



Preface

About Our Company

Located in Shenzhen, the Silicon Valley of China, KeeYees Technology Inc. is a big & professional Electronic Products Manufacturer and Seller, dedicated to open-source hardware research & development, production and marketing. All of our products comply with International Quality Standards and are very popular in a variety of different markets throughout of the world. KeeYees is your best choice in various electronic modules & components designed for customers of any level to learn Arduino and Raspberry Pi knowledge. In addition, we also sell products like 3D printer accessories, connectors and terminals kits, DIY parts and tools to support your work and design challenges from Home, School to Industrial applications!

US Amazon Store Homepage:

<https://www.amazon.com/shops/A2K4DGCC72N9AG>

CA Amazon Store Homepage:

<https://www.amazon.ca/shops/A2K4DGCC72N9AG>

UK Amazon Store Homepage:

<https://www.amazon.co.uk/shops/A1F4U6XVWUBG1U>

DE Amazon Store Homepage:

<https://www.amazon.de/shops/A1F4U6XVWUBG1U>

FR Amazon Store Homepage:

<https://www.amazon.fr/shops/A1F4U6XVWUBG1U>

IT Amazon Store Homepage:

<https://www.amazon.it/shops/A1F4U6XVWUBG1U>

ES Amazon Store Homepage:

<https://www.amazon.es/shops/A1F4U6XVWUBG1U>

JP Amazon Store Homepage:

<https://www.amazon.co.jp/shops/A7NY3JX21TGU2>

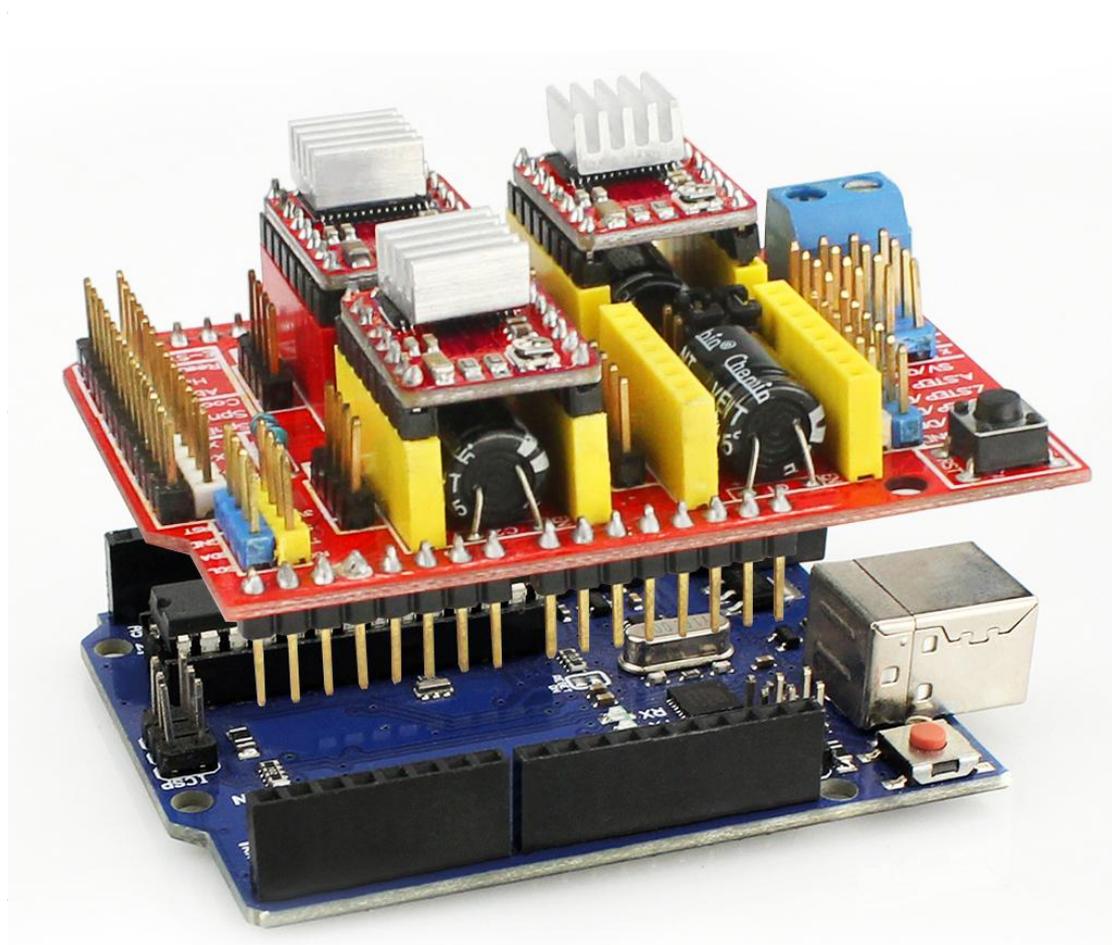


This tutorial takes driving three stepper motors as an example:

Part 1. Circuit connection between CNC extended version and UNO board

The CNC expansion board is directly plugged into the R3 board.

Note the pins of the two templates are completely matched, and they cannot be inserted in the opposite direction.

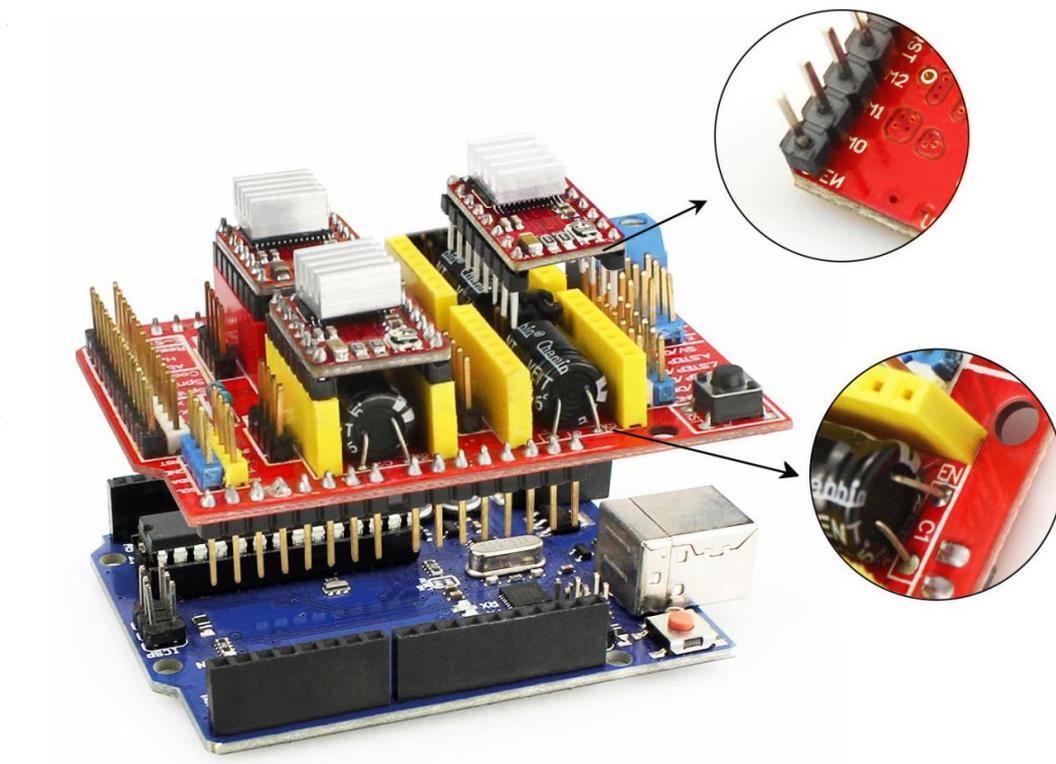


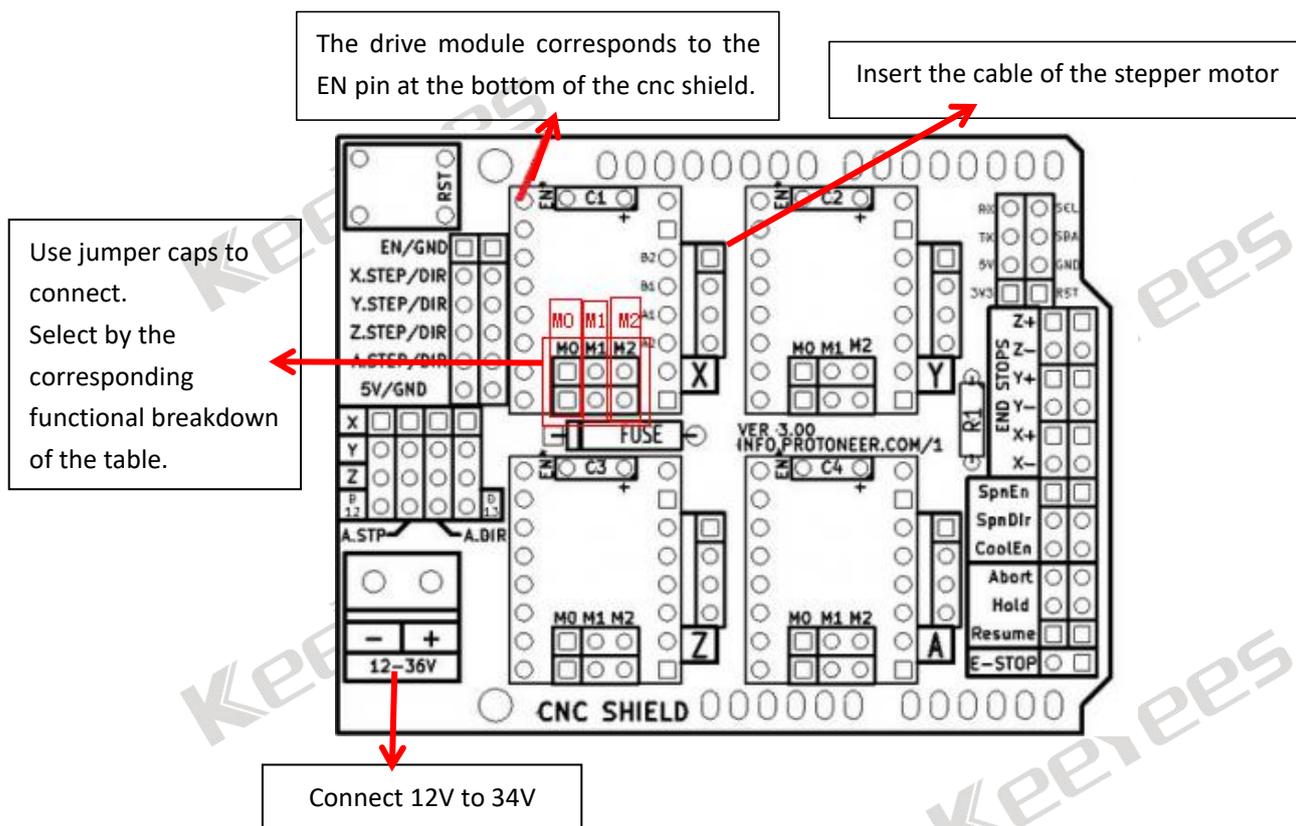


Then A4988 drive module is directly plugged into the CNC drive expansion board.

Note The installation of the drive module is directional. There is an **EN pin** on the CNC expansion board. Please install it in the same direction.

The connection method of one drive is marked in the figure below, and the other two connections can be connected in the same way.





The expansion board is divided into 4 stepper motor installation areas, and each area has the same setting. Use jumper caps to short-circuit the two pins corresponding to M0, M1, and M2 to set the corresponding subdivision.

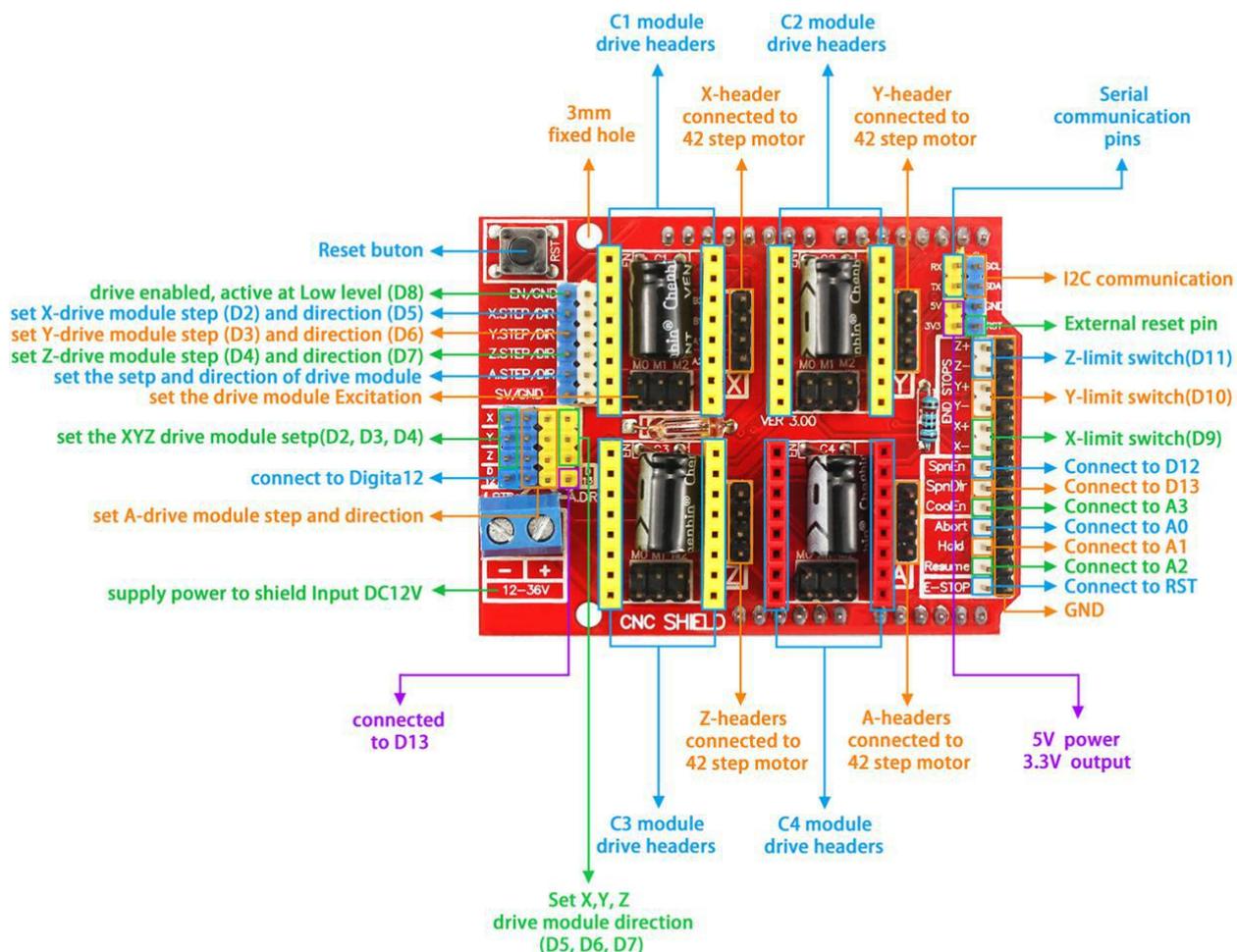
The subdivision function is as follows:

M0	M1	M2	Subdivision
LOW	LOW	LOW	1
HIGH	LOW	LOW	1/2
LOW	HIGH	LOW	1/4
HIGH	HIGH	LOW	1/8



HIGH	HIGH	HIGH	1/16
M0	M1	M2	Subdivision
LOW	LOW	LOW	1
HIGH	LOW	LOW	1/2

The expansion board pins are introduced in detail as follows:





Download the Arduino IDE

ARDUINO 1.8.9
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.

Windows Installer, for Windows XP and up
Windows ZIP file for non admin install

Windows app Requires Win 8.1 or 10
[Get](#)

Mac OS X 10.8 Mountain Lion or newer

Linux 32 bits
Linux 64 bits
Linux ARM 32 bits
Linux ARM 64 bits

[Release Notes](#)
[Source Code](#)
[Checksums \(sha512\)](#)

HOURLY BUILDS
Download a **preview of the incoming release** with the most updated features and bugfixes.
Windows
Mac OS X (Mac OS X Mountain Lion or later)
Linux 32 bit , Linux 64 bit , Linux ARM, Linux ARM64

BETA BUILDS
Download the **Beta Version** of the Arduino IDE with experimental features. This version should NOT be used in production.
Windows
Mac OS X (Mac OS X Mountain Lion or later)
Linux 32 bit, Linux 64 bit, Linux ARM, Linux ARM64

*The version available at this website is usually the latest version, and the actual version may be newer than the version in the picture.

2. Download the development software that is compatible with the operating system of your computer.

Take Windows Operating System as an example here.



HOURLY BUILDS

Download a **preview of the incoming release** with the most updated features and bugfixes.

Windows

Mac OS X (Mac OSX Mountain Lion or later)

Linux 32 bit , Linux 64 bit , Linux ARM, Linux ARM64

Click [Windows](#) and download the zip file.

 [arduino-nightly-windows.zip](#)

Click the [arduino-nightly](#) file.

 [arduino-nightly](#)
 [arduino-nightly-windows.zip](#)

Click [arduino.exe](#)

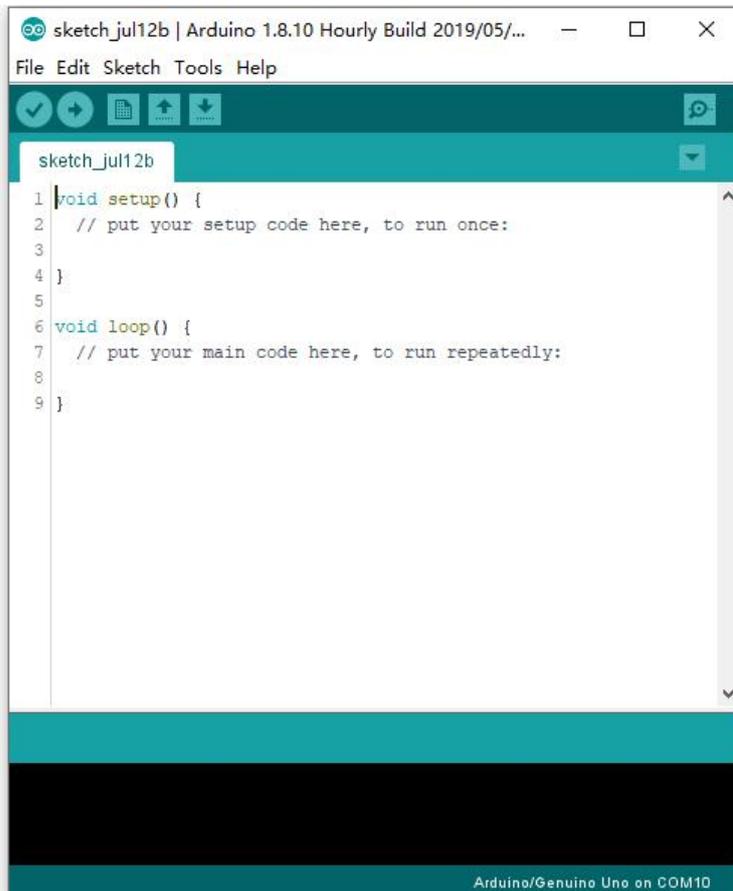
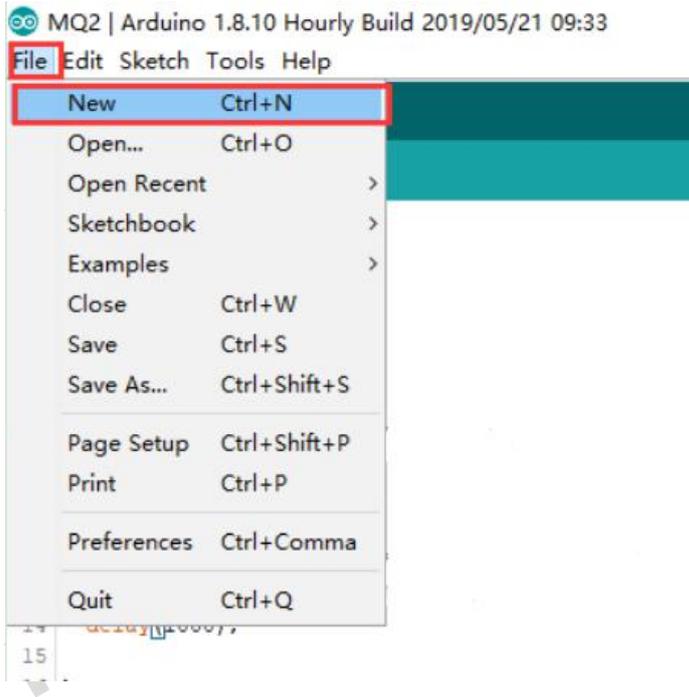
 drivers	2019/8/23 11:03
 examples	2019/8/23 11:03
 hardware	2019/8/23 11:03
 java	2019/8/23 11:03
 lib	2019/8/23 11:03
 libraries	2019/8/23 11:03
 reference	2019/8/23 11:03
 tools	2019/8/23 11:03
 tools-builder	2019/8/23 11:03
 arduino.exe	2019/8/22 10:33
 arduino.l4j.ini	2019/8/22 10:33
 arduino_debug.exe	2019/8/22 10:33
 arduino_debug.l4j.ini	2019/8/22 10:33
 arduino-builder.exe	2019/8/22 10:33

Part 2. Setting in the Arduino IDE

1. After the installation is complete, open the Arduino IDE and create a



new example as shown below:



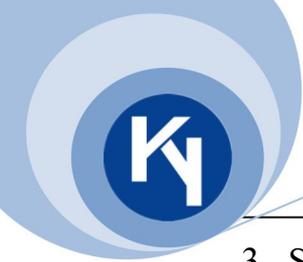


2. Copy the following code into the newly created project:

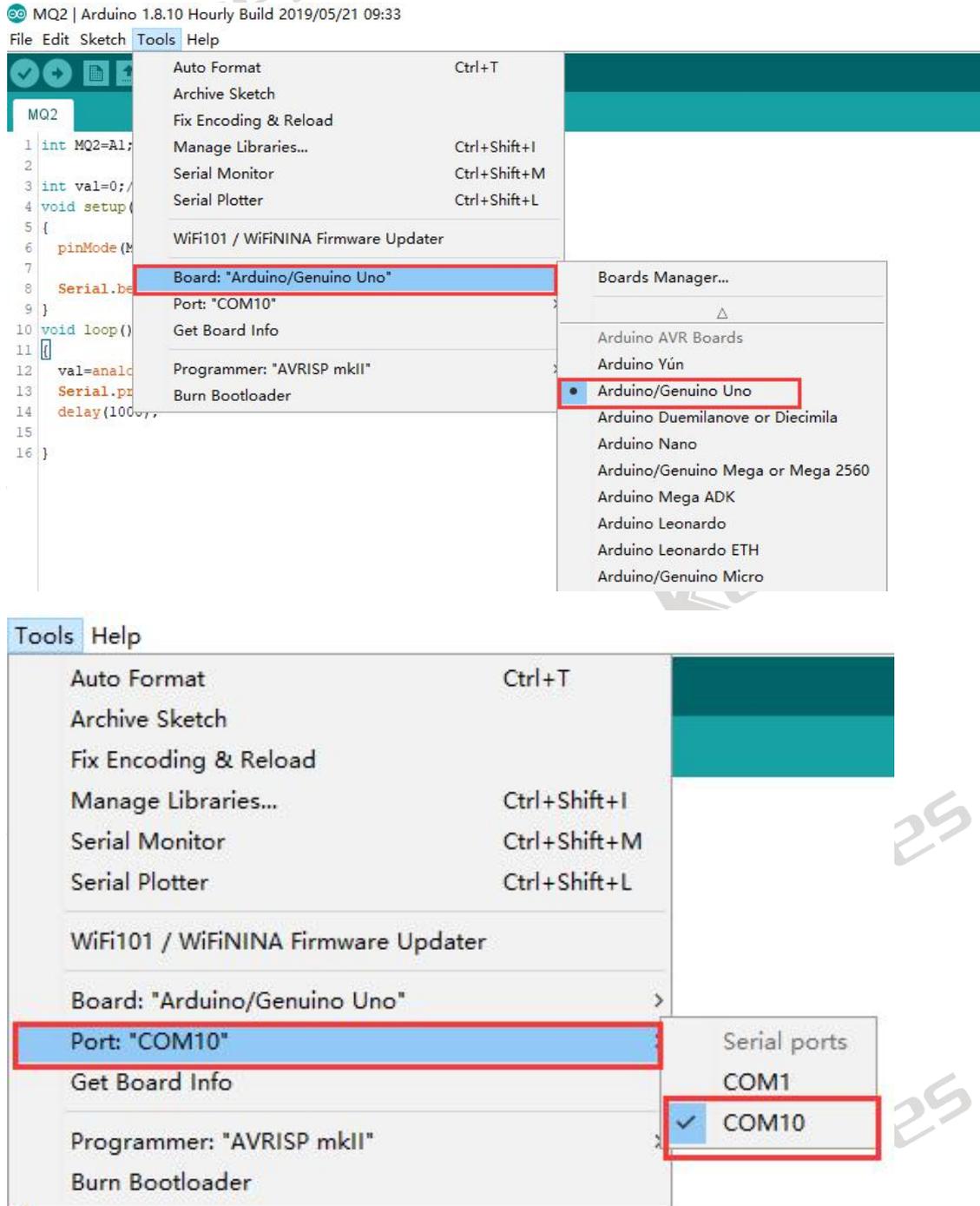
* If you can't copy because the document is encrypted, please open the

[A4988 file](#) in the compressed package to copy it.

```
#define EN      8
#define X_DIR  5
#define Y_DIR  6
#define Z_DIR  7
#define X_STP  2
#define Y_STP  3
#define Z_STP  4
void step(boolean dir, byte dirPin, byte stepperPin, int steps)
{
  digitalWrite(dirPin, dir);
  delay(50);
  for (int i = 0; i < steps; i++) {
    digitalWrite(stepperPin, HIGH);
    delayMicroseconds(800);
    digitalWrite(stepperPin, LOW);
    delayMicroseconds(800);
  }
}
void setup(){
  pinMode(X_DIR, OUTPUT); pinMode(X_STP, OUTPUT);
  pinMode(Y_DIR, OUTPUT); pinMode(Y_STP, OUTPUT);
  pinMode(Z_DIR, OUTPUT); pinMode(Z_STP, OUTPUT);
  pinMode(EN, OUTPUT);
  digitalWrite(EN, LOW);
}
void loop(){
  step(false, X_DIR, X_STP, 200);
  step(false, Y_DIR, Y_STP, 200);
  step(false, Z_DIR, Z_STP, 200);
  delay(1000);
  step(true, X_DIR, X_STP, 200);
  step(true, Y_DIR, Y_STP, 200);
  step(true, Z_DIR, Z_STP, 200);
  delay(1000);
}
```



3. Set the development board and select the port of the development board, as shown in the figure below:



4. Burn the code to the Arduino development board.

(The Arduino and the extended version need to be powered at the same



time when working)

Experimental phenomenon: The stepper motor reverses one revolution, pauses for 1 second, and then forwards one revolution, and so on.

Note The operating voltage is recommended not to exceed 34V, and the operating current is recommended not to exceed 2.