DESIGN OF AUTOMATIC CONTROL SYSTEM OF TDS SENSOR AND WATER ACIDITY (PH) ON STRAWBERRY PLANTS WITH DEEP FLOW TECHNIQUE (DFT) HYDROPONIC SYSTEM BASED ON ARDUINO UNO

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ABSTRACT

The Strawberry *plant with the Deep Flow Technique (DFT) hydroponic system is a concept of planting without using soil media by utilizing a continuous circulating water flow and the installation has the concept of still stagnant water with a height of 2 cm. Circulated water is water that has nutrients according to the needs of* Strawberry *plants, namely the Total Dissolved Solid (TDS) value is 500-1200 PPM and the potential value of Hydrogen is 5.8-6.8. By understanding the need for TDS and pH, then an idea arises for giving TDS and pH values to* Strawberry *plants using the DFT hydroponic system, which is done automatically by controlling the values of these needs by the tool system. The design of the tool uses Arduino Uno R3 as a controller, TDS sensor and pH sensor DM PH-4502C as a measurement of TDS and pH parameters as well as Real Time Clock (RTC) as a* Strawberry *plant age calculator. Based on the design of this TDS and pH automatic control device, its implementation can facilitate automatic control of water nutrients in the DFT hydroponic planting system for strawberry plants according to their needs and nutritional stability (TDS and pH). and based on the results of the testing of this tool system, the results obtained are the tds sensor with an initial tds value of 1102 PPM and a target reduction to the interval limit of 550-650 according to the tds value requirement of* Strawberry *plants at the age of 10 days after planting, the time is obtained for 14 minute. And the test results on the pH sensor with an initial pH value of 2.4 and an increase target to an interval of 5.8-6.8 according to the needs of the pH value of the strawberry plant.*

Keybords : *arduino uno R3; DFT hydroponics; pH sensor; Strawberry; TDS sensors.*