ABSTRACT

Currently technology is developing rapidly in various scientific fields. Humans continue to strive to develop and research the latest technologies in order to make human life easier. One of them is in the field of IoT (Internet of Things) technology. Therefore, this research was carried out aiming to determine the amount of electricity used every day. This IoT-based electricity usage monitoring tool uses the NodeMCU ESP8266 microcontroller and the PZEM-004T sensor. The PZEM-004T sensor is a system designed to read the amount of electrical energy consumption such as voltage, current, power and energy. This monitoring tool is also connected to a smartphone using the blynk application which is used as a media interface that displays the amount of electrical energy consumption. The test results show that the monitoring tool for electricity consumption using the PZEM-004T sensor can measure and display current and voltage values and can monitor in real time. The results of tests on voltage and current, in the first measurement using the PZEM-00T sensor, showed a voltage of 220 V and a current of 1.5 A and a measurement using a voltmeter showed a voltage of 220 V and a current of 1.52 A, this proves that the results of sensor measurements and voltmeter measurements do not have much different results. Qos testing (throughput and delay) obtained an average result of 16.1 kbps and 53.562 ms between 16.50-18.00 WIB. There is a difference in the output between the data displayed on the LCD (Liquid Crystal Display) and the data displayed on the Blynk application, this is due to a delay caused by an unstable network.

Keywords: Internet of Things, NodeMCU ESP8266, PZEM-004T Sensor, Blynk Application