

## ABSTRACT

Electrical energy is the energy needed to move an electronic device back to produce another form of energy. But now the community's need for electricity supply to supply electricity has increased. In supplying electricity, it is necessary to adjust the output voltage using an automatic switch so that the voltage produced does not decrease when there is a load. By regulating the switch using a relay, it is determined by a specific dutycycle that is generated by the solar panel voltage output.

This study discusses the design of automatic solar panel and PLN switch systems for household loads using ANN. ANN control system that is arranged using backpropagation ANN consists of 2 inputs, two hidden layers, each consisting of 2 neurons and one neuron in the output layer. In testing to determine the work of the network that has formed memeberikan changes in loading.

The results of the test show that learning in the best power supply settings is to use 2000 repetitions with an accuracy of 1,349%. In this test the battery when emptying at a voltage of approximately  $\pm 10.6V$ , and when charging at a voltage of 13.5V.

**Keywords:** switch, solar panel, source, ANN.