

ABSTRACT

In human life, security systems have become a basic need. The safety aspect is very important in our daily lives. One of them is home security, because home is one of the basic human needs, where we seek protection, rest, and recover from activities. Therefore, the house must be a place that is comfortable, safe, and free from crime. We want a safe home even if it's not there, without the risk of theft or robbery. Sometimes the homeowner is not aware of the presence of guests or people who are not interested, especially in the front yard area of the house. This happens when the homeowner does not own or is obstructed by something that interferes with a direct view of the front yard area of the house. In increasing the level of security in homes, efficient and integrated solutions are needed. Proposed solutions such as the implementation of an object detection system, the implementation of a surveillance system with notifications, the use of IoT (Internet of Things). The results of the curration were obtained for the design of selected solutions, including YOLO as an object detection algorithm. Roboflow as a training data platform, Telegram application as a notification system, python as the programming language, Raspberry Pi 3 Model B+ as a microcontroller, MG90S servo motor as a servo motor, Logitech Webcam C270 as a video camera, and RealVNC Viewer as a remote desktop to connect from computer to computer. The results of the implementation and testing of the system show that the system can detect objects in two conditions, namely day and night from a distance of >10 meters with an accuracy of >50% and an accuracy of >40% when conditions are poorly lit.

Keywords: security, object detection, surveillance