ABSTRACT

Agriculture is the main source of meeting food needs for the sustainability of human life. In its development, agriculture has several problems that are often faced by farmers. In agricultural areas, each land has a different water content depending on the existing land conditions, and also each agricultural area has a different nutrient content. This will also affect the pH (potential hydrogen potential) of the soil, which varies from place to place. This final project makes a prototype tool for measuring soil moisture and pH based on LoRa to monitor the condition of the soil that will be a place to grow crops. This system uses the concept of the Internet of Things (IoT) so that it is connected to the internet and can be accessed through gadgets in real time. LoRa (Long Range) connections are also used as a data transmission medium because they have advantages in long-distance communication and low power. The results of soil pH measurements obtained averaged 10% errors in soil samples, 1.5% in soil samples 2, and 12% in soil samples 3. The results of soil moisture measurement obtained averaged 12% errors in soil samples, 10% in soil slings, and 15% in soil samples. The quality of the LoRa network on the prototype is very good; the jitter is good, the SNR value is good, and the RSSI value is still poor.
Keywords: *Soil moisture,Potential hydrogen,Iot,LoRa*