ESP-8266

The ESP8266 WiFi Module is a self contained SOC with integrated TCP/IP protocol stack that can give any microcontroller access to your WiFi network. The ESP8266 is capable of either hosting an application or offloading all WiFi networking functions from another application processor. Each ESP8266 module comes pre-programmed with an AT command set firmware, meaning, you can simply hook this up to your Arduino device and get about as much WiFi-ability as a WiFi Shield offers (and that's just out of the box)! The ESP8266 module is an extremely cost effective board with a huge, and ever growing, community.

This module has a powerful enough on-board processing and storage capability that allows it to be integrated with the sensors and other application specific devices through its GPIOs with minimal development up-front and minimal loading during runtime. Its high degree of on-chip integration allows for minimal external circuitry, including the front-end module, is designed to occupy minimal PCB area. The ESP8266 supports APSD for VoIP applications and Bluetooth co-existance interfaces, it contains a self-calibrated RF allowing it to work under all operating conditions, and requires no external RF parts.
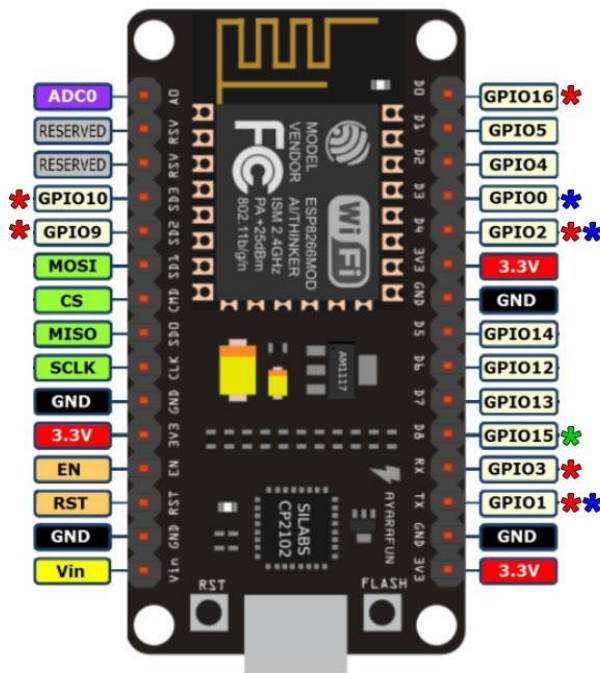
There is an almost limitless fountain of information available for the ESP8266, all of which has been provided by amazing community support. In the *Documents* section below you will find many resources to aid you in using the ESP8266, even instructions on how to transform this module into an IoT (Internet of Things) solution!

Note: The ESP8266 Module is not capable of 5-3V logic shifting and will require an external Logic Level Converter. Please do not power it directly from your 5V dev board.

Micropython	Board
0	D3
2	D4 (also Led1 but inverse)*
4	D2
5	D1
9	SD2
10	SD3
12	D6
13	D7
14	D5
15	D8
16	D0 (also Led2 but inverse)*

NodeMCU ESP8266

GPIO LIMITATIONS

*Pin is high on boot
*Boot failure if pulled low
*Boot failure if pulled high

ADC0
RESERVED
RESERVED
GPIO10 *
GPIO9 *
MOSI
CS
MISO
SCLK
GND
3.3V
EN
RST
GND
Vin

GPIO16 *
GPIO5
GPIO4
GPIO0 *
GPIO2 * *
3.3V
GND
GPIO14
GPIO12
GPIO13
GPIO15 *
GPIO3 *
GPIO1 * *
GND
3.3V

Best Pins for Input (best to worst)

Board Label	Raw Pin Number
D1	5
D2	4
D5	14
D6	12
D7	13
D0	16
SD2	9
SD3	10
RX	3

Best Pins for Output (best to worst)

Board Label	Raw Pin Number
D1	5
D2	4
D5	14
D6	12
D7	13
D8	15

Made by: www.youtube.com/c/TheHookUp

TOUT — ADC0 — A0 — D0 — GPIO16 — USER — WAKE
GND — G — D1 — GPIO5
VUSB — VU — D2 — GPIO4
SDD3 — GPIO10 — S3 — D3 — GPIO0 — FLASH
SDD2 — GPIO9 — S2 — D4 — GPIO2 — TXD1
SDD1 — MOSI — S1 — 3V — 3.3 V
SDCMD — CS — SC — G — GND
SDD0 — MISO — S0 — D5 — GPIO14 — HSCLK
SDCLK — SCLK — SK — D6 — GPIO12 — HMISO
GND — G — D7 — GPIO13 — RXD2 — HMOSI
3.3 V — 3V — D8 — GPIO15 — TXD2 — HCS
EN — EN — RX — GPIO3 — RXD0
RST — RST — TX — GPIO1 — TXD0
GND — G — G — GND
Vin — VIN — 3V — 3.3 V

LoLin
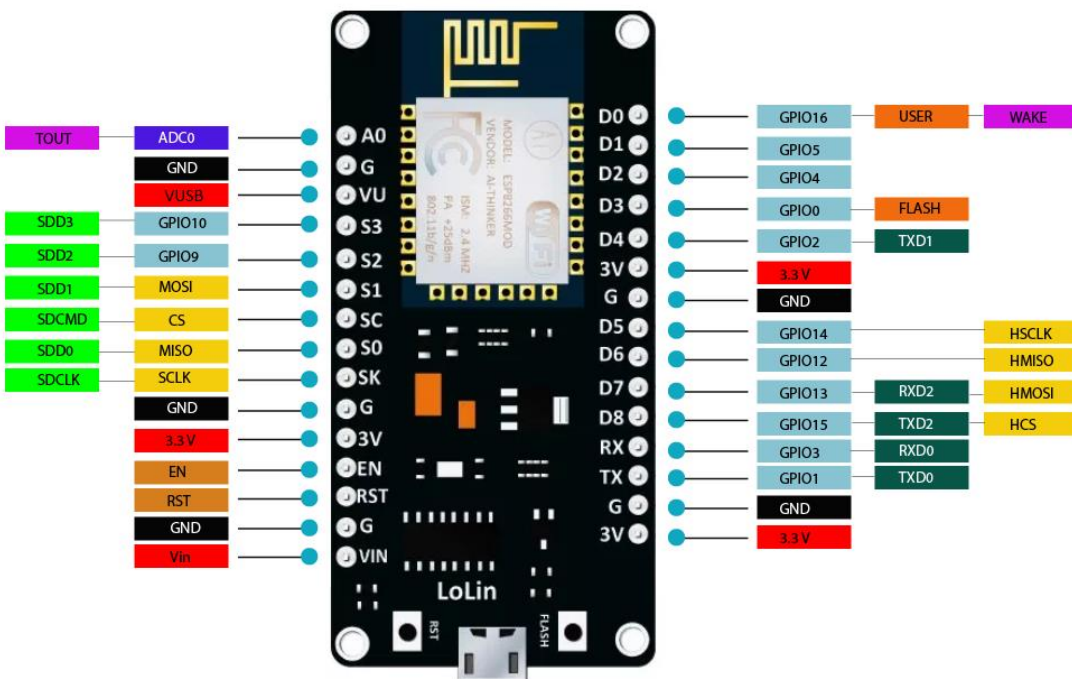
NodeMCU V3 Pinout

www.TheEngineeringProjects.com