Code:

#include <WiFi.h>

#include <HardwareSerial.h>

const char \*ssid = "Siddu";

const char \*password = "siddu2004";

WiFiServer server(80);

// Solenoid Lock Configuration

const int lockEnablePin = 18; // L298N Enable Pin (for PWM control)

const int lockInputPin1 = 19; // L298N Input Pin 1

const int lockInputPin2 = 21; // L298N Input Pin 2

// RFID Configuration

#define EM18\_RX\_PIN 16

#define EM18\_TX\_PIN 17

HardwareSerial RFID(1);

bool isTagScanned = false;

bool isAccessAllowed = false; // Flag to track if access is allowed

// Functions to control the solenoid lock

void activateLock() {

Serial.println("\n Access given to lock or Unlock the door...");

digitalWrite(lockInputPin1, HIGH); // Forward polarity

digitalWrite(lockInputPin2, LOW);

digitalWrite(lockEnablePin, HIGH); // Enable full power to the lock

}

void deactivateLock() {

Serial.println("Locking the door...");

digitalWrite(lockInputPin1, LOW); // Reverse polarity

digitalWrite(lockInputPin2, HIGH);

digitalWrite(lockEnablePin, LOW); // Enable reverse polarity to lock

}

void setup() {

// Serial Initialization

Serial.begin(115200);

RFID.begin(9600, SERIAL\_8N1, EM18\_RX\_PIN, EM18\_TX\_PIN);

// Solenoid Lock Initialization

pinMode(lockEnablePin, OUTPUT);

pinMode(lockInputPin1, OUTPUT);

pinMode(lockInputPin2, OUTPUT);

digitalWrite(lockEnablePin, LOW); // Initially disable the lock

digitalWrite(lockInputPin1, LOW);

digitalWrite(lockInputPin2, LOW);

Serial.println("Solenoid lock is inactive");

// WiFi Initialization

Serial.println();

Serial.print("Connecting to ");

Serial.println(ssid);

WiFi.begin(ssid, password);

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

delay(500);

Serial.print(".");

}

Serial.println("");

Serial.println("WiFi connected.");

Serial.println("IP address: ");

Serial.println(WiFi.localIP());

server.begin();

}

void loop() {

// Check for RFID tag

if (RFID.available()) {

String rfidData = "";

while (RFID.available()) {

char c = RFID.read();

rfidData += c;

}

rfidData.trim(); // Remove extra spaces or newlines

Serial.print("RFID Tag Scanned: ");

Serial.println(rfidData); // Debug: Show scanned tag data

isTagScanned = true; // Set flag to wait for web confirmation

Serial.println("Waiting for web confirmation...");

}

// Handle Web Requests

WiFiClient client = server.available();

if (client) {

Serial.println("New Client.");

String currentLine = "";

while (client.connected()) {

if (client.available()) {

char c = client.read();

Serial.write(c);

if (c == '\n') {

if (currentLine.length() == 0) {

client.println("HTTP/1.1 200 OK");

client.println("Content-type:text/html");

client.println();

client.println("<!DOCTYPE html>");

client.println("<html>");

client.println("<head>");

client.println("<title>Door Access Control</title>");

client.println("<style>");

client.println("body { font-family: Arial, sans-serif; text-align: center; margin-top: 50px; }");

client.println("button { font-size: 20px; padding: 10px 20px; margin: 10px; border: none; border-radius: 5px; cursor: pointer; }");

client.println(".allow { background-color: #4CAF50; color: white; }");

client.println(".deny { background-color: #f44336; color: white; }");

client.println(".lock, .unlock { background-color: #2196F3; color: white; }");

client.println("</style>");

client.println("</head>");

client.println("<body>");

client.println("<h1>Door Access Control</h1>");

client.println("<p>Click the button below to allow or deny access:</p>");

if (!isAccessAllowed) {

client.println("<button class=\"allow\" onclick=\"location.href='/H'\">Allow Access</button>");

client.println("<button class=\"deny\" onclick=\"location.href='/L'\">Deny Access</button>");

} else {

// Once access is allowed, show Lock/Unlock buttons

client.println("<h3>Access Granted</h3>");

client.println("<button class=\"unlock\" onclick=\"location.href='/unlock'\">Unlock</button>");

client.println("<button class=\"lock\" onclick=\"location.href='/lock'\">Lock</button>");

}

client.println("</body>");

client.println("</html>");

client.println();

break;

} else {

currentLine = "";

}

} else if (c != '\r') {

currentLine += c;

}

// Handle GET requests

if (currentLine.endsWith("GET /H")) {

if (isTagScanned) {

isAccessAllowed = true; // Access granted

Serial.println("Access Granted. Please choose to unlock or lock the door.");

isTagScanned = false; // Reset after use

} else {

Serial.println("No RFID tag scanned yet, cannot allow access.");

}

}

if (currentLine.endsWith("GET /L")) {

Serial.println("Access Denied.");

isAccessAllowed = false; // Reset after denial

}

if (currentLine.endsWith("GET /unlock")) {

if (isAccessAllowed) {

activateLock(); // Unlock the door

}

}

if (currentLine.endsWith("GET /lock")) {

if (isAccessAllowed) {

deactivateLock(); // Lock the door

}

}

}

}

client.stop();

Serial.println("Client Disconnected.");

}

}