

ABSTRACT

Aeroponics is a future agricultural system, this is because the process of planting can be done anywhere without using a large area. For a organic vegetables enthusiast, planting a vegetable plant using aeroponic method is the right answer because nutrition that used to substitute the nutrient from soil does not contain organic ingredients. In addition, a clean environment and sterile planting media is a guarantee to not use any pesticides. The average planting time that required for plant in the aeroponic method takes 3 weeks due to the requirements of the environmental factors of each vegetable planted by the aeroponic method.

In this Final Project will make a device that is integrated with microcontroller Mega2560, which can do the process of observing and controlling of environmental factors that determine the final result of the vegetable plant that being planted on the aeroponic method. The process of designing a tool will use 3 types of sensors for the process of observing the humidity level, temperature, pH level of nutrient solution, and the height of the nutrient solution in the storage tank. The results of the observation process will be displayed into a monitoring application that built on a mobile application called Blynk to facilitate the observation process. If there is an incorrect value that are not in the range of values that listed in environmental factors, then the control process can adjust the value by components that have been adjusted to the form of control.

From the results of the tests conducted, it was pointed out that the device that have been built could do observations process on environmental factors with a total accuracy of the sensor readings of around 96.09%. The results of the appearance of the data on the LCD and the observation application built on the Blynk platform have no different readings. The control process carried out can maintain the requirements of environmental factors according to the existing range. The planting time is only takes 2 weeks from the seeds until plants ready to harvest.

Key Word : Aeroponic, Control and Monitoring Process, and Blynk