

DESIGNING AND TESTING INTEGRATED PROTOTYPE OF FISHPOND AND HYDROPONIC BASED ON NODEMCU ESP8266 AND MOBILE APPLICATION

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ABSTRAK

Indonesia is a fertile agricultural country. The majority of the populations work in agricultural sector, such as farmers, planters, ranchers, and fishermen. One of the breeders growing in Indonesia is fish breeders. For fish breeder businesses, good and continuous maintenance is needed to produce fish with good quality. However, many fish breeders still use manual or traditional methods in cultivating fish, such as feeding and water levels. Farmers rarely use pH as a measure of whether or not water is suitable for fish ponds. In addition, pool water should be utilized optimally, such as the use of pool water as a source of hydroponic plants; a mutualism symbiosis is obtained from the two systems. This research aims to give orders and transmit data wirelessly such as pump status, fish feed status, water level, and water pH level. Breeders can access data from the monitoring results of a separate place on the application page through other devices such as cellphones or computers. From several experiments with the pH sensor and the ultrasonic sensor, the percentage of error generated by the pH sensor is 0.025%, while for the ultrasonic sensor it is 0.03%. This research showed that the pH sensor and ultrasonic sensor used have high accuracy. From the system testing, after several trials, it showed a success rate of 100% starting from testing the pump status based on ultrasonic and the results of the whole system.

Keywords: Fish Cultivation, NodeMCU ESP8266, pH of pond water