ABSTRACT

This study aims to apply Internet of Things technology in the aspect of monitoring Lab electrical power. The system is designed to find out how much the Lab's electrical power usage is to determine uncontrolled electricity usage. Uncontrolled consumption of Lab electrical power can cause damage to electronic devices to support the learning process. The tool is designed using the PZEM-004T sensor which is used to read electric current, electric power, and voltage. Arduino uno is used as a data processor and the Ethernet shield module is used as a connector of the device to the internet using a lan cable. So that monitoring data can be accessed continuously and can be viewed from anywhere because the data is displayed on the ThingSpeak server. The ThingSpeak server used can accommodate monitoring data as much as 80000 data and can be downloaded with a total of 99 combined data in 3 days, it is due to the use of a free account. This study produced monitoring data on electric current of 19.25 Amperes, electric power of 4047.40 Watts, and electric voltage of 220 Volts. Voltage error 10.38%, current error 53.91%, and electric power error 188.20% using the comparison method between the results of monitoring, calculation, and Ampere pliers. Researchers conducted Qos testing using the wireshark application, the sampling method was carried out at quiet hours to obtain average results of Troughput 2395.8 bps, Packet Loss 0.542 bps, Delay 68.09030274 ms, Jitter 544.70 ms

***Keywords**: PZEM-004T sensor, power monitoring, ThingSpeak*