ABSTRACT

High ammonia concentrations in poultry houses can have detrimental effects on the health of the livestock. This study focuses on the design and development of an automated, Internet of Things (IoT)-based system for controlling ammonia levels in poultry houses, featuring control and notification functionalities via a Discord chatbot. The system is engineered to automatically spray an EM4 solution to maintain the air quality within the enclosure. The methodology utilizes an ESP32 as the microcontroller, NH3 and DHT21 sensors for monitoring, and a relay module to control the EM4 sprayer pump. The results indicate that the system was successfully designed and is capable of operating autonomously, sending notifications through the Discord chatbot when ammonia levels exceed 15 ppm. Moreover, the EM4 solution spraying was proven effective in reducing ammonia concentrations. The developed system is expected to provide a viable solution for the implementation of IoT-based automation in livestock farming integrated with a chatbot.

Keywords: ammonia, chatbot, Discord, IoT, EM4, ESP32, NH3 Sensor, Chicken