
BITS 3533 Wireless Network and Mobile Computing

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Proposal

# Intruder Detection System

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# Table of Contents



## 1. Team Roles

| Group Member | Role |
|---|---|
| Muhammad Izham | Software programmer |
| Ahmad Sha Herizam | Software programmer |
| Affendy Elyas | Hardware |
| Muhammad Rifqi | Hardware |
| Muhammad Ikmal | Hardware |
| Nur Ilyana Syahirah | Software programmer |

## 2. Introduction

There are numerous reports on residence and even residential safety issues today, including breaking and entering cases. Security system consequently has become a crucial concern in today's modern lifestyles. Therefore, it is crucial for the building owner to keep an eye on any unauthorised activities that take place inside their work place using a surveillance system. Due to high state of insecurity being experienced in the world the need to keep the occupants aware of any intrusion into their premises drives the purpose of this project. Monitoring systems provide an excellent alternative for providing effective security as a result of the increased awareness of security systems. As a result, the goal of this project is to suggest a smart security system that uses a Raspberry Pi.

The solution to this problem is Intruder Alarm System. An intruder alarm system using raspberry pie will be suitable in providing another layer of security while also being a low-cost alarm system. It is also easily implemented on various entrances and send any anomalies to any selected update channel. Residential monitoring has evolved into an intelligent method of assisting the holder with the aid of information technology and smart devices that are used today to supervise a residence. These advancements come together to create previously unimaginable windows of chance. Possibly, a small, transportable, affordable, and processing platform could be created. Motion detection is becoming more flexible and less expensive than ever. Application like telegram used to notify the owner once the sensor activates buzzer to warn the occupants.

## 3. Problem Background

Doors are often the first and last line of barrier between someone with malicious intent and your safety and valuables. No matter how secure the entrance is, there will always be risk of someone breaking in and entering your private property. Thus, it is natural to put another layer of security on entrances such as windows or doors to protect or detect outsider. Unfortunately it is quite uncommon and expensive to set up a detection system on every critical entrances while being flexible enough to work on different kind of entrances such as doors, windows, and sliding doors.

## 4. Proposed Solution

### 4.1 List of hardware and software/platform

- Raspberry pi
- Breadboard
- Python 3
- Node-RED
- Motion sensor – Infrared Sensor
- Buzzer
- Jumper Wire

### 4.2 List of Functions/module

1) Intrusion Module

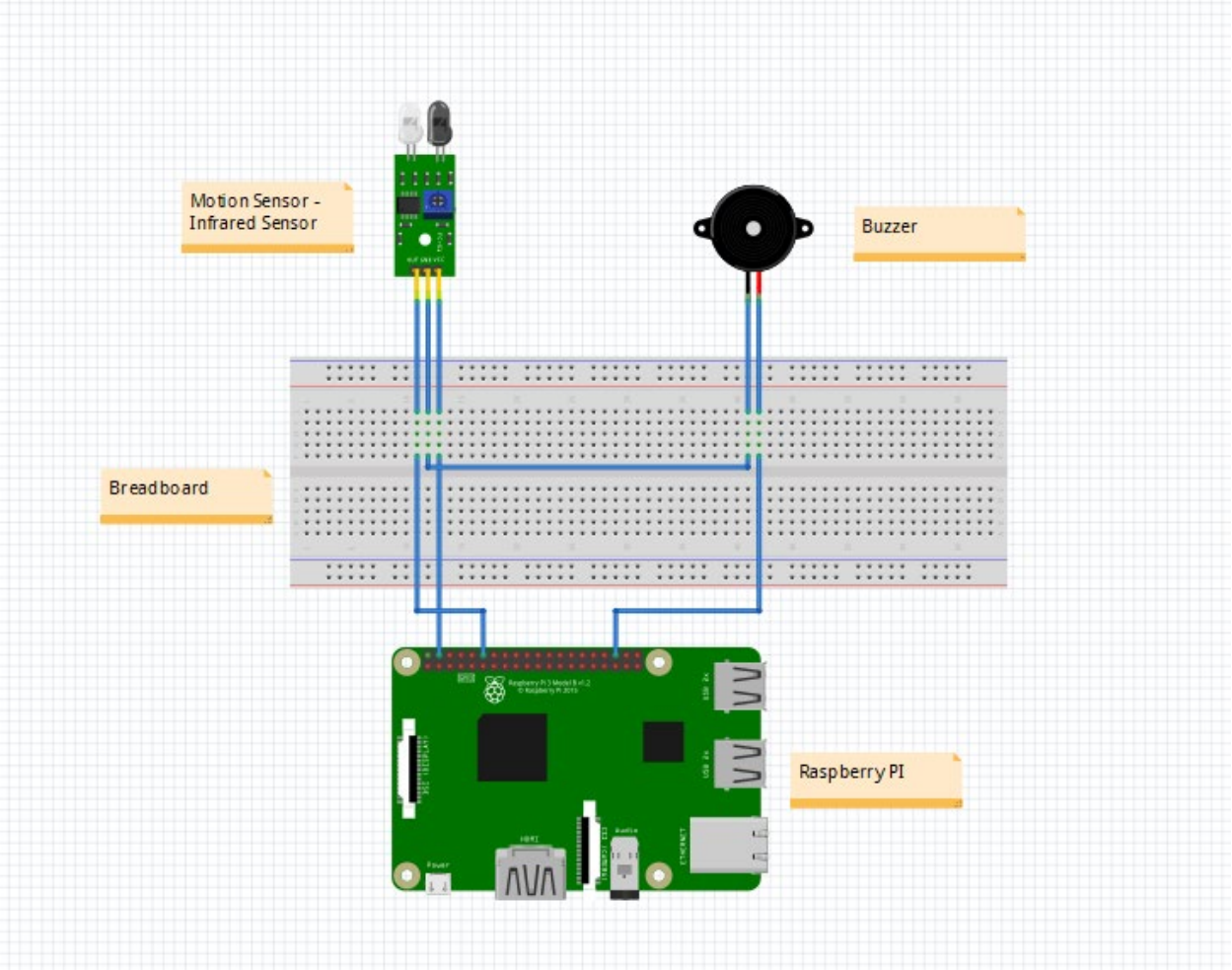
Motion detector placed behind doorway and when this sensor activates the following sequence happens:-

- Activates buzzer to warn the occupants
- Notify owner through update channel (such as Telegram)

2) Disarm alarm Module

Giving user option to disarm alarm or turn off activated alarm

## 4.3 Solution diagram (overall device)




## 4.4 Relation of the hardware/software/module to 3-layer IoT

| Hardware / Software / Module | 3-layer IoT |
|---|---|
| • Telegram bot | Application |
| • Wi-Fi | Network |
| • Raspberry Pi<br>• Motion sensor<br>• Buzzer | Hardware |