Project 4

Smart Parking System

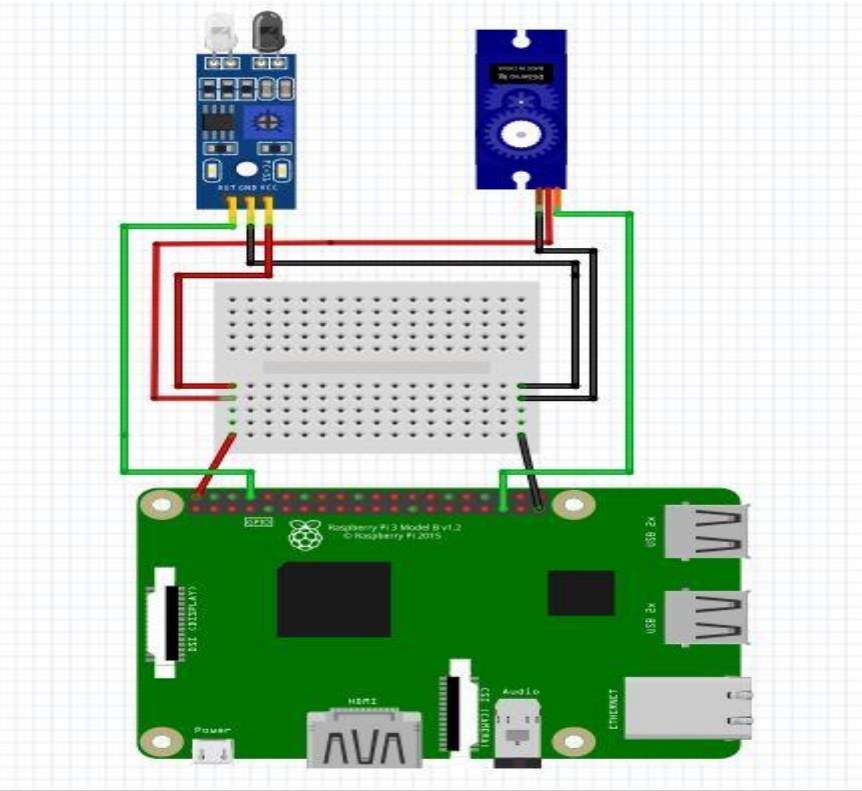
Introduction

In this project you are going to make Smart Parking System ,in which the number of vehicle coming in the Parking Area will be counted. Meanwhile the gate will also open automatically when IR sensor sense any vehicle near gate.

Hardware Required

- Raspberry Pi
- Servo Motor
- IR Sensor
- Connecting Wires
- Breadboard
- Power Supply

Hardware Setup



Python Coding

```
import RPi.GPIO as IO   # calling for header file for GPIO's of PI
import time             # calling for time to provide delays in program
IO.setwarnings(False)   # do not show any warnings
IO.setmode (IO.BCM)  # programming the GPIO by BCM pin numbers.(like PIN29 as'GPIO5')
IO.setup(14,IO.IN)      #GPIO 14 -> IR sensor as input
IO.setup(25,IO.OUT)     # initialize GPIO19 as an output
Count=0
p = IO.PWM(25,50)       # GPIO19 as PWM output, with 50Hz frequency
p.start(7.5)            # generate PWM signal with 7.5% duty cycle
while 1:                # execute loop forever
   if(IO.input(14)==False):                              #object is near
         p.ChangeDutyCycle(7.5)                          #servo position to 90º
         time.sleep(3)                                   # sleep for 3 second
         count=count+1
         print('count')
         print('Vehicle present in the parking area')
         p.ChangeDutyCycle(2.5)                          #servo position to 0º
         time.sleep(1)                                   # sleep for 1 second
```

Output

When any object comes near the gate, the gate will be opened automatically and it will print the number of passed vehicle through the gate.