

## **ABSTRACT**

Property items that are in the yard of the house, especially motorbikes, are often the target of criminal acts of theft when residents are careless or when traveling out of the house. So we need a device to detect symptoms of the arrival of people who may have malicious intentions as early as possible which then sends a message to the home owner.

In this final project, a system for detecting signs of people's arrival is made using a Passive Infra Red (PIR) motion sensor which will automatically activate the camera, take pictures, and send the images via telegram instant messaging in real-time to the homeowner's cell phone accompanied by a link. ) video to monitor the situation around the home page by live streaming from their cellphone. The system can also be controlled from a mobile phone via Telegram to turn on/off the motion sensor and camera flash, take pictures (photos), and open live streaming videos. As an additional feature, a bluetooth device is installed on the motorcycle which is set as a peer with a partner that is connected to the ESP 32 Cam, where if the motorcycle moves more than 15 meters the bluetooth connection will be disconnected and will provide a "moving location" notification.

From the functional test results, it was found that the system worked as planned with a 99% success rate and the results of the performance test were that the PIR sensor range was 7m, motorbike detection moved 10 m for bluetooth conditions blocked by walls and 15 m for barrier-free conditions. QoS test results: the average command execution response time is 9.17 ms, the live streaming video interarrival delay is 58.22 ms, with a throughput of 129.6 kbps and 4.63 MoS.

**Keywords:** Internet of Things, ESP32 CAM, PIR Sensor, Instant Messaging Telegram.