**TITLE: SMART CAR PARKING**

**CODE :**

#include <WiFi.h>

#include <FirebaseESP32.h>

#include <ESP32Servo.h>

#define WIFI\_SSID "realme X7 5G"

#define WIFI\_PASSWORD "arpan123##"

#define API\_KEY "apikey"

#define DATABASE\_URL "databaseurl"

FirebaseData firebaseData;

FirebaseAuth firebaseAuth;

FirebaseConfig firebaseConfig;

Servo servo1;

Servo servo2;

int servo1Pin = 13;

int servo2Pin = 12;

String databasePath1 = "/servoControl";

String databasePath2 = "/servoControl1";

int irSensor1Pin = 32;

int irSensor2Pin = 33;

int irSensor3Pin = 26;

int irSensor4Pin = 25;

String irSensor1Path = "/irsensor1";

String irSensor2Path = "/irsensor2";

String irSensor3Path = "/irsensor3";

String irSensor4Path = "/irsensor4";

void setup() {

  Serial.begin(115200);

  Serial.print("Connecting to Wi-Fi");

  WiFi.begin(WIFI\_SSID, WIFI\_PASSWORD);

  while (WiFi.status() != WL\_CONNECTED) {

    delay(1000);

    Serial.print(".");

  }

  Serial.println("\nConnected to Wi-Fi");

  firebaseConfig.api\_key = API\_KEY;

  firebaseConfig.database\_url = DATABASE\_URL;

  if (Firebase.signUp(&firebaseConfig, &firebaseAuth, "", "")) {

    Serial.println("Signed up successfully");

  } else {

    Serial.println("Failed to sign up");

    Serial.println(firebaseData.errorReason());

    while (true);

  }

  Firebase.begin(&firebaseConfig, &firebaseAuth);

  Firebase.reconnectWiFi(true);

  if (Firebase.ready()) {

    Serial.println("Firebase connected successfully.");

  } else {

    Serial.println("Firebase initialization failed.");

    Serial.println("Firebase error: " + firebaseData.errorReason());

    while (true);

  }

  servo1.attach(servo1Pin);

  servo2.attach(servo2Pin);

  servo1.write(0);

  servo2.write(0);

  pinMode(irSensor1Pin, INPUT);

  pinMode(irSensor2Pin, INPUT);

  pinMode(irSensor3Pin, INPUT);

  pinMode(irSensor4Pin, INPUT);

}

void loop() {

  if (Firebase.getInt(firebaseData, databasePath1)) {

    int servoControl1 = firebaseData.intData();

    Serial.println("Servo 1 control value: " + String(servoControl1));

    if (servoControl1 == 0) {

      servo1.write(0);

    } else if (servoControl1 == 1) {

      servo1.write(90);

    }

  } else {

    Serial.println("Failed to get value for Servo 1 from Firebase: " + firebaseData.errorReason());

  }

  if(digitalRead(irSensor3Pin)==0)

  {

    Firebase.setInt(firebaseData,databasePath2,1);

    servo2.write(90);

    delay(4000);

    servo2.write(0);

    Firebase.setInt(firebaseData,databasePath2,0);

  }

  if (Firebase.getInt(firebaseData, databasePath2)) {

    int servoControl2 = firebaseData.intData();

    Serial.println("Servo 2 control value: " + String(servoControl2));

    if (servoControl2 == 0) {

      servo2.write(0);

    } else if (servoControl2 == 1) {

      servo2.write(90);

    }

  } else {

    Serial.println("Failed to get value for Servo 2 from Firebase: " + firebaseData.errorReason());

  }

  int irSensor1Status = digitalRead(irSensor1Pin);

  int irSensor2Status = digitalRead(irSensor2Pin);

  int irSensor3Status = digitalRead(irSensor3Pin);

  int irSensor4Status = digitalRead(irSensor4Pin);

  if (Firebase.setInt(firebaseData, irSensor1Path, irSensor1Status)) {

    Serial.println("Updated IR sensor 1 status to: " + String(irSensor1Status));

  } else {

    Serial.println("Failed to update IR sensor 1: " + firebaseData.errorReason());

  }

  if (Firebase.setInt(firebaseData, irSensor2Path, irSensor2Status)) {

    Serial.println("Updated IR sensor 2 status to: " + String(irSensor2Status));

  } else {

    Serial.println("Failed to update IR sensor 2: " + firebaseData.errorReason());

  }

  if (Firebase.setInt(firebaseData, irSensor2Path, irSensor4Status)) {

    Serial.println("Updated IR sensor 2 status to: " + String(irSensor4Status));

  } else {

    Serial.println("Failed to update IR sensor 2: " + firebaseData.errorReason());

  }

delay(2000);

}