

## ***ABSTRACT***

In an electrical system that is in the household can occur disturbances caused by unstable voltage, including overvoltage and undervoltage. This disturbances can damage the household device. It needs a parameter that should be considered, especially in voltage protection system of the electrical system.

In this final assignment, be made voltage protection system that aims to protect home appliances from disturbance of voltage, but it also can provide security from the danger of overvoltage and undervoltage for humans. The way the system works is beginning with the read voltage source by the voltage sensor and then set the protection rule by the microcontroller so that relay can cut the current flow if there are overvoltage and undervoltage. The advantages of the designed system compared to existing systems which have the ability to monitor the voltage that connected to the internet, so it can be monitored. The system will be made spesific only to voltage protection that is in the household, with normal voltage of 220 V AC.

From the test conducted, the result shows that the voltage sensor which measures the voltage shows the measurement results with an accuracy of 99,62% and in the protective function of the relay is able to perform the protection function by showing off condition when the voltage reads above 231 and below 198 VAC. When normal conditions, the relay is on conditions. In the monitoring function of data submission process is showing the average shipping time difference in two experiments is 20s. There is a time difference of delivery because it takes time in doing the processing to do the reading of the voltage data and the time required by the wifi module to transmit data into the web.

**Keywords:** Voltage protection system, overvoltage, undervoltage