

# Experiment No - 4

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Aim - understanding the connectivity of Raspberry Pi Beagle board, circuit with IR sensor, write An application to detect obstacle and notify user using LED's.

Theory : Infrared sensor IR works by emitting infrared signal / radiation, and receiving of the signal when the signal bounces back from any obstacles. In other words it works by continuously sending signal and continuously receives signals, by bouncing on any obstacle in the way.

Component : IR sensor

1. Emitter : The component continuously emits infrared signal.
2. Receiver : waits for the signals which is bounced back by obstacles.
3. Indicator : on board LED to signal if obstacles is detected by the sensor.



4. output : could be used as Input for further processing of the signals.
5. Ground : Ground / Negative point of the circuit.
6. Voltage : Input 3.3v.

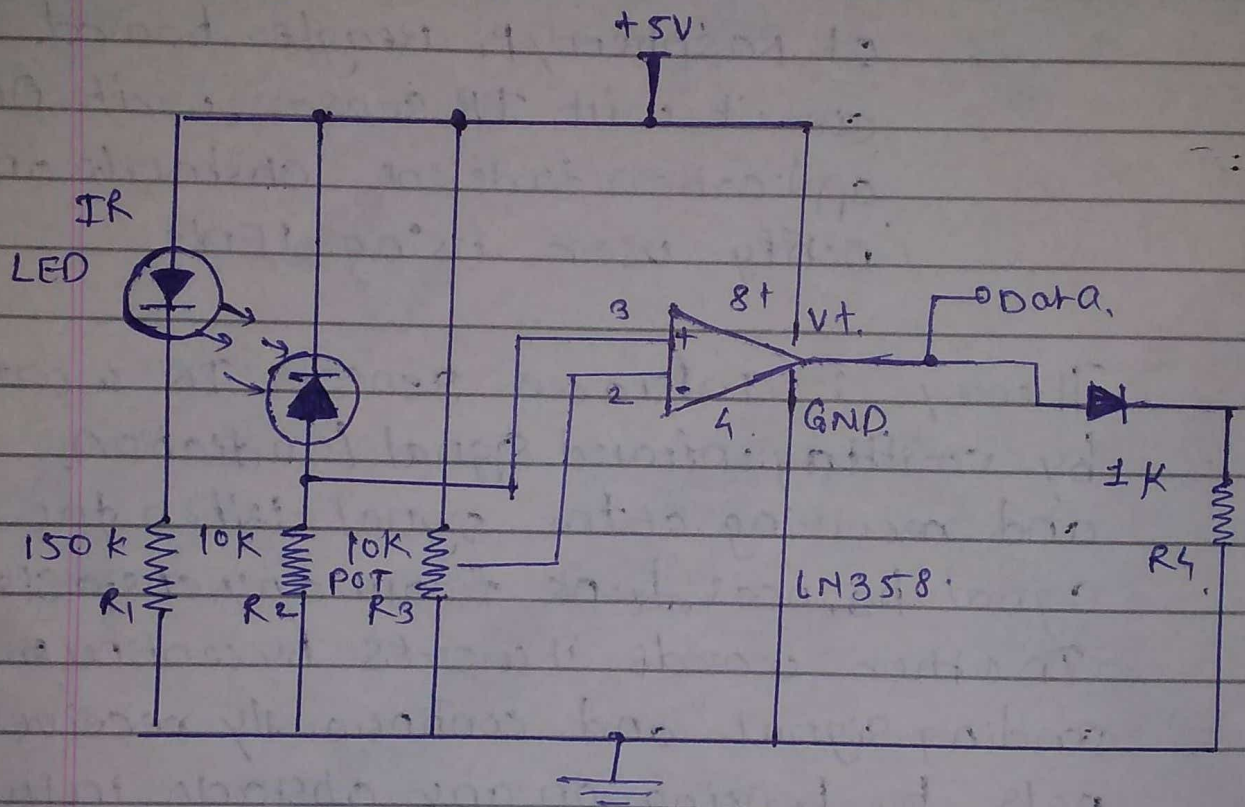


Fig. Circuit Diagram FOR IR Sesor.

Objectives :

we will be creating a circuit using following component to detect obstacle:

1. Raspberry pi -3.
2. Infrared sensor.
3. 1 LED
4. 1 Resistor (330  $\Omega$ )
5. Few Jumper cables.
6. 1 Breadboard.

Circuit : To detect obstacles.  
We will be creating a circuit which will turn on the LED when an obstacle is detected. And, as soon as the obstacle is removed from the way the LED will turn off. In order to achieve, follow Steps to create required circuit.

- part 1 : connecting IR sensor
- part 2 : connecting LED.
- part 3 : code to connect IR sensor  
IR with LED status.

```

from GPIO zero import LED
from GPIO GPIO zero signal import power
import signal Rpi GPIO as GPIO
import time
GPIO.set mode (GPIO. BCM)
LED - PIN = 27
IR - PIN = 17
indicator = LED (LED - PIN)
GPIO.setup (IR - PIN, GPIO.IN)
count = 1
while True:
    got - something = GPIO.input (IR - PIN)
    if got - something :
        indicator.on()
    
```



```
printt (" { : > 3 } Got something ",  
        format(count))  
else  
    indicator.off()  
    printt " { : > 3 } Nothing detected".  
    format(count))  
    count+=1  
    time.sleep(0.2)
```

part 4 : Executing the code.

Conclusion  $\rightarrow$  Thus, we done connectivity of Raspberry Pi Beagles board circuit. with IR sensor. write an application to detect obstacles and notify user, using LED's.