ABSTRACT

The increase in human population from year to year makes agricultural land for example cayenne pepper, especially in big cities. Especially for people who live in densely populated areas, most of the land that was originally used for agriculture has changed its function to become a place for the construction of housing, shophouses and others. Hydroponics can be a solution of choice to increase farm productivity in Indonesia. However, farming in this hydroponic way requires more handling, care, and monitoring compared to conventional farming with soil media. In this digital era, the use of technology has penetrated all aspects of life, one of which is the monitoring. This study aims to create a monitoring for nutrient levels using the Arduino UNO micromonitor and use the Blynk application. Monitoring system for nutrient content which includes pH, nutrient dissolved substance content (TDS), and temperature directly and displays it through the Blynk application. The accuracy of each sensor is a pH sensor with an accuracy of 94.53%, a TDS sensor with an accuracy of 97.88%, and a temperature sensor with an accuracy of 98.31%. Based on the results of observing the growth of hydroponic cayenne pepper plants surviving 14 days, cayenne pepper plants with monitoring obtained a plant height of 2.4 cm, 4 leaves, and leaves with a width of 1.8 cm. Meanwhile, without monitoring the chili plants grew to a height of 6.14 cm, had 6 leaves, and leaves had a width of 0.64 cm. The chili plants grown in soil media had a height of 4.91 cm, 6 leaves and a leaf width of 0.59 cm.

Keywords : Hydroponis, Monitoring, IoT, Arduino UNO, pH, TDS, Blynk