INTERNSHIP REPORT

On

TITLE: Smart Parking System

By

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Date: 24 Sept 2022
Day: Saturday

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Working of the project

A smart parking is consist of embedded system which intern consist of hardware and software . multiple sensors servo running simultaneous with the help of codes .

Here we are using Arduino Uno as our main chip with Arduino software for writing the codes .The system consist of 8- Infrared sensors ,5 red and green LED's and 2 servo motors .IR sensors works on the principle of reflection of light here we have a transmitter and a receiver .The IR transmitter is white is color to transmit all radiation in IR range and receiver is in black Color so to absorb reflected ray the IR hits the object/ obstacle and bounce back to the receiver the lights used are red and green in color which symbolizes free or full state of parking lot the servo motor is at the entry gate consist of 2 IR sensors to sense object and open gate and to sense again to close the gate the radiation of the servo is (0-90) angle .Same goes to exit . If the red light is shown at the entrance gate will be by default locked so to stop entrance of more/excessive cars in parking lot and exit will be open by default to make smooth system to work and its green symbolizes the free space in parking lot .

This way we maintain a clear smooth parking system for any area It can be used in Hospital Colleges hotel mall etc.

Block diagram representation of the project

Diagram :- Smart Car parking System
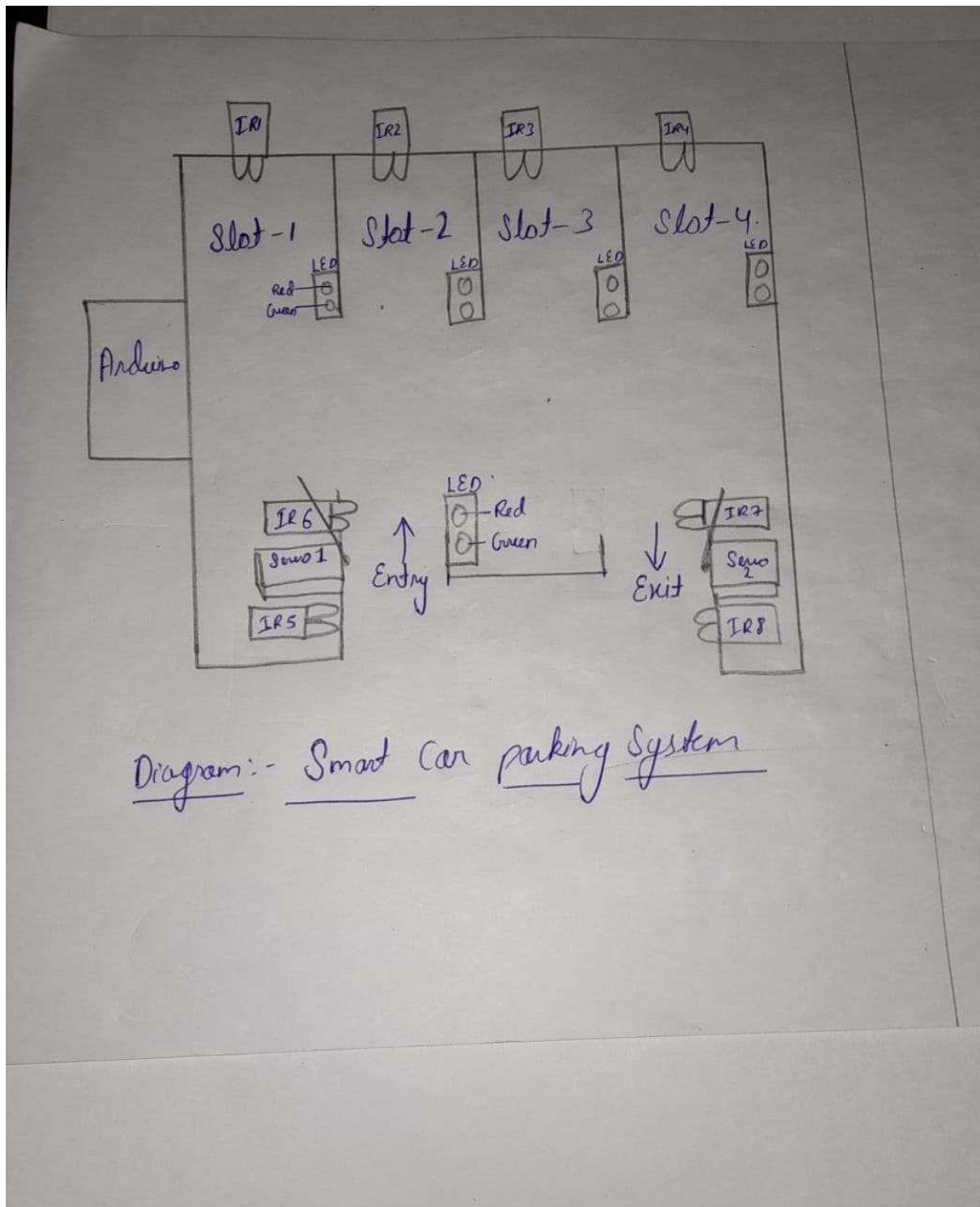
Code for the project

```cpp
#include <Servo.h>
#include <Wire.h>

Servo myservo;
#define ir_car1 5
#define ir_car2 6
#define ir_car3 7
#define ir_car4 8

const int SERVO_PIN = 13;
Servo servo;
int angle = 0;
int lastButtonState;
int currentButtonState;
int S1 = 0, S2 = 0, S3 = 0, S4 = 0;
int flag1 = 0, flag2 = 0;

void setup() {
 Serial.begin(9600);
 pinMode(ir_car1, INPUT);
 pinMode(ir_car2, INPUT);
 pinMode(ir_car3, INPUT);
 pinMode(ir_car4, INPUT);
 myservo.attach(3);
 myservo.write(90);

Read_Sensor();
 Serial.begin(9600);

 servo.attach(SERVO_PIN);
 servo.write(angle);
 currentButtonState = digitalRead(BUTTON_PIN);
 }

void loop() {

lastButtonState = currentButtonState;
 currentButtonState = digitalRead(BUTTON_PIN);
 if(lastButtonState == HIGH && currentButtonState == LOW)
 {
```

```
    Serial.println("The button is pressed");
    if(angle == 0)
    angle = 90;
    else
    if(angle == 90)
    angle = 0;

    servo.write(angle);
    }

}
void Read_Sensor() {
 S1 = 0, S2 = 0, S3 = 0, S4 = 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;
 }
}
```