1 channel Plant Watering System with Arduino UNO R3

Preface

About Our Company

WayinTop, Your Top Way to Inspiration, is a professional manufacturer over 2,000 open source motherboards, modules, and components. From designing PCBs, printing, soldering, testing, debugging, and offering online tutorials, WayinTop has been committed to explore and demystify the wonderful world of embedded electronics, including but not limited to Arduino and Raspberry Pi. We aim to make the best designed products for makers of all ages and skill levels. No matter your vision or skill level, our products and resources are designed to make electronics more accessible. Founded in 2013, WayinTop has grown to over 100+ employees and a 50,000+ sq ft. factory in China by now. With our unremitting efforts, we also have expanded offerings to include tools, equipments, connector kits and various DIY products that we have carefully selected and tested.

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Overview

The following guide will show you how to set up a watering system that can intelligently monitor and automatically water to the plant or flower.

Parts Required

1. Development Board
2. Breadboard
3. One-channel Relay
4. Capacitive Soil Moisture Sensor
5. 5V mini water pumps
6. Watering Pipe

Development Board <----------> Capacitive Soil Humidity Sensor

A0<---- >AOUT

3.3V<-- -->VCC

GND<---- >GND

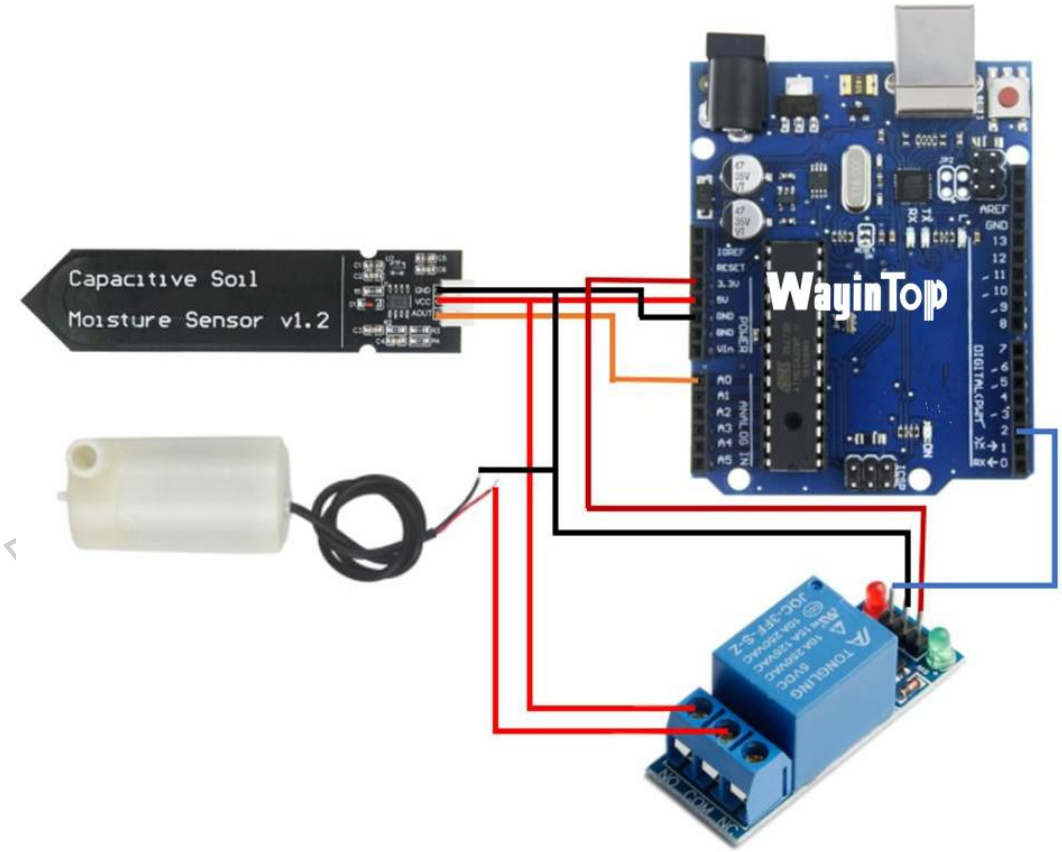
Development Board<---------->One-Channel Relay

VCC<----- >3.3V

GND<----- >GND

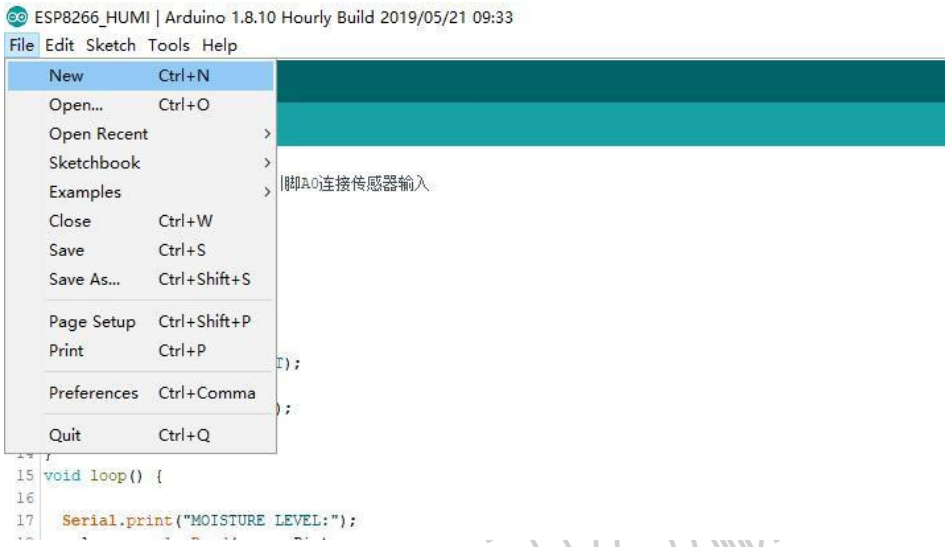
2<------- >IN

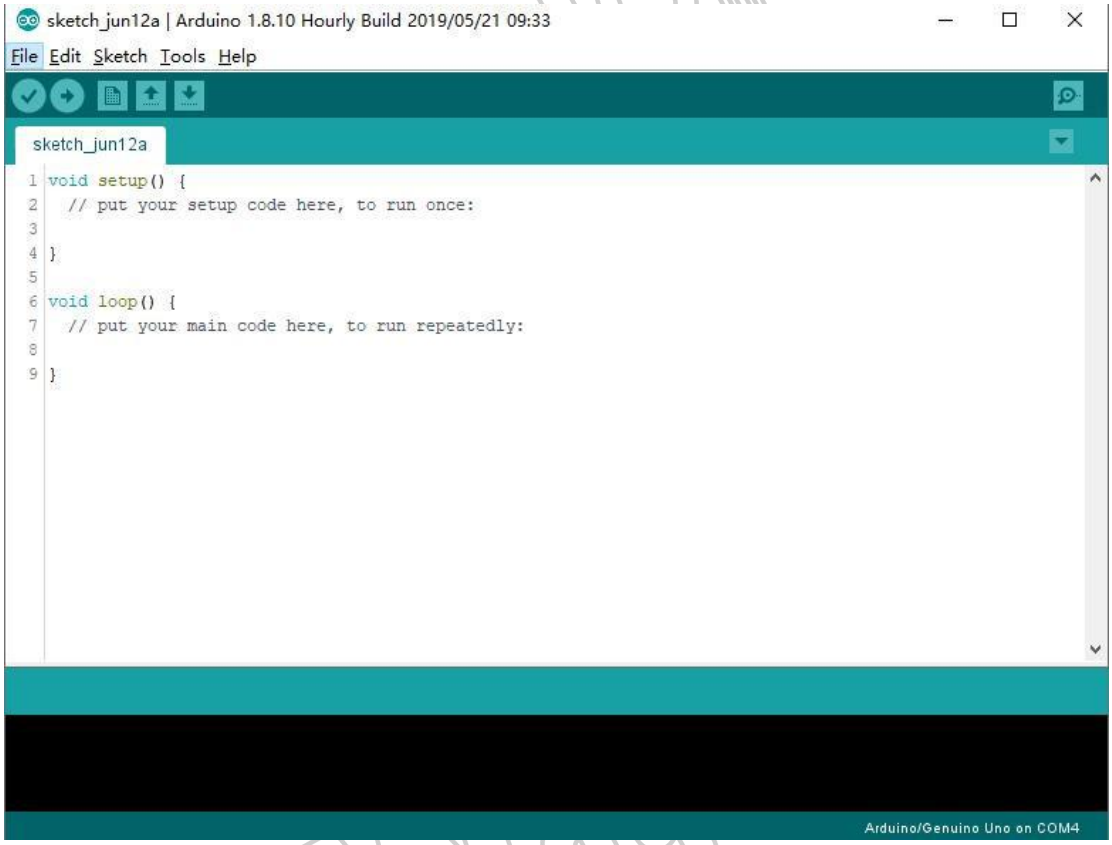
Connection Diagram



How to set up with Arduino IDE?

Step 1: Open the Arduino IDE and create a new file as shown below.



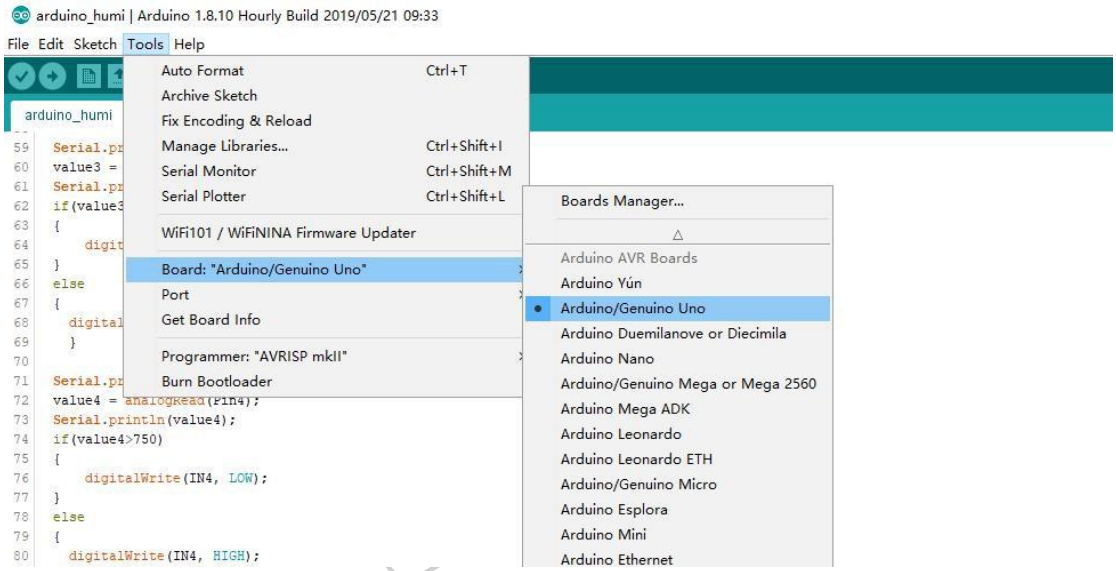


Step 2: Copy the following code all into this file.

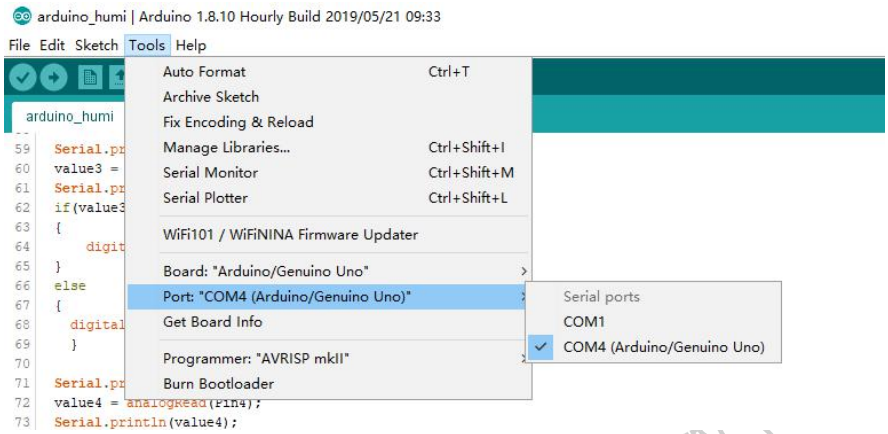
```
int IN1 = 2;
int Pin1 = A0;
float value1 = 0;
void setup() {
   Serial.begin(9600);
   pinMode(IN1, OUTPUT);
   pinMode(Pin1, INPUT);
```

```
    digitalWrite(IN1, HIGH);
    delay(500);
}
void loop()
    { Serial.print("MOISTURE
    LEVEL:"); value1 =
    analogRead(Pin1);
    Serial.println(value1);
    if(value1>750)
    {
          digitalWrite(IN1, LOW);
    }
    else
    {
       digitalWrite(IN1, HIGH);
       }
       Serial.println();
    delay(1000);
}
```

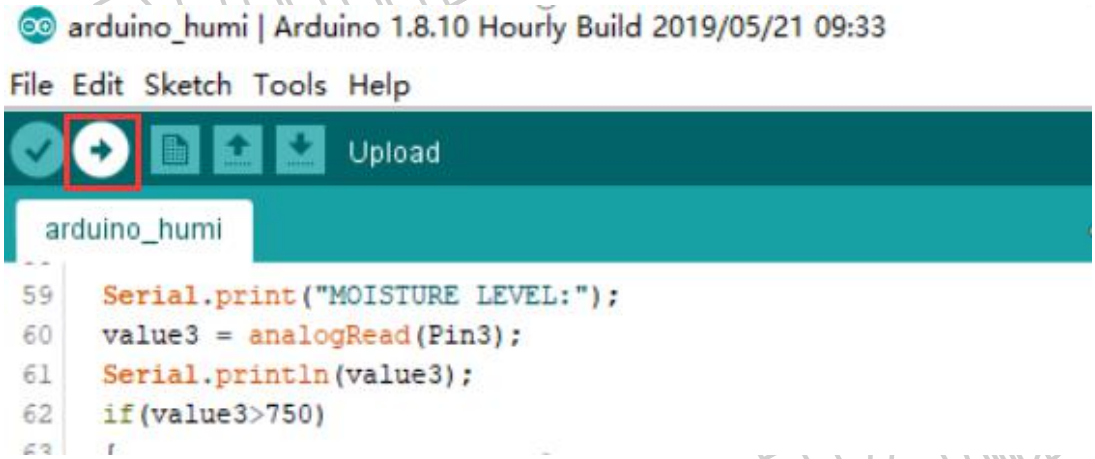
Step 3: Click tools->board:->ardduino/genuine uno, as shown below.



Step 4: Click tools->port:->com4, as shown below.



Step 5: Click the icon as shown below to download the program to the development board



1 channel Plant Watering System with NodeMCU ESP8266

Overview

The following guide will show you how to set up a one-channel intelligent watering system with NodeMCU ESP8266 development board and Capacitive Soil Moisture Sensor. Moreover, you can also realize the real-time communication between the data and the network by connecting to wireless network.

Parts Required

1. NodeMCU ESP8266 Development Board
2. Breadboard
3. One-channel Relay
4. Capacitive Soil Moisture Sensor
5. 5V mini water pump
6. Watering Pipe

How to connect?

NodeMCU ESP8266 <----------> Capacitive soil moisture sensor

A0<---------->AOUT

GND<------->GND

3.3V<-------->VCC

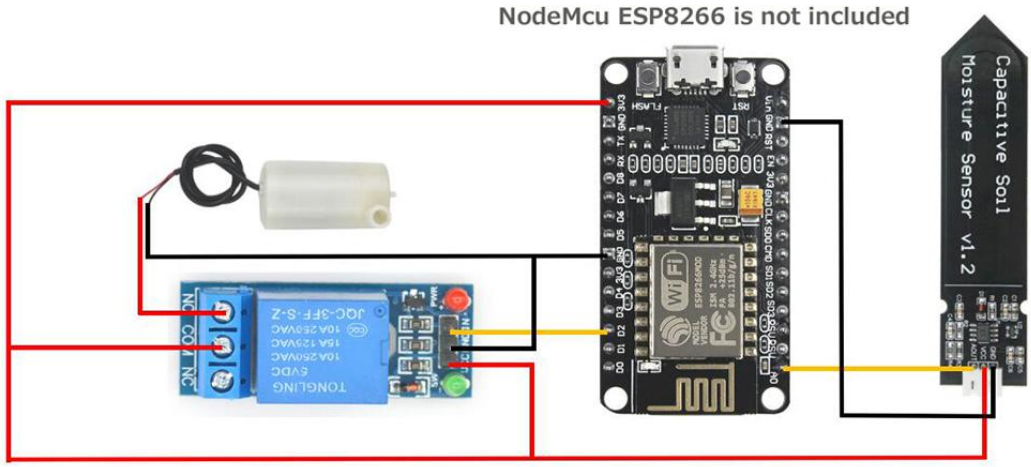
NodeMCU ESP8266 <---------> Relay

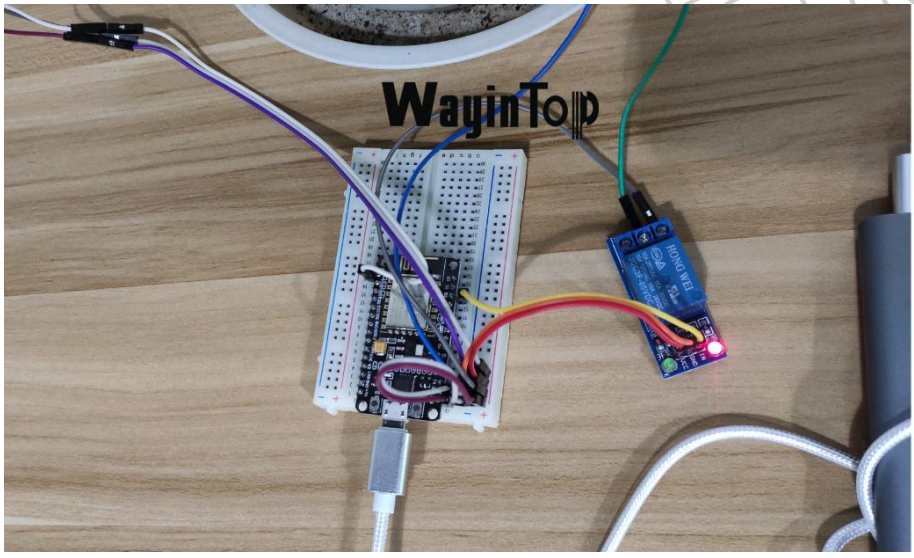
D2<---------->IN

GND<------->GND

3.3V<-------->VCC

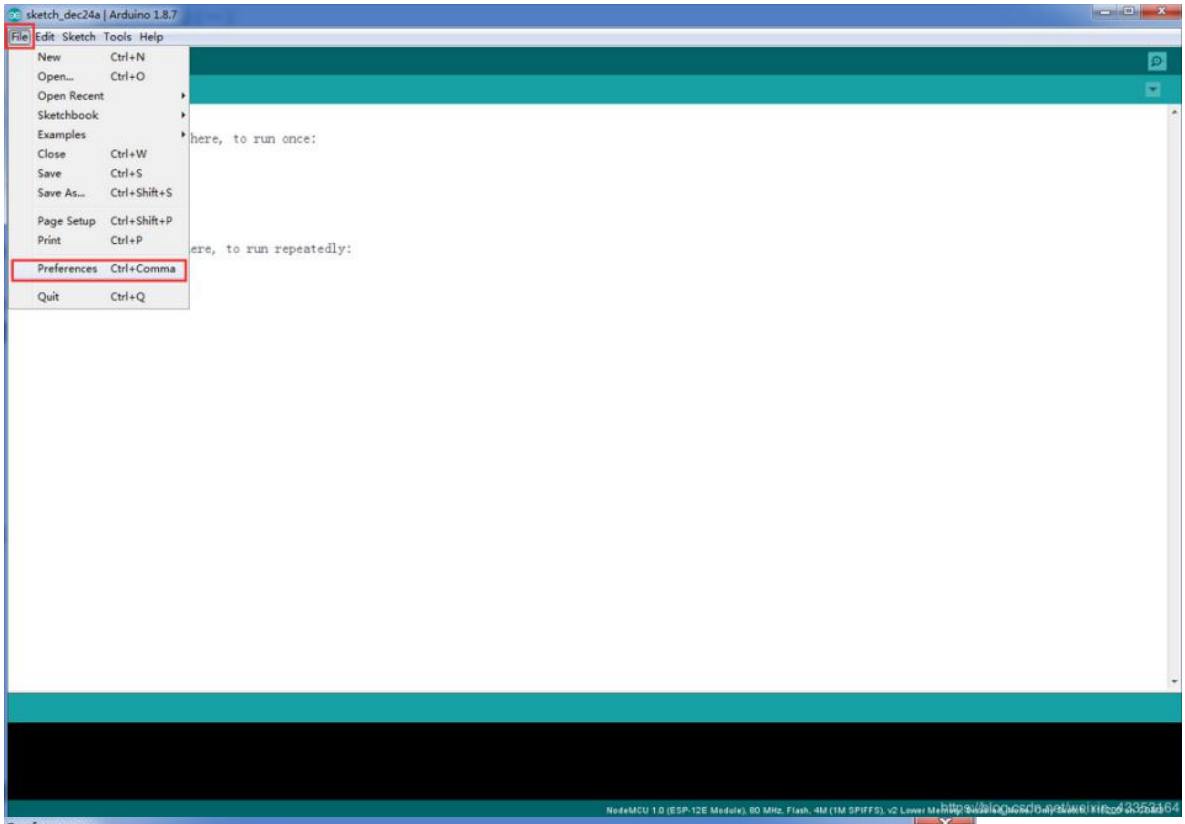
Connection Diagram

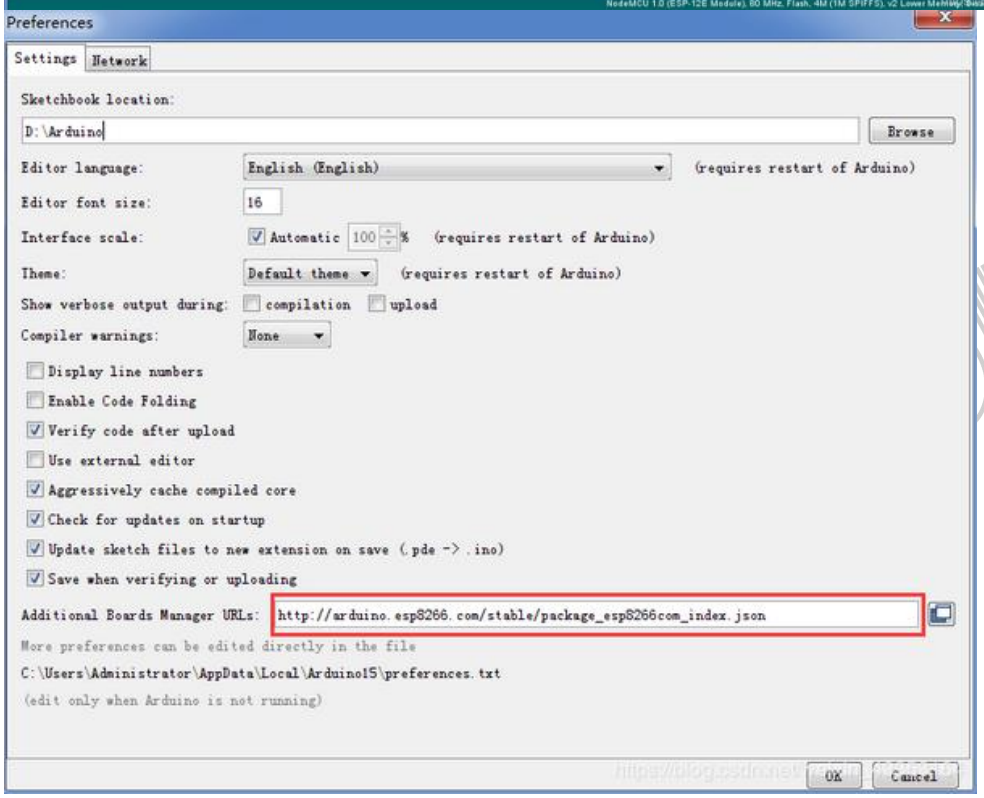




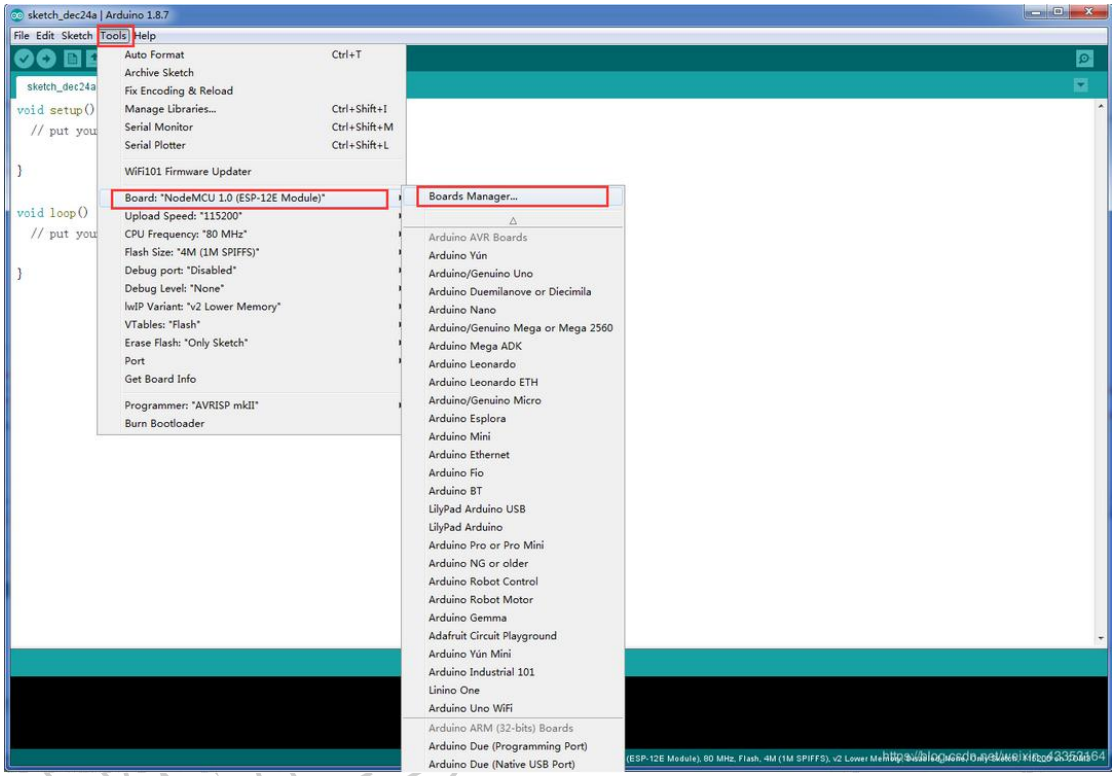
How to set up with NodeMCU ESP8266 Development Board?

Step 1: Open Arduino IDE, click file->Preferences, in the pop-up window "Additional Boards Manager URLs" input: http://arduino.esp8266.com/stable/package_esp8266com_index.json, then click "OK", as shown below.

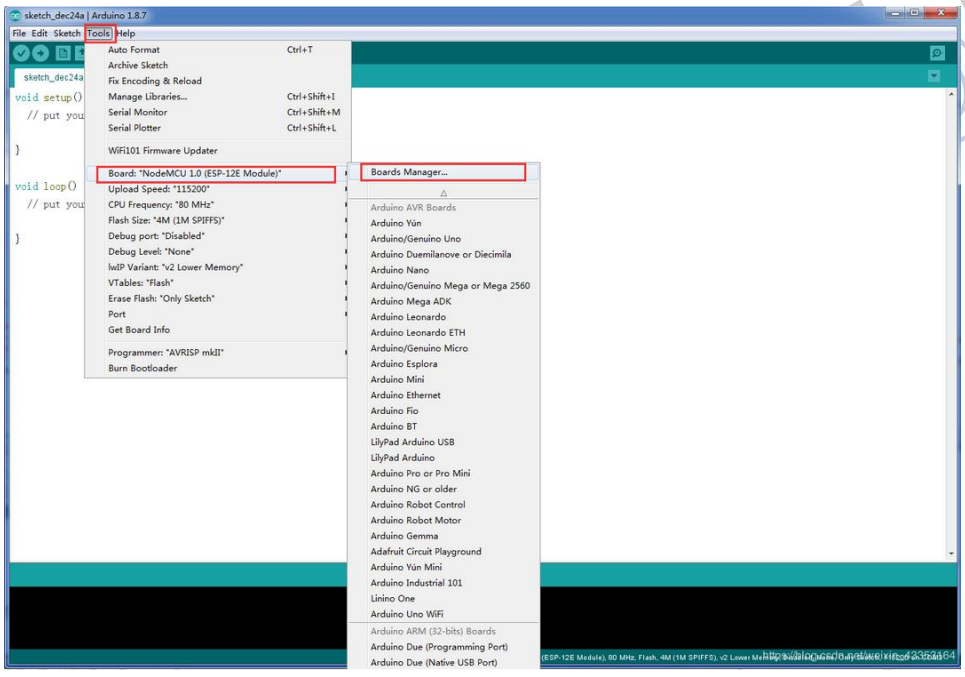




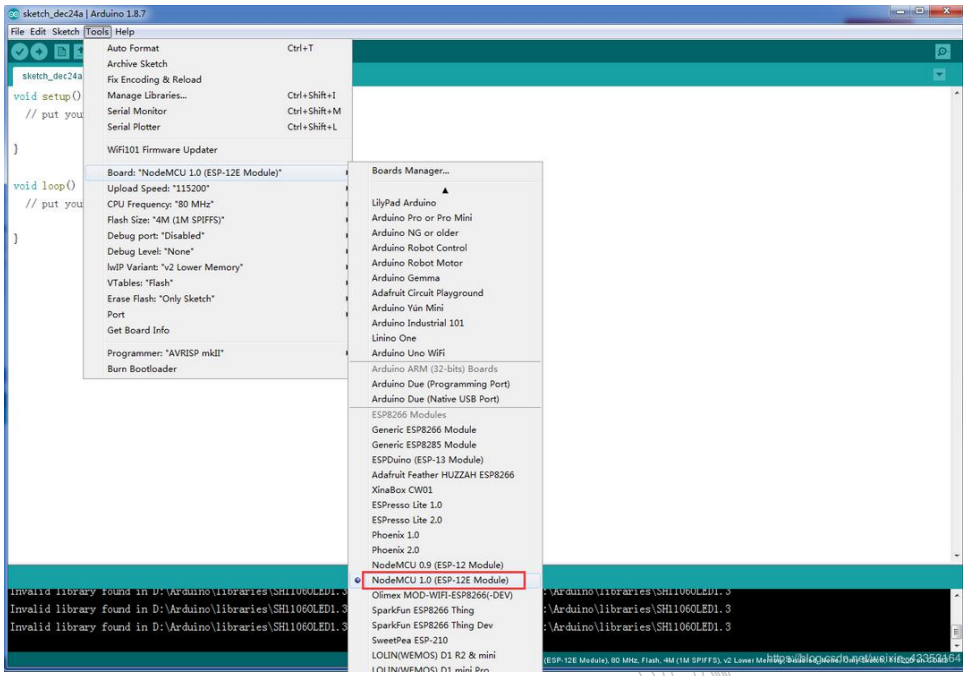
Step 2: Download ESP8266 Development board, click the options shown in the figure below.



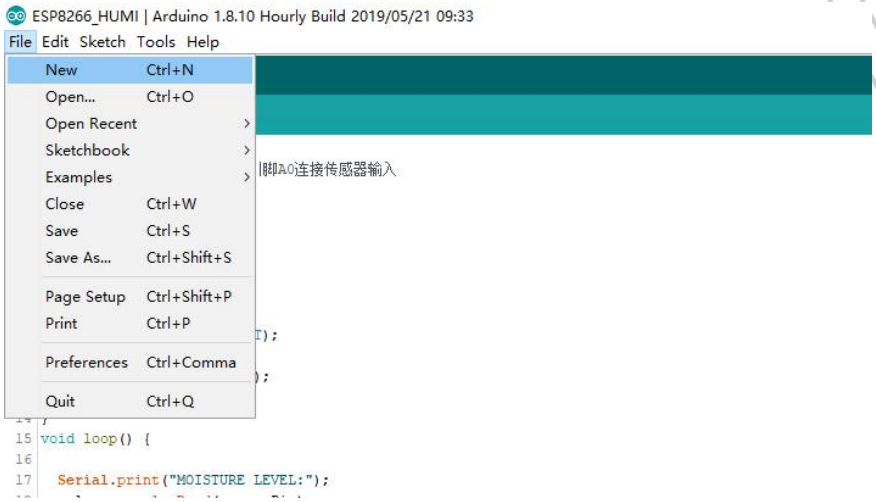
Step 3: Search for “esp8266” in the pop-up window and click “Install”, as shown below.



Step 4: After downloading, choose the correct module. If the list as shown in the figure below does not appear, it means that the download fails, so download again.



Step 5: **Create a new file as shown below.**



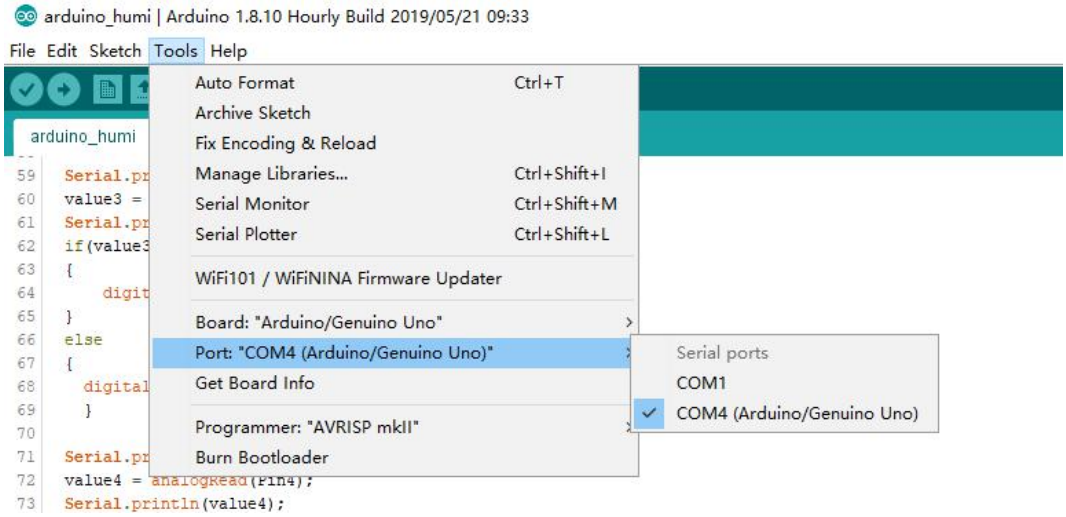
Step 6: **Copy the following code all into this file.**

```
int HUMI = 4;
int sense_Pin = 0; // Analog pin A0 is connected to sensor input.
```

```
float value = 0;
void setup() {
  Serial.begin(9600);
  pinMode(HUMI, OUTPUT);
  pinMode(sense_Pin, INPUT);
  digitalWrite(HUMI, HIGH);
  delay(500);
}
void loop() {

  Serial.print("MOISTURE LEVEL:");
  value = analogRead(sense_Pin);
  Serial.println(value);
  if(value>750)
  {
     digitalWrite(HUMI, LOW);
  }
  else
  {
   digitalWrite(HUMI, HIGH);
    }
  delay(1000);
}
```


Step 7: **Click tools->port:->com4, as shown below.**



Step 8: **Click the icon to download the program to the development board as shown below.**