#include <Servo.h> //includes the servo library

#include <Wire.h>

#include <LiquidCrystal\_I2C.h> //includes LiquidCrystal\_I2C library

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

Servo myservo;

#define ir\_enter 2

#define ir\_back 4

#define ir\_car1 5

#define ir\_car2 6

#define ir\_car3 7

#define ir\_car4 8

int S1=0, S2=0, S3=0, S4=0 ;

int flag1=0, flag2=0;

int slot = 6;

void setup(){

Serial.begin(9600);

// initialize digital pins as input.

pinMode(ir\_car1, INPUT);

pinMode(ir\_car2, INPUT);

pinMode(ir\_car3, INPUT);

pinMode(ir\_car4, INPUT);

pinMode(ir\_enter, INPUT);

pinMode(ir\_back, INPUT);

myservo.attach(9); // Servo motor pin connected to D9

myservo.write(90); // sets the servo at 0 degree position

// Print text on display

lcd.begin(20, 4);

lcd.setCursor (0,1);

lcd.print(" Smart Car ");

lcd.setCursor (0,2);

lcd.print(" Parking System ");

delay (2000);

lcd.clear();

Read\_Sensor();

int total = S1+S2+S3+S4;

slot = slot-total;

}

void loop()

{

Read\_Sensor();

lcd.setCursor (0,0);

lcd.print(" Have Slot: ");

lcd.print(slot);

lcd.print(" ");

lcd.setCursor (0,1);

if(S1==1)

{

lcd.print("S1:Fill ");

}

else

{

lcd.print("S1:Empty");

}

lcd.setCursor (10,1);

if(S2==1)

{

lcd.print("S2:Fill ");

}

else

{

lcd.print("S2:Empty");

}

lcd.setCursor (0,2);

if(S3==1)

{

lcd.print("S3:Fill ");

}

else

{

lcd.print("S3:Empty");

}

lcd.setCursor (10,2);

if(S4==1)

{

lcd.print("S4:Fill ");

}

else

{

lcd.print("S4:Empty");

}

/\* Servo Motor Control

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if(digitalRead (ir\_enter) == 0 && flag1==0) // read degital data from IR sensor1

{

if(slot>0)

{

flag1=1;

if(flag2==0)

{

myservo.write(180);

slot = slot-1;

}

}

else

{

lcd.setCursor (0,0);

lcd.print(" Sorry Parking Full ");

delay(1500);

}

}

if(digitalRead (ir\_back) == 0 && flag2==0) // read degital data from IR sensor2

{

flag2=1;

if(flag1==0)

{

myservo.write(180); // sets the servo at 180 degree position

slot = slot+1;

}

}

if(flag1==1 && flag2==1)

{

delay (1000);

myservo.write(90); // sets the servo at 90 degree position

flag1=0, flag2=0;

}

delay(1);

}

void Read\_Sensor()

{

S1=0, S2=0, S3=0, S4=0;

if(digitalRead(ir\_car1) == 0){S1=1;} // read degital data from IR sensor3

if(digitalRead(ir\_car2) == 0){S2=1;} // read degital data from IR sensor4

if(digitalRead(ir\_car3) == 0){S3=1;} // read degital data from IR sensor5

if(digitalRead(ir\_car4) == 0){S4=1;} // read degital data from IR sensor6

}