

ABSTRACT

The pond is an artificial, textured pond that easily absorbs water (porous) located in coastal areas and is used as a place to cultivate aquatic biota (aquaculture) that live in brackish or salty water such as Shrimp and Milkfish (Chanos-chanos). In aquaculture cultivation in ponds, there are things that must be considered such as the degree of acidity and water level in the ponds so that the cultivated biota can grow and develop optimally and get satisfactory results, in this case the farmers usually adjust the degree of acidity and water level by making changes water regularly by opening / closing the floodgates in the ponds in a traditional way.

Through this research, a floodgate control system was created to automate and streamline the water circulation process based on the pH level of the water and the water level in the milkfish ponds, as well as create a web-based monitoring application so that farmers can see in real time the ongoing process in the pond. This sluice control system is designed using several components consisting of a pH sensor, water level sensor, Nema-23 DC Motor, NodeMCU esp8266 as Internet of Things (IoT) based actuators that can transmit data via the internet network. Farmers can see several indicators in the monitoring web application such as pH levels in the pond and in the reservoir, water level in the pond and in the reservoir, process indicators, warning indicators, and the state of the water gates.

This tool can work well in carrying out the expected function by calculating the performance of the system to get the highest delay value of 1,432 seconds and the lowest value of 0.398 seconds with the highest throughput value of 10,557 bit/s and the lowest value of 1,731 bit/s.

Keywords: Ponds, Milkfish, Aquaculture, NodeMCU esp8266, pH Sensor, Water Level Sensor, Monitoring.