AUTOMATED CAR PARKING SYSTEM

Group No - 04
Sensor Plus

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Introduction

Finding a parking spot in busy areas can be hard and wastes time. Our project, the Automated Car Parking System, solves this problem using Arduino technology. It uses sensors to check if parking spots are free and shows real-time updates to drivers.

The system also automates the gate, making parking faster and easier. This project helps save time, reduces traffic, and improves the parking experience for everyone.

Special Code

Arduino Uno

sensorplus_car_parking_system.ino

```
#include <Servo.h>
#include <Wire.h>
#include <LiquidCrystal_I2C.h>
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
#define ir_car5 9
#define ir_car6 10

int S1 = 0, S2 = 0, S3 = 0, S4 = 0, S5 = 0, S6 = 0;
int flag1 = 0, flag2 = 0;
int slot = 6;
```

Libraries we use and the IR device definitions

```

void setup() {
  Serial.begin(9600);

  pinMode(ir_car1, INPUT);
  pinMode(ir_car2, INPUT);
  pinMode(ir_car3, INPUT);
  pinMode(ir_car4, INPUT);
  pinMode(ir_car5, INPUT);
  pinMode(ir_car6, INPUT);
  pinMode(ir_enter, INPUT);
  pinMode(ir_back, INPUT);
  myservo.attach(3);
  myservo.write(90);
  lcd.init();
  lcd.backlight();
  lcd.setCursor(0, 1);
  lcd.print(" Welcome To ");
  lcd.setCursor(0, 2);
  lcd.print(" SensorPlus");
  delay(5000);
  lcd.clear();
  Read_Sensor();
  int total = S1 + S2 + S3 + S4 + S5 + S6;
  slot = slot - total;
}

```

IR definition codes and the Welcome code

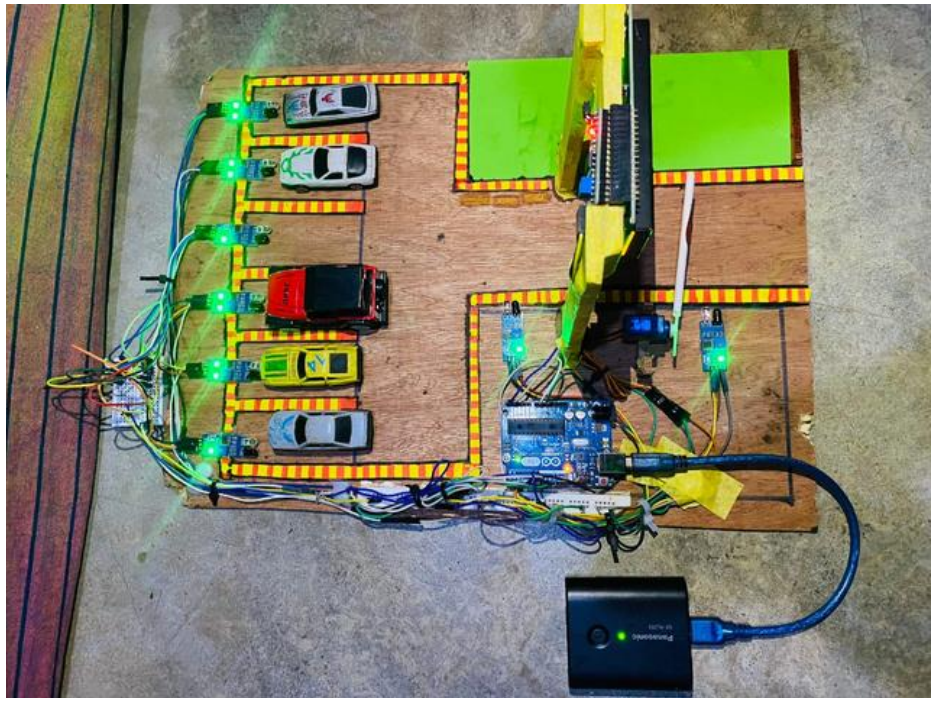
Entrance sensor detecting code

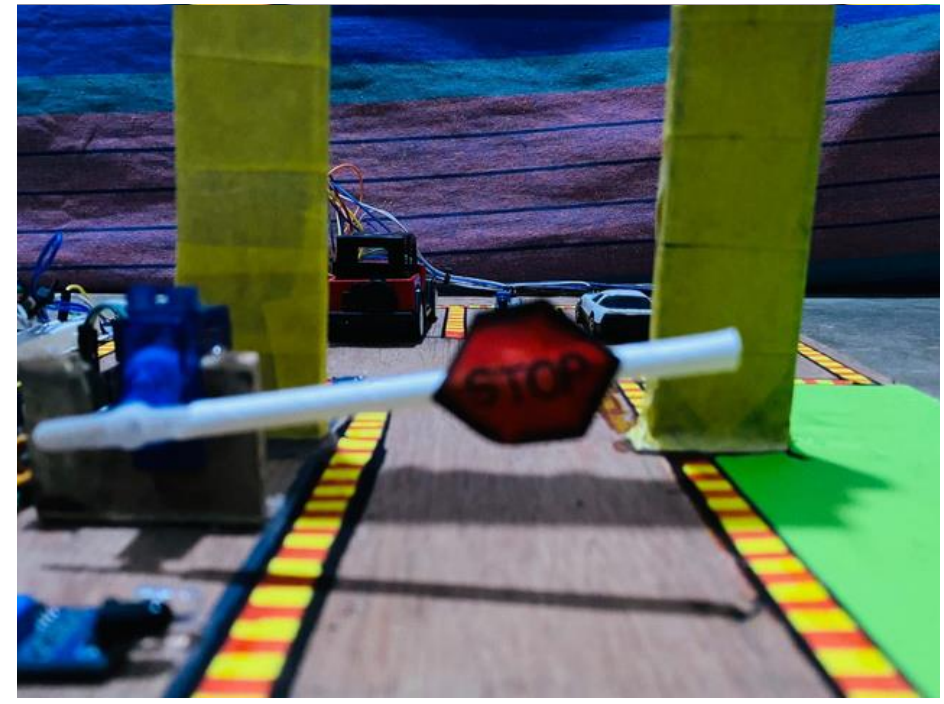
```
void Read_Sensor() {
  S1 = 0, S2 = 0, S3 = 0, S4 = 0, S5 = 0, S6 = 0;
  if (digitalRead(ir_car1) == 0) {
    S1 = 1;
  }
  if (digitalRead(ir_car2) == 0) {
    S2 = 1;
  }
  if (digitalRead(ir_car3) == 0) {
    S3 = 1;
  }
  if (digitalRead(ir_car4) == 0) {
    S4 = 1;
  }
  if (digitalRead(ir_car5) == 0) {
    S5 = 1;
  }
  if (digitalRead(ir_car6) == 0) {
    S6 = 1;
  }
}
```

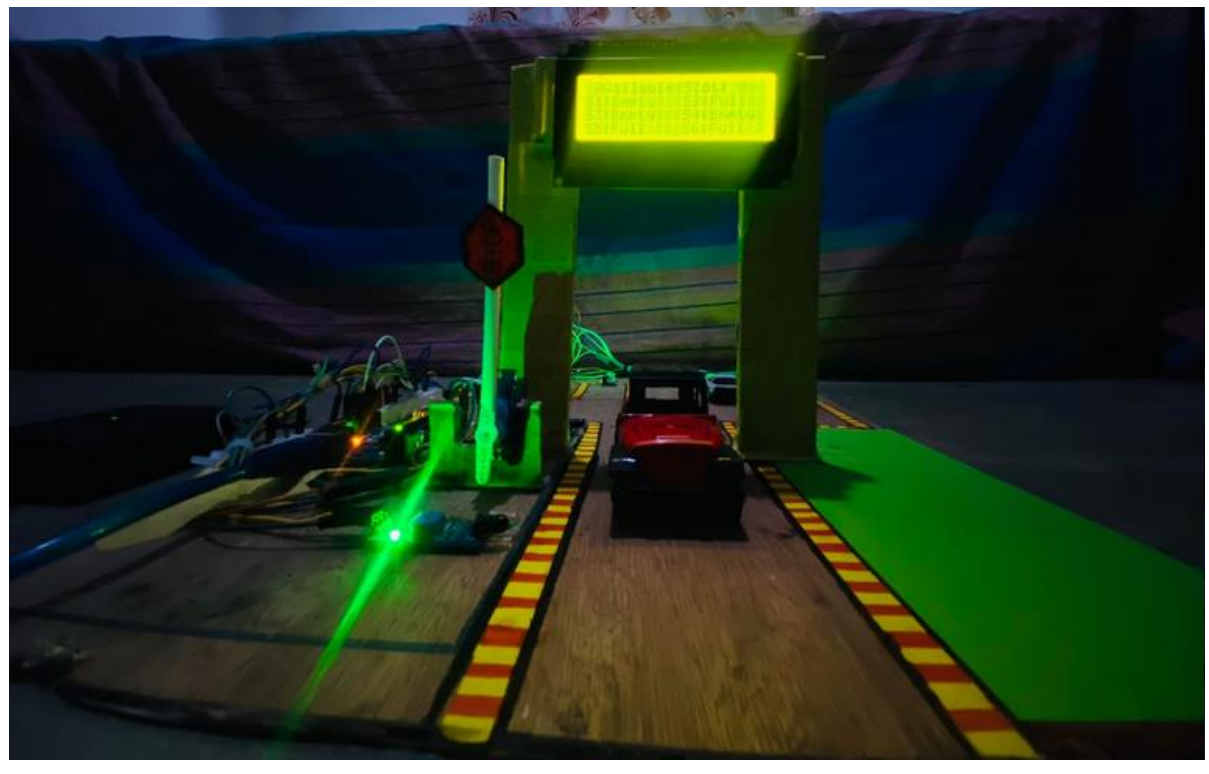
Server motor opening and "parking is full" display code

```
if (digitalRead(ir_enter) == 0 && flag1 == 0) {
  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);
  }
```

Hardware Design







thank you!