ABSTRACT

This study aims to develop an Internet of Things (IoT) system integrated with smart devices based on computer vision to address the rat pest problem in residential and agricultural areas. The presence of rats causes material damage and poses risks of spreading dangerous diseases such as leptospirosis and salmonellosis. The system utilizes the *You Only Look Once* version 8 (YOLOv8) detection method to identify the presence of rats under various lighting conditions. The detection process is carried out using a camera connected to a Raspberry Pi, which processes image data and sends commands to the Arduino microcontroller. The Arduino controls a servo motor to activate a repellent mechanism in the form of liquid spraying. The system is also equipped with a web-based dashboard for remote real-time monitoring, allowing users to observe detection activities and system responses. The test results show that the system operates according to the designed specifications, detecting the presence of rats and automatically activating the repellent mechanism. By integrating IoT, computer vision, and hardware control, this system provides an innovative, reliable, and effective solution for mitigating rat pest problems.

Keywords : Internet of Things (IoT), Computer Vision, YOLOv8, Raspberry Pi, Arduino, Web Dashboard, Rat Detection, Pest Control, Liquid Spraying.