

ABSTRACT

Quail farming in Indonesia holds considerable economic potential as a source of animal protein. However, productivity in quail farms is often constrained by limited labor and manual environmental monitoring practices. These limitations result in fluctuating temperature, air quality, and cage hygiene, which increase the risk of stress and disease among quails, ultimately reducing egg production. The application of Internet of Things (IoT) technology provides a promising solution by enabling automated, real-time, and more accurate monitoring of farm conditions. This study developed an IoT-based monitoring system utilizing temperature, humidity, air quality, and drinking water pH sensors integrated with a microcontroller and digital notification system. The collected data are automatically transmitted to a website and Telegram application, allowing remote and continuous monitoring. The system was tested on a medium-scale quail farm in Banyumas Regency. Test results showed that the drinking water pH stabilized at an average of 7.1, temperature averaged 29.51 °C, humidity averaged 76.07%, and air quality sensor readings averaged 239.21 in analog value. After implementing the system, egg production increased from 2,061 to 2,102 eggs per cycle. These findings demonstrate that the system improves monitoring efficiency, decision-making speed, and overall quail farm productivity.

Keywords: Internet of Things, monitoring, quail farming, efficiency, productivity, automation