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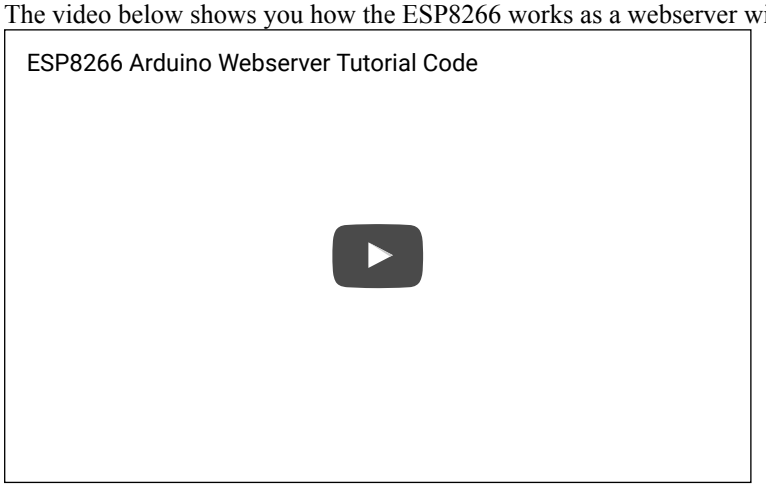
How To Use the ESP8266 and Arduino as a Webserver

by Miguel on December 30, 2014

in ESP8266

Video Tutorial: How The Code Works

The video below shows you how the ESP8266 works as a webserver with the Arduino using the code below.



Arduino Webserver Code/Sketch For ESP8266

The code handles the ESP8266's initialization in the setup() function: it resets the module, configures it as an access point, prints out the module's ip address, configures for multiple connections, configures as a server on port 80.

When there is data available if the string +IPD is in the serial data then the HTTP response is sent to the browser or device requesting it.

```
#include <SoftwareSerial.h>

#define DEBUG true

SoftwareSerial esp8266(2,3); // make RX Arduino line is pin 2, make TX Arduino line is pin 3.
                             // This means that you need to connect the TX line from the esp to the Arduino's
                             // and the RX line from the esp to the Arduino's pin 3
void setup()
{
  Serial.begin(9600);
  esp8266.begin(9600); // your esp's baud rate might be different
```

```
12.
13.
14.
15.   sendData("AT+RST\r\n",2000,DEBUG); // reset module
16.   sendData("AT+CWMODE=2\r\n",1000,DEBUG); // configure as access point
17.   sendData("AT+CIFSR\r\n",1000,DEBUG); // get ip address
18.   sendData("AT+CIPMUX=1\r\n",1000,DEBUG); // configure for multiple connections
19.   sendData("AT+CIPSERVER=1,80\r\n",1000,DEBUG); // turn on server on port 80
20. }
21.
22. void loop()
23. {
24.   if(esp8266.available()) // check if the esp is sending a message
25.   {
26.     /*
27.     while(esp8266.available())
28.     {
29.       // The esp has data so display its output to the serial window
30.       char c = esp8266.read(); // read the next character.
31.       Serial.write(c);
32.     } */
33.
34.     if(esp8266.find("+IPD,"))
35.     {
36.      delay(1000);
37.
38.      int connectionId = esp8266.read()-48; // subtract 48 because the read() function returns
39.                                            // the ASCII decimal value and 0 (the first decimal number) starts
40.
41.      String webpage = "<h1>Hello</h1>&lth2>World!</h2><button>LED1</button>";
42.
43.      String cipSend = "AT+CIPSEND=";
44.      cipSend += connectionId;
45.      cipSend += ",";
46.      cipSend +=webpage.length();
47.      cipSend +="\r\n";
48.
49.      sendData(cipsend,1000,DEBUG);
50.      sendData(webpage,1000,DEBUG);
51.
52.      webpage="<button>LED2</button>";
53.
54.      cipSend = "AT+CIPSEND=";
55.      cipSend += connectionId;
56.      cipSend += ",";
57.      cipSend +=webpage.length();
58.      cipSend +="\r\n";
59.
60.      sendData(cipsend,1000,DEBUG);
61.      sendData(webpage,1000,DEBUG);
62.
63.      String closeCommand = "AT+CIPCLOSE=";
64.      closeCommand+=connectionId; // append connection id
65.      closeCommand+="\r\n";
66.
67.      sendData(closeCommand,3000,DEBUG);
68.     }
69.   }
70. }
71.
72.
73. String sendData(String command, const int timeout, boolean debug)
74. {
75.     String response = "";
76.
77.     esp8266.print(command); // send the read character to the esp8266
78.
79.     long int time = millis();
80.
81.     while( (time+timeout) > millis())
82.     {
83.       while(esp8266.available())
84.       {
85.
86.         // The esp has data so display its output to the serial window
87.         char c = esp8266.read(); // read the next character.
88.         response+=c;
89.       }
```

```
    }

    if(debug)
    {
      Serial.print(response);
    }

    return response;
}

```

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