AAVARTAN'19

VIGYAAN PROBLEM STATEMENTS

(Department Of Electrical Engineering)

1. Electric Vehicle Charging Station

Electric vehicle charging stations supply electricity to charge the battery of electric vehicle. Public charging stations, private charging stations, and home based charging stations are the common types of electric car charge stations.

1. Prototype of fast charging station for an electric car

2. Energy management for Vehicle grid integrated electric vehicle

3. Automatic billing system for electric vehicle charging

4. Peak demand management using electric vehicle

5. Over current protection for electric car charging stations.

2. Utilizing Solar Energy

Solar power is arguably the cleanest, most reliable form of renewable energy available, and it can be used in several forms to help power your home or business. Solar-powered photovoltaic (PV) panels convert the sun's rays into electricity by exciting electrons in silicon cells using the photons of light from the sun. Photovoltaic panel is fitted in the machine so that it reduces the transmission cost. To build a small scale machine that runs on the electricity by converting solar energy into electrical energy.

3. Transmission of Electricity

Electric power transmission is the transmitting of electricity to places where it will be used. Specifically, it is the bulk transfer of electrical power from the power plant to substations near populated areas. Electric power distribution is the delivery from the substation to the consumers which is costly. To prepare a model depicting the reduce cost of transmission of electricity.

4. Electric Motor

Electric power transmission is the transmitting of electricity to places where it will be used. Specifically, it is the bulk transfer of electrical power from the power plant to substations near populated areas. Electric power distribution is the delivery from the substation to the consumers. Make a device to protect motor from high temperature, over load and high vibration.

5. Voltage Controlled Devices

Sometimes in home appliances voltage is there in the body of appliances which can be harmful for humans. To neutralize this voltage build a device.

6. Heat Generating Electricity

Power loss in a real system can occur in many ways, such as through friction, deformation, wear, incomplete chemical conversion, etc. One of the major losses occurs in the form of heat. This heat is unused. To build a device that can use this heat and generate electricity.

7. Over Voltage Detecting Devices

In an electrical installation, an earthing system or grounding system connects specific parts of that installation with the Earth's conductive surface for safety and functional purposes. Build a device that can detect overvoltage.

8. Minimizing Penalty by Engaging APFC Unit for Industries

This project improves the power factor by a set of capacitors connected in parallel with the inductive load. Due to the lagging load in industries, power factor becomes abruptly low and results in bearing penalty imposed by the electric-utility companies. So this proposed system improves the power factor by switching the capacitors based on the value of power factor. his circuit is implemented with Zero Voltage Switching (ZVS) and Zero Current Switching (ZCS) sub-circuits. Depending on the value of the power factor, the capacitors are connected across the load.

9. Solar Powered Forest Fire Detection and Control System

The idea of implementing this project is to detect and prevent the forest fire remotely by using a Zigbee communication. The entire transmitter circuit is located in forest with different sensors like smoke and fire detectors, which are powered with solar-panel system. The embedded circuitry in the transmitter circuit collects processes the data and sends the data to a remote PC through the Zigbee communication model.

10. GSM based Substation Monitoring and Control System

This project aims to acquire various substation parameters like current, voltage, temperature, power factor, etc., remotely via GSB communication. Thus, the remote operator can analyze these parameter values and take corresponding control action. A user can remotely operate the substation equipments like circuit breakers, isolators, relays, buzzer alarms, and so on.