ABSTRACT

The converter is one of the developments in electronic technology that functions to change the voltage. There are several types of converters, one of which is the SEPIC converter which is a refinement of the buck-boost converter which functions to increase or decrease the voltage, but there are several factors that affect the stability of the converter, one of which is load changes. Therefore we need a voltage regulator that can be controlled digitally or analogously.

In this final project, a prototype of a sepic converter and its output voltage control system will be designed. The output voltage of the converter becomes the parameter to be controlled. By reading the output voltage from the converter using a sensor and going through the process control system. The control method used is fuzzy logic.

In this final project, several tests have been carried out. The converter prototype designed has a maximum power specification of 35 and the resulting output voltage is close to the set point. This is achieved because fuzzy logic control the designed works well and able to control the value duty cycle, where from the test results using fuzzy logic control designed at the time of transient,rise time the achieved is 11.1 ms with a settling time of 120 ms, overshoot of 16.4 V, and steady state error of ± 0.3 V or 0.05% of set points. The fuzzy logic control designedis also designed to be quite resilient to disturbances caused by load changes.

Keywords: *Sepic Converter, Voltage, Fuzzy logic control*