

ABSTRACT

The application of industrial revolution 4.0 technology in the fisheries sector in Indonesia has a percentage of 8% so it needs to be developed by designing an integrated system. In the field of fisheries, water quality plays an important role as a medium for breeding fish. The design of an integrated system can be done to maintain water quality by designing an IoT-based system. Water quality control aims to reduce fish mortality by designing an IoT-based Smart Fish Pond system. The system design aims to monitor the pH and temperature variables and can control the pH variable by lowering the pH according to the needs of the pond. The method used in designing the IoT-based Smart Fish Pond for water quality control uses the waterfall method. Data collection techniques by doing voice of customer on fish farmers. The system design on the input component consists of a pH sensor and a temperature sensor, the core component consists of an expressive ESP32 which can be connected to firebase via the internet network and connected to an application on a smartphone, and the output component consists of a water pump that can drain pH-lowering liquid (EM4). The procedure for implementing IoT with the help of sensors to read pH and temperature variables, then these variables can be monitored and controlled by the user through an application on a smartphone, then performs commands on the water pump. So it can be concluded that the Smart Fish Pond system that has been designed can monitor and control water quality on a regular basis in ponds which can reduce fish mortality by up to 46%.

Keywords: IoT, Smart Fish Pond, Automation, Smart Pond, Firebase