ABSTRACT

Advances in technology are currently very helpful from various sectors. One of them in the field of plantations and agriculture. This kale is popular with the public because it contains many nutrients such as vitamin A, vitamin C, iron, calcium, potassium, and phosphorus. Kale vegetables will need a lot of water to grow. The problem that is often encountered by farmers is that the house is far from the plantation which makes work inefficient considering the water spinach plant which is sensitive to environmental influences. Soil conditions are very important for plant growth. With these problems, a tool that can simplify the work is made, namely an IoT-based automatic plant sprinkler by sending information or notifications via the Web.

From the existing problems, the author makes a final project that can monitor and store data in a web server database connected to the internet that can be accessed anywhere and anytime. Sensor data contained in the kale plantation will be sent using the connectivity contained in the ESP8266 module and sent to the webserver database. The database used is a real-time firebase database which is the software used to process sensor data. A database system is needed because the control and monitoring system is carried out not only at one location so that the resulting data will also be a lot. Then the data from the database will be displayed on the website.

Based on the results of the tests that have been carried out, it is found that the database system can function properly. The resultstest of the QoS sending data from the database to the NodeMCU has, the,delay test results an average delay of condition 1 (heavy hour) 0.13s and condition 2 (normal hour) 0.09s and an average throughput of condition 1 11.528 kbps and condition 2 15.566 kbps. QoS testing of sending data from the database to the website average delay condition 1 0.12s and condition 2 0.10s and the average throughput condition 1 12,366 kbps and condition 2 14,848 kbps.

Keywords: *Kangkung, soil moisture, IoT, Web, firebase database*