#include <SPI.h>

#include <MFRC522.h>

#include <Wire.h>

#include <LiquidCrystal\_I2C.h>

#include <ESP8266WiFi.h>

// Pin configuration

#define RfidSSPin 10

#define RfidRSTPin 9

#define IRPin 2 // IR sensor pin

#define RelayPin 3 // Relay to control charging slot

// WiFi credentials

const char\* ssid = "your\_SSID";

const char\* password = "your\_PASSWORD";

// Initialize RFID and LCD

MFRC522 rfid(RfidSSPin, RfidRSTPin);

LiquidCrystal\_I2C lcd(0x27, 16, 2); // LCD address and dimensions

// WiFi setup

WiFiClient client;

const char\* server = "your\_server\_address"; // Enter the server IP or domain

void setup() {

Serial.begin(9600);

lcd.begin();

lcd.print("Initializing...");

// Initialize RFID

SPI.begin();

rfid.PCD\_Init();

// Setup IR sensor and relay

pinMode(IRPin, INPUT);

pinMode(RelayPin, OUTPUT);

// Initialize WiFi

WiFi.begin(ssid, password);

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

delay(1000);

Serial.println("Connecting to WiFi...");

}

Serial.println("Connected to WiFi");

lcd.clear();

lcd.print("WiFi Connected");

delay(2000);

lcd.clear();

}

void loop() {

// Check for vehicle presence using IR sensor

if (digitalRead(IRPin) == HIGH) {

// Vehicle detected

lcd.setCursor(0, 0);

lcd.print("Vehicle Present");

// Turn on relay for charging

digitalWrite(RelayPin, HIGH);

// Read RFID tag

if (rfid.PICC\_IsNewCardPresent() && rfid.PICC\_ReadCardSerial()) {

String uid = "";

for (byte i = 0; i < rfid.uid.size; i++) {

uid += String(rfid.uid.uidByte[i], HEX);

}

// Display RFID UID

lcd.setCursor(0, 1);

lcd.print("UID: " + uid);

// Send data to server for dynamic billing

sendBillingData(uid);

delay(3000); // Wait for 3 seconds before reading next card

}

} else {

// No vehicle detected

lcd.setCursor(0, 0);

lcd.print("No Vehicle");

digitalWrite(RelayPin, LOW); // Turn off relay (stop charging)

}

delay(1000); // Wait for a second before next cycle

}

// Function to send data to server for billing

void sendBillingData(String uid) {

if (client.connect(server, 80)) {

String url = "/billing?uid=" + uid + "&status=charging";

client.print(String("GET ") + url + " HTTP/1.1\r\n" +

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

"Connection: close\r\n\r\n");

Serial.println("Data sent to server");

} else {

Serial.println("Connection failed");

}

client.stop();

}