

ABSTRACT

The comfort of a home needs to be supported by a systematic security system that can be monitored remotely. The SIM800L module as an SMS communication medium and the Internet of Things (IoT) network as an interface can be used as a tool for remote home monitoring. This study aims to build a prototype of a home security system based on the Internet of Things (IoT) network and SMS Gateway. The method used in this study uses a research development approach (RnD). This study uses a microcontroller and Arduino Atmega2560 which functions to retrieve data from the PIR sensor and magnetic sensor and becomes input for the buzzer which functions as an alarm. PIR range and response were tested under different ambient temperature conditions. The SIM800L module will send an SMS to the home owner. To see the condition of the room in the house, tracking the IP Camera is done using the ESP32 Cam. Tests show that the PIR sensor is able to track every movement at a movement radius of 10-30 centimeters and at an angle of 30°-90° and the magnetic sensor can track every movement at a angle 30°-90° with an average delay of 20,5 to 25,5 seconds. The microcontroller sends a command to the buzzer to sound an alarm and an SMS will be sent to the user. Monitoring can also be done by users via the web or laptop. The prototype system developed can run according to the target.

Keywords: Home security system, IoT, SMS, PIR Sensor, *Magnetic* Sensor, ESP32 Cam