

ABSTRACT

AUTOMATIC CONTROLLING SYSTEM AND IOT BASED MONITORING PH RATE ON AQUAPONIC SYSTEM

Aquaponic is a limited development opportunity for cultivating plants and fish. In aquaponic systems, plants use nutrients from fish feces and the fishes use clean water which filtered by root crops. Aquaponic is a combination and improvement of aquaculture and hydroponic systems so that the use of an aquaponic system requires different techniques depending on the hydroponic method used. In this system, the Deep Flow Technique (DFT) method is used.

The method used is a literature study to find the basic theory in designing a control system and monitoring water pH levels. After that it is necessary to analyze the problem to find out the problems that arise in making control systems and monitoring based on the IoT Antares platform. The next thing to do is to design the system, starting from flow diagrams to system design. Then simulate the tools that has been designed. The last thing to do is testing the system.

From the results it can be concluded that the automatic control system and monitoring the pH level in aquaponic systems could maintain the water condition automatically in the water pH range from 6.3 to 7.7. The average error issued by the sensor is 0.67%, the average decrease in water pH level is 0.023 per day, the success rate of sending monitoring data is 100% which the data sent every 5 seconds in 1 hour.

Keywords : *Aquaponic, Hydroponic, Deep Flow Technique Method, Antares Platform, pH Rate.*