MONITORING AND AUTOMATION CONTROL SYSTEM ON ANDROID-BASED HYDROPONIC PLANT

Muhammad Syifa Surya Saputra
Computer Engineering Study Program, Faculty of Science and Technology
University of Technology Yogykarta
Jl. Ringroad Utara Jombor Sleman Yogyakarta
E-mail : syifamuhammad3139@gmail.com

ABSTRACT

Hydroponics is a way of growing crops without using soil. According to data in BBP2TP, a good nutritional range for lettuce is 560-840 ppm and the pH range for lettuce is 6.0 to 7.0. When the pH value is below 6.0 or above 7.0 the farmer must add a solution to lower the pH (pH down) or a solution to raise the pH (pH up) so that the pH returns to normal at 6.0 to 7.0. To overcome these problems, the authors create a system that can control and monitor the nutrient content of water based on Android applications. In this study, the parameters used are the reading of the acidity level (pH) and the value of dissolved solids (ppm) contained in the water where the reading of these values uses a pH sensor and a TDS sensor. The system utilizes the ESP8266 as a microcontroller as well as a liaison to the internet which will display the output through the Android application. The results show that the system can work as expected where the pH sensor only has an error of 0.27% and the TDS sensor has an error of 0.4%. As for conditions that are too alkaline for a 1:2 ratio, it is known that the pump does not turn on where the reading value is already above the 7.0 limit, which is 7.69.

Keywords: *Automatic monitoring and control, hydroponics, internet of things, pH sensor, TDS sensor*