

ABSTRACT

Solar panels are increasingly becoming a solution for people in areas that have not yet received electricity from the state. The electrical energy produced by solar panels is stored in batteries. There are times when a solar panel battery malfunctions, which is no longer able to supply electrical energy.

With the research in this Final Project, a solution is made to overcome the dysfunction of the solar panel battery. The solution is to use a microcontroller-automatic power supply switching system to replace the power supply used from the solar panel battery to the generator. This system can change the power supply used from solar panel batteries to generators and vice versa. This system will also show the state of the power supply source used with certain indicators.

There are several methods used in the research in this final project: Literature Study, Statistical Analysis, Empirical Measurement, Design, Simulation, and Implementation.

The action of this power supply switching system still allows the tolerance of the electrical connection to be disconnected for approximately 2.158 seconds before being reconnected and switched to a power supply capable of supplying power. It is hoped that the research in this Final Project will produce a device that can be used at home that has not yet been supplied with electrical energy. The house uses solar panels with an Off-Grid system and a generator as its main power plant. The house also has a load that requires a daily power supply of 3067 Wh and has solar panels and a generator as a source of electrical energy.

Keywords: *switching power supply, microcontroller, automatic, battery, generator, Off-Grid solar panel.*