People counter based automatic switching and energy management

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Name of Guide: Ms. Shilpa Shinde

Abstract

The shortage of electricity has been one of the critical issue over last decade. This has evolved need of energy conservation as well as renewable energy generation. The project deals with combination of both. We are designing energy conservation solution to light load. Our aim is to make energy efficient solutions which will be cost effective tool. In effort of reducing energy consumption and giving the solution we are designing people counter based entry exist counter to operate automatic switching of electrical loads. The counter circuit will count the number of students entering and leaving the room and accordingly sufficient lights will be turned on. The proposed system is demonstrated for class-room.

Power efficient elevator control

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Abstract

With the rapid development of city construction, the emergence of high rise buildings and the expansion of building area, the use of elevators has become more important, and the quality of elevators service is required higher and higher. Therefore the large scaled buildings are provided with a plurality of elevators so as to meet the transportations needs. And elevator is a device designed as a convenience appliance that has evolved to become an unavoidable feature of modern day urban life. And elevator is defined as, “A machine that carries people or goods up and down to different levels in a building or mine.” Elevator controller is an elementary system consisting of elevators serving 3 floors. The floors have call buttons to call for the service of the elevator system. The following principles have been applied during the design of the elevators controllers. The floors are defined as first floor and second etc. a control strategy has been implemented that would priorities duplex elevators orders, i.e. calls made from inside the elevators, remember calls and collect passengers that are on route was the most efficient. Both in terms of low energy consumption and passenger satisfaction (low transit and waiting time).

Automatic drilling machine with depth controllability

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Abstract

This project work is a taken up to exposes the technology of special purpose drilling machine. It is quiet difficult task to estimate and to drill the hole of accurate depth special in case of three modes using ordinary drilling machines like handhead drilling machines, obtained job will be the failed due to the over drilling. Hence an automatic drilling machine that performs the function of drilling according to drilling depth generated and forwarded to the control circuit is essential. The machine will be constructed with power feed technology aim to drill the job up to certain specified depth. The depth control mechanism coupled to drilling motor uses a keypad interfaced with aurdino board which can be programmed to drill up to the desired depth. Depth control mechanism involves drilling motor coupled through gears with power feed motors, i.e. stepper motor. It's a mechanical movements are restricted by programming the drilling depth through potentiometers interfaced with aurdino.

Regenerative breaking of solar car

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Abstract

The general mode of transportation for local trip is a solar car with regenerative braking. Motorcycles are not affordable to poor people and with the rising fuel prices and pollutions. It does not seem a suitable option. India is spending large amount of foreign exchange to import crude oil or even though we have abundant resource of solar energy. If we utilize solar power for local convenience, a large amount of currency can be saved and we can also ensure pollution free environment and contribute to nation economy.

The solar car with regeneration system is a system projects that in corporate three different ways of charging lithium iron battery, 230V ac wall outlet.Regenerative braking and solar station which is used to power and electric BLDC hub motor running a solar car. The purpose of the project is to show that it is a possible and relatively simple, to build and solar car by oneself. This project can be broken down into two separate categories. The electronic components selection like the battery, motor and motor controller. The hope is that this design can become very efficient as well as cost effective and one day mass-produced, especially in developing countries where automatic transportation is an impossibility.

Automatic power tripping during gas leakage detection

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Abstract

Gas leakages resulting into fatal inferno has become a serious problem in household and other areas where household gas is handled and used. Gas leakage leads to various accidents resulting in financial loss as well as human injuries and or loss. The work aims at design a wireless system that detects gas leakage and alert the subscriber through alarm, status displaying and sending sms to the emergency numbers provided to it through GSM beside relay will trip of the power supply as a primary safety measure. This work will minimize injuries or losses occasioned by explosions due to gas leakages and improve safety of life and property.

Speed control of single phase induction motor using cycloconverter

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Abstract

This method is used to control the speed of induction motor. The speed control by this method is simple and can be made economical by using different methods to control the operation of cycloconverter which in turn controls the performance of motor. The formula for speed of induction motor is Ns = 120f/P. from this formula we can conclude that speed of the motor can be varied by either controlling frequency or number of poles.

In this method the frequency changing device is a cycloconverter. A cycloconverter is a power electronic device used to convert constant voltage constant frequency ac power to adjustable voltage adjustable frequency ac power without a dc link. In among all the methods this method is simple, reliable and economical.

LED based academic purpose projector

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Abstract

In India need of projector is very high. It is not that much easy to explain concept of any company product in detail so by using projectors we can give presentation of that concept it is easy to understand and less time consuming also.

Our main aim of project is to made a low cost projector. Instead of halogen lamp we have used LED lamp for main light source. Cost of LED is less than halogen lamp and also power consumption is less. Using three regulator circuits that are voltage, ic-78s05 regulator, LED regulator and LCD regulator which control the voltage coming from input and give required voltage to that particular device. Main controller device are LM350 which is adjustable positive voltage regulator and IC 78s12. There are three types of mains are used for different purpose, i.e. condenser lens is used to focus the light like as head light of car. Fresnel lens for uniform illumination and third lens is magnifying lens which is used to adjust the size of print which is display on wall.

Accident prevention by using eye blink sensor

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Abstract

Minimum 44% car accidents in India are due to drowsy condition of driver. This project propose a system to detect eye blinks of person driving vehicle in which movements of eye blinks of driver will be detected with the help of eye blink sensors and if the eye lids remains in close condition for more than 5 seconds then it will give alarm to wake up the driver and simultaneously through GSM model message will be forwarded to stored mobile numbers in the system.

It will detect blinking rate of eye and detected data from the sensors to the is to the microcontroller. If the eye is closed means the output of sensor is high to microcontroller input. Otherwise the sensor output is low. This to know the eye is closing or opening position will display on the LCD if the output of receiver is high more than 5 seconds. This output is given to the microcontroller 80s51 to indicate the alarm.

Energy consumption meter using IoT technology

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Abstract

A smart, integrated power consumption monitoring system has been implemented with the use of open standard technology, commercial project and household items which actively monitors the voltage and current ratio in remote system. The main target of this system is design and implement cost efficient technology. The system allows for a user to view the consumption of the energy by the load at remote place anywhere in the world. The power consumption monitoring system is done by using ATMEGA328 controller which senses the parameters like pulses, units and cost and that parameters are displayed on LCD.

Automatic Power Factor compensation

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Name of Guide: Mr. Abhishek Shivalkar

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Abstract

Now a days the life cost more getting higher and higher. People more consider every dollar that they spend in their daily life. The price of gasoline more getting higher every year, this also makes the life cost of each family increase. The price of Electricity also increases because of the increased gasoline price. There are two methods to save the Electricity usage. The first one is using the Electricity energy with smart for example when the air conditioner is in not used, it should turned off. The second is using the power factor correction technique, but this method just for inductive load such as air conditioner, washing machine and refrigerator. The inductive load running cause the lagging power factor. To overcome this problem the reactive component is added, the capacitor is added to improve the power factor which also reduces the current that transports to the inductive load. The microcontroller is used as a control element that switching the capacitor to the power line. The sensor is placed at the power line to giving those signals to the microcontroller, microcontroller analyze the signal that filled from the sensor. Microcontroller executes the instruction depend upon the signal that given.

RF based remote controlled Electrical home appliances

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Abstract

The work presented here is to control independent home Electrical appliances through RF based remote system. From any place without any line of sight around the house, RF based wireless remote control system can change the state of the Electrical appliances either in ON state or OFF state.

The four different channels at the encoder are used as input switches and the four channels at the decoders output are connected to the appliances through a relay. Here the transmission technique is amplitude shift keying and the circuit is powered with 9 volts. The main objective of this work is to built the circuit without any programming skill and to make it work without line of sight requirement using the RF technology.

Induction motor protection

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Abstract

The main concept of this project is to develop an induction motor protection system for protecting the motors from any damages occurring from overcurrent and overvoltages. The induction motors are predominant in industrial applications. Thus this project helps to provide protection to the industrial motors if the voltage and current of the motor exceeds the threshold value. The proposed system uses three phase power supply where in three single phase transformers are connected to it. The system has a set of current sensing unit and voltage sensing unit for sensing input voltage and current. The motor is operated by switching the relay by sensing overvoltage, over current conditions.

Design and analysis of Portable solar grass cutter

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Mr. Amit Sudam Satle Mr. Kiran Dattaram Shivankar

Name of Guide: Mr. Santoshkumar Hunachal

Abstract

From time immemorial, the sun has been the major source of energy for life on earth. The solar energy was being used directly for purposes like drying clothes, curing agricultural produce, preserving food articles, etc. Even today, the energy we originate from fuel wood, petroleum, paraffin, hydroelectricity and even our food originates obliquely from sun. Solar energy is almost unbounded. The total energy we obtain the sun far exceeds our energy demands.

Ever since the industrial revolutions human have to dependent on fuels, electricity and wind energy. For human enlargement in many countries there is study and trials area going on the solar energy and the wind energy, so we make our new concept solar powered grass cutting machine in these concept we cut grass on the agricultural products or on small plants in lawns and gardens. Remote controlled grass cutter can be described as the application of radio frequency to power a machine on which electric motor rotates which in turn rotates a blade which does the moving grass.

Ultra fast acting electronic circuit breaker

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Abstract

The rapidly increasing population has more requirement and consumption of electric power in the market as raised and uses sensitive equipments like electrical electronics are also costlier. So to protect the sensitive that is costlier equipments from abnormal conditions such as over and under voltage, overload or short circuit here is one possibility which is by ultra fast acting electronic circuit breaker use relay. A circuit breaker relay is operated switch to design to shut down the power supply when supply system voltage and current get disturbed. The tripping depends on current passing through CTs which is connected in series with load. It uses the 89S51microcontroller into which programmed is dumped for operation.

Relays are an electrical switch. Generally it operates on electromagnet principle for switching action. Over current (OC) is type of relay which performs its switching action based on input current to it. When the input current exceeds a particular pickup value the relay operates.

Microcontroller based circuit breaker relays are gaining popularity due to absence of mechanical contacts and operating at very high speed.

The unit is extremely fast and overcome the drawback of thermal type circuit breakers. like MCB based on thermal bimetal leber-trip mechanism which is very slow.

Power quality enhancement by using SVC

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Abstract

An active power factor corrector (active PFC) is a power electronic device that controls the amount of reactive power drawn by a load in order to obtain a power factor as close as possible to unity. In order to reduce the power losses and to improve the stability the stability and transmission efficiency of transmission and distribution lines, power factor correction research has become a hot topic. Many control methods for passive and active PFC were proposed. This project design and development of a single phase thyristor based Static VAR compensator for reactive power compensation and power factor correction using PIC(Programmable Interface Circuit) micro controlling chip. The PIC controller determines the firing pulses for the thyristor to compensate excessive reactive components, thus withdraw PF near to unity. The investigations were also carried out by using FC TCR to check the power factor improvement with conventional capacitor bank. The PIC controller determines firing pulse of SCR to compensate excessive reactive power component for PF improvement. In order to ensure most favorable conditions for a supply system from engineering and economical standpoint, it is important to have power factor as close to unity as possible.