

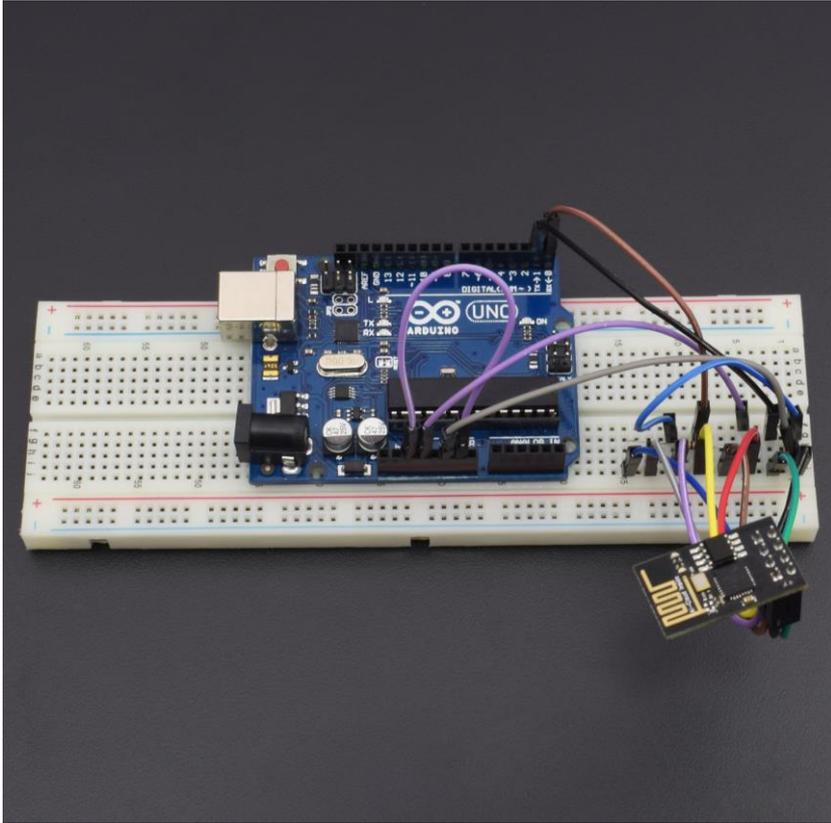
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Scan nearby Wifi Networks with the help of ESP8266  
-01 Wifi Module Interfacing with Arduino Uno

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# PLANTING THE SEED OF INNOVATION

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## Specifications

### ESP8266-01 Wi-Fi module

- 802.11 b/g/n
- Serial/UART baud rate: 115200 bps
- Integrated TCP/IP protocol stack
- Input power: 3.3V (see "Recommended Accessories" below for 3.3V power options)

- I/O voltage tolerance: 3.6V Max (see "Recommended Accessories" below for level converters to connect to higher voltage devices (i.e. Arduino))
- Regular operation current draw: ~70mA
- Peak operating current draw: ~300mA
- Power down leakage current: <10µA
- +19.5dBm output in 802.11b mode
- Flash Memory Size: 1MB (8Mbit)
- Wi-Fi security modes: WPA, WPA2
- Module's dimensions: 24.75mm x 14.5mm (0.974" x 0.571")

## Hardware Required

Resistor 100 Ohm - 2



Breadboard 840pt - 1



Jumper Wire 40 pcs each (Male to Male and Male to Female)



Arduino Uno with USB Cable - 1



ESP8266 Wifi Module - 1



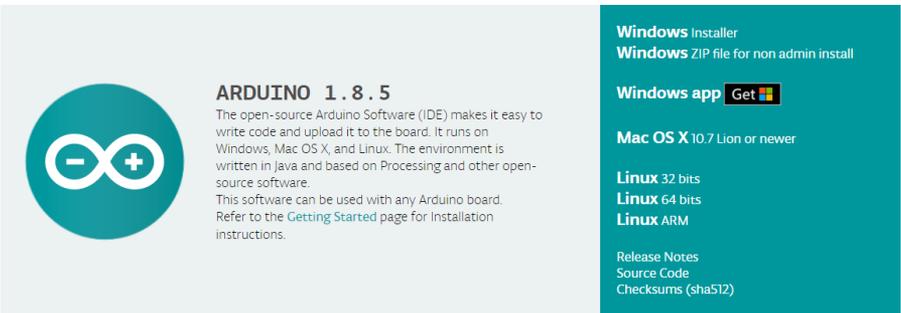
- Arduino uno with USB cable - 1
- ESP8266-01 Wi-Fi module - 1
- Jumper wires (male to male & male to female) - 40 pieces each
- Breadboard 840 points - 1
- 100 ohm resistor - 2

## Software Required

Arduino IDE 1.8.5 (Programmable Platform for Arduino Boards)

Click to download the software:

<https://www.arduino.cc/en/Main/Software>



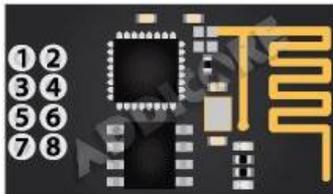
The screenshot shows the Arduino IDE 1.8.5 download page. On the left, there is a circular logo with an infinity symbol and a plus sign. To the right of the logo, the text reads: **ARDUINO 1.8.5**. Below this, it says: "The open-source Arduino Software (IDE) makes it easy to write code and upload it to the board. It runs on Windows, Mac OS X, and Linux. The environment is written in Java and based on Processing and other open-source software. This software can be used with any Arduino board. Refer to the Getting Started page for installation instructions." On the right side of the page, there are several download options: "Windows Installer", "Windows ZIP file for non admin install", "Windows app" with a "Get" button, "Mac OS X 10.7 Lion or newer", "Linux 32 bits", "Linux 64 bits", and "Linux ARM". At the bottom right, there are links for "Release Notes", "Source Code", and "Checksums (sha512)".

## Pin Description

### ESP8266-01 Wi-Fi Module

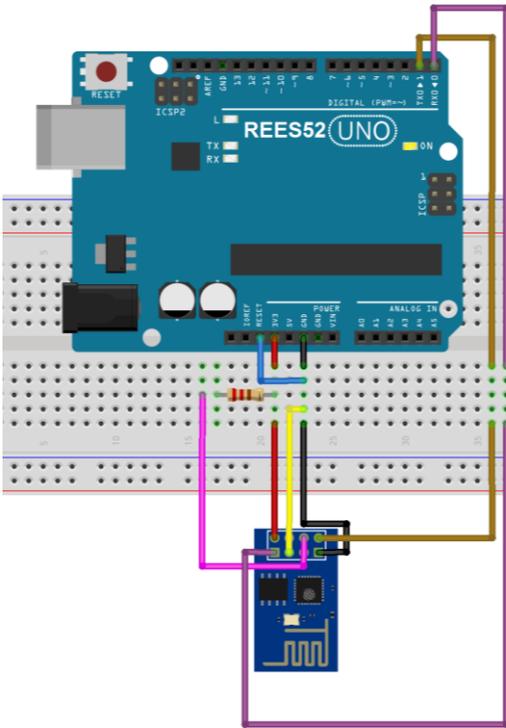
**PINOUT:**

- 1 TX
- 2 GND
- 3 CH\_PD
- 4 GPIO 2
- 5 RST
- 6 GPIO 0
- 7 VCC
- 8 RX



## Circuit Connection

Connect all the wires given in diagram below:



esp8266 Vcc to arduino's 3.3v|

esp8266 ground to arduino's ground

esp8266 TX to arduino TX and RX to arduino RX

Connect arduino ground to arduino reset

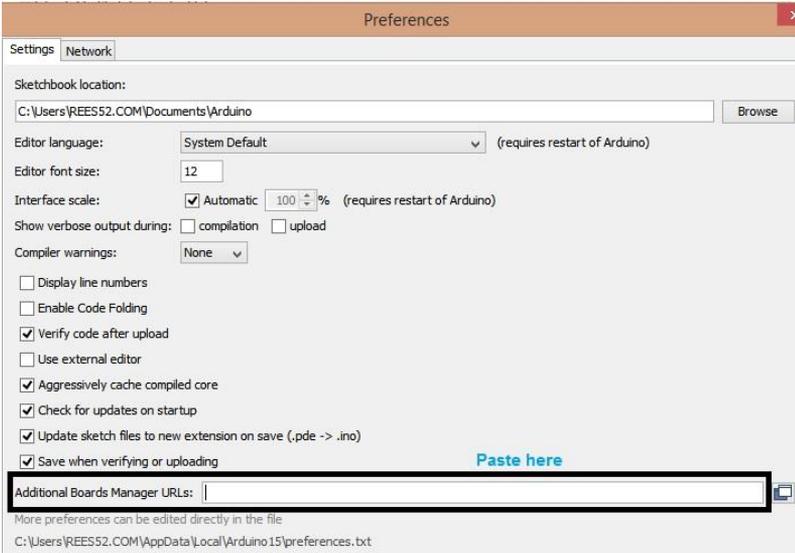
Connect esp8266 CH\_pd to arduino's Vcc via 100 ohm resistor

Connect esp8266 GPIO-0 to arduino's ground

- Open Arduino IDE Software

File -> preferences -> paste this link

[http://arduino.esp8266.com/stable/package\\_esp8266com\\_index.json](http://arduino.esp8266.com/stable/package_esp8266com_index.json) to additional board manager URL



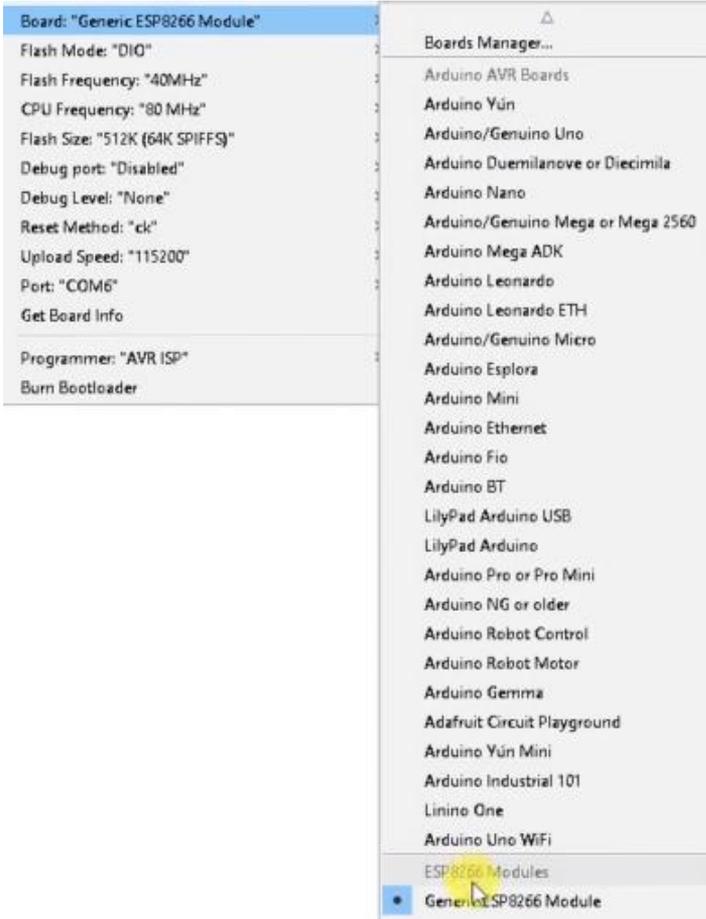
## Setup ESP board manager

Tools->Board->Boards manager->search for esp8266 and install it



## -ESP8266 setup in ide

Tools -> Boards -> Generic ESP8266 module



**Note:** esp8266 required 3.3v if you give it 5v volt it will burn.

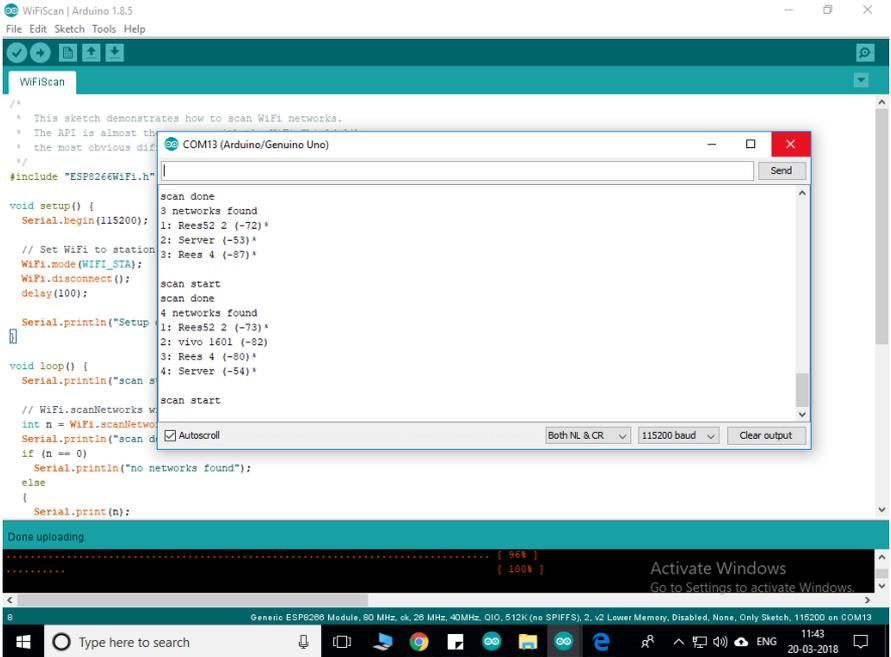
## Code

Files → examples → ESP8266 WIFI → WIFI scan

Upload the code



## Output



The screenshot shows the Arduino IDE interface with a sketch named 'WiFiScan' and a serial monitor window titled 'COM13 (Arduino/Genuino Uno)'. The sketch code is as follows:

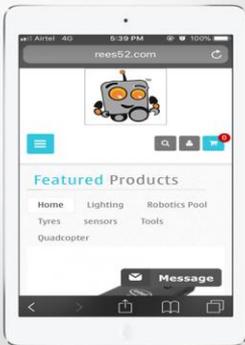
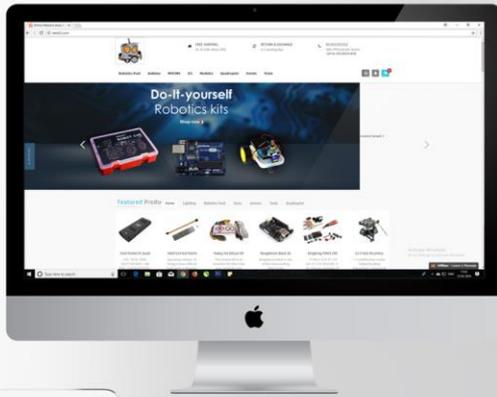
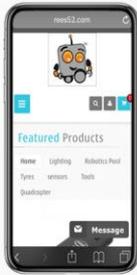
```
/*  
 * This sketch demonstrates how to scan WiFi networks.  
 * The API is almost the same as the WiFiClient API.  
 * The most obvious difference is that you can scan for networks.  
 */  
#include "ESP8266WiFi.h"  
  
void setup() {  
  Serial.begin(115200);  
  
  // Set WiFi to station mode  
  WiFi.mode(WIFI_STA);  
  WiFi.disconnect();  
  delay(100);  
  
  Serial.println("Setup done");  
}  
  
void loop() {  
  Serial.println("scan start");  
  
  // WiFi.scanNetworks won't return data if you don't have an IP  
  int n = WiFi.scanNetworks();  
  Serial.println("scan done");  
  if (n == 0)  
    Serial.println("no networks found");  
  else  
  {  
    Serial.print(n);  
    Serial.println(" networks found");  
    for (int i = 0; i < n; i++)  
    {  
      Serial.print(i);  
      Serial.print(": ");  
      Serial.print(WiFi.RSSI(i));  
      Serial.print(" (");  
      Serial.print(WiFi.BSSID(i));  
      Serial.print(")");  
      if (i < n - 1) Serial.print(", ");  
    }  
  }  
  delay(5000);  
}
```

The serial monitor output shows the following sequence of events:

```
scan done  
3 networks found  
1: Rees52 2 (-72) *  
2: Server (-53) *  
3: Rees 4 (-87) *  
  
scan start  
scan done  
4 networks found  
1: Rees52 2 (-73) *  
2: vivo 1601 (-82) *  
3: Rees 4 (-80) *  
4: Server (-54) *  
  
scan start
```

The serial monitor settings are set to 'Both NL & CR', '115200 baud', and 'Clear output' is checked. The status bar at the bottom indicates 'Generic ESP8266 Module, 80 MHz, 40 MHz, 40MHz, QIO, 512K (no SPIFFS), 2, v2 Lower Memory, Disabled, None, Only Sketch, 115200 on COM13'.

Must set your baud rate of serial monitor according to the code.



**HANK YOU**  
FOR BUYING OUR PRODUCTS



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