

DESIGNING AND TESTING NUTRITION MIXING SYSTEM ON HYDROPONIC LEAF PLANTS USING FUZZY LOGIC

Dwiki Prio Wicaksono

*Electrical Engineering Study Program, Faculty of Information Technology and Electro
Universitas Teknologi Yogyakarta*

Jl. Ringroad Utara Jombor Sleman Yogyakarta

E-mail : dwikiprio.smantar@gmail.com

ABSTRAK

In mixing AB Mix nutrients, hydroponic leaf plants farmers still do it manually without paying attention to the correct dosage for certain types of plants, especially leaf plants that require AB Mix solution which has a concentration of between 800-900 ppm. Whereas by paying attention to the amount of nutrient dosage that is suitable for the needs of plant types such as leaf plants, it will greatly affect the growth of the hydroponic plant itself so that the yield will be maximized. This research proposes the design of a tool that can mix nutrients in hydroponic plants using fuzzy logic. The money instrument was built using the Arduino Mega 2560 microcontroller as a hydroponic leaf plant nutrient mixing system using fuzzy logic. In the mixing system, the active system is based on input from ultrasonic sensor readings as volume counters and TDS sensor readings as a ppm (part per million) count, then these inputs will be used as parameters for fuzzy Sugeno input where all crisp data will be used as linguistic data and will be processed using decision making based on fuzzy rules and produce two outputs in the form of duration (seconds) that regulate the running of the nutrient pump and the water pump. In testing the entire system, the lowest concentration value was 819 ppm and the highest was 867 ppm. The test results show that the tool that has been built can provide the results of mixing hydroponic plant nutrients according to plant needs, namely in the value range of 800 ppm to 900 ppm.

Keywords: *Arduino, Fuzzy Logic, Hidroponic, AB Mix Nutrition*