

## *Abstract*

A smart aquarium represents an innovative approach that uses Internet of Things (IoT) technology to improve the efficiency and convenience of maintaining aquatic environments. This study focuses on creating a smart aquarium system that features automatic temperature regulation, cooling, and heating, all controllable via IoT devices. The goal is to keep the aquarium water conditions stable according to the specific needs of the aquatic species, thereby reducing health risks for fish and other aquatic life. The system includes key components such as temperature sensors, a microcontroller, and a wireless communication module that connects to a web-based app. The temperature sensors provide real-time monitoring of the water, while the microcontroller adjusts the cooling or heating as needed based on user-defined settings. Users can also oversee and adjust the aquarium's conditions remotely through the web app, offering enhanced flexibility and control over aquarium management.

**Keywords:** *Smart Aquarium, Internet of Things (IoT), Temperature Controller, Water Cooler, Water Heater, Fish Maintenance*

