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#include <ESP8266WiFi.h>
#define IN1a 16
#define IN2a 5
#define IN3a 4
#define IN4a 0
#define IN1b 2
#define IN2b 14
#define IN3b 12
#define IN4b 13
int delayTime = 2;
WiFiClient client;
WiFiServer server(80);
const char* ssid = "YOUR_WiFi_NAME";
const char* password = "Wi-Fi_PASSWORD";
String data = "";
void setup() {
    pinMode(IN1a, OUTPUT);
    pinMode(IN2a, OUTPUT);
    pinMode(IN3a, OUTPUT);
    pinMode(IN4a, OUTPUT);
    pinMode(IN1b, OUTPUT);
    pinMode(IN2b, OUTPUT);
    pinMode(IN3b, OUTPUT);
    pinMode(IN4b, OUTPUT);
    Serial.begin(115200);
    connectWiFi();
    server.begin();
}
void loop() {
    client = server.available();
    if (!client) return;
    data = checkClient ();
    if (data == "forward") {
        for (int steps = 0; steps < 400; steps++) {
            Serial.println("FORWARD");
            forwardMotorA();
            forwardMotorB();
        }
    }
    else if (data == "left") {
        for (int steps = 0; steps < 400; steps++) {
            Serial.println("LEFT");
            backwardMotorA();
            forwardMotorB();
        }
    }
    else if (data == "right") {
        for (int steps = 0; steps < 500; steps++) {
            Serial.println("RIGHT");
            forwardMotorA();
            backwardMotorB();
        }
    }
    else if (data == "reverse") {

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        for (int steps = 0; steps < 500; steps++) {
            Serial.println("BACKWARD");
            backwardMotorA();
            backwardMotorB();
        }
    }
    else if (data == "stop") {
        Serial.println("STOP");
        stopMotors();
    }
}

void connectWiFi()
{
    Serial.println("Connecting to WIFI");
    WiFi.begin(ssid, password);
    while ((!(WiFi.status() == WL_CONNECTED)))
    {
        delay(300);
        Serial.print("..");
    }
    Serial.println("");
    Serial.println("WiFi connected");
    Serial.println("NodeMCU Local IP is : ");
    Serial.print(WiFi.localIP());
    Serial.print("");
    Serial.println("");
}

String checkClient (void)
{
    while (!client.available()) delay(1);
    String request = client.readStringUntil('\r');
    request.remove(0, 5);
    request.remove(request.length() - 9, 9);
    return request;
}

void forwardMotorA(void) {
    digitalWrite(IN4a, HIGH);
    digitalWrite(IN3a, LOW);
    digitalWrite(IN2a, LOW);
    digitalWrite(IN1a, LOW);
    delay(delayTime);
    digitalWrite(IN4a, LOW);
    digitalWrite(IN3a, HIGH);
    digitalWrite(IN2a, LOW);
    digitalWrite(IN1a, LOW);
    delay(delayTime);
    digitalWrite(IN4a, LOW);
    digitalWrite(IN3a, LOW);
    digitalWrite(IN2a, HIGH);
    digitalWrite(IN1a, LOW);
    delay(delayTime);
    digitalWrite(IN4a, LOW);
    digitalWrite(IN3a, LOW);
    digitalWrite(IN2a, LOW);
}

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    digitalWrite(IN1a, HIGH);
    delay(delayTime);
}
void forwardMotorB(void) {
    digitalWrite(IN4b, LOW);
    digitalWrite(IN3b, LOW);
    digitalWrite(IN2b, LOW);
    digitalWrite(IN1b, HIGH);
    delay(delayTime);
    digitalWrite(IN4b, LOW);
    digitalWrite(IN3b, LOW);
    digitalWrite(IN2b, HIGH);
    digitalWrite(IN1b, LOW);
    delay(delayTime);
    digitalWrite(IN4b, LOW);
    digitalWrite(IN3b, HIGH);
    digitalWrite(IN2b, LOW);
    digitalWrite(IN1b, LOW);
    delay(delayTime);
    digitalWrite(IN4b, HIGH);
    digitalWrite(IN3b, LOW);
    digitalWrite(IN2b, LOW);
    digitalWrite(IN1b, LOW);
    delay(delayTime);
}
void backwardMotorA(void) {
    digitalWrite(IN4a, LOW);
    digitalWrite(IN3a, LOW);
    digitalWrite(IN2a, LOW);
    digitalWrite(IN1a, HIGH);
    delay(delayTime);
    digitalWrite(IN4a, LOW);
    digitalWrite(IN3a, LOW);
    digitalWrite(IN2a, HIGH);
    digitalWrite(IN1a, LOW);
    delay(delayTime);
    digitalWrite(IN4a, LOW);
    digitalWrite(IN3a, HIGH);
    digitalWrite(IN2a, LOW);
    digitalWrite(IN1a, LOW);
    delay(delayTime);
    digitalWrite(IN4a, HIGH);
    digitalWrite(IN3a, LOW);
    digitalWrite(IN2a, LOW);
    digitalWrite(IN1a, LOW);
    delay(delayTime);
}
void backwardMotorB(void) {
    digitalWrite(IN4b, HIGH);
    digitalWrite(IN3b, LOW);
    digitalWrite(IN2b, LOW);
    digitalWrite(IN1b, LOW);
    delay(delayTime);
    digitalWrite(IN4b, LOW);

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digitalWrite(IN3b, HIGH);
digitalWrite(IN2b, LOW);
digitalWrite(IN1b, LOW);
delay(delayTime);
digitalWrite(IN4b, LOW);
digitalWrite(IN3b, LOW);
digitalWrite(IN2b, HIGH);
digitalWrite(IN1b, LOW);
delay(delayTime);
digitalWrite(IN4b, LOW);
digitalWrite(IN3b, LOW);
digitalWrite(IN2b, LOW);
digitalWrite(IN1b, HIGH);
delay(delayTime);
}
void stopMotors(void) {
    digitalWrite(IN4a, LOW);
    digitalWrite(IN3a, LOW);
    digitalWrite(IN2a, LOW);
    digitalWrite(IN1a, LOW);
    digitalWrite(IN4b, LOW);
    digitalWrite(IN3b, LOW);
    digitalWrite(IN2b, LOW);
    digitalWrite(IN1b, LOW);
}
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