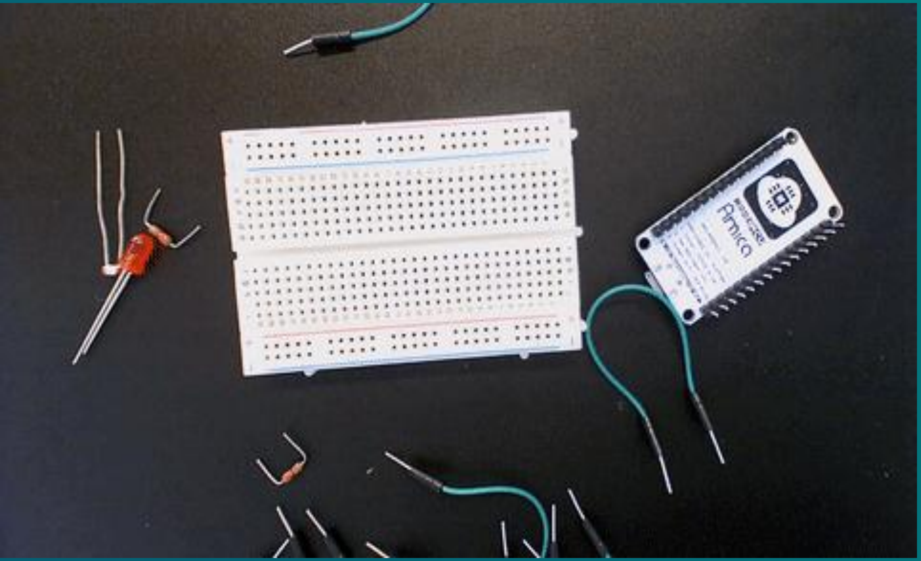
Internet Of Things



ESP8266 and NodeMCU

An Introduction to ESP8266 & NodeMCU

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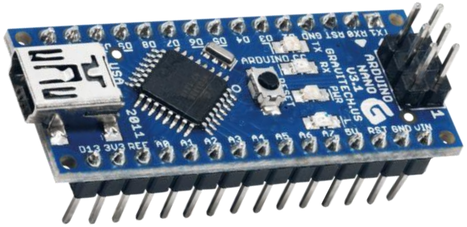
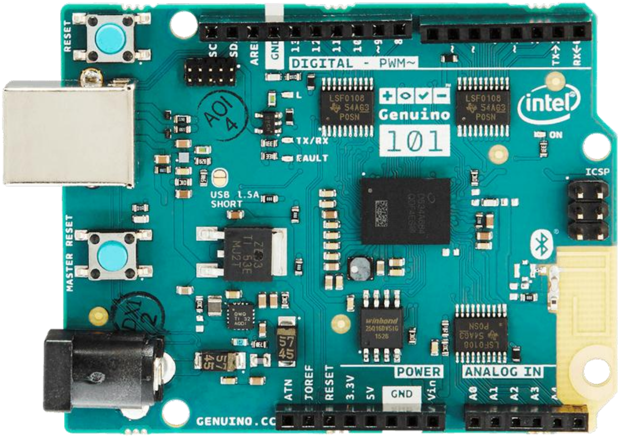
Board & Its Brain

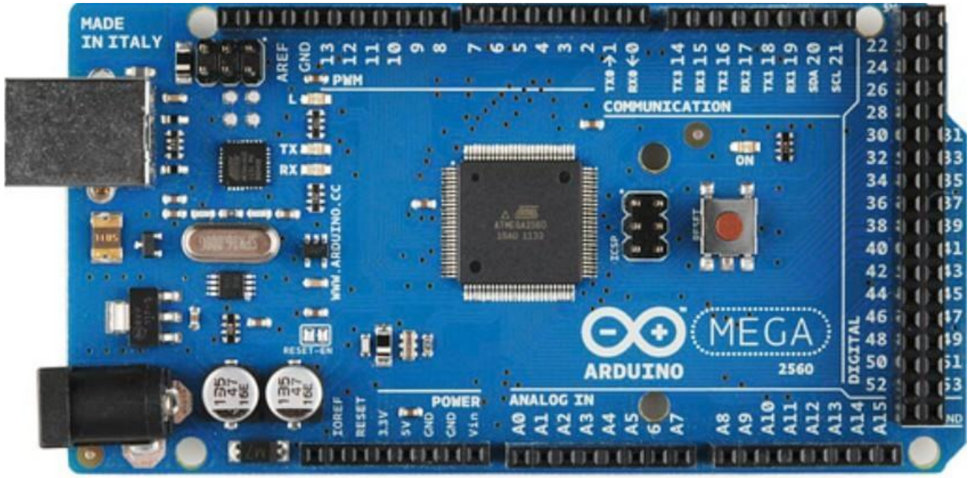
Arduino Uno
ATmega328



Arduino Nano
ATmega328
ATmega168



Arduino 101
Intel Curie



Arduino Mega
ATmega1280
ATmega2560

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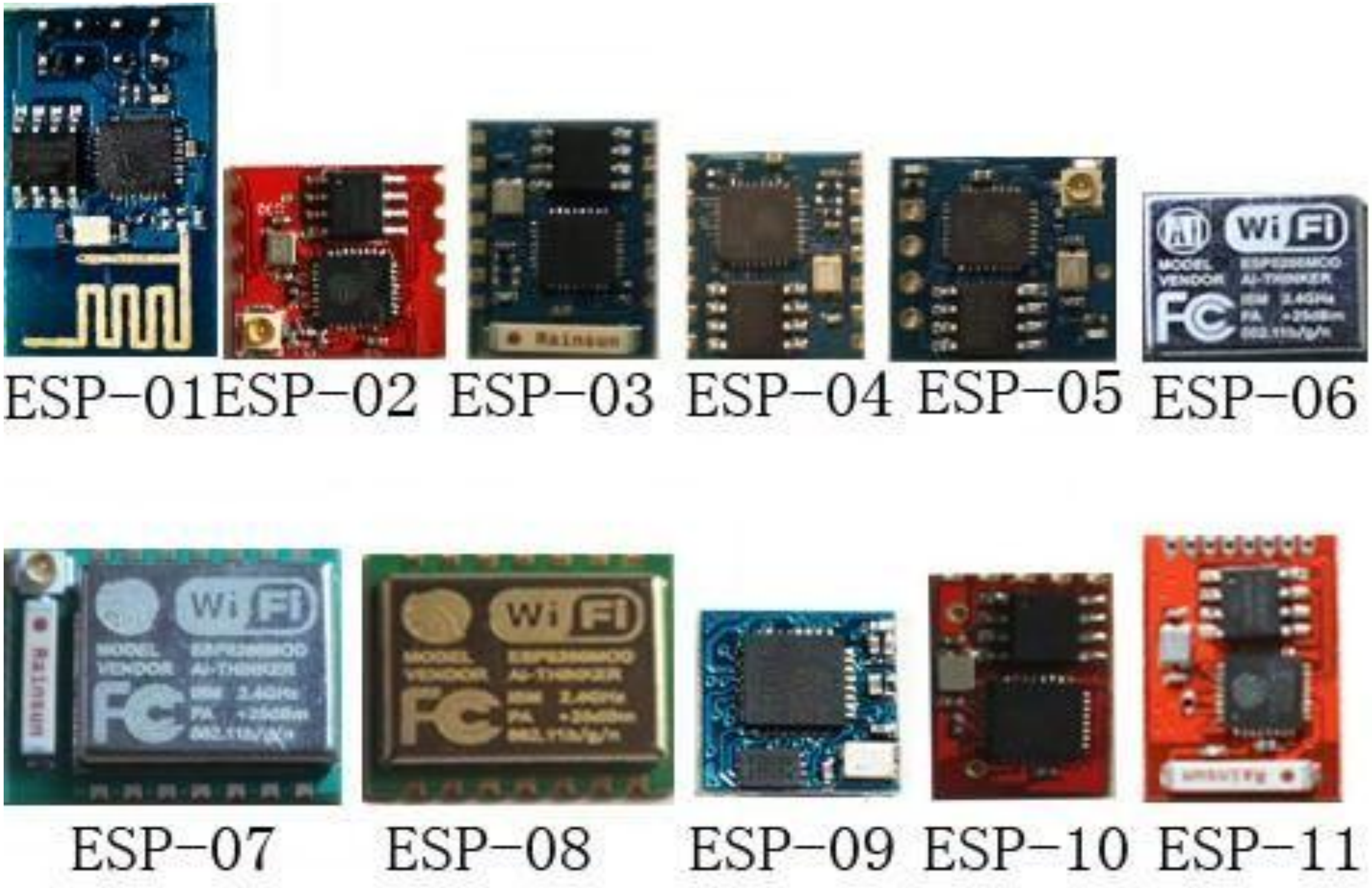
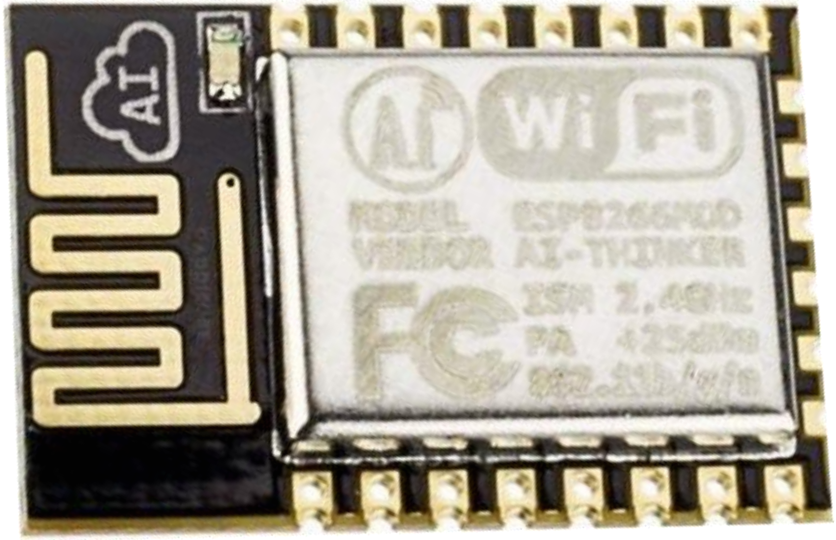
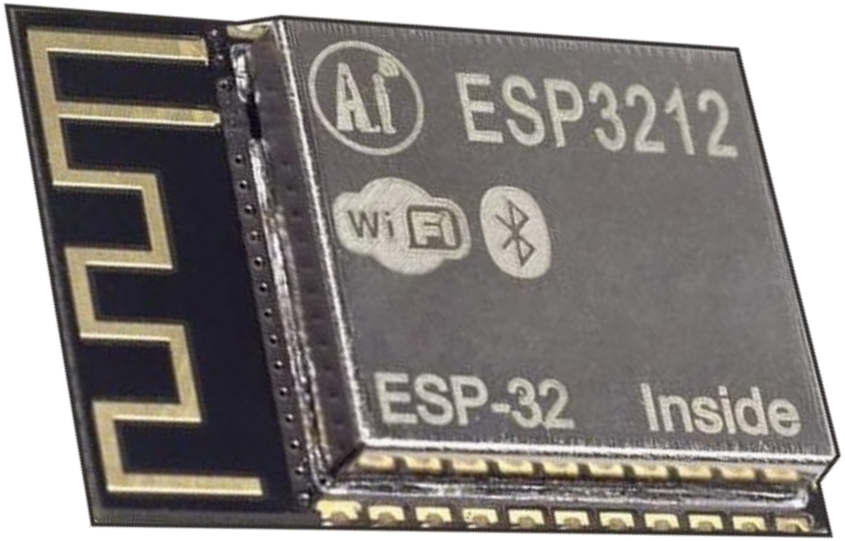
ESP8266’s Big Family



Latest version



ESP12



ESP32

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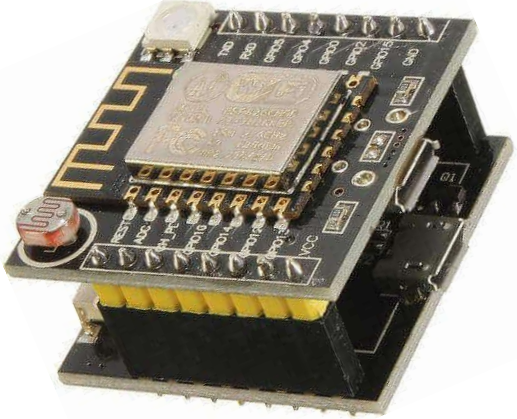
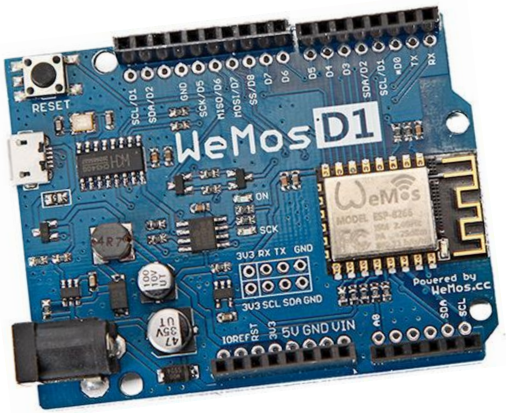
ESP8266 Boards

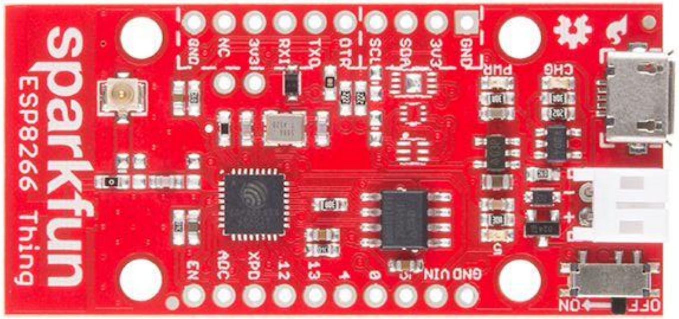
Witty



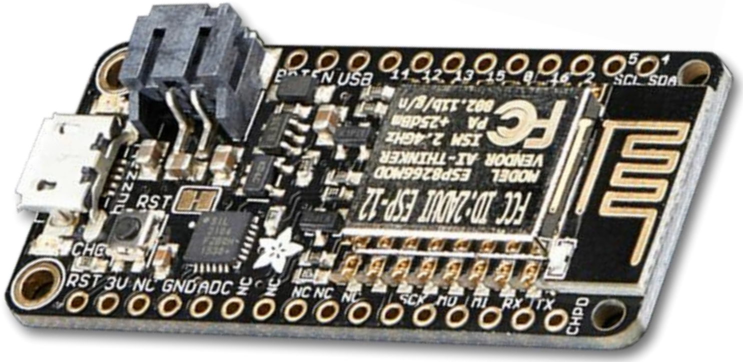


Wemos D1

Wemos Mini



Sparkfun Thing



Adafruit Huzzah

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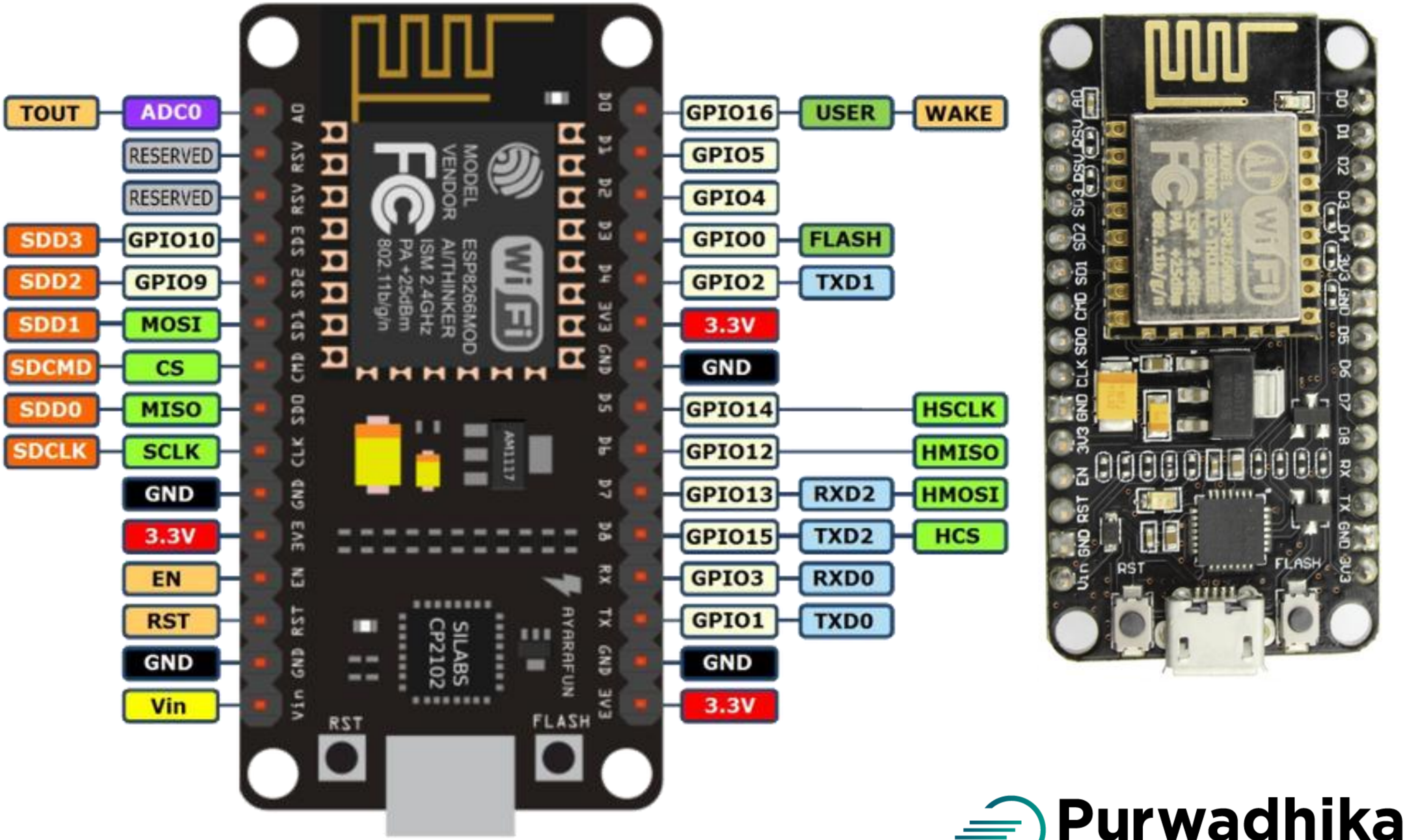
ESP8266 NodeMCU



Getting Started NodeMCU With Arduino IDE

1. Install USB Driver (CH340/CP2102)
2. Install board+library on Arduino IDE
3. Happy NodeMCU-ing!

http://arduino.esp8266.com/stable/package_esp8266com_index.json

Today's Menu

1. Blink
2. Serial monitor
3. Digital Analog Input Output
4. Scan Wifi (SSID & RSSI)
5. Connect to a network
6. Simple HTML
7. NodeMCU as Local server
8. Local server control & monitor

#1 Scan WiFi

```
#include "ESP8266WiFi.h"

void setup() {
  Serial.begin(115200);
  WiFi.mode(WIFI_STA);
  WiFi.disconnect();
  delay(100);}

void loop() {
  Serial.println("Mulai memindai WiFi");
  int n = WiFi.scanNetworks();
  Serial.println("Pemindaian selesai");
  if (n == 0)
```

bersambung...

#1 Scan WiFi

```
Serial.println("Tidak ada WiFi");
  else
  { Serial.print(n);
    Serial.println(" WiFi ditemukan");
    for (int i = 0; i < n; ++i)
    { Serial.print(i + 1);
      Serial.print(": ");
      Serial.print(WiFi.SSID(i));
      Serial.print(" (");
      Serial.print(WiFi.RSSI(i));
      Serial.println(" dBm)");
      delay(10);}}
  Serial.println("");
  delay(5000);}
```

done.

SSID

Service Set IDentifier
alias nama access point WiFi

RSSI

Received Signal Strength Indicator
dalam satuan dBm (desibel miliWatt)

#2 Connect to an Access Point

```
#include "ESP8266WiFi.h"

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

void loop() {
  delay(2000);
  WiFi.disconnect();
  Serial.println("Mulai menghubungkan");
  WiFi.begin(“Purwadhika",“patriot123");
  while((!(WiFi.status() == WL_CONNECTED))){
    delay(300);
    Serial.print("...");}
  Serial.println(WiFi.status());
  Serial.println("Terhubung");
  Serial.println("");}
```

#3 NodeMCU as AP

```
/* Membuat AP + lokal server */
#include <ESP8266WiFi.h>
#include <WiFiClient.h>
#include <ESP8266WebServer.h>

/* Atur ssid & pass AP yg akan dibuat */
const char *ssid = "Lintang_Test";
const char *password = "lintangwisesa";
//password harus > 8
ESP8266WebServer server(80);

void handleRoot() {
  server.send(200, "text/html", "<h1>Selamat
datang di Lintang_Test</h1>");}
```

bersambung...

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#3 NodeMCU as AP

```
void setup() {
  delay(1000);
  Serial.begin(115200);
  Serial.println();
  Serial.print("Menyiapkan AP...");
  WiFi.softAP(ssid, password);
  IPAddress myIP = WiFi.softAPIP();
  Serial.print("Access Point IP : ");
  Serial.println(myIP);
  server.on("/", handleRoot);
  server.begin();
  Serial.println("HTTP server OK");}
void loop() {
  server.handleClient();}
```

done.

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#4 NodeMCU As Server

```
#include <ESP8266WiFi.h>
#include <WiFiClient.h>
#include <ESP8266WebServer.h>
#include <ESP8266mDNS.h>
MDNSResponder mdns;
const char* ssid = “Purwadhika Patriot";
const char* password = “patriot123";
ESP8266WebServer server(80);
String webPage = "";

void setup(void){
  webPage += "<h1>Lintang Wisesa</h1>";
  Serial.begin(115200);
  delay(5000);
  WiFi.begin(ssid, password);
  Serial.println("");
  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");}
```

#4 NodeMCU As Server

```
Serial.println("");
  Serial.print("Terhubung ke ");
  Serial.println(ssid);
  Serial.print("IP : ");
  Serial.println(WiFi.localIP());

  if (mdns.begin("esp8266", WiFi.localIP())) {
    Serial.println("MDNS responder OK");}

  server.on("/", [](){
    server.send(200, "text/html", webPage);});

  server.begin();
  Serial.println("HTTP server OK");}

void loop(void){
  server.handleClient();}
```

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#5

Kontrol NodeMCU as Server

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#6

Tombol Kontrol HTML NodeMCU as Server

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#7

Monitor NodeMCU as Server

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#8

Monitor with Google Developer HTML NodeMCU as Server

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