ABSTRACT

Agriculture is one of the main sources of income for the Indonesian, Most Indonesians work as farmers. Lettuce as one of the agricultural commodities that deserve high and has become a daily consumption. Due to the large need for lettuce, it must be accompanied by consistent or increasing yields every year. Several factors can derail the harvest, namely, lack of moisture in the soil, unpredictable weather, and planting methods.

To overcome these factors, it is necessary to implement an effective agricultural system. In this project, an automatic watering system and temperature monitoring in the greenhouse were designed. This system uses Arduino Uno as a microcontroller and the data taken by this tool can be monitored using a smartphone via the internet because this system is based on the Internet of Things (IoT). The automatic watering system has several stages, starting from collecting soil moisture data as a trigger or reference for the pump to turn on, a greenhouse equipped with temperature monitoring to overcome weather instability. Then the data that has been obtained will be sent to the blynk database or blynk-cloud.com so that users can monitor it in the Blynk Android application.

This project aims as an effective watering system on lettuce plants. In this project, testing was carried out for 7 days by taking 2 data each day following the results of testing the FC-28 soil moisture sensor having an average result of 54.88% per week. Then the results of testing the temperature in the greenhouse using the DHT-11 sensor have an average result of 28.00°C. Then the Quality of Service (QoS) test, which obtained an average delay value of 167ms and an average throughput value of 6579,625 Kbps which is a good category according to the ITU-TG1010 standard.

Keywords *: Internet of Things (IoT), Soil Moisture, Automatic Watering, Temperature Control, Greenhouse, Blynk.*