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INVENTION AND INNOVATION EXHIBITION (I-JaMCSIIIX) 2023

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IoT-based Water Quality Monitoring System for Goldfish

Nurin Firzana Amni Mohd Amin¹, Zarina Tukiran¹, Khalid Isa¹, and Munirah Ab Rahman¹

¹ IoT Focus Group, Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, Johor, MALAYSIA

nurin23firzana@gmail.com, zarin@uthm.edu.my, halid@uthm.edu.my, munira@uthm.edu.my

Abstract—Goldfish carry out all their bodily actions underwater and they rely on water for their survival. It is critical to check the water quality for the survival of the fish population. Normally, to check the water quality for aquatic life in an aquarium, test strips are used as a monitoring method by most of the owners which increases the current workload to the owner. To reduce the workload on the owner, alternatively, the monitoring of water quality in the aquarium can be done by utilising sensor technology and the Internet of Things (IoT) platform. Therefore, this work developed a monitoring aquarium water quality system based on the goldfish environment. The system has a monitoring device that is able to communicate with a mobile app via an IoT platform. The monitoring device uses four (4) sensors to measure four (4) parameters of water quality; water temperature, pH, total dissolved solids and ammonia. All the readings are streamed to the Thingspeak IoT Cloud platform to be fetched by the system of the mobile app. In the mobile app, the owner can view real-time and historical measurements of each parameter. To assist the owner, the app also shows a suggestion for decision-making regarding water changes in the aquarium. It is hoped that the proposed system is able to assist the owner in monitoring the water quality of the fish's aquarium and help in increasing the lifespan of the fish.

Keywords—water quality, monitoring system, IoT, goldfish, mobile app



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Kampus Jasin

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