

ABSTRACT

Fish farming in open waters such as floating net cages highly depends on stable water quality. Parameters like temperature, pH, and dissolved oxygen levels play a crucial role in maintaining fish health and growth. However, manual water quality monitoring often poses challenges due to time and resource limitations, potentially leading to delayed detection and increased risk of mass fish mortality. Therefore, this Final Project aims to develop a Flutter-Based Water Quality Monitoring and Alert Application that can be accessed via mobile and web platforms. The system integrates IoT sensors to read water quality parameters in real-time and transmits the data to a server. The information is presented through a user-friendly interface and is equipped with an early warning notification feature if water quality changes to a dangerous level. The system is developed using the Flutter framework for cross-platform application development, supported by tools such as Visual Studio Code, Laragon, and phpMyAdmin. Testing results show that the application accurately displays data and sends timely notifications. This application is expected to assist fish farmers in monitoring water conditions more efficiently, speeding up decision-making, and reducing the risk of loss. By utilizing this system, fish farming processes can become more adaptive, efficient, and supported by the latest data-driven technology.

Keywords: Flutter, IoT, water quality, early warning, monitoring application, fish farming.