Wi-Fi

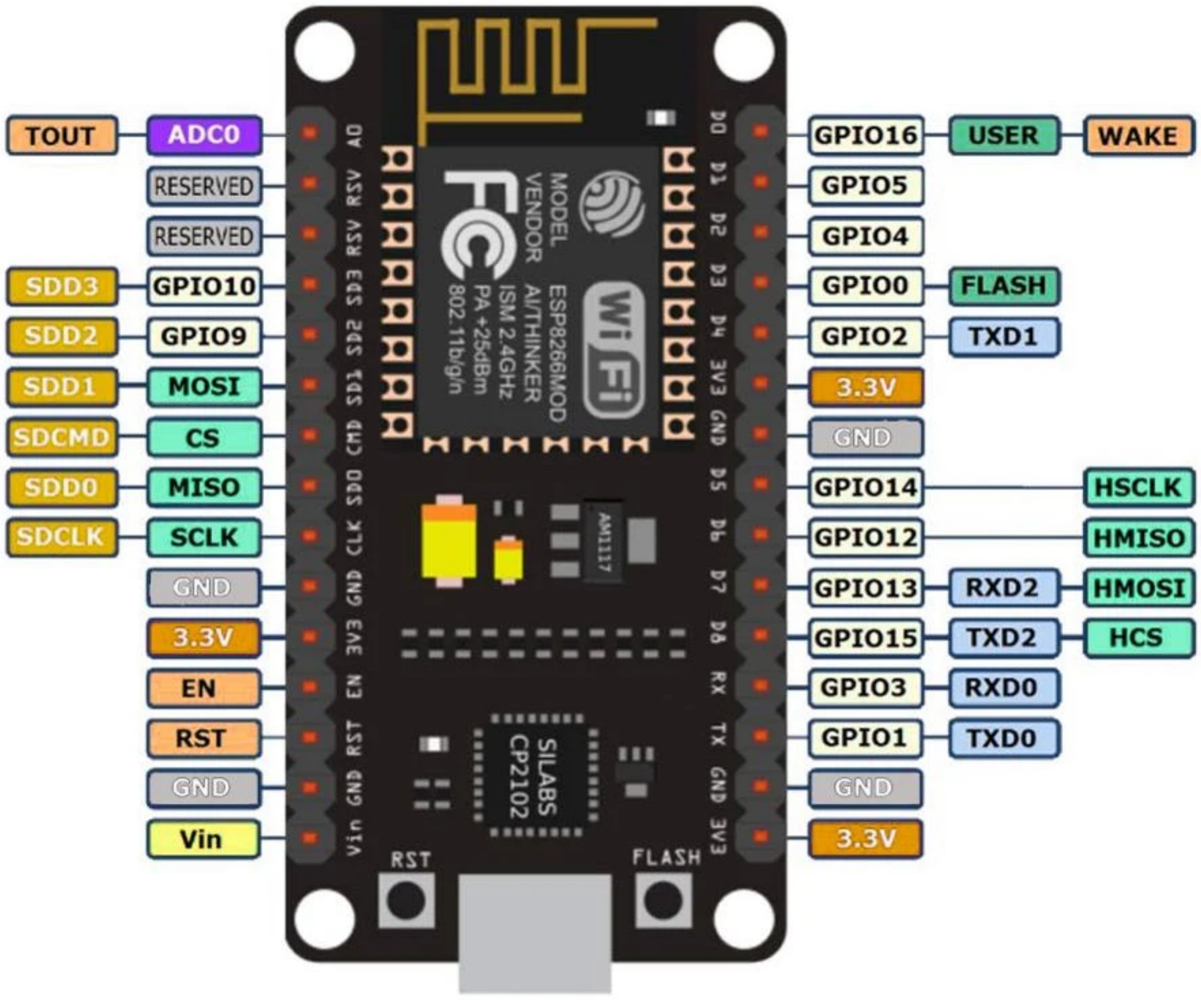
ESP8266 NodeMCU

El `ESP8266 NodeMCU` es una plataforma de hardware y software open source que permite a los usuarios crear dispositivos conectados a Internet con funciones de red WiFi de forma rápida y fácil.

ESP8266

L'`ESP8266` és un xip `Wi-Fi` de baix cost que s'utilitza àmpliament en projectes de bricolatge i aplicacions `IoT`. El NodeMCU és una placa de desenvolupament popular basada en l'ESP8266, que proporciona una manera senzilla de prototipar i desenvolupar projectes amb aquest xip.

Componentes



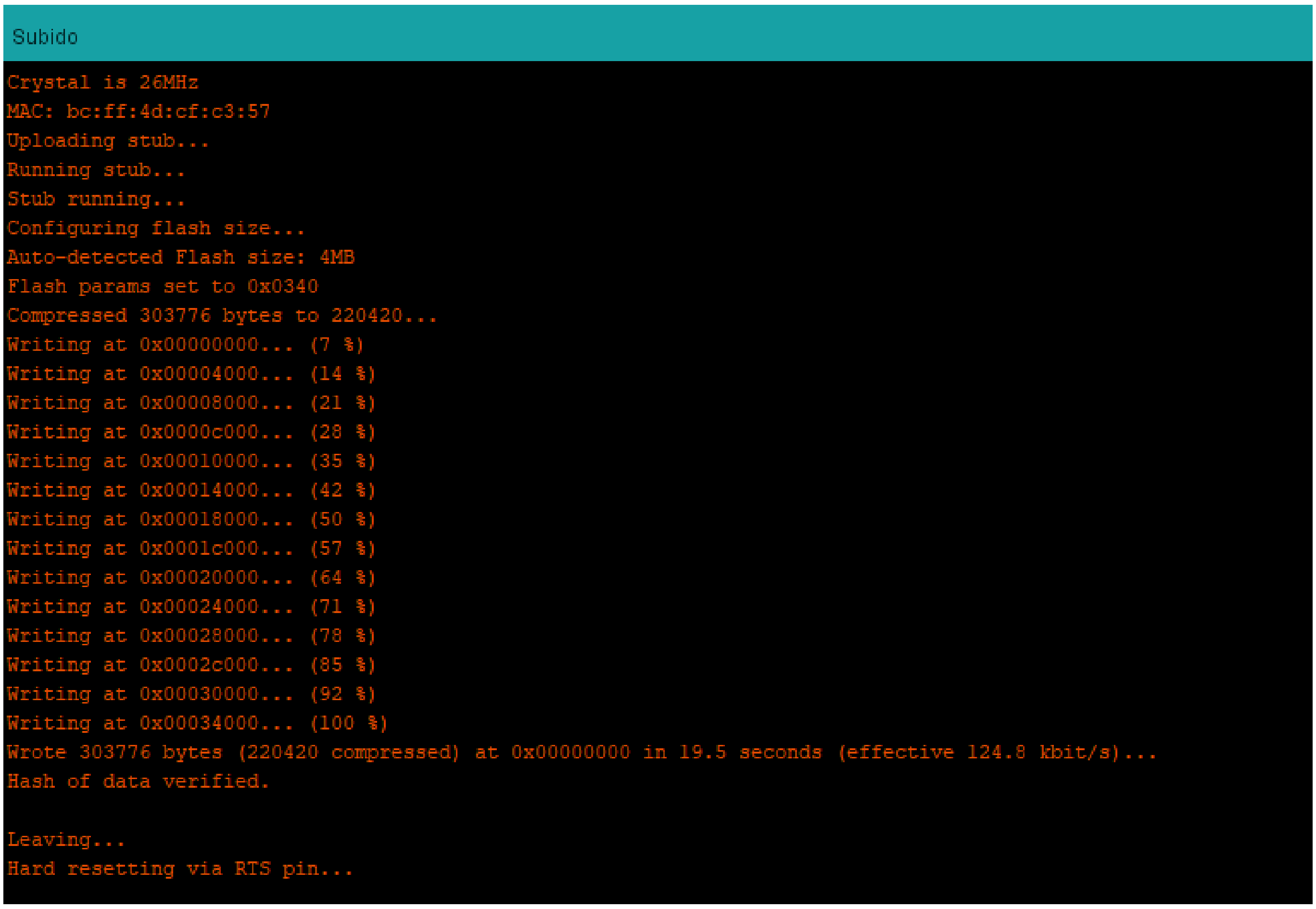
Aplicaciones principales

- Dispositivos domésticos inteligentes
- Dispositivos IoT
- Wearables
- Juguetes conectados
- Sistemas de seguridad
- Termostatos
- Sistemas de rociadores
- Controles remotos
- Iluminación automatizada

Código fuente

```
/*
 * ESP8266 NodeMCU LED Control over WiFi Demo
 *
 * https://circuits4you.com
 */
#include <ESP8266WiFi.h>
#include <WiFiClient.h>

//ESP Web Server Library to host a web page
#include <ESP8266WebServer.h>

//---------------------------------------------------------------
//Our HTML webpage contents in program memory
const char MAIN_page[] PROGMEM = R"=====(
<!DOCTYPE html>
<html>
<body>
<center>
<h1>WiFi LED on off demo: 1</h1><br>
Ciclk to turn <a href="ledOn">LED ON</a><br>
Ciclk to turn <a href="ledOff">LED OFF</a><br>
<hr>
<a href="https://circuits4you.com">circuits4you.com</a>
</center>

</body>
</html>
)=====";
//---------------------------------------------------------------
//On board LED Connected to GPIO2
#define LED 2

//SSID and Password of your WiFi router
const char* ssid = "BONDIATOTLODIA";
const char* password = "UHYD6VRg";

//Declare a global object variable from the ESP8266WebServer class.
ESP8266WebServer server(80); //Server on port 80

//===============================================================
// This routine is executed when you open its IP in browser
//===============================================================
void handleRoot() {
 Serial.println("You called root page");
 String s = MAIN_page; //Read HTML contents
 server.send(200, "text/html", s); //Send web page
}

void handleLEDon() {
 Serial.println("LED on page");
 digitalWrite(LED,LOW); //LED is connected in reverse
 server.send(200, "text/html", "LED is ON"); //Send ADC value only to client ajax
request
}

void handleLEDoff() {
 Serial.println("LED off page");
 digitalWrite(LED,HIGH); //LED off
 server.send(200, "text/html", "LED is OFF"); //Send ADC value only to client ajax
request
}
//==============================================================
//                  SETUP
//==============================================================
void setup(void){
  Serial.begin(115200);

  Serial.println("");
  Serial.println(ssid);
  Serial.println(password);

  WiFi.begin(ssid, password);     //Connect to your WiFi router

  //Onboard LED port Direction output
  pinMode(LED,OUTPUT);
  //Power on LED state off
  digitalWrite(LED,HIGH);

  // Wait for connection
  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }

  //If connection successful show IP address in serial monitor
  Serial.println("");
  Serial.print("Connected to ");
  Serial.println(ssid);
  Serial.print("IP address: ");
  Serial.println(WiFi.localIP());  //IP address assigned to your ESP

  server.on("/", handleRoot);      //Which routine to handle at root location.
This is display page
  server.on("/ledOn", handleLEDon); //as Per  <a href="ledOn">, Subroutine to be
called
  server.on("/ledOff", handleLEDoff);

  server.begin();                  //Start server
  Serial.println("HTTP server started");
}
//==============================================================
//                     LOOP
//==============================================================
void loop(void){
  server.handleClient();          //Handle client requests
}
```

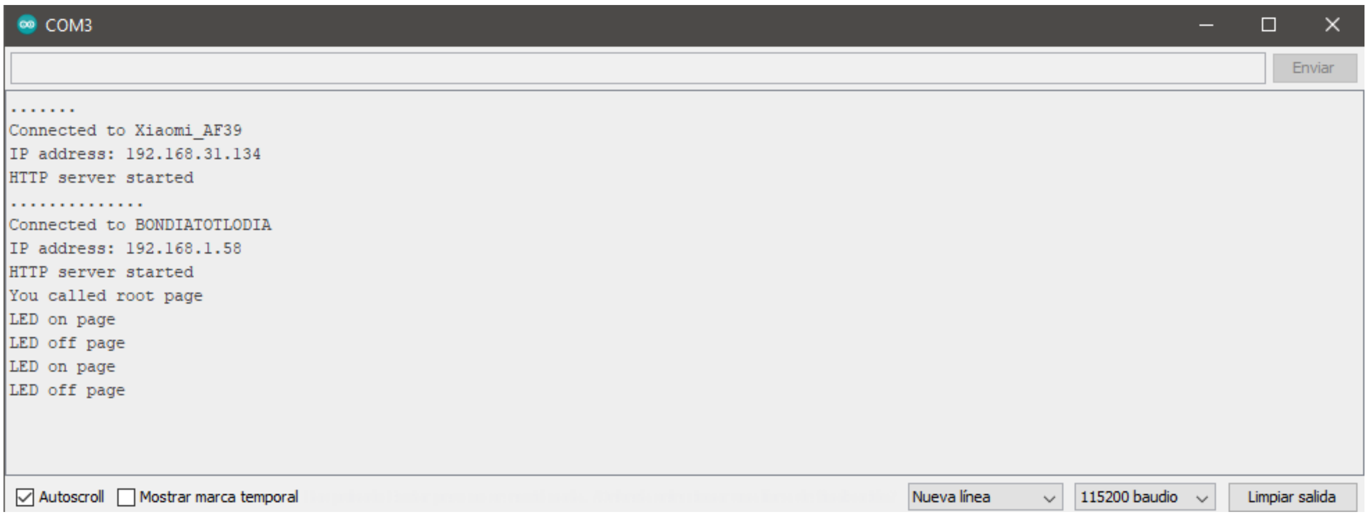
Subida



Subido

```
Crystal is 26MHz
MAC: bc:ff:4d:cf:c3:57
Uploading stub...
Running stub...
Stub running...
Configuring flash size...
Auto-detected Flash size: 4MB
Flash params set to 0x0340
Compressed 303776 bytes to 220420...
Writing at 0x00000000... (7 %)
Writing at 0x00004000... (14 %)
Writing at 0x00008000... (21 %)
Writing at 0x0000c000... (28 %)
Writing at 0x00010000... (35 %)
Writing at 0x00014000... (42 %)
Writing at 0x00018000... (50 %)
Writing at 0x0001c000... (57 %)
Writing at 0x00020000... (64 %)
Writing at 0x00024000... (71 %)
Writing at 0x00028000... (78 %)
Writing at 0x0002c000... (85 %)
Writing at 0x00030000... (92 %)
Writing at 0x00034000... (100 %)
Wrote 303776 bytes (220420 compressed) at 0x00000000 in 19.5 seconds (effective 124.8 kbit/s)...
Hash of data verified.

Leaving...
Hard resetting via RTS pin...
```

Salida monitor serie



```
.......
Connected to Xiaomi_AF39
IP address: 192.168.31.134
HTTP server started
..............
Connected to BONDIATOTLODIA
IP address: 192.168.1.58
HTTP server started
You called root page
LED on page
LED off page
LED on page
LED off page
```

Wifi bridge

```
#include <ESP8266WiFi.h>

// Set WiFi credentials
#define WIFI_SSID "YOUR WIFI NETWORK SSID"
#define WIFI_PASS "YOUR WIFI PASSWORD"
```

```
// Set AP credentials
#define AP_SSID "ESP8266"
#define AP_PASS "magicword"

void setup()
{
  // Setup serial port
  Serial.begin(115200);
  Serial.println();

  // Begin Access Point
  WiFi.mode(WIFI_AP_STA);
  WiFi.softAP(AP_SSID, AP_PASS);

  // Begin WiFi
  WiFi.begin(WIFI_SSID, WIFI_PASS);

  // Connecting to WiFi...
  Serial.print("Connecting to ");
  Serial.print(WIFI_SSID);
  while (WiFi.status() != WL_CONNECTED)
  {
    delay(100);
    Serial.print(".");
  }

  // Connected to WiFi
  Serial.println();
  Serial.println("Connected!");
  Serial.print("IP address for network ");
  Serial.print(WIFI_SSID);
  Serial.print(" : ");
  Serial.println(WiFi.localIP());
  Serial.print("IP address for network ");
  Serial.print(AP_SSID);
  Serial.print(" : ");
  Serial.print(WiFi.softAPIP());

}

void loop() {
  // put your main code here, to run repeatedly:

}
```

https://siytek.com/esp8266-ap-and-station-mode/