ABSTRACT

Koi fish is one of the ornamental fish that is in great demand and has a fairly high price. Water quality plays an important role in the success of keeping koi fish. The quality of koi fish water must be at an ideal temperature of 25-30°C and an acidity level or pH of 7-8 pH. The level of salt contained in water for koi fish must also be considered. A pond with a size of 200 x 50 x 100 cm requires a salt content of 1 to 2 ppm. Giving this salt is done to prevent the growth of bacteria in the koi pond which can come at any time. Ignorance of pond owners about the value and condition of water quality can cause disruption to the health of koi fish which can cause death. Based on these problems, the authors created a water quality control and monitoring system in koi fish ponds. The system created consists of a pH sensor, temperature sensor, salinity sensor, and uses the Message Queuing Telemetry Transport (MQTT) protocol. The process of sending data to the IoT platform using a WiFi network. Based on the temperature sensor test, there is an average error of 1.4% with a sensor accuracy level of 98.6%. Testing the pH sensor and salinity sensor using the linear regression method. As for the pH sensor, the average error is 2% with an accuracy rate of 98%. The results of the salinity sensor test obtained an average error value of 7.6% with an accuracy rate of 92.3%. Then in the MQTT protocol, the parameters for delay and jitter have a bad category, while throughput has a moderate category and packet loss has a very good category according to the TIPHON standard.

***Keywords**: Monitoring, Water quality, Koi Fish, MQTT, Internet of Things*