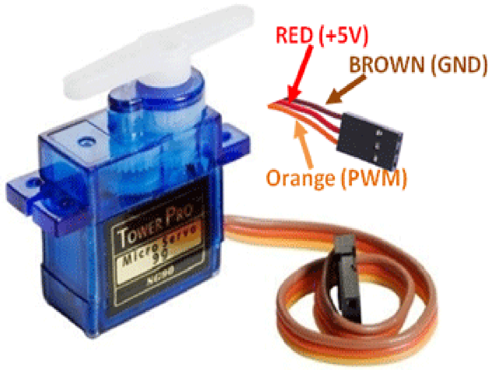
CONTROLLING SERVO USING SLIDER THROUGH NODEMCU SERVER

A **servo motor** is an electrical device which can push or rotate an object with great precision. If you want to rotate and object at some specific angles or distance, then you use servo motor. It is just made up of simple motor which run through **servo mechanism**. The position of a servo motor is decided by electrical pulse and its circuitry is placed beside the motor.



All motors have three wires coming out of them. Out of which two will be used for Supply (positive and negative) and one will be used for the signal that is to be sent from the MCU. Servo motor is controlled by PWM (Pulse with Modulation) which is provided by the control wires.

Components Required:

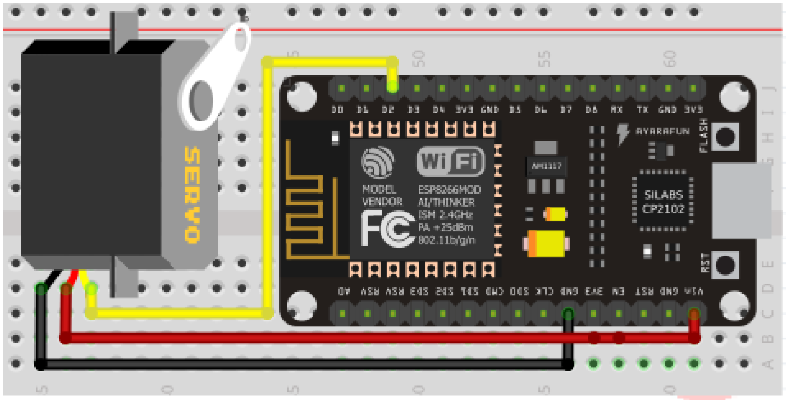
- NodeMCU
- Servo Motor
- Jumper Wires
- Micro USB cable
- Breadboard

Software:

- Arduino IDE

Circuit Diagram:

NODEMCU	SERVO
GND	GND
Vin	+5V
D2	PWM(Vout)


SERVO
D0 D1 D2 D3 D4 3V3 GND D5 D6 D7 D8 RX TX GND 3V3
Wi Fi
MODEL VENDOR
ESP8266MOD AI/THINKER ISM 2.4GHz PA +25dBm 802.11b/g/n
FC
AYARAFUN
FLASH
SILABS CP2102
RST
A0 RSV RSV SD3 SD2 SD1 CMD SD0 CLK GND 3V3 EN RST GND VIN
50
55
60

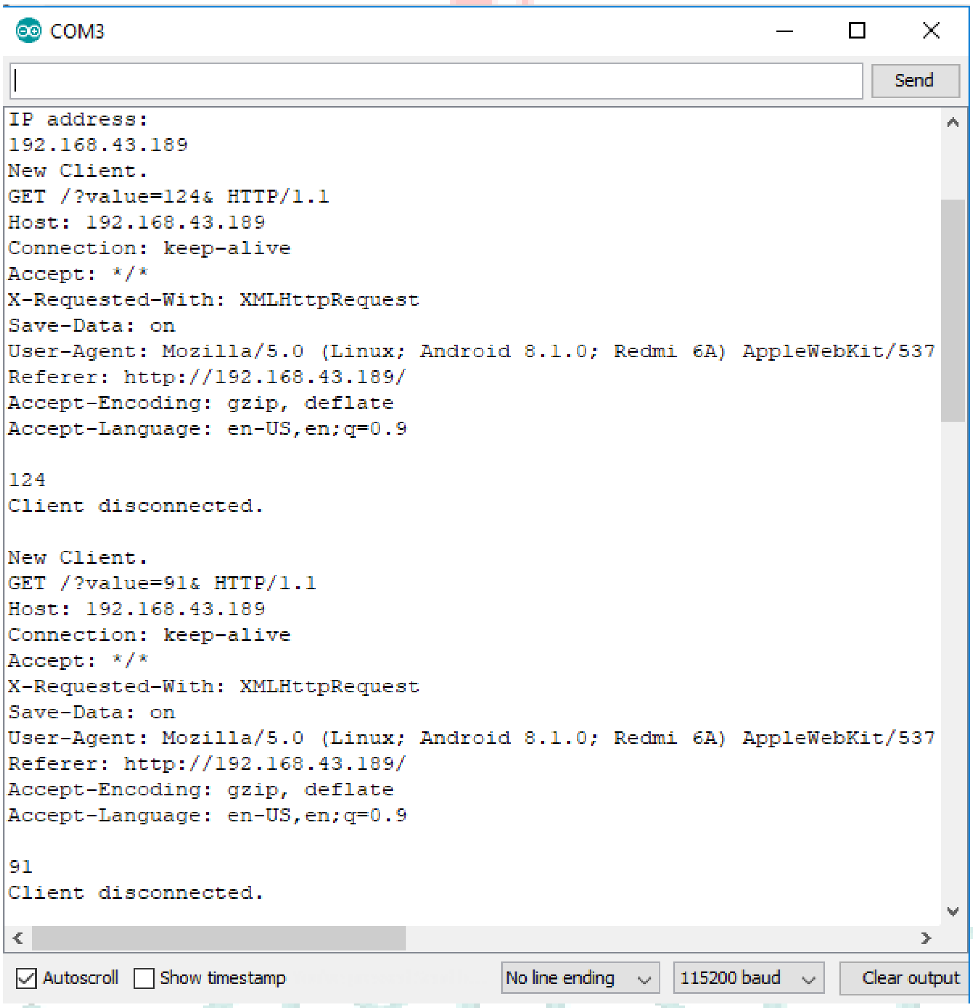
Code:

```
#include <ESP8266WiFi.h>
#include <ESP8266WebServer.h>
#include <Servo.h>

Servo myservo;  // create servo object to control a servo

// GPIO the servo is attached to
static const int servoPin = D2;

// Replace with your network credentials
const char* ssid     = "my_empire";
const char* password = "@myempire";

// Set web server port number to 80
WiFiServer server(80);

// Variable to store the HTTP request
String header;

// Decode HTTP GET value
String valueString = String(5);
int pos1 = 0;
int pos2 = 0;

void setup() {
Serial.begin(115200);

myservo.attach(servoPin);    // attaches the servo on the
servoPin to the servo object

// Connect to Wi-Fi network with SSID and password
Serial.print("Connecting to ");
Serial.println(ssid);
WiFi.begin(ssid, password);
while (WiFi.status() != WL_CONNECTED) {
delay(500);
Serial.print(".");
```

```
}
// Print local IP address and start web server
Serial.println("");
Serial.println("WiFi connected.");
Serial.println("IP address: ");
Serial.println(WiFi.localIP());
server.begin();
}

void loop(){
WiFiClient client = server.available();    // Listen for
incoming clients

if (client) {                              // If a new client
connects,
Serial.println("New Client.");          // print a message out
in the serial port
String currentLine = "";                  // make a String to
hold incoming data from the client
while (client.connected()) {               // loop while the
client's connected
if (client.available()) {              // if there's bytes to
read from the client,
char c = client.read();              // read a byte, then
Serial.write(c);                    // print it out the serial
monitor
header += c;
if (c == '\n') {                    // if the byte is a newline
character
// if the current line is blank, you got two newline characters
in a row.
// that's the end of the client HTTP request, so send a
response:
if (currentLine.length() == 0) {
// HTTP headers always start with a response code (e.g.
HTTP/1.1 200 OK)
// and a content-type so the client knows what's coming, then
a blank line:
client.println("HTTP/1.1 200 OK");
client.println("Content-type:text/html");
client.println("Connection: close");
client.println();

// Display the HTML web page
client.println("<!DOCTYPE html><html>");
client.println("<head><meta                 name=\"viewport\"
content=\"width=device-width, initial-scale=1\">");
client.println("<link rel=\"icon\" href=\"data:,\">");
// CSS to style the on/off buttons
// Feel free to change the background-color and font-size
attributes to fit your preferences
client.println("<style>body { text-align: center; font-family:
\"Trebuchet MS\", Arial; margin-left:auto; margin-
right:auto;}");
client.println(".slider { width: 300px; }</style>");
client.println("<script
src=\"https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jque
ry.min.js\"></script>");

// Web Page
client.println("</head><body><h1>Nodemcu Controlling Servo
using Slider</h1>");
client.println("<p>Position: <span
id=\"servoPos\"></span></p>");
client.println("<input type=\"range\" min=\"0\" max=\"180\"
class=\"slider\" id=\"servoSlider\"
onchange=\"servo(this.value)\" value=\""+valueString+"\"/>");

client.println("<script>var slider =
document.getElementById(\"servoSlider\");");
client.println("var servoP =
document.getElementById(\"servoPos\"); servoP.innerHTML =
slider.value;");
client.println("slider.oninput = function() { slider.value =
this.value; servoP.innerHTML = this.value; }");
client.println("$.ajaxSetup({timeout:1000}); function
servo(pos) { ");
client.println("$.get(\"/?value=\" + pos + \"&\");
{Connection: close};}</script>");

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

//GET /?value=180& HTTP/1.1
if(header.indexOf("GET /?value=")>=0) {
pos1 = header.indexOf('=');
pos2 = header.indexOf('&');
valueString = header.substring(pos1+1, pos2);

//Rotate the servo
myservo.write(valueString.toInt());
Serial.println(valueString);
}
// The HTTP response ends with another blank line
client.println();
// Break out of the while loop
break;
} else { // if you got a newline, then clear currentLine
currentLine = "";
}
} else if (c != '\r') {  // if you got anything else but a
carriage return character,
currentLine += c;     // add it to the end of the currentLine
```

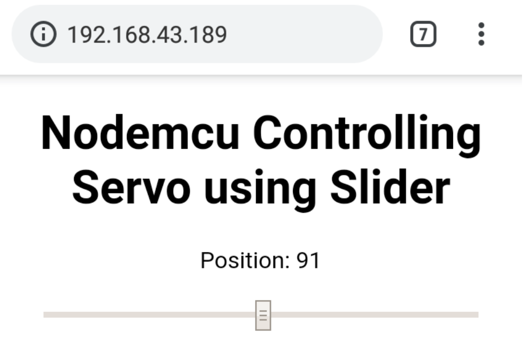
```
}
}
}
// Clear the header variable
header = "";
// Close the connection
client.stop();
Serial.println("Client disconnected.");
Serial.println("");
}
}
```

Output:



```
IP address:
192.168.43.189
New Client.
GET /?value=124& HTTP/1.1
Host: 192.168.43.189
Connection: keep-alive
Accept: */*
X-Requested-With: XMLHttpRequest
Save-Data: on
User-Agent: Mozilla/5.0 (Linux; Android 8.1.0; Redmi 6A) AppleWebKit/537
Referer: http://192.168.43.189/
Accept-Encoding: gzip, deflate
Accept-Language: en-US,en;q=0.9

124
Client disconnected.

New Client.
GET /?value=91& HTTP/1.1
Host: 192.168.43.189
Connection: keep-alive
Accept: */*
X-Requested-With: XMLHttpRequest
Save-Data: on
User-Agent: Mozilla/5.0 (Linux; Android 8.1.0; Redmi 6A) AppleWebKit/537
Referer: http://192.168.43.189/
Accept-Encoding: gzip, deflate
Accept-Language: en-US,en;q=0.9

91
Client disconnected.
```

☑ Autoscroll □ Show timestamp No line ending 115200 baud



192.168.43.189

Nodemcu Controlling Servo using Slider

Position: 91