CERAMBOT wiring and firmware upload

Version	**1.0.2**
Time	**20190402**
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Version	**1.0.3**
Time	**20200810**
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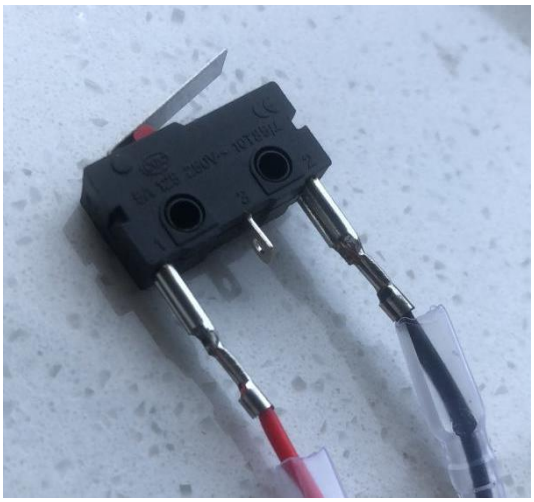
CERAMBOT wiring

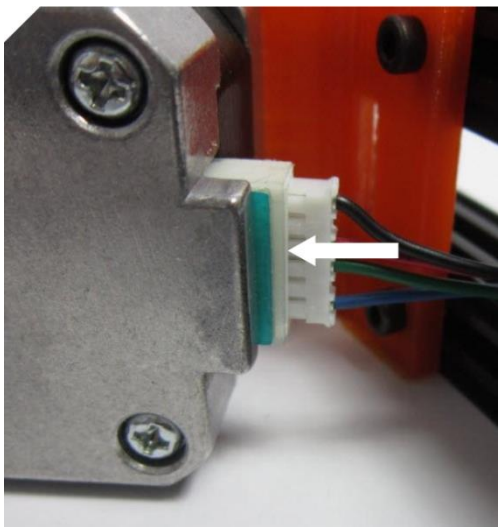
1. Limit switch wiring:

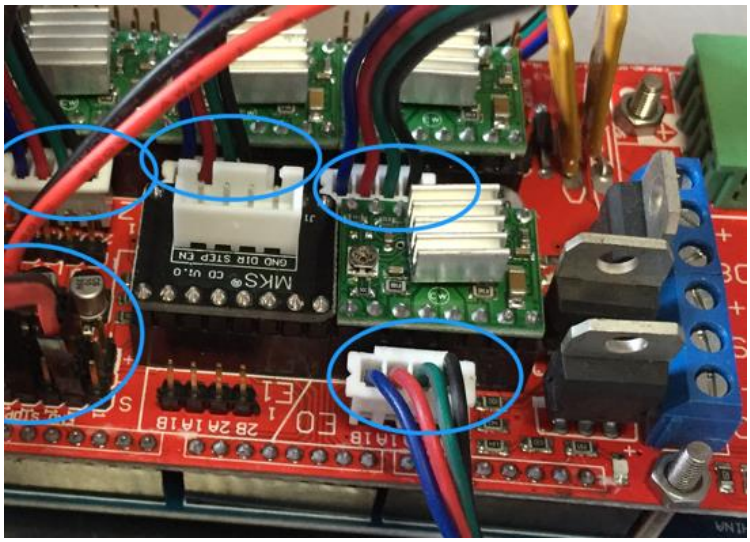
（1）The wiring of limit switch is shown in the figure below. Insert the reed into the pins at both ends of the limit switch, pay attention to the insertion position of the red and black lines, and insert the other end into the pins of the motherboard, as shown in the figure.



2. Stepper motor wiring

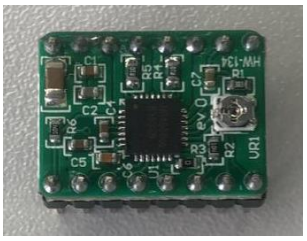
（1）Insert one end of the stepper motor cable into the stepper motor, and insert the other end into the main board in the order shown in the figure.

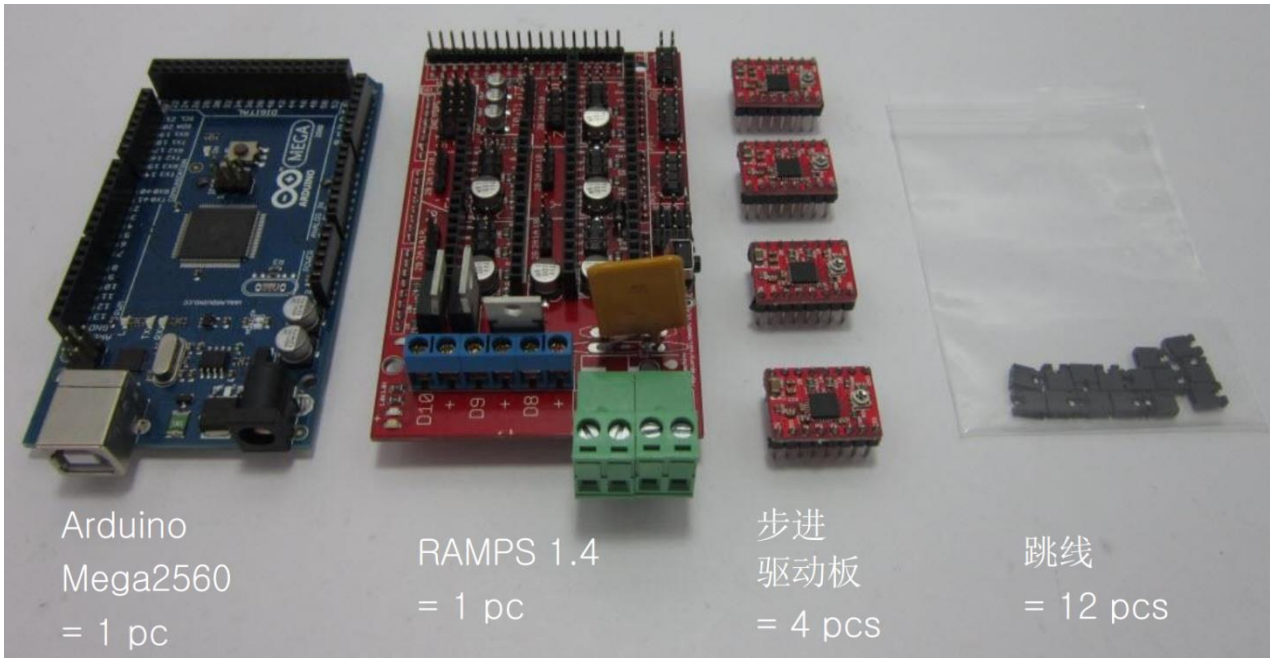




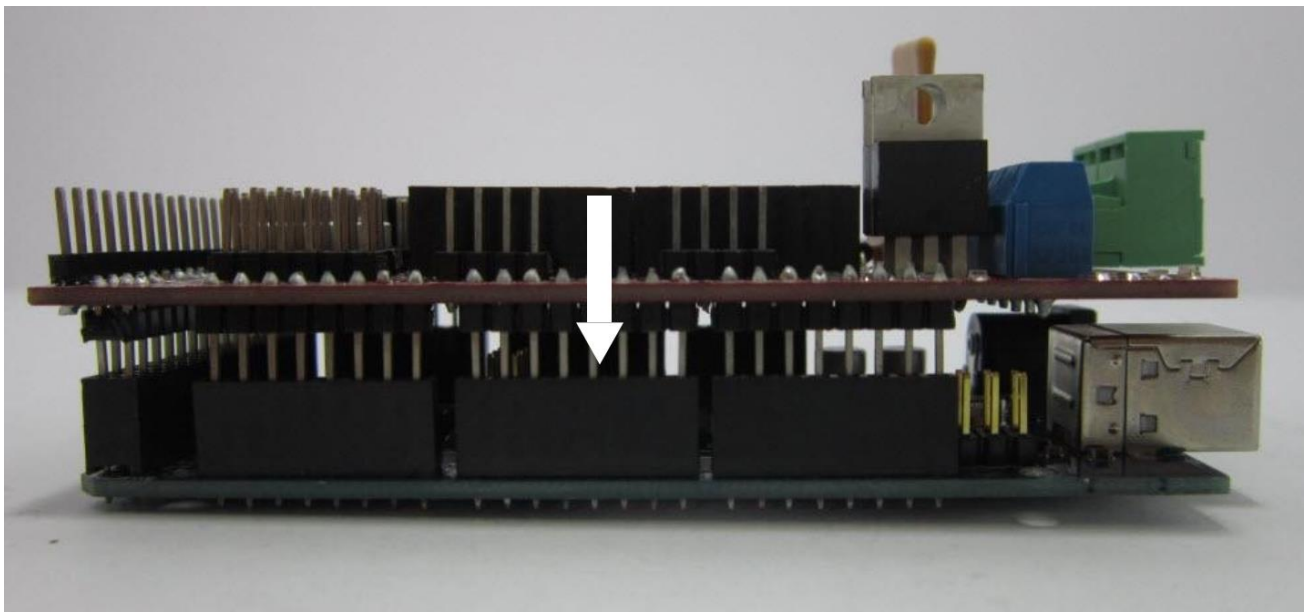
3. Motherboard wiring

（1）Prepare the following parts, and change the stepper drive board to a high-power green version, which is different from the following figure， as shown in the figure below.

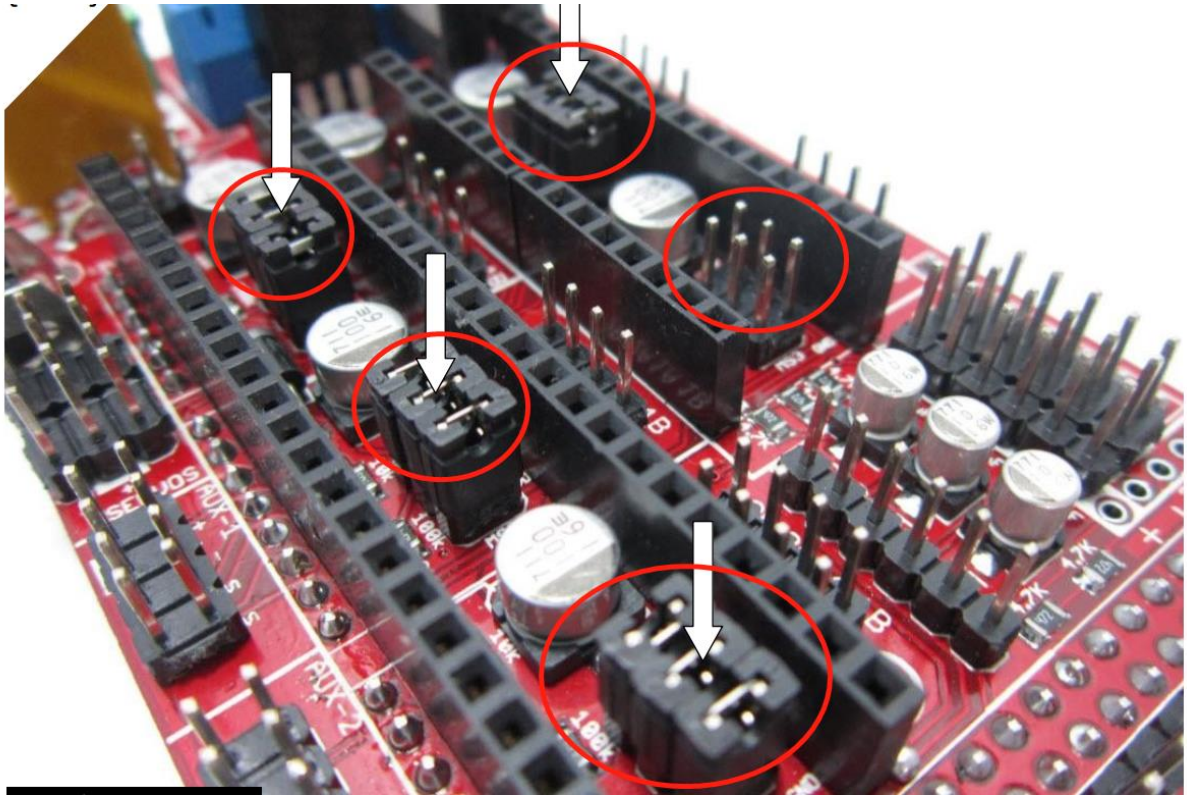




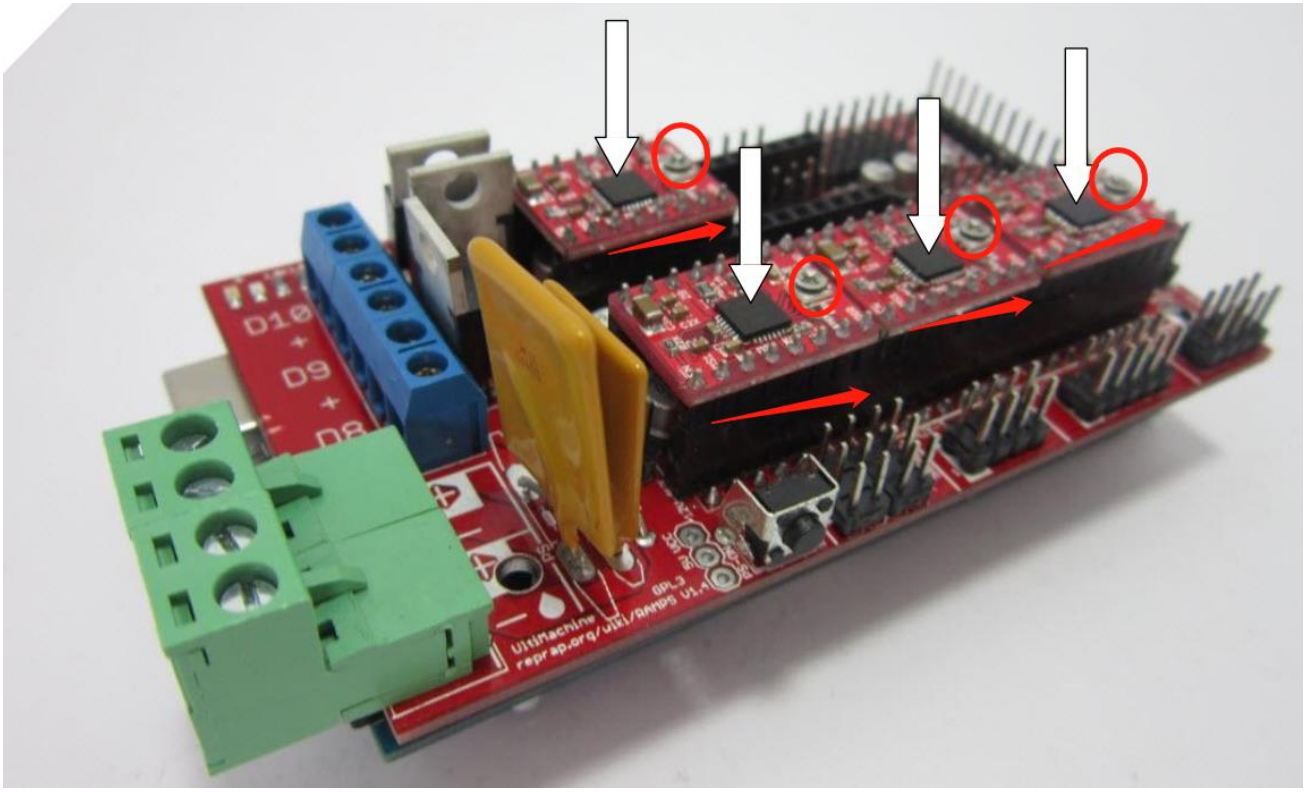
（2）Connect the arduino 2560 and the ramps 1.4 through the pins. Due to the transportation process, some pins are bent and need to be straightened.



（3）Insert the jumper caps all the way, as shown in the red circle in the figure below. A total of 15.

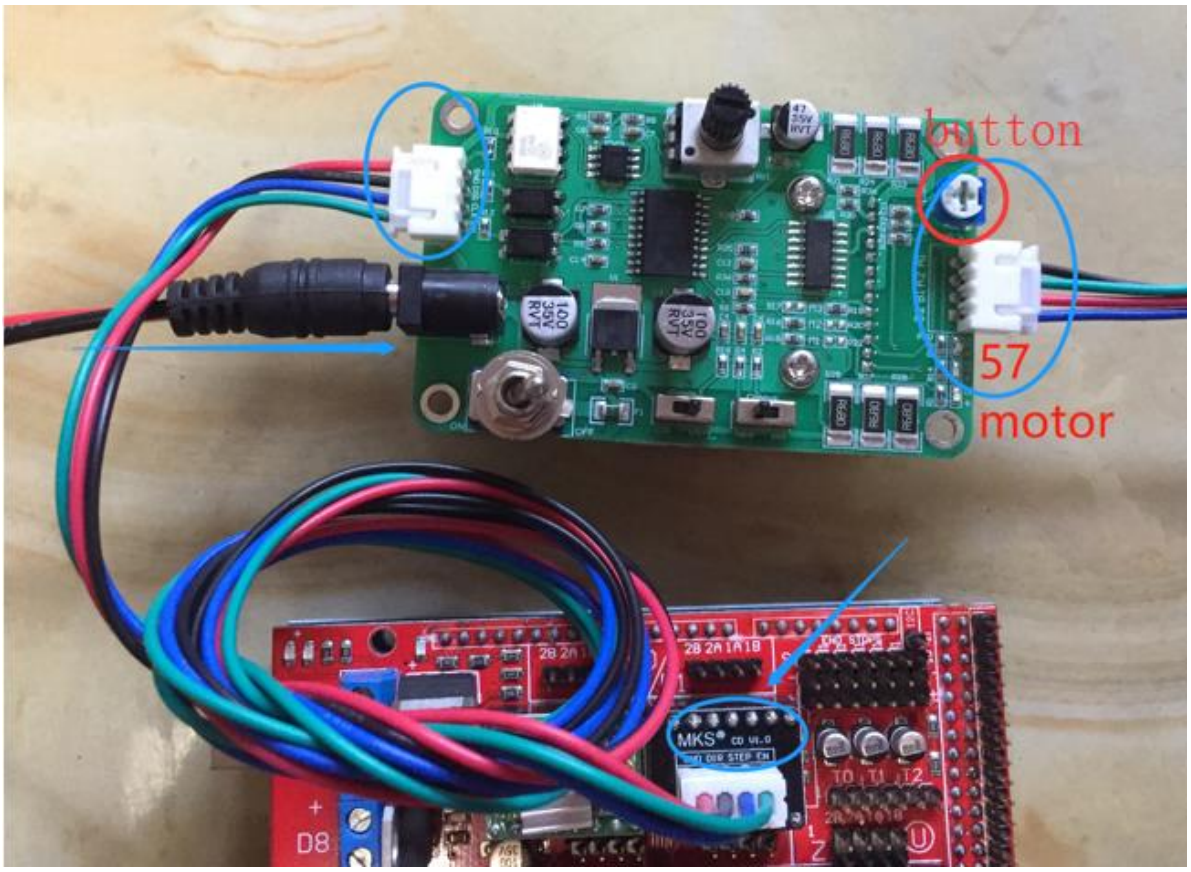


（4）Insert the stepper motor drive board (here the green version), pay attention to the order of the drive board in the figure, in the direction of the arrow, the side of the bolt is on the right side. Note that the A4988 is inserted in the same direction, one side of the circle, as shown in the figure.



（5）Among them, the CERAMBOT Pro power supply needs to be connected to a public line. The main board should also be inserted into the stepper motor adapter board. Pay attention to the text mark on

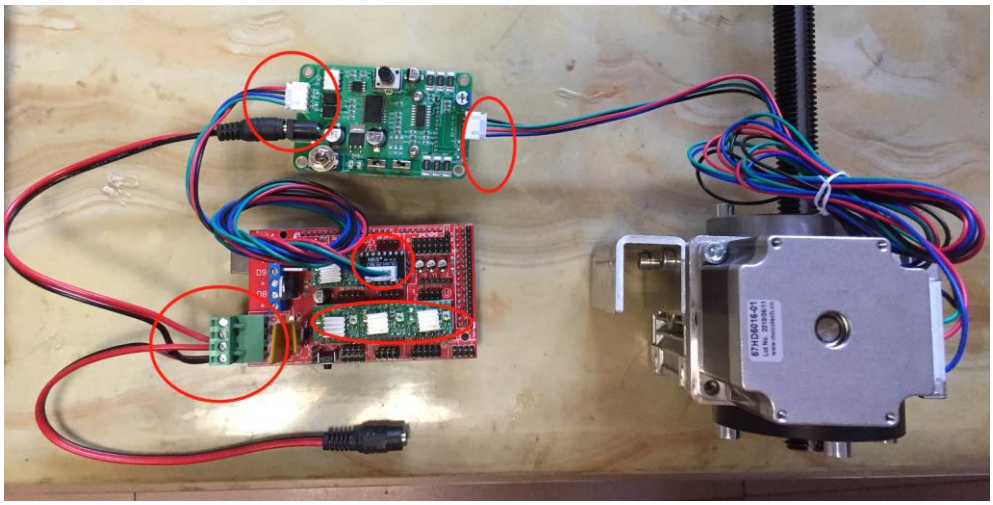
the blue circle. Do not insert it. As shown below:

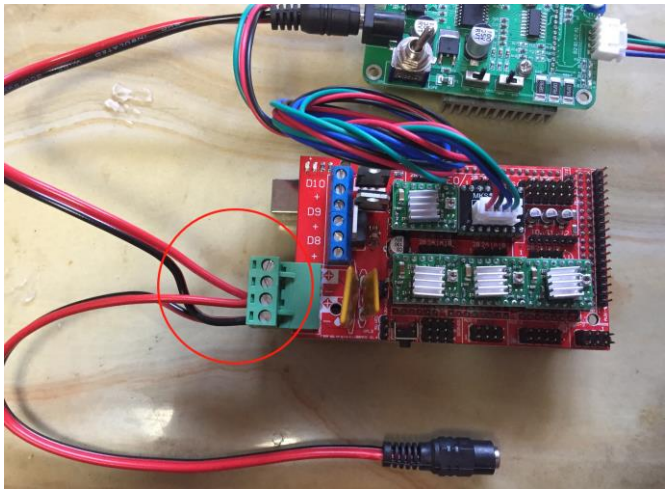


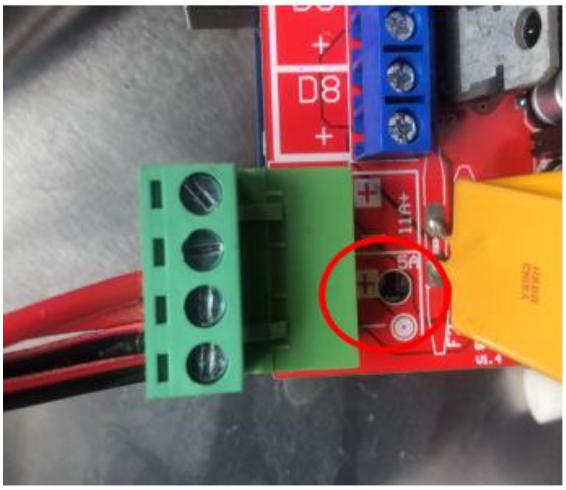
Note:

There is a white knob in the upper right corner of the CERAMBOT Pro control board to adjust the current of the pusher motor, and then adjust the thrust. Generally, it is about 3A. The current can be adjusted according to the hardness of the mud. If the control panel is too large, the control panel will be hot and easy to burn. Bad.

（6）After wiring the circuit board, as shown in the figure below, pay attention to the wiring direction at the red circle.At the same time, the heat dissipation plate is attached to the stepping drive plate.At the blue circle, pay attention to the wiring position. At the power supply, connect two red lines at the same interface, which is the positive pole of 5A power supply port, and two black lines at the same interface, which is the negative pole of 5A power supply port.





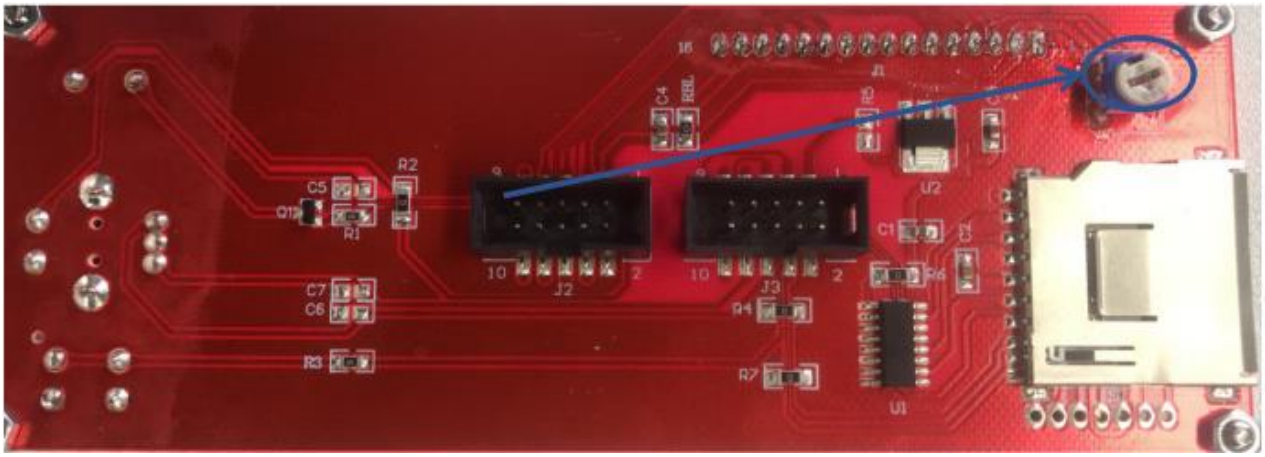


Note:

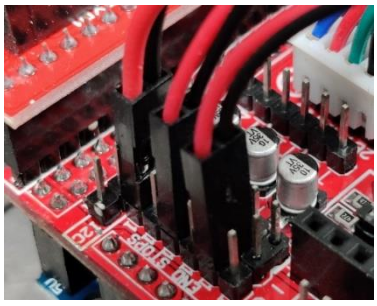
1) Please pay attention to the wiring sequence and direction of the red and black line at the power supply

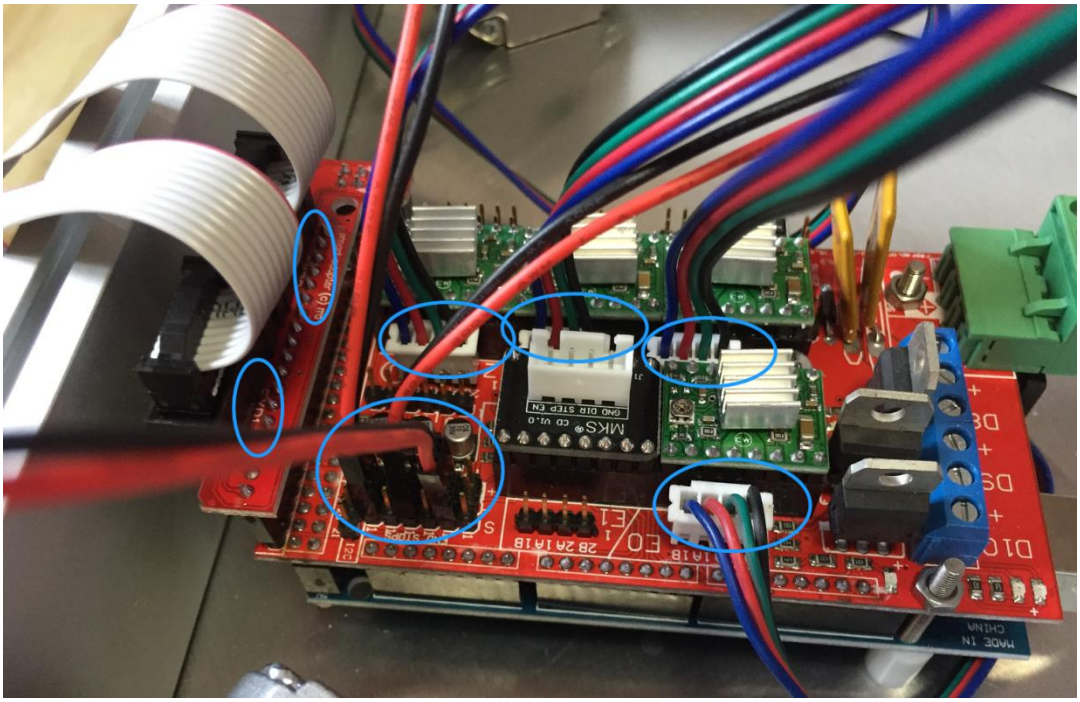
2) The red line and the black line at the power supply should not be in contact, which will cause short circuit and damage to the circuit board

（7） Pay attention to the insertion order of the two cables on the LCD screen. The above is marked with EXP1 and EXP2. Do not connect incorrectly, otherwise the screen will not light. If the screen is lit but no characters are displayed, you can rotate (clockwise or counterclockwise) the bolts in this blue circle.

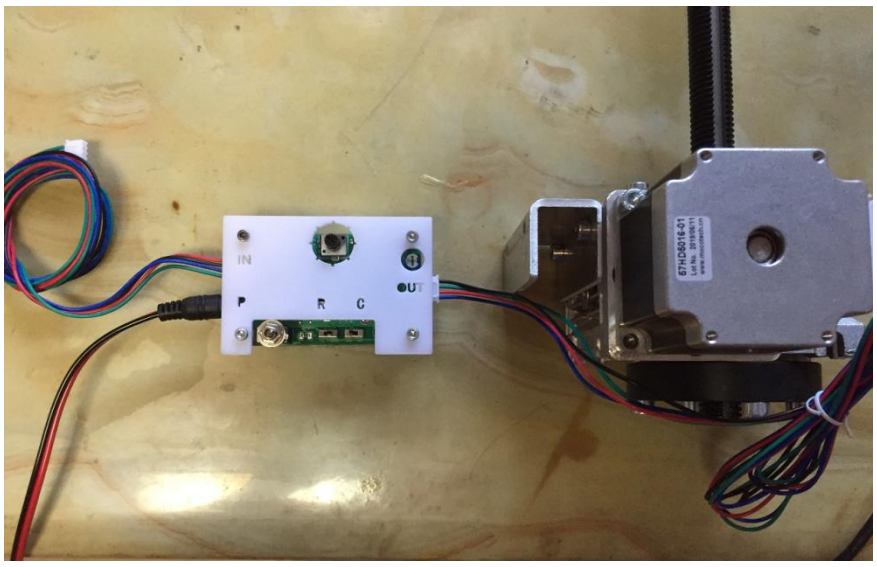


（8） After wiring, pay attention to the characters and directions at the blue circle. The motor line is blue, red, green and black from left to right, and the limit switch line (red and black line) is inserted into the 2nd, 4th and 6th S and - from right to left:， The LCD screen has two rows of J2 connected to CN1 and J3 connected to CN2.

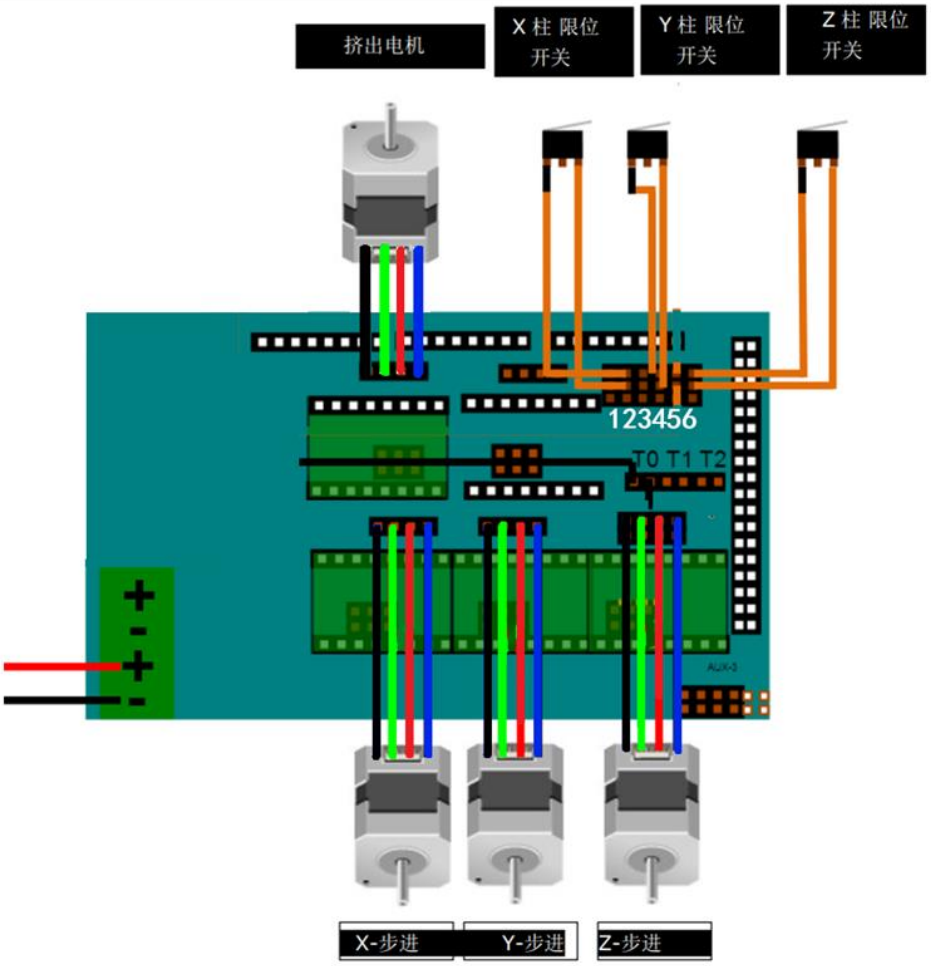




（9）Pro control board wiring diagram, IN is the output signal from MKS expansion version, P is power supply, R is 57 stepping motor forward and reverse in hardware mode,When the dial code is dialed to the CW , the 57 stepper motor is positive;When the dial code is dialed to CCW , the 57 stepper motor is reversed. C is hardware mode and software mode (M163 follow control) switching dialing code In the right hole, C Dialing code is the switching control mode. When dialing code dials to the hard end, it is the hardware mode. At this time, the middle knob (which should be rotated counterclockwise to the minimum in the initial state) can adjust the speed of the 57 stepper motor.When dialing code to soft terminal, it is software mode, which is controlled by computer software at this time.The output current of the 57 stepper motor can be adjusted in the right hole, and the adjustment range is 0A~ 4.5A. The larger the current is, the greater the torque of the 57 stepper motor will be. However, in order to ensure normal use, it is recommended not to exceed 2.5A.



（10） Wiring diagram. The stepper motor is black, green, red and blue from left to right.The wiring diagram is shown below.


挤出电机
X 柱 限位 开关
Y 柱 限位 开关
Z 柱 限位 开关
123456
T0 T1 T2
X-步进
Y-步进
Z-步进

CERAMBOT firmware upload

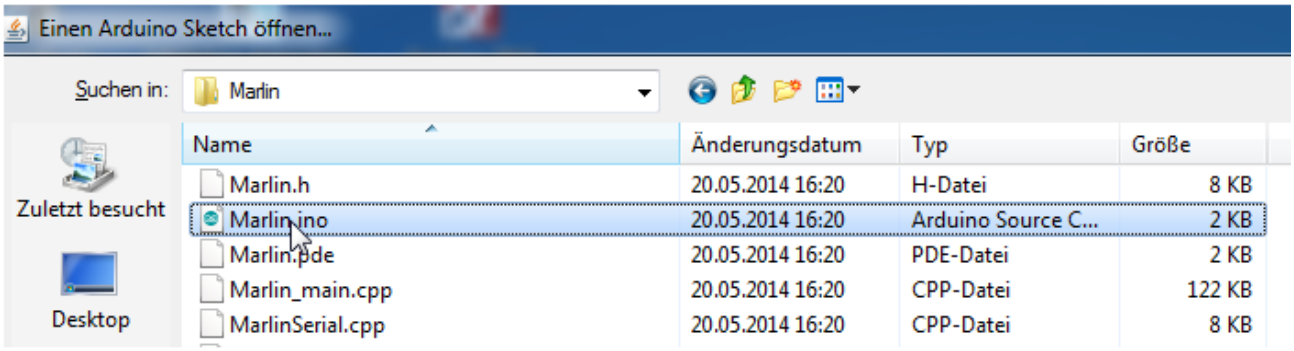
1. Firmware download: https://github.com/CERAMBOT/CERAMBOT, download the latest date version.
2. Install the Arduino IDE, download address::

   Windows version: http://downloads.arduino.cc/arduino-1.5.5-windows.exe

   MAC version: http://download.arduino.cc/arduino-1.5.5-macosx.zip

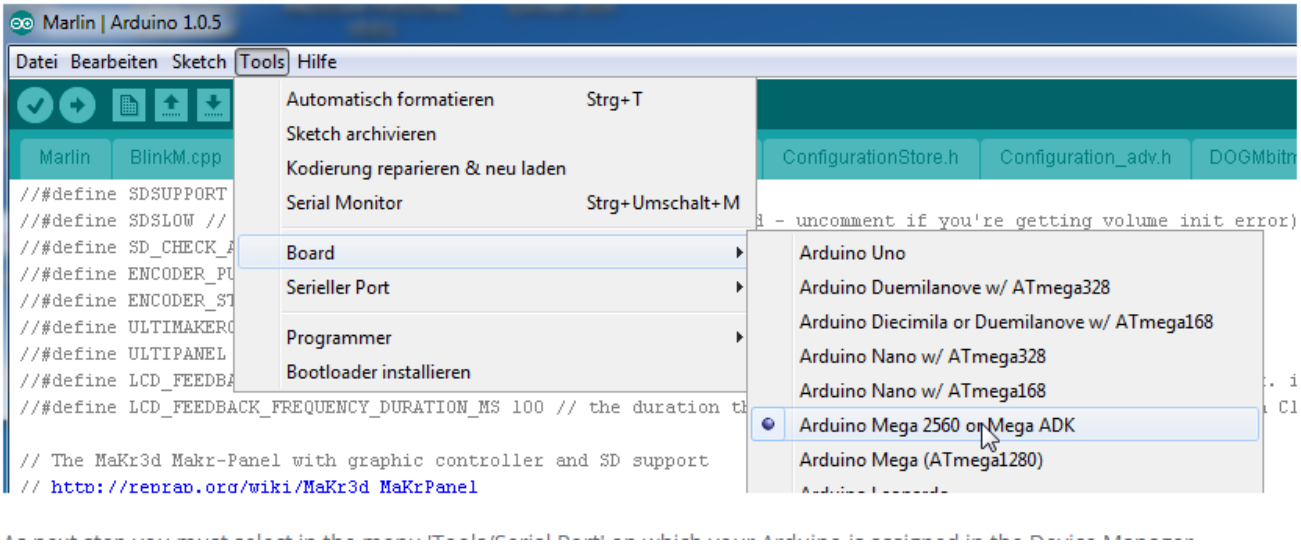
   linux 32bitversion: http://downloads.arduino.cc/arduino-1.5.5-linux32.tgz

   linux 64bit version: http://downloads.arduino.cc/arduino-1.5.5-linux64.tgz
3. The motherboard is connected to the computer with a USB cable. The computer automatically detects and installs the driver. Or use the driver installation tool to install the driver.
4. After downloading the firmware, unzip the firmware, open the firmware Marlin directory, find the Marlin.ino file and double-click to open it

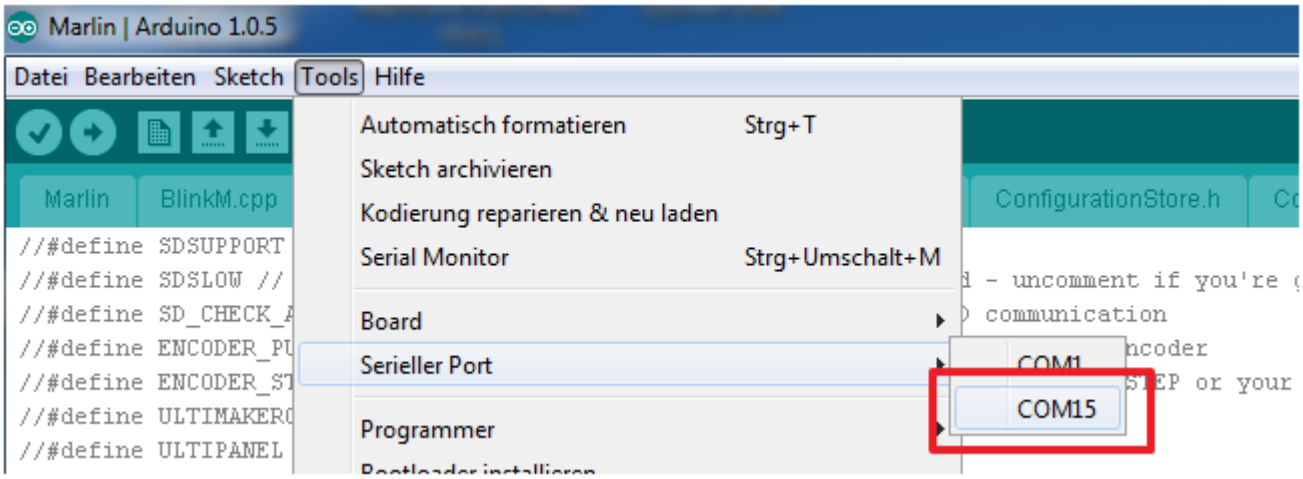


5. Open and select tools->boards->Arduino mega 2560. Select the port number, can not find the port number can see the following matters

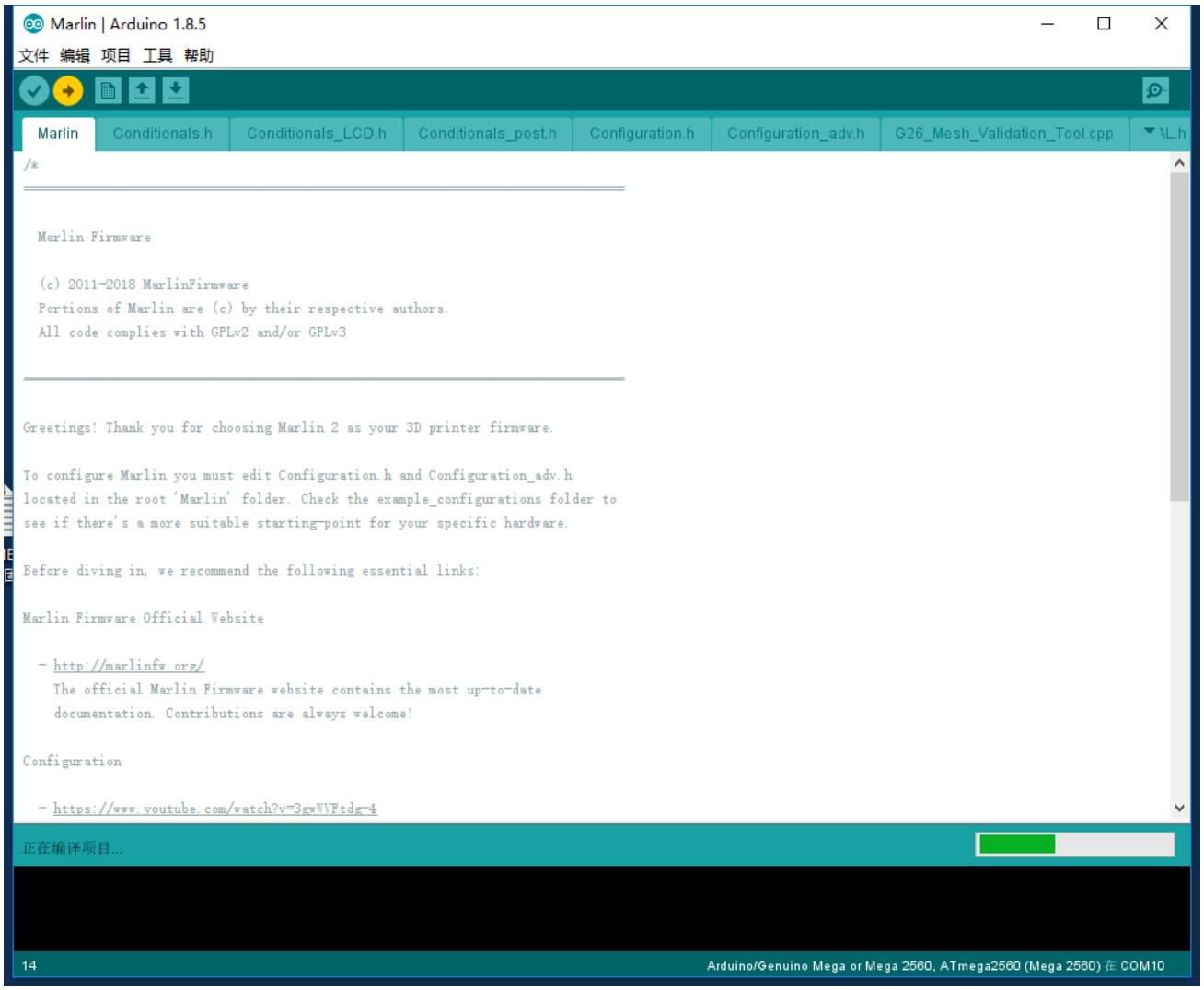
   To ensure that compiling and transmission of the firmware your Arduino will work, you must open the menu 'Tools/Board' and select as type 'Arduino Mega 2560 or Mega ADK'.



6. As next step you must select in the menu 'Tools/Serial Port' on which your Arduino is assigned in the Device Manager.



7. Finally, click the arrow button to upload the firmware to your printer. It will be automatically compiled if you have not done so already, and then the transfer will begin. This will take a minute or two; just be patient. When the process completes your printer will reboot.



8. After downloading, the LCD will display normally.

9. Firmware modification of other devices:

If you purchased the CERAMBOT module, first make sure you are using the marlin firmware, preferably the marlin 1.1.x version.

Need to modify the following sections:

Open the configuration.h file and modify it as shown below:

1) Open M163 settings: http://marlinfw.org/docs/gcode/M163.html

```
/**
 * "Mixing Extruder"
 *   - Adds a new code, M165, to set the current mix factors.
 *   - Extends the stepping routines to move multiple steppers in proportion to the mix.
 *   - Optional support for Repetier Firmware M163, M164, and virtual extruder.
 *   - This implementation supports only a single extruder.
 *   - Enable DIRECT_MIXING_IN_G1 for Pia Taubert's reference implementation
 */
#define MIXING_EXTRUDER
#if ENABLED(MIXING_EXTRUDER)
  #define MIXING_STEPPERS 2            // Number of steppers in your mixing extruder
  #define MIXING_VIRTUAL_TOOLS 16  // Use the Virtual Tool method with M163 and M164
  //#define DIRECT_MIXING_IN_G1      // Allow ABCDHI mix factors in G1 movement commands
#endif
```

2) Set the temperature sensor:

```
#define TEMP_SENSOR_0 998
#define TEMP_SENSOR_1 0
#define TEMP_SENSOR_2 0
#define TEMP_SENSOR_3 0
#define TEMP_SENSOR_4 0
#define TEMP_SENSOR_BED 0
#define TEMP_SENSOR_CHAMBER 0

// Dummy thermistor constant temperature readings, for use with 998 and 999
```

```
#define DUMMY_THERMISTOR_998_VALUE 25
#define DUMMY_THERMISTOR_999_VALUE 100
```

3) Disable temperature protection:

```
/**
 * Prevent extrusion if the temperature is below EXTRUDE_MINTEMP.
 * Add M302 to set the minimum extrusion temperature and/or turn
 * cold extrusion prevention on and off.
 *
 * *** IT IS HIGHLY RECOMMENDED TO LEAVE THIS OPTION ENABLED! ***
 */
#define PREVENT_COLD_EXTRUSION
#define EXTRUDE_MINTEMP 0
```

Also need the printer slicing software to add the following settings:

```
M302 S0          ; always allow extrusion (disable checking)
M163  S0  P0.5    ; Set Mix Factor
M163  S1  P0.5    ; Set Mix Factor
M164  S0
```

Precautions

If you plug in the arduino mega 2560 and you can't find the corresponding port in the arduino IDE, you can use the following methods.

1) Install CH341SER.EXE as an administrator and install the corresponding driver, then restart the computer.
2) Windows Recovery -> Advanced Boot -> Disable driver mandatory signature.
3) Or install the driver with a tool such as the driver wizard.
4) After each step, you need to unplug the USB cable and restart the computer, then connect the USB.