontroller board intended for use in conjunction with ULN2803. For monitoring these through the current and voltage sensor circuit. The measured data are being logged in SD card and also updated in website for monitoring. The various utilities used in Industries/Institution is controlled using Mobile Application . As such it will display in real-time, the consumed average power in watt along with its price. This will serve as an assessment parameter in order to measure the acceptability, performance relative to functionality and marketability of the accomplished technology.

TITLE OF THE PROJECT

Design of a Step – Up Nine Level Inverter for Low Voltage Input Applications

PROJECT MEMBERS

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ABSTRACT

Abstract
In this project the proposed topology provides a nine level of stepped pattern without addition of numerous components compared with step-up fivelevel inverter. The construction of the inverter is designed from a simple five level configuration, which can be further extended. The proposed nine level configurations are added to the dc –dc converter topology to switch the nine level patterns. The operation control of the nine level inverter with the converter topology is discussed in this chapter. In addition, the comparison with existing topologies of single phase five-level inverters is presented. Finally,experimental results validate the performance of the proposed topology.

Index Terms—multilevel inverter, switchdiode- capacitor cell, step-up, single phase, H-Bridge topology.

TITLE OF THE PROJECT

Power Quality Improvement In Energy System Using D-Statcom

PROJECT MEMBERS

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ABSTRACT

Power quality can be defined as any power quality problems manifested in voltage, current and frequency those results in failure or mal-operation of customer equipment. Injection of wind power into an electric grid affects the power quality. The work analyses the performance of Static Compensator (DSTATCOM) with a wind energy generating system at the point of common coupling to mitigate the power quality issues. In this work, D-STATCOM voltage source inverter (PWM-VSI) is connected between diesel generator and load which compensates harmonics in the AC grid. Implementation of the harmonics compensation by using D-STATCOM in the hybrid distribution system is used to attain the voltage stability. Here, Fuzzy logic algorithm with hysteresis loss current control method is used for harmonic reduction using D-STATCOM. The objective of this work is to show that with an adequate control, the converter not only can transfer the DC from hybrid solar wind energy system, but also can improve the power factor and quality power of electrical system. Here two control schemes for DSTATCOM are Fuzzy logic controller and hybrid Fuzzy logic controller. We can better response for hybrid fuzzy compare to fuzzy logic controller. The STATCOM control scheme for the grid connected wind energy generation system for power quality improvement is simulated using MATLAB/SIMULINK.

TITLE OF THE PROJECT

Economic Investigation of deployment of DC power and appliances along with solar in our college buildings and laboratories

PROJECT MEMBERS

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ABSTRACT

Developing country like India needs cost effective solution to meet the rising demand with environmental friendly power generation. Current power generation scenario of India is presented in this paper along with alternative resources available for fossil fuel free generation. As the potential of solar is high in India and end equipment usage also in DC, makes the DC microgrid more advantageous over AC microgrid at the low voltage end. In addition to this, fewer conversion stages in the DC grid makes substantial loss reduction in comparison to AC grid. Modified DC configurations are proposed along with their potentials in India.An example of powering 50W DC load through DC grid for laboratory application is presented

TITLE OF THE PROJECT

Maximum Power Point Tracking Using Artificial Neural Network for DC Loads

PROJECT MEMBERS

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ABSTRACT

Fossil fuels' rapid depletion and need to protect the environment has left us to think upon alternatives and solutions to curb the excess use of conventional sources and shift focus on the renewable energy. Solar energy helps in reducing green houses gases. PV technique used to collect the rays from sunlight and it is directly converted into electricity. To collect the maximum power PV panel with MPPT technique is used at all weather conditions. ANN is used to maintain the voltage constant. Therefore overall efficiency increased to about 10%. In this paper we have designed a prototype model inclusive of techniques that support the need to harness the solar energy.

Simulation results shows that the proposed artificial neural network maximum power point tracking method gives faster response than the conventional perturb and observe method under rapid variation of operation condition.

TITLE OF THE PROJECT

Power Saving Techniques For an Institution

PROJECT MEMBERS

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ABSTRACT

An energy audit is a study of a plant or facility to determine how and where energy is used and to identify methods for energy savings. There is now a universal recognition of the fact that new technologies and much greater use of some that already exist provide the most hopeful prospects for the future. The opportunities lie in the use of existing renewable energy technologies, greater efforts at energy efficiency and the dissemination of these technologies and options.

Energy auditing has been consumed to K.L.N.College of information Technology to estimate the energy consumed in a day, week and month. The energy auditing for a day is the index of consumption which normalizes the situation of energy crisis by providing the conservation schemes. Any organization so called bulk consumer of electrical energy proposes to adopt suitable technology or scheme of energy conservation to minimize the unwanted power shutdown either incidentally or by load shedding. Energy auditing has been a part and parcel of every consumer of any form of which energy is exhaustible and inexhaustible in nature. Now being literate people energy usage without bothering its existence further is most important. Energy auditing is a tool through which balancing of demand and supply is determined. In this we have implemented an idea of controlling the A.C load with the operation of computer system. In this idea we had made a condition that when five system is in running condition the A.C load want to be perform.

KEYWORDS: Energy Audit, USB, Transistor.

TITLE OF THE PROJECT

Robot To Rescue Children From Borewell

PROJECT MEMBERS

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ABSTRACT

The aim of this project is to give an innovative concept to handle the bore well rescue operations. Nowadays child often falls down in the borehole which is left uncovered and gets trapped. It is difficult and also risky to rescue the trapped children to aid in such rescue we proposed a system of designing robots to the rescue of a child in a borehole. The robot structure consists of power supply, switch pad, gear motors, Oxygen concentrator, camera and Microcontroller. The condition of trapped child is captured with CCTV camera and monitored on a TV. A safety balloon is introduced in order to provide extra safety. Once the lifting rod reaches a safe position under the child, an air compressor is operated to pump air to the bladder attached to the end of the lifting rod through an air tube that runs downwards inside the lifting rod. The bladder provides a safe seating to the child. When the child is secure, the lifting rod is contracted to its maximum position. The motor is then reversely operated so as to unclamp the system. Simultaneously, it is lifted out of the well using a chain or rope. This robot type machine can rescue trapped body from the bore well in a minimum amount of time and safety.