

ABSTRACT

Lettuce plant enter the Asteraceae family which contains the minerals iron, phosphorus, iodine, cobalt, copper, potassium, manganese, zinc and calcium. The need for lettuce itself is quite high, based on data to meet the needs of lettuce plants need to be further developed. One of the developments is hydroponic agricultural technology. There are influencing factors in the success of utilizing hydroponic technology. The concentration of nutrient water in the holding tank is one of them. This concentration needs to be maintained according to what the plant needs. To maintain the quality of nutrients, it is necessary to regularly monitor the nutrient reservoir. The research results showed that the use of TDS and HC-SR04 sensors can help monitor and maintain concentration in storage tanks. The results of system testing showed that when conditions were optimal, sending system monitoring data to Firebase and the smartphone application could be successful. The test results also showed that the system could maintain the concentration value and availability of nutrient water in the storage tank. The average error value of the HC-SR04 sensor with a reservoir water height of 10 cm is 11.5% and 6.25% with a water height of 24 cm. The average TDS sensor error value for clean water conditions with a TDS meter of 58 PPM was found to be 36.26% and with a TDS meter of 759 PPM the sensor reading error was 11.08%.

Keywords: HC-SR04, Hydroponics, TDS.