ABSTRACT

Given Indonesia's geographical position on equatorial areas of great potential, the intensity of solar radiation can be utilized fairly evenly throughout the year. The use of non-renewable natural resources is already worrying. The government began to urge people to use renewable energy sources, one of which is solar energy. Over time more and more people are using tools called solar panels. But energy availability is limited only during the day, therefore it takes a tool to store energy into the battery.

From the problem it produced an idea to design a Solar Charge Conroller, where this tool can control the electricity that enters the battery from sunlight through the absorption of Photo Voltaic Modules. This tool can prevent things such as overcharging and overvoltage, when the power in the battery is needed, this tool can regulate the current released or taken from the battery so that the battery is not full discharge and overloading, then there is an LCD that can monitor all required parameters such as solar panel voltage, battery voltage, power required by the load and also the temperature on the battery.

The time needed to charge the battery is around 6-7 hours with a time span from 08.00-14.00. Based on the table results of solar panel testing, the average temperature is 31.73 oC, voltage 12.70V, load current 2.86 V and power 36, 48 watts. Has a voltage tolerance of 11.7%. Load power tolerance of 1.40%.

Keywords: Photo Voltaic Module, Solar Charge Controller, Inverter