#include <EEPROM.h>

#include <SoftwareSerial.h>

#include <LiquidCrystal\_I2C.h>

#include<Servo.h>

Servo myservo;

#define ir1 14

#define ir2 15

#define ir3 16

#define servoPin 8

String ssid ="MI\_X2";

String password="12345678";

String server = "www.hobbykits4u.com";

String Tx\_URL = "/car\_parking.json";

SoftwareSerial rfid\_rx(3, 2);

SoftwareSerial esp(4, 5);

String slt1;

String slt2;

String slt3;

String slt\_str,last\_str,data;

char input[12];

int count = 0;

byte user\_id;

byte user\_sts\_1 = 0;

byte user\_sts\_2 = 0;

byte user\_sts\_3 = 0;

void setup(){

lcd.begin();

lcd.backlight();

pinMode(ir1, INPUT);

pinMode(ir2, INPUT);

pinMode(ir3, INPUT);

lcd.setCursor(0,0);

lcd.print("Welcome To IOT");

lcd.setCursor(0,1);

lcd.print("CAR Parking SYS");

delay(3000);

myservo.attach(servoPin);

reset();

connectWifi();

}

void loop()

{

check\_Parking();

if(slt\_str == "111"){

lcd.setCursor(0,0);

lcd.print(" Parking FULL ");

lcd.setCursor(0,1);

lcd.print(" P1=" + slt1 + " P2=" + slt2 + " P3=" + slt3 + " ");

}

else{

lcd.setCursor(0,0);

lcd.print(" P1=" + slt1 + " P2=" + slt2 + " P3=" + slt3 + " ");

lcd.setCursor(0,1);

lcd.print(" SCAN RFID Tag ");

}

get\_RFID();

if (temp > 20){

last\_str = slt\_str;

check\_Parking();

Tx\_IOT();

temp = 0;

}

else{

temp ++;

}

delay(100);

}

void get\_RFID(){

if (rfid\_rx.available()) {

input[count] = rfid\_rx.read();

count++;

if ((strncmp(input, "550077F49C4A", 12) == 0)){

user\_id = 101;

if (user\_sts\_1 == 0){

lcd.clear();

lcd.setCursor(0,0);

lcd.print("USER 1 <> ENTRY");

user\_sts\_1 = 1;

delay(2000);

}

else{

lcd.clear();

lcd.setCursor(0,0);

lcd.print("USER 1 <> EXITE");

user\_sts\_1 = 0;

delay(2000);

}

}

else if ((strncmp(input, "5500B45D66DA", 12) == 0)){

user\_id = 102;

if (user\_sts\_2 == 0){

lcd.clear();

lcd.setCursor(0,0);

lcd.print("USER 2 <> ENTRY");

user\_sts\_2 = 1;

delay(2000);

}

else{

lcd.clear();

lcd.setCursor(0,0);

lcd.print("USER 2 <> EXITE");

user\_sts\_2 = 0;

delay(2000);

}

}

else if ((strncmp(input, "550078374258", 12) == 0)){

user\_id = 103;

if (user\_sts\_3 == 0){

lcd.clear();

lcd.setCursor(0,0);

lcd.print("USER 3 <> ENTRY");

user\_sts\_3 = 1;

delay(2000);

}

else{

lcd.clear();

lcd.setCursor(0,0);

lcd.print("USER 3 <> EXITE");

user\_sts\_3 = 0;

delay(2000);

}

}

else{

lcd.clear();

lcd.setCursor(0,0);

lcd.print("Invalid USER");

lcd.setCursor(0,1);

lcd.print("TRY again !");

delay(2000);

}

}

}

void check\_Parking(){

slt\_str = " ";

if(digitalRead(ir1) == 0){

slt1 = "F";

slt\_str = "1";

}

else{

slt1 = "M";

slt\_str = "0";

}

if(digitalRead(ir2) == 0){

slt2 = "F";

slt\_str = slt\_str + "1";

}

else{

slt2 = "M";

slt\_str = slt\_str + "0";

}

if(digitalRead(ir3) == 0){

slt3 = "F";

slt\_str = slt\_str + "1";

}

else{

slt3 = "M";

slt\_str = slt\_str + "0";

}

}

void Tx\_IOT(){

data = String(user\_id) + String(user\_sts\_1) + String(user\_sts\_2) + String(user\_sts\_3) + slt\_str;

lcd.clear();

lcd.setCursor (0,0);

lcd.print("Tx Data..");

delay(10);

esp.println("AT+CIPSTART=\"TCP\",\"" + server);

if( esp.find("OK")) {

Serial.println("ready for send\_data");

} delay(500);

String postRequest =

"POST " + Tx\_URL + " HTTP/1.0\r\n" +

"Host: " + server + "\r\n" +

"Accept: \*" + "/" + "\*\r\n" +

"Content-Type: application/x-www-form-urlencoded\r\n" +

"\r\n" + data1;

String sendCmd = "AT+CIPSEND=";

esp.print(F("AT+CIPSEND="));

esp.println(postRequest.length() );

delay(500);

if(esp.find(">"))

{

Serial.println("Sending..");

esp.print(postRequest);

if( esp.find("SEND OK"))

{

while (esp.available())

{

lcd.setCursor (0,1);

lcd.print("OK.....");

}

}

}

}

void reset() {

delay(1000);

esp.println(F("AT+RST"));

if(esp.find("OK")) Serial.println(F("Reset Connection"));

}

void connectWifi() {

lcd.clear();

lcd.setCursor (0,0);

lcd.print("Connect To WIFI");

delay(1000);

String cmd = "AT+CWJAP=\"" +ssid+"\",\"" + password + "\"";

Serial.print(F("Connect To Network >>"));

delay(1000);

esp.println(cmd);

if(esp.find("OK")) {

delay(100);

Serial.println(F("Connected!"));

delay(2000);

temp = 0;

}

else {

Serial.println(F("Cannot connect to wifi"));

lcd.clear();

lcd.setCursor (0,0);

lcd.print("WIFI Error = ");

delay(1000);

connectWifi();

}

}

void gate\_con(){

myservo.attach(servoPin);

delay(10);

for(int i = 0; i < 90; i++) {

myservo.write(i);

delay(10);

}

delay(2000);

for(int i = 90; i > 0; i--) {

myservo.write(i);

delay(10);

}

delay(50);

}