ABSTRACT

This design aims to develop an efficient Internet of Things (IoT) based integrated feeding and cleaning system for broiler chicken farming. Technology-based approaches are crucial to improve efficiency and sustainability in poultry farming. Currently, farm monitoring systems are predominantly conventional or manual, incurring significant labor costs. In the era of Society 5.0, innovative solutions leveraging cutting-edge technology are required to enhance productivity and sustainability in farming.

The design adopts a prototype development method to create an efficient and scheduled feeding system for broiler chickens. The system consists of microcontroller devices capable of regulating chicken feeding and implementing regular and adjustable schedules. Additionally, the system uses IoT technology, enabling remote control and real-time monitoring through an Android application. This system empowers farmers to efficiently monitor and manage chicken feeding without being physically present at the farm. Furthermore, it incorporates scalable formulas considering the number of cages, required cage area, and feed volume needed for the broiler chickens.

The development of this IoT-based broiler chicken feeding system provides convenience and ease through the Android application for monitoring and feeding. It leads to increased cost, time, and labor efficiency in providing chicken feed. Additionally, the system allows for precise and consistent scheduling, benefiting the growth and health of broiler chickens. Based on cost efficiency tests for scalability of 5000 broiler chickens, it is concluded that the IoT-based Broiler Chicken Feeding System is 4.25 times more efficient than conventional systems. Moreover, application feature testing demonstrated improved response times, further optimizing farmer efficiency when using only the application. Therefore, the design strives to achieve self-sufficiency and sustainability in the broiler chicken farming industry.

Keywords : IoT-based Feeding System, Broiler Chicken Farming, React Native Application, Firebase, Arduino Mega 2560 Wi-Fi