ABSTRACT

The development of the population is increasing day by day, the increase in population is inversely proportional to the land where farming is carried out. Or sometimes city dwellers want to grow crops but do not have land to grow crops. Then came the method of farming with a hydroponic system that utilizes the home page as land and parallalon media as a planting medium. Many methods are used in the hydroponic system, one of which is the Deep Flow Technique (DFT) system. Many plants and vegetables can be cultivated hydroponically. One of them is Kale (Brassica oleracea var. sabellica).

Technological developments can solve the problem that occurs, namely growing Kale hydroponically with the DFT system using IoT devices as nutrient water control in the DFT hydroponic system. This system consists of temperature, pH, and ultrasonic sensors installed in nutrient reservoirs with MCU Nodes for sending data to the database and can be read by users via MIT via android. The output of this final project is data can be sent in real time and the system can work well.

Based on the test results of this final project, the average percentage error of the pH sensor test accuracy on the pH powder 4.00 sample is 11.75% and the pH powder 6.86 sample is 2.62%, the TDS sensor is 0.787%, the temperature sensor is 0.357% and delay on data transmission of 1.558 seconds. Based on the results, the average percentage error obtained is still within the tolerance limit, which proves that this tool can accurately test water quality with a small error percentage.

Keywords: *Internet of Things, Hydroponics, DFT, Kale.*