ABSTRACT

A kWh meter is a tool that serves to measure the use of electrical energy. This tool is widely used at home and in industry. Most kWh meters installed today can only display the amount of electricity used from the display on the kWh meter. This causes power users to be unable to view or monitor electricity usage remotely. To increase the efficiency and effectiveness of electricity use, a system is needed that can allow users to view electricity consumption data from anywhere. Various studies have started to be carried out to test several communication technologies to find the best technology at an affordable price, wide range, and using less power.

This Internet of Things (IoT) based kWh meter communication design allows all data from the kWh meter to be sent to the gateway and forwarded to the IoT cloud. LoRa (Long Range) communication will be used in this research. Data from the IoT cloud can later be used for monitoring. The kWh meter that has been added with IoT technology is expected to make it easier for users to view electricity consumption data from anywhere. This system is also expected to support efforts to increase electricity use effectively and efficiently.

The results of the tests in this final project, the device is able to read the data on the amount of electricity from the kWh meter. The LoRa communication module can send the data taken from the kWh meter to the gateway to be displayed in Antares. The data transmission results have an average SNR 9.81 dB, RSSI -78.14 dBm, delay 3.546 seconds, and packet loss 1.11%.

Keywords: 3-phase kWh meter, Internet of Things, LoRa