

DATE \_\_\_\_\_  
Name:- Peritam Gotiram Mogal

Div:- TE (B)

Roll No:- 17

Sub:- ESI09

#### Experiment No: 4

Aim:- Understanding the connectivity of Raspberry-Pi Beagle board circuit with IR sensor.  
Write an application to detect obstacle & notify user using LED's.

#### Theory:-

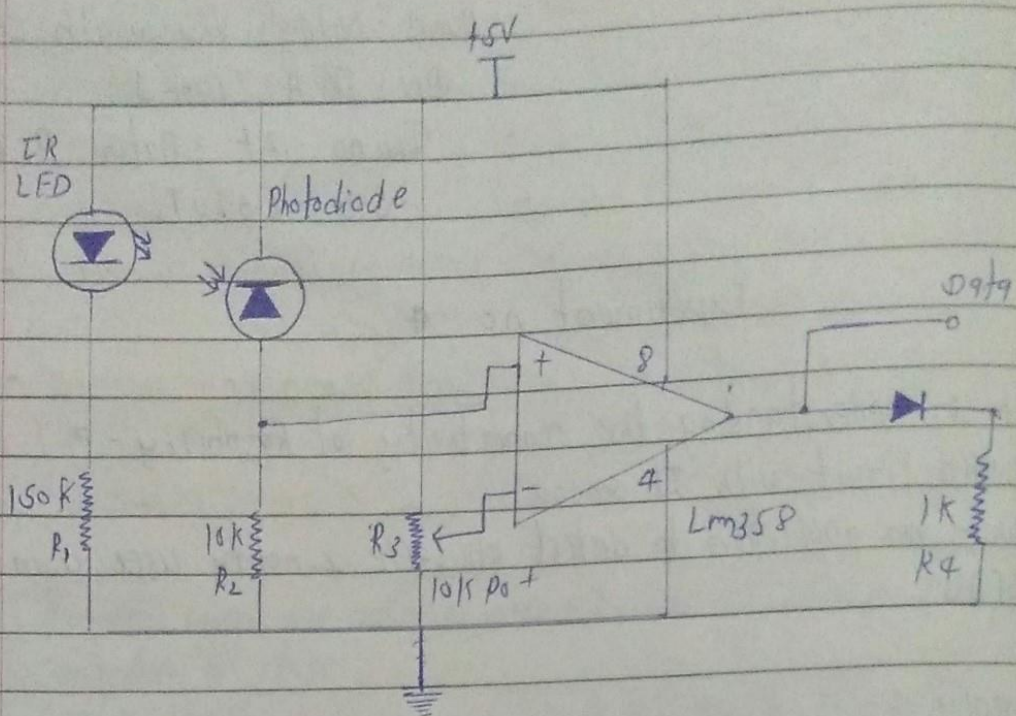
1. **Emitter:** This component continuously emits the signal.
2. **Receiver:** It waits for the signal which is bounced back by obstacle.
3. **Indicator:** - on board LED to signal if obstacle is detected by the sensor.
4. **Output:** - could be used as input for further processing of the signal.
5. **Ground:** - Ground Negative point of the circuit.
6. **Voltage:** - Input 3-3V.

#### Objective:-

We will create circuit using following components

1. Raspberry Pi-3
2. IR sensor
3. 1 LED
4. 1 resistor (33- $\Omega$ )
5. few jumper cables.
6. 1 bread board.





Circuit diagram of IR sensor.

Circuit :- To detect obstacles.

Part-1 :- Connecting IR sensor

IR sensor has 3 pins, viz, VCC, GND & OUT we will use GPIO for receiving input from sensor.

1. Connect GPIO pin from the Raspberry Pi to breadboard
2. Connect out pin of sensor with the breadboard.
3. Connect GND with negative line on left side of the breadboard
4. Connect GND of IR sensor to breadboard
5. Connect GND from step 3 to breadboard
6. Connect VCC of the IR sensor to breadboard
7. Connect 3V3 (Pin#1) to positive line on left side of the breadboard
8. Connect 3V3 to breadboard

Now circuit is completed & sensor will detect the obstacle. It can be tested by putting anything in front of IR sensor



## Part 2 :- Connecting LED

objective is to turn on LED when obstacle is detected.

1. Connected GND of the board to the breadboard.
2. Connect the pin of LED to breadboard
3. Connect negative pin of LED to the breadboard.

Now we are ready to send signal based on IIR received from IR sensor to turn on/off the LED.

## Part 3 :-

code to connect IR sensor IIR with LED status

## Part 4 :- Executing the code

- open terminal
- Navigate to directory where the above code is saved
- Type `$python3 ir_obstacle.py` & press enter.

## Conclusion :-

Thus, we done connectivity of Raspberry pi / Beagle board circuit with IIR sensor. write an application to detect obstacle & notify user using LED's.



**IR Sensor Fig.1**