

ABSTRACT

As the need for electrical equipment used in a classroom increases, the need for electrical energy and the costs to be incurred will be even greater. The difficulty of monitoring the use of electrical devices in the class has the potential for excessive use of devices. This study aims to design a smart class system based on the NodeMCU ESP8266 module, with this design the devices in the class (prototype) can be monitored and controlled remotely. So that performance analysis can be carried out when monitoring and controlling remotely. Monitored the cost of electricity used so that it can manage devices more efficiently. This prototype design uses tools, NodeMCU ESP8266, PZEM-004T sensor module, and relay. The circuit generates data that is sent to the Blynk platform which is processed into a remote monitoring and control tool that can be run on iOS applications. The results of testing the accuracy of the PZEM-004T sensor module have an average error percentage of only 0.78%, while the average current percentage error is only has a percentage of 12.90%. The results of the Quality of Service test for monitoring data from the NodeMCU ESP8266 to the Blynk server get an average delay of 116 ms, an average throughput of 5446,900 Kbps, and a packet loss of 0.023%. Based on the Typhon parameters, the throughput, delay, and packet loss values are in the very good category. In the feature test, the results obtained a percentage of 100% successful from 30 times of testing. This smart class prototype is successful because based on testing this prototype can run well.

Keywords: *Blynk, internet of things, NodeMCU ESP8266, PZEM-004T.*