**SMART PARKING SYSTEM :**

**Arduino C++ Code :**

#include <Wire.h>

#include <LiquidCrystal\_I2C.h>

#include <Servo.h>

LiquidCrystal\_I2C lcd(0x27, 16, 2); // LCD setup

Servo myservo; // Servo motor instance

int IR1 = 2; // Infrared sensor for entry

int IR2 = 3; // Infrared sensor for exit

int availableSlots = 10; // Total available slots

int flag1 = 0, flag2 = 0;

void setup() {

lcd.init();

lcd.backlight();

pinMode(IR1, INPUT);

pinMode(IR2, INPUT);

myservo.attach(4); // Servo motor connected to pin 4 myservo.write(90); // Barrier initially closed

lcd.setCursor(0, 0);

lcd.print(" SMART PARKING ");

lcd.setCursor(0, 1);

lcd.print(" SYSTEM READY ");

delay(2000);

lcd.clear();

}

void loop() {

if (digitalRead(IR1) == LOW && flag1 == 0) { // Entry detected

flag1 = 1;

if (availableSlots > 0) {

myservo.write(0); // Open barrier

delay(2000);

myservo.write(90); // Close barrier

availableSlots -= 1;

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("AVAILABLE: ");

lcd.print(availableSlots);

delay(2000);

} else {

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("PARKING FULL");

delay(2000); }

}

if (digitalRead(IR2) == LOW && flag2 == 0) { // Exit detected

flag2 = 1;

availableSlots += 1;

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("AVAILABLE: ");

lcd.print(availableSlots);

delay(2000);

}

if (digitalRead(IR1) == HIGH) flag1 = 0;

if (digitalRead(IR2) == HIGH) flag2 = 0;

}