

ABSTRACT

Demands of fuel oil continue to rise. In the field of transportation, the use of electricity to substitute fuel oil energy has been started as a research. The direction of further research on electric cars is to make electric cars with solar photovoltaic modules, electric motors and batteries that are installed in the car.

Photovoltaic module is a series of solar cells which are arranged in series or parallel. Photovoltaic module is used to convert light energy from the sun into electrical energy. Charge controller is a tool is used to control the storing process of electric charging on the battery, the process of using a lead battery as a source to distribute power to load and also used to monitor the battery voltage level conditions during the process of charging and discharging. While storage battery is an electrical energy storage that has been generated by the photovoltaic modules. Electrical energy that has been saved can be used for purposes directly or at a later time.

In this final project used the model of car which was a miniature of the real electric car and used the power supply system with solar charge controller with an analog circuit and 12 volt battery. Charge controller circuit is made by using an analog electronic circuit. This is because the cost more economical and analog component also has a better resistance compared to the digital components. This tool has a main function as a controller of the flow of electricity between the panels of solar cells with lead batteries and the load by using the automatic switch. So the operation and the use of the 50 watt power that has been generated by solar cell system can be operated and well utilized.

The results of final project is a electric car model that can walk forward and backward like a normal electric car with a power supply that uses a 50 watt photovoltaic modules that can charge 12-volt 17 Ah capacity battery which is controlled by the charge controller which control the battery charging only occurs until battery voltage reach 13.5 volts (full) and supply power of electric car motors occur until battery voltage reach 10.5 volts (empty).

Keyword: Power supply, Electric car, Solar cell, Charge controller