

IKMAL MAULID HATTA, 22.240.0002

**SISTEM KUALITAS AIR PADA BUDIDAYA IKAN LELE SANGKURIANG
BERBASIS IOT**

Dibawah bimbingan Widiyono., S.T., M.Kom., dan Arief Soma Darmawan., S.T., M.Kom..
84 + xiii halaman/ 21 gambar/ 8 tabel/ 3 lampiran/ 19 pustaka (2020 – 2024)

ABSTRACT

The research entitled "Water Quality Monitoring System for Sangkuriang Catfish Cultivation Based on the Internet of Things (IoT)" was conducted based on the importance of monitoring water quality to maintain optimal conditions for Sangkuriang catfish farming. This study aims to design and implement a water quality monitoring system capable of monitoring water temperature, turbidity level, and water level in real time through a mobile application. The system was developed using NodeMCU ESP8266 as the main microcontroller, DS18B20 temperature sensor, turbidity sensor, and HC-SR04 ultrasonic sensor integrated with the ThingSpeak cloud platform and a Flutter-based mobile application. Sensor data are transmitted via a Wi-Fi network to the cloud and displayed in real time on the mobile application, which is also equipped with a notification feature to alert users when water quality parameters exceed predetermined thresholds. The results of the system testing indicate that the proposed system is capable of monitoring water quality effectively, displaying sensor data consistently, and is suitable for use as a real-time water quality monitoring solution for Sangkuriang catfish cultivation based on the Internet of Things (IoT).

Keywords: Internet of Things (IoT), Water Quality Monitoring, Sangkuriang Catfish, ThingSpeak, Flutter.

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ABSTRAK

Penelitian yang berjudul "Sistem Monitoring Kualitas Air pada Budidaya Ikan Lele Sangkuriang Berbasis Internet of Things (IoT)" dilatarbelakangi oleh pentingnya pemantauan kualitas air untuk menjaga kondisi budidaya ikan lele Sangkuriang agar tetap optimal. Penelitian ini bertujuan untuk merancang dan mengimplementasikan sistem monitoring kualitas air yang mampu memantau suhu air, tingkat kekeruhan, dan ketinggian air secara real-time melalui aplikasi mobile. Sistem dikembangkan menggunakan NodeMCU ESP8266 sebagai mikrokontroler, sensor DS18B20, sensor turbidity, dan sensor HC-SR04 yang terintegrasi dengan platform ThingSpeak dan aplikasi mobile berbasis Flutter. Data hasil pembacaan sensor dikirim melalui jaringan Wi-Fi menuju cloud dan ditampilkan secara real-time pada aplikasi, serta dilengkapi dengan fitur notifikasi apabila parameter kualitas air berada di luar batas yang ditentukan. Hasil pengujian menunjukkan bahwa sistem mampu melakukan monitoring kualitas air dengan baik, menampilkan data secara konsisten, serta layak digunakan sebagai media pemantauan kualitas air pada budidaya ikan lele Sangkuriang berbasis Internet of Things (IoT).

Kata Kunci: *Internet of Things (IoT), Monitoring Kualitas Air, Ikan Lele Sangkuriang, ThingSpeak, Flutter.*