

ABSTRACT

Hydroponics is a way of farming that is very popular with the community, especially in urban areas where agricultural land is difficult to obtain. As a solution, it is done by means of hydroponics. In hydroponic farming, a monitoring system for parameters such as water pH, ab mix nutrients, water temperature, water level is needed on a regular basis and follow-up.

In this final project, an automation of the above parameter monitoring system is carried out for white radish plants using a sensor system which is then processed by a microcontroller for automatic follow-up such as filling water, neutralizing pH, mixing nutrients a and b, monitoring temperature, and giving watering time. The system used includes ultrasonic sensors, water temperature, PH, TDS, with Wemos D1 R32 as a microcontroller. Actuator control using 8 channel relay and timing using RTC. Besides, this measurement data is forwarded to the network and stored in the firebase database

The results of performance and function testing on this system are running as planned. In ultrasonic sensor testing, the difference and error is 0%, temperature sensor testing is 0.306°C difference and error probability is 0.01%, testing on PH sensor is 0.08 difference and 0.064% error, TDS sensor testing is 10.6 PPM difference and an error of 0.020%, the performance test of the QoS delay is 6,76 ms and the throughput is an average of 22,400 bit/s.

Keywords: *IOT, Hydroponics, Drip System, White Radish*