

Project Design Document

Home Surveillance with Automation

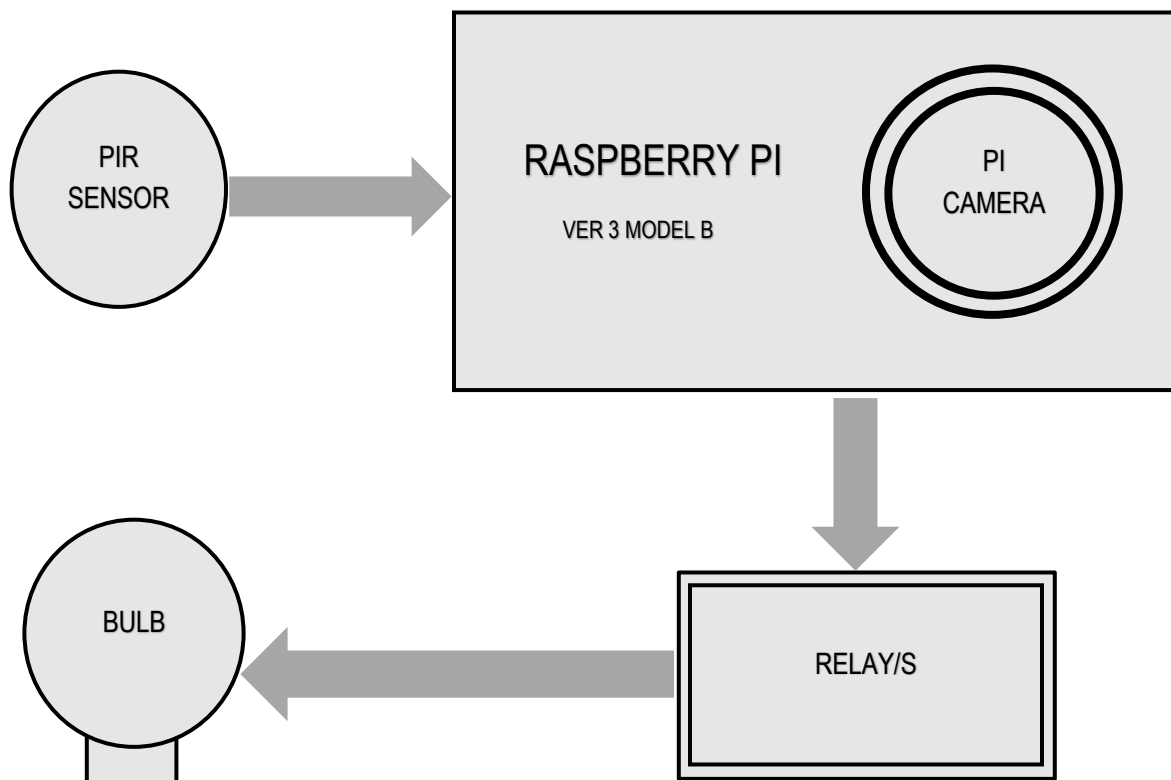
Batch ID: 15241A0461

The Home Surveillance with automation project aims to provide the user with the facility to monitor the home using the raspberry pi. Motion will be detected via PIR (passive infrared) Sensor, will trigger the PI Camera to take a photo, and along with this system is able to control outdoor light of a home using a relay channel connected to the pi. The captured pictures are viewed via File Transfer Portal on the smartphone app.

The Home Surveillance with automation consists of the following components:

- Raspberry Pi 3 Model B Board
- Custom Build four or one Channel Relay along with PIR sensor
- Custom made mobile app compatible with android smartphones.

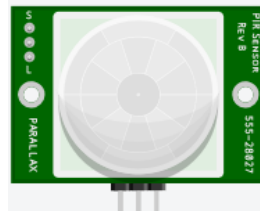
Block Diagram:



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PIR (Pyroelectric ("Passive") Infrared Sensors):

PIRs are made of a pyroelectric sensor that can detect levels of infrared radiation. Along with the pyroelectric sensor is a bunch of supporting circuitry, resistors and capacitors.



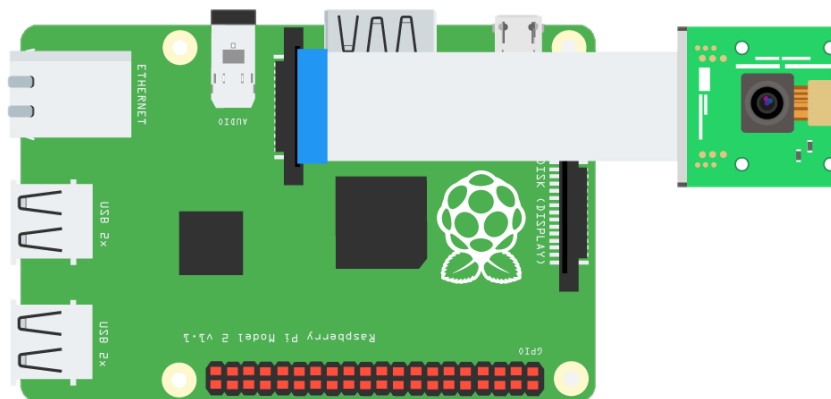
Relay:

A relay is an electromagnetic switch operated by a relatively small electric current that can turn on or off a much larger electric current. Here we used a 5V Relay Module, which can be triggered by 3.3v GPIO Pin.



Raspberry Pi with PI Camera:

The PIR sensor and relay module are connected to the raspberry pi GPIO pins and the PI camera is connected to the dedicated camera socket. The output of the PIR sensor triggers the camera to capture images and control the lights.



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Software:

- 1) The Main Program for sensing the passive infrared sensor and relay in written in python language.

The main object of the python script will be to receive passive infrared sensor high or low output depending on the movement and also to enable camera and picture is captured while the relay can be turned on and off accordingly.

- 2) HTML with PHP script is used on server side to interface with the mobile app.

Mobile Application (Android):

The Mobile Application will be created using the App Inventor 2.

The mobile app main functions will be the following:

- 1) View the motion captured images.
- 2) Live feed of camera

