ABSTRACT

In hydroponics, maintaining the pH value and water nutrition greatly affects the growth and quality of plants, with that system is needed to maintain the stability of the pH value and nutrients. This research describes the control system of pH and EC nutrients based on fuzzy logic and IoT in hydroponic. The developed system uses 2 types of sensors, pH sensor and a TDS sensor, it's placed in a hydroponic tank, as well as 3 solenoid valves to increase the pH value (pH up), decrease the pH value (pH down), and AB Mix solution, and monitor it with the IoT method using Blynk application. The Fuzzy logic method is used as a program to control actuators or solenoid valves to flow pH up, pH down, and AB Mix into the hydroponic tank. Based on the results of testing the pH and EC values, using fuzzy logic is quite stable because every 12 hours the pH and EC (ppm) levels always approach the set point with a pH values of 7 with accuracy of 99% and EC (ppm) values of 1050 with accuracy of 98.7%. The uses of IoT also effective because it can monitor hydroponics in real time.

Keywords : Blynk, Control System, EC, Fuzzy Logic, Hydroponic, IoT, pH.