ABSTRACT

The productivity of the general public is very dependent on electronic devices around. In many cases, PLN cannot always guarantee the availability of power from the required power source. Sudden power cuts can cause memory-based electronic devices such as computers, Playstations, and smart TVs to experience damage due to sudden changes in voltage. Therefore, a system that is capable of being a backup of electrical energy is needed both to increase its usage time and to provide an opportunity for users to turn off their electronic devices according to the procedure.

Hybrid solar cell and power line PLN is a hybrid power plant that uses solar panels and PLN supplies as an energy source alternately. In this final project, a hybrid power plant using a battery as a power storage device has been designed and implemented as well as an energy transfer method using an ATS (Automatic Switch System) system. Switching the supply of electrical energy using a contactor has an AC current output. From the system that has been created, this hybrid ration device can provide 220V AC electricity that is ready for use at the household level as well as provide more varied and safer options to protect electronic components from unpredictable power cuts. The addition of a battery component in the design allows the device to save power in sunny weather and is ready to use when it rains or at night. Charging on a 12 Volt battery is carried out with a voltage value of 13.6 Volts with an average output current of 1 Ampere with an average duration of 4 hours. The switching system will run if the voltage on the battery is ≥ 12V.

Keywords: Hybrid, Solar Module, PLN Power Line