ABSTRACT

Electrical energy is related to all aspects of life. The use of electrical energy is not spared from excessive use or waste, one of which is from electrical energy in the sector for household needs. One solution to this problem is the use of an electrical energy monitoring system. A prototype of the device was produced that can monitor electrical energy with the PZEM004T-10A sensor in real time using the LoRaWAN network on the Antares platform. The average result of the percentage error reading of the PZEM004T sensor against the power meter gauge shows an excellent value where the average error obtained in the voltage parameter is 0.24%, while the error value obtained for the current parameter is 0.25%, the power is 1.62% and the power factor is 3.20%. Performance of Quality of Service delay values on the network according to the standard criteria issued by TIPHON the delay values generated by SF7 and SF10 are categorized as poor delays. Then the delay on SF9 and SF12 is included in the good category, and the delay produced by SF8 and SF11 is categorized as an excellent delay. As for the packet loss value, it falls into the criteria is very good for SF8-SF12 and good for SF 7. From the overall tests conducted, the electrical energy monitoring system designed based on LoRaWAN communication using the Antares platform can run as well as its function.

Keywords: *Electric Energy, LoRaWAN, PZEM004T-10A, QoS.*