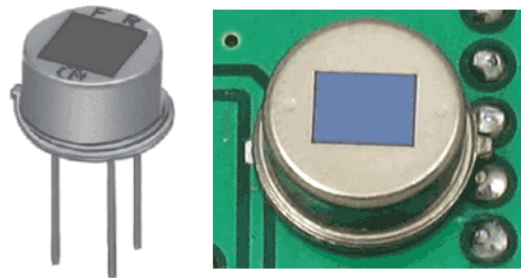# Project 2

Motion Sensor Alarm

Introduction

In this project, when the PIR Sensor detects any human motion, a buzzer is activated. With this interface, you can implement a simple Motion Detection Alarm as a DIY Project.

Hardware Required

- – Raspberry Pi 3 Model B
- – PIR Sensor
- – 5V Buzzer
- – Connecting Wires
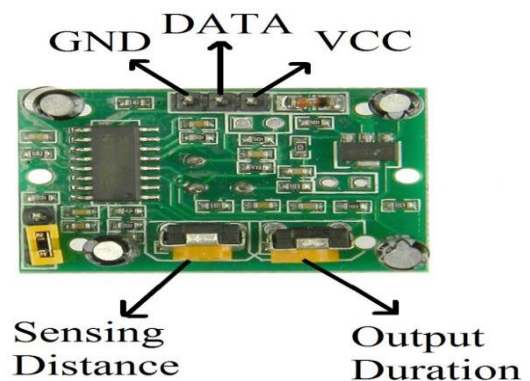- – Mini Breadboard
- – Power Supply

PIR Sensor Adjustments

As mentioned earlier, there are two potentiometers for manually adjusting the sensitivity and output timing.
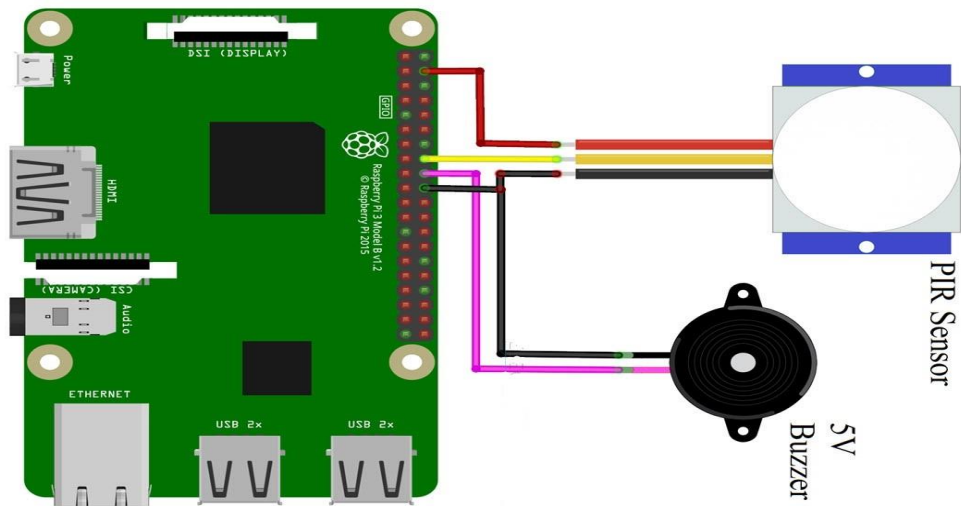
With the help of the first potentiometer, you can adjust the Sensitivity i.e. the Sensing Distance of the PIR Sensor. The range can be adjusted from 3 meters up to 8 meters. To increase the sensing distance, turn the POT in clockwise direction and to decrease, turn it in anti-clockwise direction.

Coming to the second potentiometer, you can adjust the duration for which the Output of the PIR Sensor stays HIGH. It can be varied anywhere between 0.3s to 600s. To increase the time, turn the POT in clockwise direction and in anti-clockwise direction to decrease the time.

Hardware Setup

Connect the VCC and GND pins of the PIR Motion Sensor to +5V and GND pins of the Raspberry Pi. Connect the DATA Pin of the PIR Sensor to GPIO23 i.e. Physical Pin 16 of the Raspberry Pi. A 5V Buzzer is connected to GPIO24 i.e. Physical Pin 18 of the Raspberry Pi. The other pin of the

buzzer is connected to GND.

Python Coding

```python
import RPi.GPIO as GPIO

import time

sensor = 16

buzzer = 18

GPIO.setmode(GPIO.BOARD)

GPIO.setup(sensor,GPIO.IN)

GPIO.setup(buzzer,GPIO.OUT)

GPIO.output(buzzer,False)

print "Initializing PIR Sensor......"

time.sleep(12)

print "PIR Ready..."

print " "

try:

    while True:

        if GPIO.input(sensor):

            GPIO.output(buzzer,True)
```

```
        print "Motion Detected"

        while GPIO.input(sensor):

            time.sleep(0.2)

    else:

        GPIO.output(buzzer,False)

except KeyboardInterrupt:

    GPIO.cleanup()
```

Output

The working of the PIR Motion Sensor using Raspberry Pi is very simple. If the PIR Sensor detects any human movement, it raises its Data Pin to HIGH.
Raspberry Pi upon detecting a HIGH on the corresponding input pin, will activate the Buzzer.

Application

- Human body detection
- Object Movement detection