

## **ABSTRACT**

*Residents of Rw. 06 Citereup Village, Dayeuhkolot District, Bandung Regency is one of the communities affected by COVID-19. One of the perceived problems is the difficulty of getting a permanent job and meeting daily needs. One example of an increase in prices for daily necessities occurred in mustard greens. To help the residents of Rw. 06 Citereup village, a DFT (Deep Flow Technique) aquaponic farming system equipped with fuzzy logic-based nutrition control for mustard greens was designed by residents and in collaboration with the Physics Engineering community service team, Telkom University. This system is applied to maximize the process and production of mustard greens. The advantage of the DFT aquaponics method is that the water and nutrient circulation system is run naturally with water reserves in the plant pipes. This system uses Arduino Mega 2560 as a microcontroller which is embedded with a fuzzy logic program by entering the TDS (Total Dissolve Solids) value in ppm and the TSS (Total Suspended Solids) sensor value in NTU (Nephelometric Turbidity Unit) units. Dissolved nutrients can be measured collectively as TDS values, and turbidity values in fish ponds can be measured using a TSS sensor to measure the amount of suspended solids. In the calibration test, the TDS sensor has an error of 1.33%, while the TSS sensor has an error of 3.77%. In system testing, the system works by looking at the TDS and TSS conditions, if the TDS and TSS conditions are low, the pump will turn off and if both conditions are high, the pump regulated by the relay will turn on. In this study, the nutritional value of the controlled plant was 232.4 ppm, while the system without control obtained a value of 241.8 ppm. The value of turbidity in the control system is 138.42 NTU, while the system without control is 147.92 NTU. Of the 4 vegetables that used the control system, there were plants that had a plant height of 16.8 cm and those without control were 12.1 cm. In the controlled number of leaves, 10 leaves were obtained, while without control, 6 leaves were obtained.*

*Keywords: Aquaponics, Green Mustards, Fuzzy Logic, Total Dissolve Solids, Total Suspended Solids.*