#include <Wire.h>

#include <LiquidCrystal\_I2C.h>

#include<Servo.h>

LiquidCrystal\_I2C lcd(0x27, 20, 4);

Servo Myservo;

#define echoPin1 2 // Echo Pin for sonar 1

#define trigPin1 3 // Trigger Pin for sonar 1

#define echoPin2 4 // Echo Pin for sonar 2

#define trigPin2 5 // Trigger Pin for sonar 2

#define echoPin3 6 // Echo Pin for sonar 3

#define trigPin3 7 // Trigger Pin for sonar 3

#define irPin 8

#define flame\_sensor 12

#define LED 13

long duration1, distance1; // Duration used to calculate distance

long duration2, distance2;

long duration3, distance3;

int hasObstacle = LOW;

int flame\_detected;

int count=0;

int freeSlot =0;

int dis1 = 0;

int dis2 = 0;

int dis3 = 0;

void setup() {

Serial.begin (9600); // initiate serial communication to raspberry pi

pinMode(trigPin1, OUTPUT); // trigger pin as output

pinMode(echoPin1, INPUT); // echo pin as input

pinMode(trigPin2, OUTPUT);

pinMode(echoPin2, INPUT);

pinMode(trigPin3, OUTPUT);

pinMode(echoPin3, INPUT);

pinMode(irPin, INPUT);

pinMode(LED, OUTPUT);

pinMode(flame\_sensor, INPUT);

Myservo.attach(10);

lcd.init();

lcd.backlight();

//lcd.clear();

}

void loop() {

//IR Sensor with servo motor

hasObstacle = digitalRead(irPin);

if(hasObstacle==HIGH)

{

Serial.println("No Car");

Myservo.write(90);//motor will start rotating & close the gate

delay(30);

}

else{

Serial.println("Car has came");

Myservo.write(180);//motor will start rotating & open the gate

delay(30);

//lcd.clear();

}

//Ultrasonic Sensor

digitalWrite(trigPin1, LOW);

delayMicroseconds(2);

digitalWrite(trigPin1, HIGH);

delayMicroseconds(10);

digitalWrite(trigPin1, LOW);

// pulseIn( ) function determines a pulse width in time

// Reads the echoPin, returns the sound wave travel time in microseconds

// duration of pulse is proportional to distance of obstacle

duration1 = pulseIn(echoPin1, HIGH);

digitalWrite(trigPin2, LOW);

delayMicroseconds(2);

digitalWrite(trigPin2, HIGH);

delayMicroseconds(10);

digitalWrite(trigPin2, LOW);

duration2 = pulseIn(echoPin2, HIGH);

digitalWrite(trigPin3, LOW);

delayMicroseconds(2);

digitalWrite(trigPin3, HIGH);

delayMicroseconds(10);

digitalWrite(trigPin3, LOW);

duration3 = pulseIn(echoPin3, HIGH);

// Distance = (Time x SpeedOfSound) / 2

// distance = (high level timevelocity of sound (340M/S) / 2,

// in centimeter = uS/58

distance1 = duration1/58.2;

Serial.println(distance1);

if(distance1<10)

dis1 = 1;

else dis1 = 0;

distance2 = duration2/58.2;

Serial.println(distance2);

if(distance2<10)

dis2 = 1;

else dis2 = 0;

distance3 = duration3/58.2;

Serial.println(distance3);

if(distance3<10)

dis3 = 1;

else dis3 = 0;

// add the result from all sensor to count total car

count = dis1 + dis2 + dis3;

// free slot = total slot - total car

freeSlot = 3 - count;

//LCD

lcd.setCursor(0,0);

lcd.print("Free Slots: ");

lcd.print(freeSlot);

lcd.setCursor(0,1);

if(dis1==0)

{

lcd.print("Park in slot 1");

delay(30);

}

else{

if(dis2==0)

{

lcd.print("Park in slot 2");

delay(30);

}

else{

if(dis3==0)

{

lcd.print("Park in slot 3");

delay(30);

}

else

{

lcd.print("No Free Slot");

lcd.print(" ");

delay(30);

}

}

}

// the status is updated every 3 seconds.

//delay(5000);

//freeSlot = 0;

//distance1 = 0;

// distance2 = 0;

//distance3 = 0;

flame\_detected = digitalRead(flame\_sensor);

if (flame\_detected == 1)

{

Serial.println("Flame detected...! take action immediately.");

digitalWrite(LED, HIGH);

delay(200);

}

else

{

Serial.println("No flame detected. stay cool");

digitalWrite(LED, LOW);

}

delay(3000);

}