SISTEM OPTIMALISASI KUALITAS AIR MINUM AYAM BERBASIS IOT MELALUI APLIKASI MOBILE DI PETERNAKAN RIZQIE

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ABSTRAK

Produktivitas ayam ras petelur sangat dipengaruhi oleh kualitas dan ketersediaan air minum, seperti tingkat keasaman (pH), kejernihan, dan ketersediaan air minum yang memadahi. Ketidaksetaraan faktor-faktor ini dapat menyebabkan gangguan kesehatan ayam dan hasil produksi. Penelitian ini dilakukan di Peternakan Rizqie, Jember, yang menghadapi kendala dalam pemantauan kondisi air minum pada wadah minum ayam serta efektifitas dalam pengurasan dan pengisian ulang air minum. Untuk itu, dikembangkan sistem otomatiasasi dan monitoring berbasis *Internet of Things* (IoT) yang terintegrasi dengan aplikasi mobile. Sistem ini memanfaatkan mikrokontroler ESP32 yang dilengkapi sensor pH untuk pengukuran tingkat keasaman, sensor turbidity untuk mengukur tingkat kekeruhan air, serta sensor ultrasonik untuk deteksi tingkat ketinggian air. Data air minum dikirimkan secara real-time ke aplikasi *mobile* yang dirancang menggunakan *framework* Flutter dan terhubung dengan Firebase sebagai basis data. Sistem ini juga menyediakan otomatisasi pengendalian, seperti pengurasan air ketika parameter pH dan Turbidity melebihi batas aman. Hasil pengujian menunjukkan bahwa sistem ini mampu membantu peternak dalam memantau dan mengelola air minum pada kandang ayam.

Kata Kunci: IoT, Lingkungan Kandang, Aplikasi Mobile, Otomasi

CHICKEN DRINKING WATER QUALITY OPTIMIZATION SYSTEM BASED ON IOT THROUGH MOBILE APPLICATION AT RIZQIE FARM

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ABSTRACT

The productivity of laying hens is greatly influenced by the quality and availability of drinking water, such as acidity level (pH), clarity, and adequate availability of drinking water. Inequality of these factors can cause health problems in chickens and production results. This research was conducted at Rizqie Farm, Jember, which faced obstacles in monitoring the condition of drinking water in chicken drinking containers and the effectiveness of draining and refilling drinking water. For this reason, an automation and monitoring system based on the Internet of Things (IoT) was developed which is integrated with a mobile application. This system utilizes an ESP32 microcontroller equipped with a pH sensor to measure acidity levels, a turbidity sensor to measure water turbidity levels, and an ultrasonic sensor to detect water levels. Drinking water data is sent in real-time to a mobile application designed using the Flutter framework and connected to Firebase as a database. This system also provides control automation, such as draining water when pH and Turbidity parameters exceed safe limits. The test results show that this system is able to assist farmers in monitoring and managing drinking water in chicken coops.

Keywords*: IoT, Cage Environment, Mobile Application, Automation*