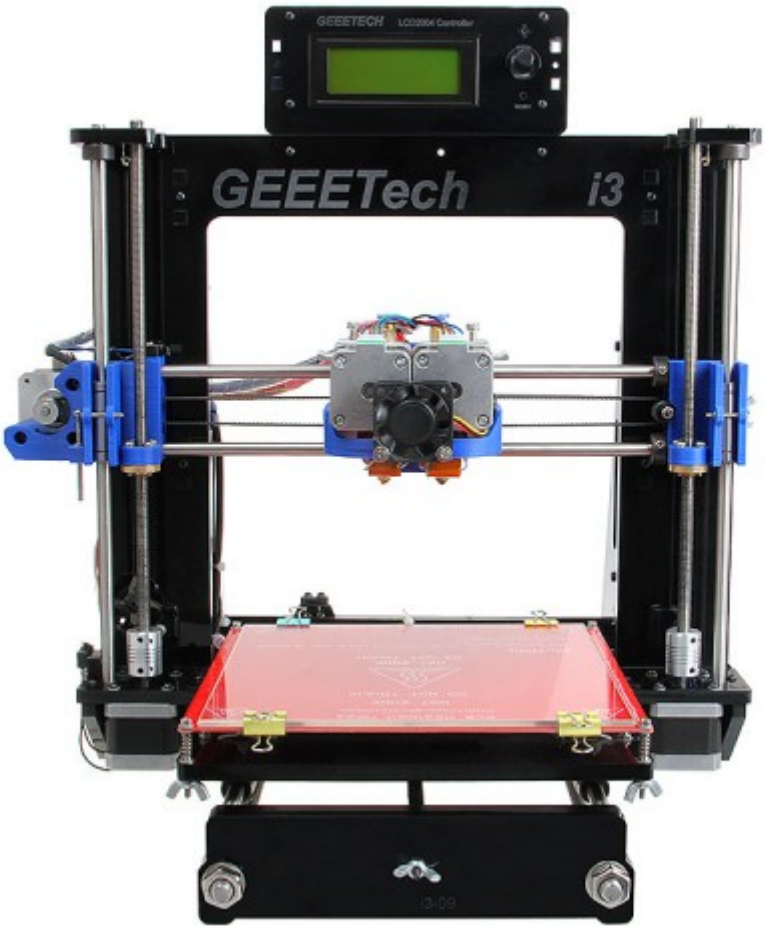
Assemble Instruction of Geeetech Acrylic Prusa I3 Pro C



Safety Instructions

Building the printer will require a certain amount of physical dexterity, common sense and a thorough understanding of what you are doing. We have provided this detailed instruction to help you assemble it easily.

However ultimately we cannot be responsible for your health and safety whilst building or operating the printer, with that in mind be sure you are confident with what you are doing prior to commencing with building or buying. Read the entire manual to enable you to make an informed decision.

Building and operating involves electricity, so all necessary precautions should be taken and adhered to, the printer runs on 12V supplied by a certified power supply, so you shouldn’t ever have to get involved with anything over 12V but bear in mind there can still be high currents involved and even at 12V they shouldn’t be taken lightly.

High temperatures are involved with 3D Printing, the Extrusion nozzle of the hot end can run about 230°C, the heated bed runs 110°C and the molten plastic extruded will initially be at around 200°C, so special care and attention should be made when handling these parts of the printer during operation.

We wouldn’t recommend leaving your printer running unattended, or at least until you are confident to do so. We cannot be held responsible for any loss, damage, threat, hurt or other negligent result from either building or using the printer.

Preparation

1. Unpack the kit and check if all parts are in the box and check the condition of each part, there might be some damage during shipping. To help you with this, there is BOM in the box and each bag was labeled with part number.

2. Contact our customer service immediately by email or through the website if you find any missing or damaged parts. And on the bottom of the BOM, there is a signature of reviewer, please take a picture of it and attach the picture in your mail.

3. Read through each chapter of these instructions to gain an over-all idea of what is involved and how long it might take, before starting on the work described.

4. Before you start, you can put all the part in order to save your time especially those screws and nuts. Do not mix them up.

5. Ensure you have the necessary skills to carry out the work, or enlist the help of someone who does.

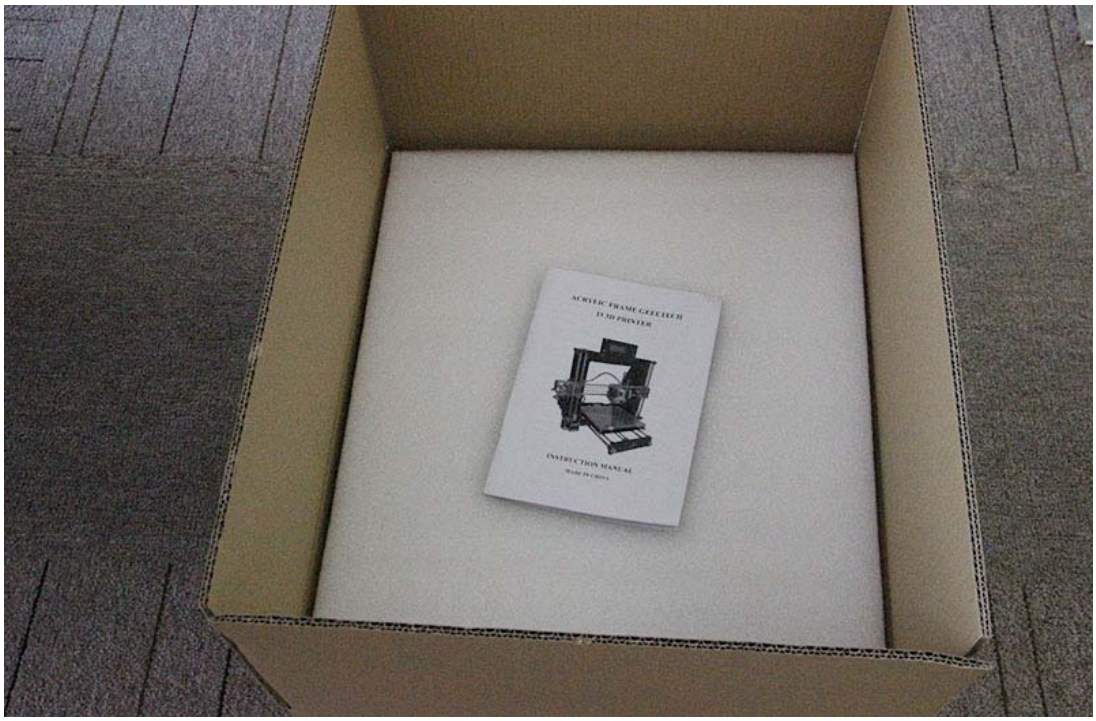
6. Work on a big firm table or bench in a clean dry well-lit area.

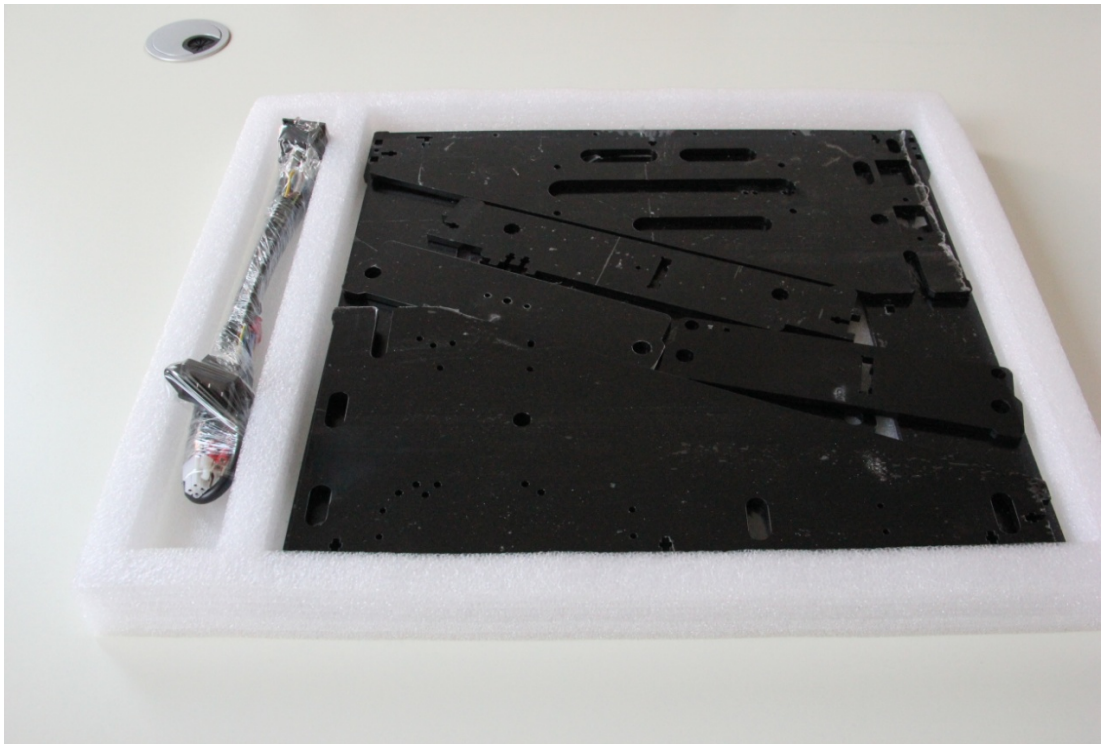
7. This kit contains tiny parts; please keep them away from kids under 3.

8. Ask for help if you run into any problems - our contact details are on the website and we will always do our best to resolve any problems encountered.

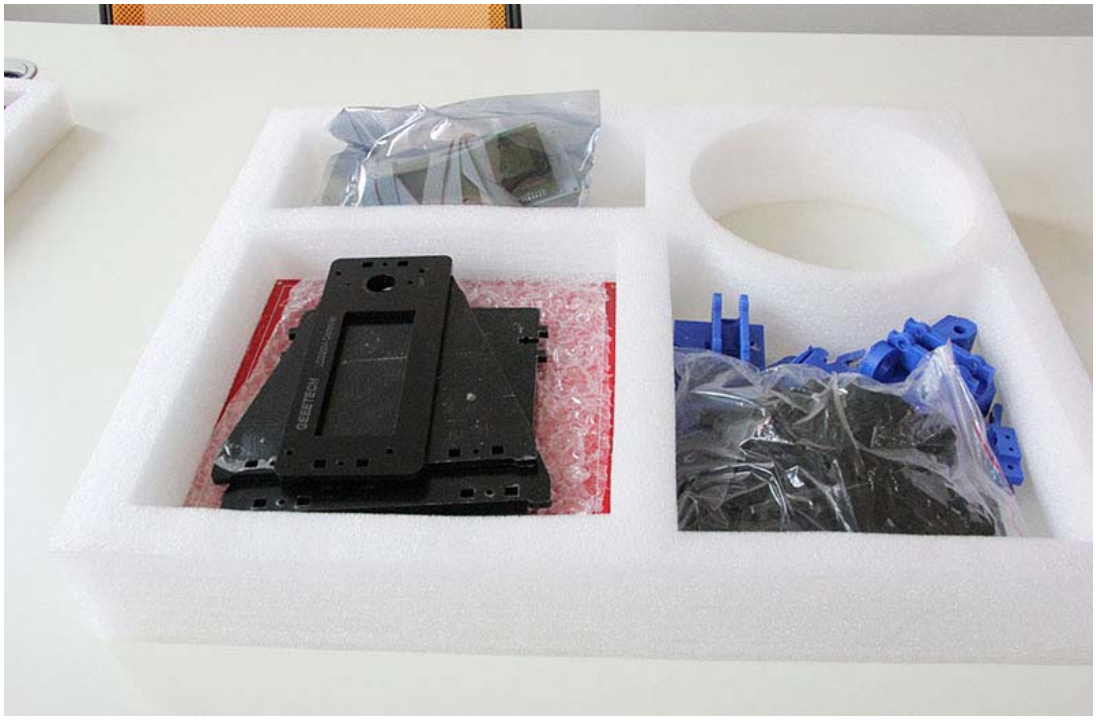
1 Unfold the box and check the package list

Unfold the package and take all the parts out to check the condition of the items.





- All the acrylic plate has been etched with part ID and the plate is covered with a sheet of kraft paper, you need to tear them off.



Tips:

1. Before assembly, you are advised to put all the parts, especially the screws and nuts in order, which will save you a lot of time looking for the required parts.

2. The part ID is corresponding to the number labeled on the bag of every part. Some parts may not have label, you can refer to the pictures on the package list.

2 Assemble Y axis

2.1 Assemble the rods of a Y axis

Step1. Assemble the 2 threaded rods.

Required parts	Required number	Part ID	pic
M10 threaded rod	2	NO.5	
Y plate connecting plate	2	NO.A14	
M8 spring washer	6	NO.18	
M10 washer	8	NO.9	

M10 nut	8	NO.12	

Thread the nuts and washers into the two M10 threaded rods separately. The order should be:

1) Thread the acrylic fender (Y plate connecting plate) in the middle.

2) Thread the M10 washer > M8 spring washer >M10 nut > M10 nut > M10 washer on the left

3) Thread theM10 washer < M8 spring washer < M10 nut < M10 nut< M8 spring washer < M10 washer on the right

Step2. Assemble the 2 smooth rods

Required parts	Required number	Part ID	pic
M8 smooth rod	2	NO.3	
LM8UU Linear bearings	4	NO.39	

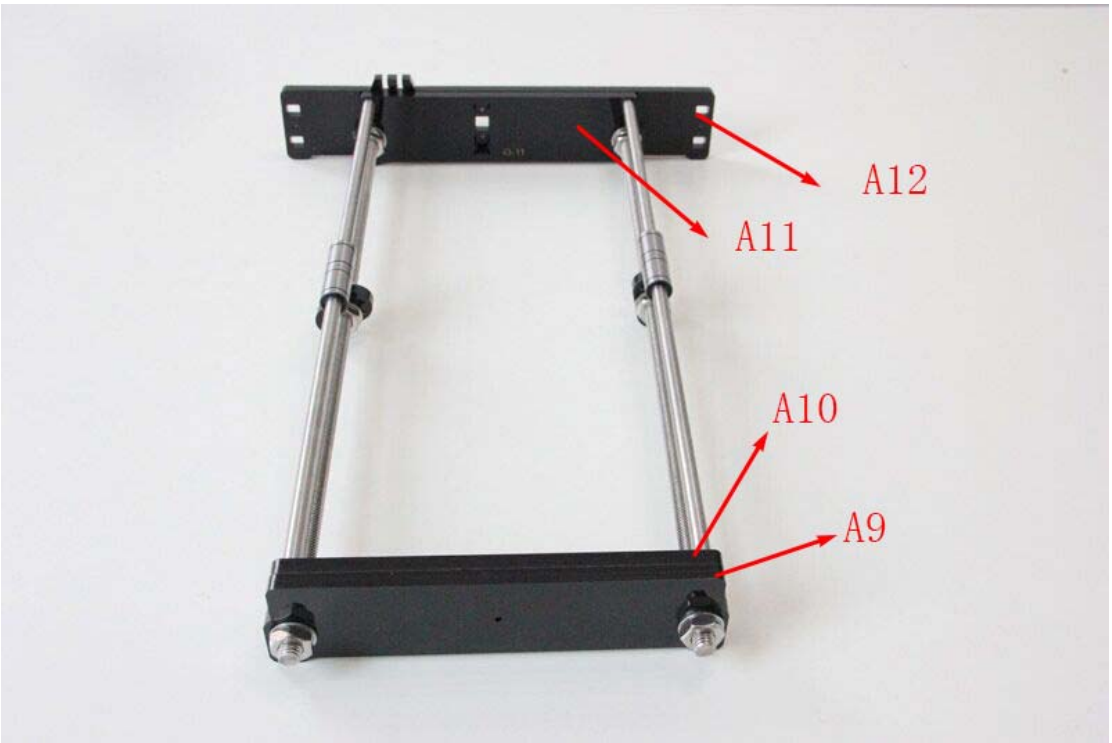
Slide 2 bearings on each smooth rod. Before you slide the bearings please make sure they are clean.

1.2. Attach the front and rear Acrylic support plates of the rods.

Required parts	Required number	Part ID	pic
Acrylic plate(front)	2	NO. A9, A 10	
Acrylic plate(rear)	2	NO. A 11, A 12	
M10 washer	4	NO.9	
M10 nut	4	NO.12	

Step1. Slide the rods into the acrylic plate; adjust the length so that the smooth rods fit snugly between the front and rear piece.

Step2. Screw up the rods and plate with M10 nut and M10 washer.



* Tips: the Y-axis must be a rectangle, that is the rods on both side should be parallel, so is the front and back plate. Otherwise it will cause obstruction for the belt later. You can use a Digital Caliper to measure.

2.2 Assemble the Y idler

Required parts	Required number	Part ID	pic
624ZZ Ball bearing	2	NO.38	
bearing holder	1	NO.66	

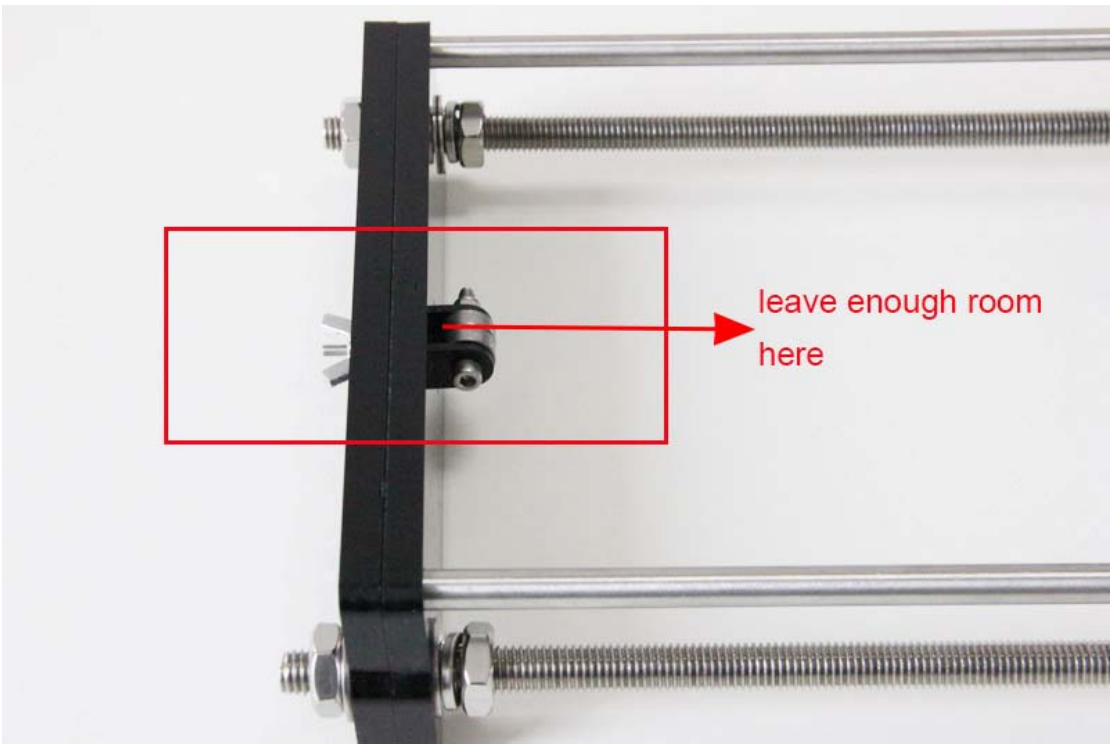
M3 x 20 screw	1	NO.27	
M3 wing nut	1	NO.15	
M4 x25 screw	1	NO.35	
M4 lock nut	1	NO.14	

Step1. Thread the M3 x 20 screw through the bearing holder.

Step2. Put the M4 x25 screw through the holes with the two 624ZZ bearings in between. Lock the other end with a M4 lock nut. You may need a spanner to tighten locking nut.

Step3. Mount the assembled bearing holder onto the front support plates. And screw it with a wing nut.

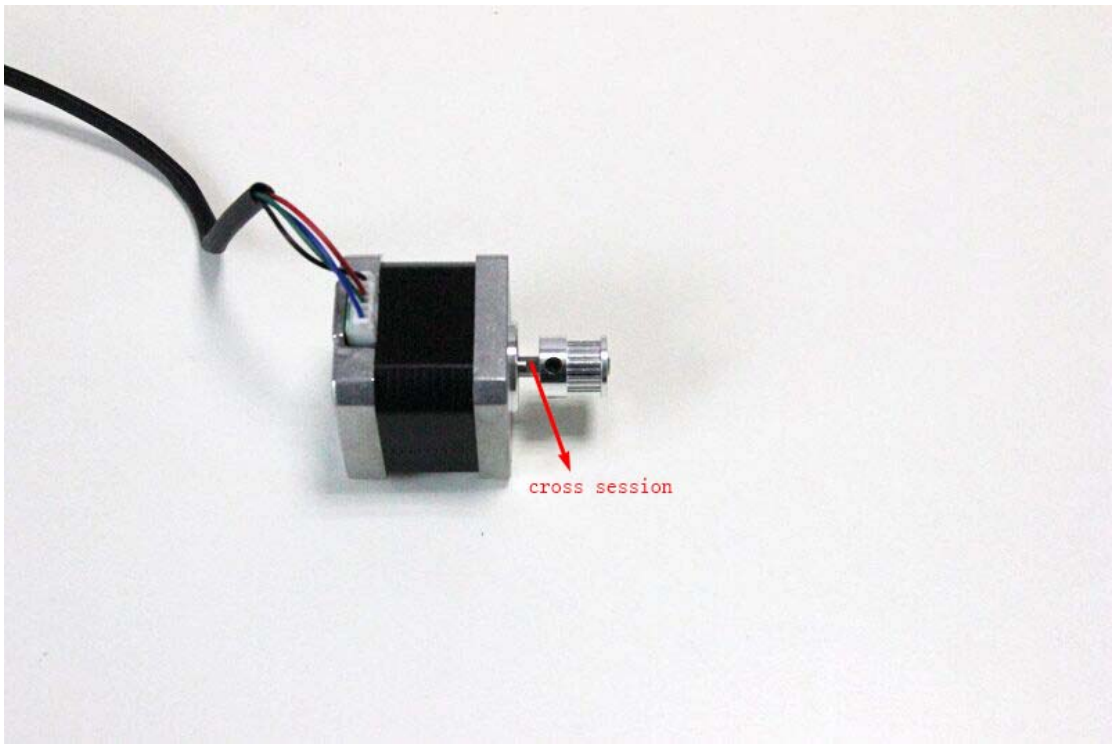
*Please leave enough room for the belt between the ball bearing and the screw.



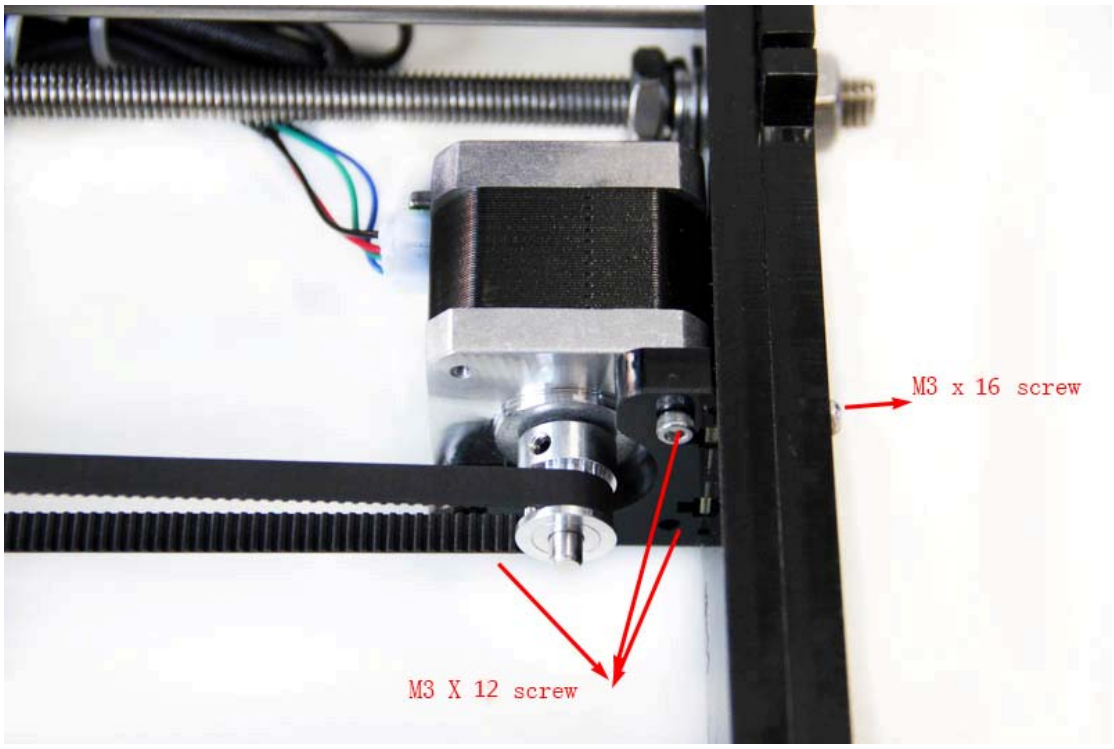
2.3 Mount the Y motor

Required parts	Required number	Part ID	pic
Y motor fix plate	1	NO. A13	
Stepper motor	1	NO.75	
pulley	1	NO.43	
M3 x 12 screw	3	NO.25	
M3 x 16 screw	2	NO.26	
M3 square nut	2	NO.16	

Step1. Mount the pulley on the motor shaft, one of the screws should be screwed on the cross section of the shaft. Do not screw too tight to turn smoothly.



Step2. Insert the motor block into the slot; you may need to use a little strength to do this. But be careful in case the Acrylic broke down. Then screw the motor on the block plate with 3 M3 x 12 screws and fix the block plate with 2 M3 x 16 screws and M3 square nut.



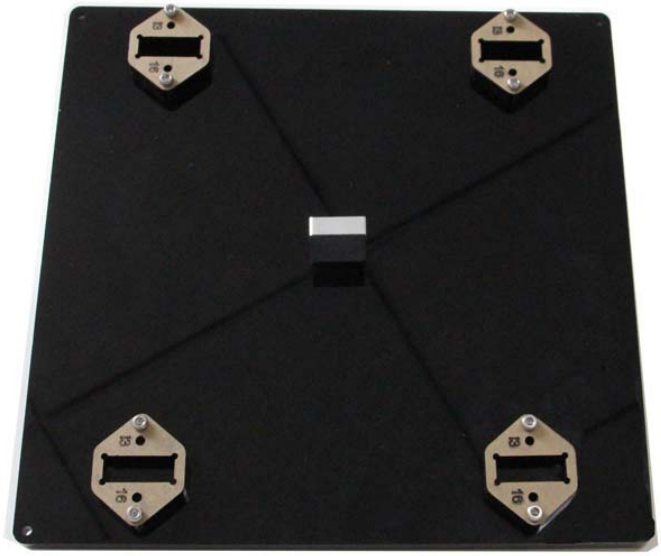
2.4 Build the printing platform

Required parts	Required number	Part ID	pic
Y platform support	1	NO.A15	
Y bearing block	4	NO.A16	
Y belt mount	1	NO.67	

Zip tie	4	NO.54	
M3 x 10 screw	2	NO.24	
M3 x 20 screw	8	NO.27	
M3 nut	8	NO.11	

Step1. Mount the belt mount on the bottom side of the platform with 2 M3 x 10 screws.

Step2. Mount the 4 bearing blocks on the platform with M3 x 20 screws on the same side with the belt-mount. Screw with M3 nuts.



Step3. Get the build platform plate zip-tied to the 4 linear bearings of Y- Axis.

*The belt-mount and the fenders are under the platform.

2.5 Mount the Y –axis belt.

Required parts	Required number	Part ID	pic
Timing belt	1	NO.41	
M3 x 10 screw	2	NO.24	
M3 washer	2	NO.7	

Step1. Drill a hole on one end of the belt（the hole can be as the diameter of the M3 screw, leave enough margin ）

Step2. Fix the belt on one side of the belt -mount with a M3 x 10 screw and washer.

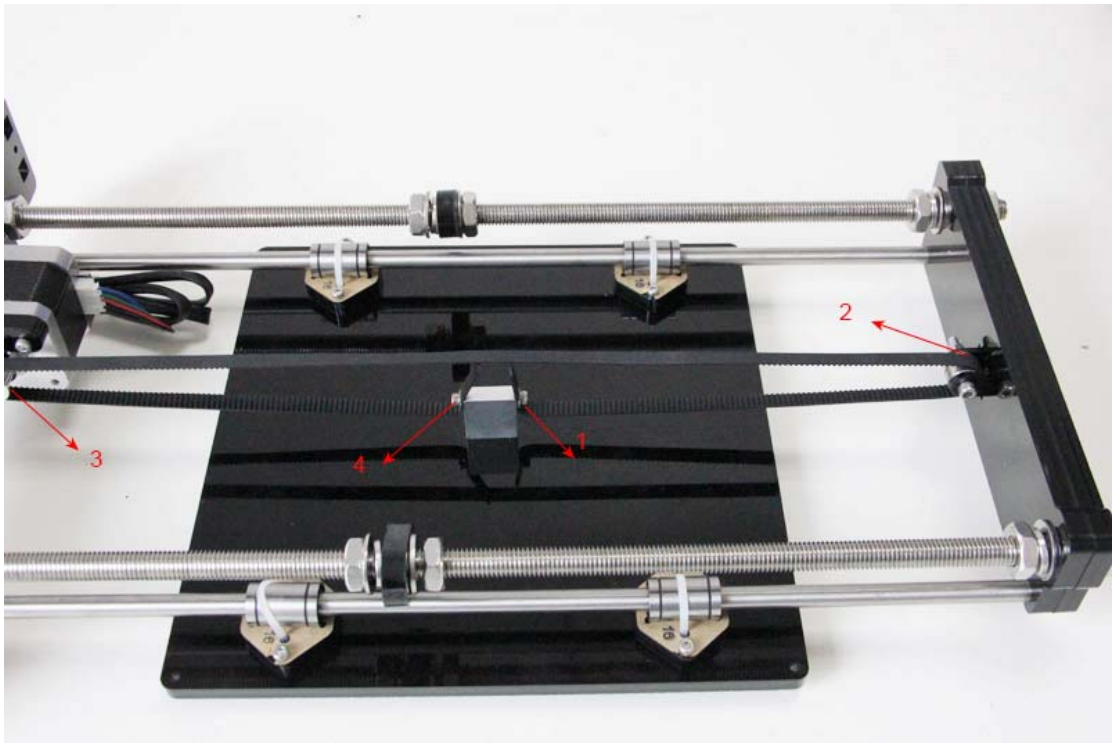
Step3. Thread the belt around the pulley on the motor and the Y idler.

Step4. Drill a hole on the other end of the belt and fix it on the belt -mount with a M3 x 10 screw and M3 washer.

*Tips:

1. Before you drill your second hole, make sure to pull belt tightly to make sure to fin d proper placement of hole for a tight belt, if it is too loose, it will hinder the move of the print platform.

2. Loosen the Y idler wing nut when tightening belt onto the Y belt mount [No. 67] in order to make securing the belt to the block easier. Be sure to tighten wing nut fully o nce done.

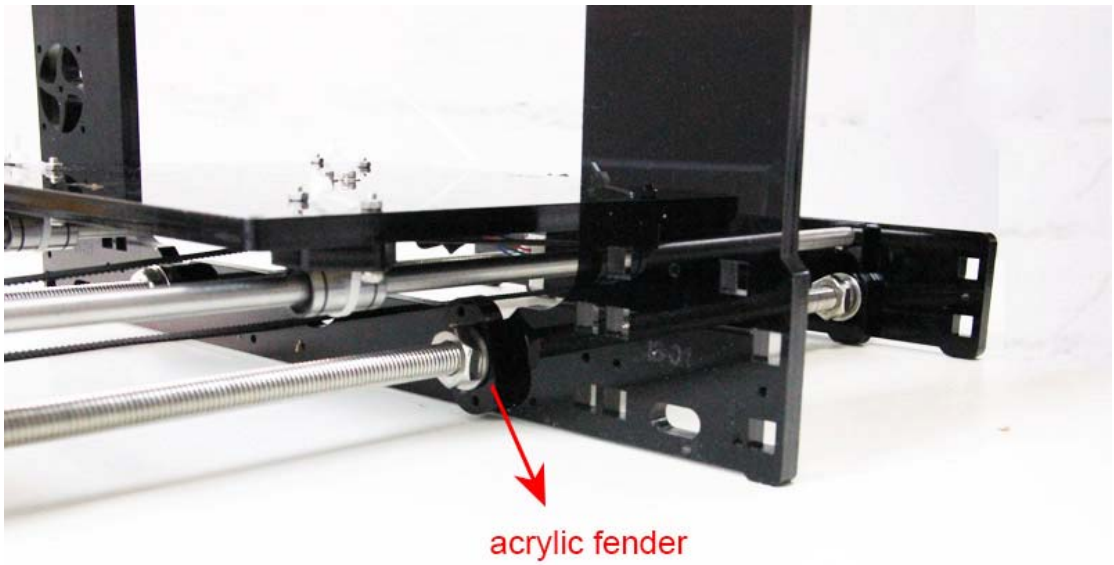


3 Assemble Y - Z axis

Required parts	Required number	Part ID	pic
X-Z frame	1	NO.A1	
M3 x 20 screw	4	NO.27	
M3 nut	4	NO.11	

Step1. Held upright the main frame is after the acrylic fender washers on the threaded rods. Here you can use the A2 panel as a reference to measure the distance A1 and A12 (the rear plate).

Step2. Screw up the main frame to the acrylic fender with M3 x 20 screws.



Step3. Screw up the M10 screw on the threaded rod of Y-axis. You can see the

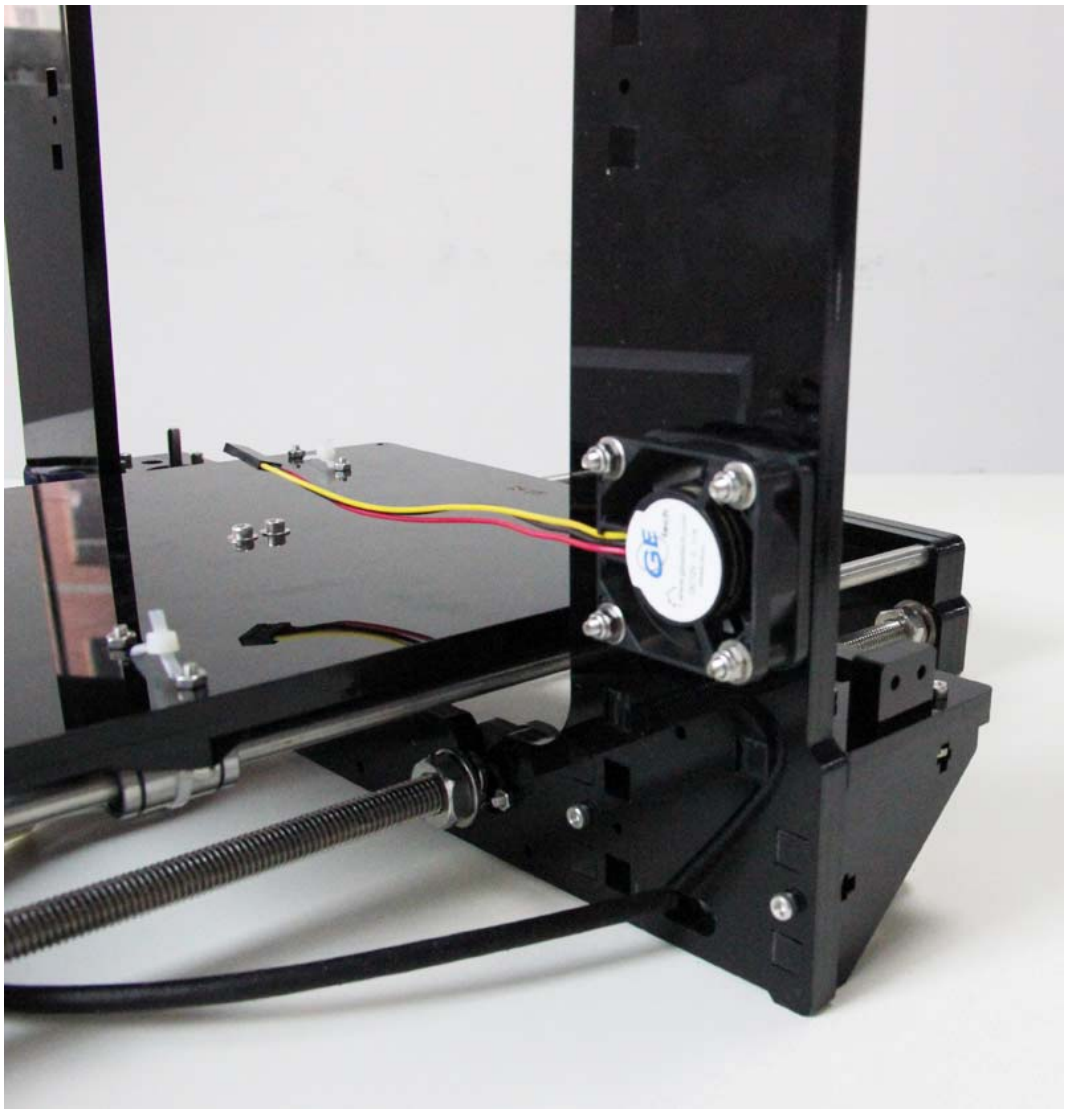
finished picture.

4 Mount the fan

Required parts	Required number	Part ID	pic
Fan	1	NO.70	
M3 x 30 screw	4	NO.28	

M3 locknut	4	NO.13	

Fix the fan on the right side of the frame with 4 M3 x 30 screw and locknut. Mind the direction of the wires. (Please pay attention to the fan not others)



5 Assemble the right and left side panel

Required parts	Required number	Part ID	pic

Acrylic left frame	1	NO.A2	
Acrylic right frame	1	NO.A3	
M3 x 16 screw	8	NO.26	
M3 square nut	8	NO.16	

Step1. Screw up the X-Z frame and the side panel then connect the rear part of the Y axis and the side panel together. You may need to adjust the distance of the X-Z frame to the rear plate.

All you need here is M3 x 16 screws and M3 square nuts.

6 Assemble the Z axis (the vertical axis)

6.1 Assemble the Z-axis bottom mount

Required parts	Required number	Part ID	pic
Z Motor fixed plate	2	NO.A4, A5	

Z Motor support plate	4	NO.A6, A7	
M3 x 16 screw	10	NO.26	
M3 square nut	10	NO.16	

Step1. It would be easier to mount the A4/A5 to A6 and A7 first, and then mount the assembled part to A1.

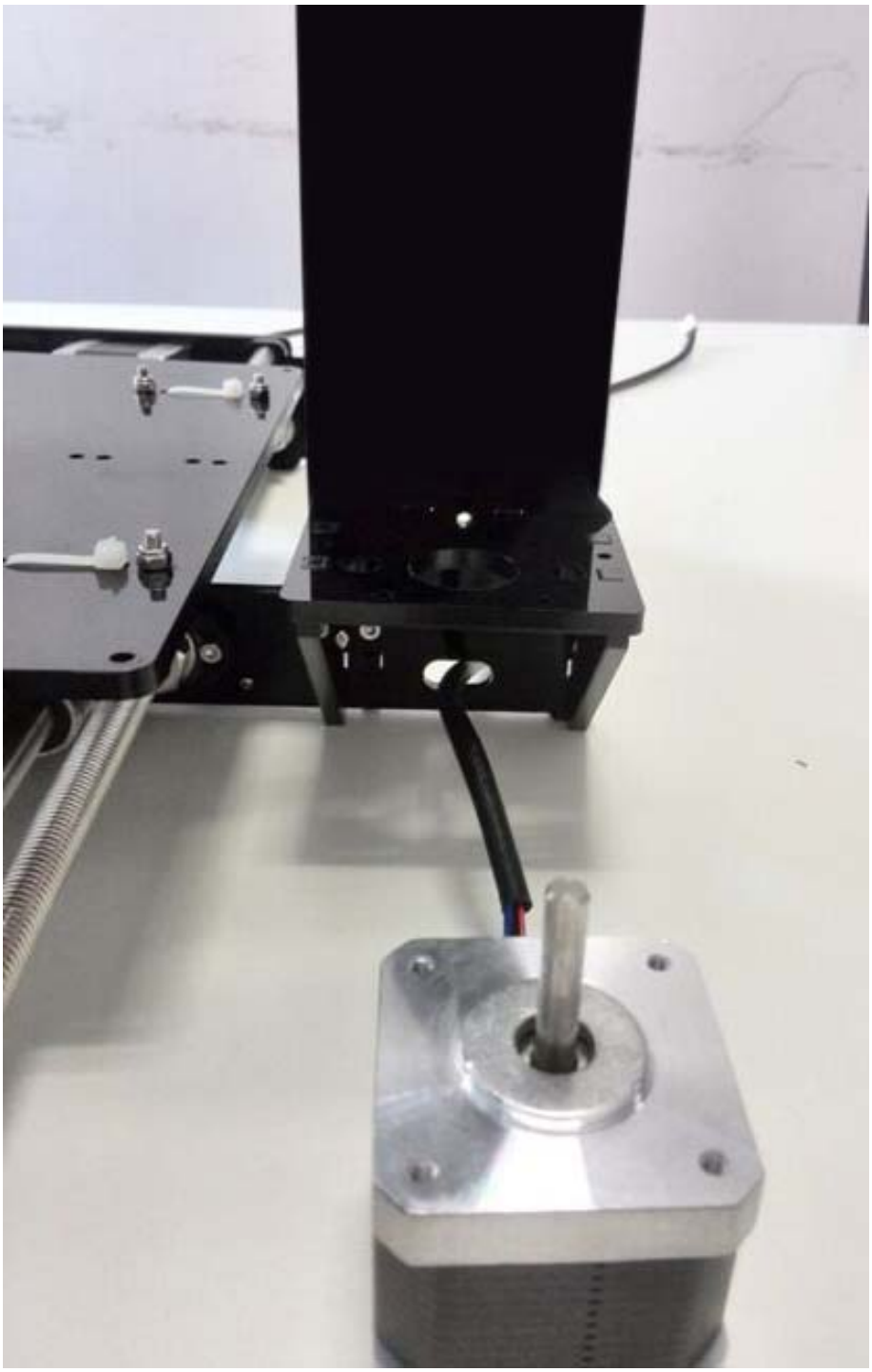
Step2.Screw up the acrylic plates with M3 x 16 screws and M3 square nuts.

*The right and left bottom mount are different; the left one has a mount for the Z end stop. Please look at the following picture.

6.2 Assemble the 2 Z motors

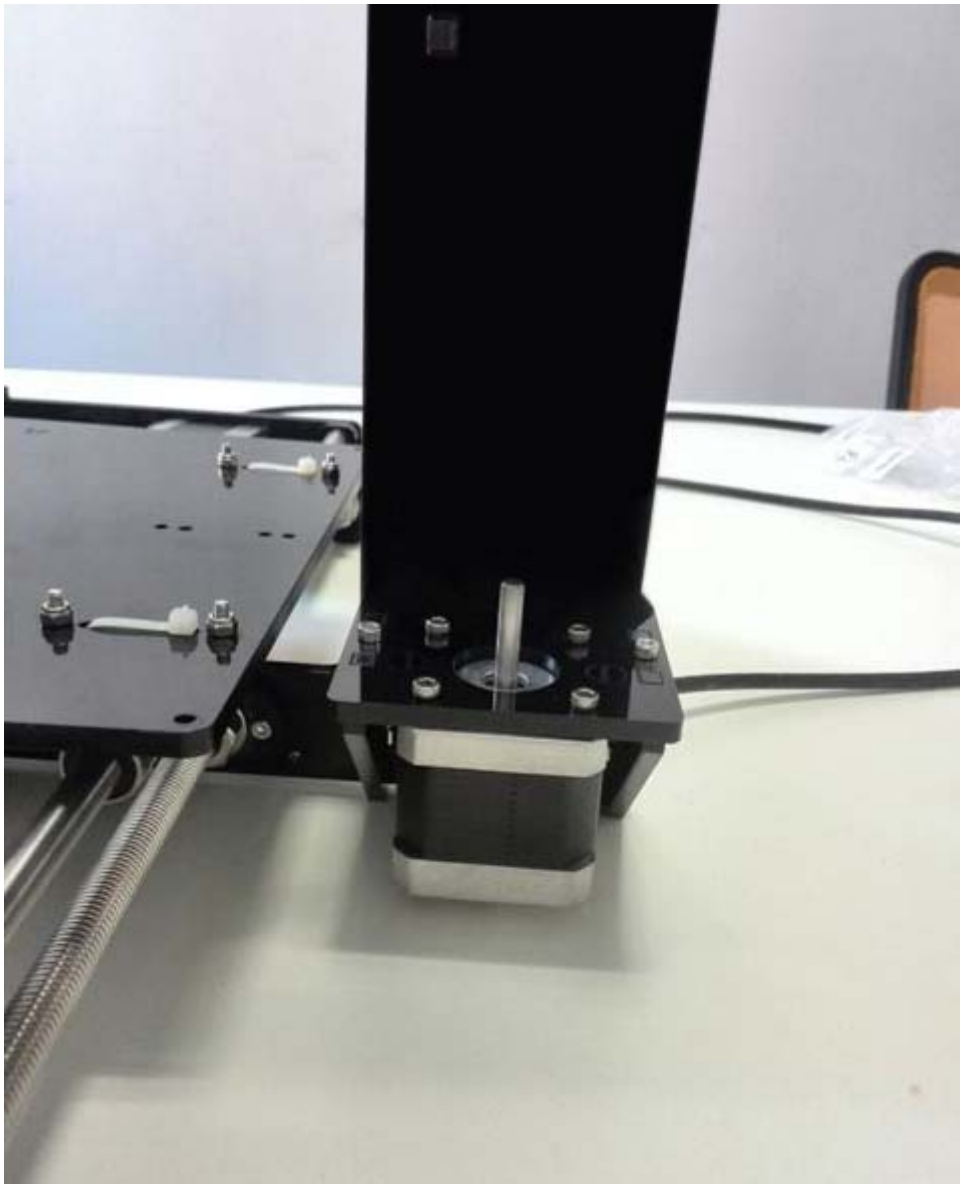
Required parts	Required number	Part ID	pic
Stepper Motor	2	NO.75	
M3 x 12screw	8	NO.25	

Step1.Thread the wires of the motors through the holes



Step2. Screw up the motors with 4 M3 x 12 screws. Do the same with the other Z

motor.



7 Assemble the X axis (the horizontal axis)

7.1 Assemble the smooth rods.

Required parts	Required number	Part ID	pic
370mm smooth rod	2	NO.2	

LM8UU linear bearing	2	NO.40	

Slide the two bearings into the two rods respectively.

7.2 Assemble the X-Axis Idler

Required parts	Required number	Part ID	pic
624ZZ Ball bearing	2	NO.38	
Bearing holder	1	NO. 66	

M3 X35 screw	1	NO.29	
M4 X25 screw	1	NO.35	
M4 locknut	1	NO.14	

Step1. Put the screw through the Y bearing holder.

Step2. Thread the M4 x 25 screw through the holder with the 624ZZ bearings in between. Lock the other end of a M4 nut.

7.3 Assemble the X-Axis end

Required parts	Required number	Part ID	pic
X-axis left end	1	NO.P1	
X-axis right end	1	NO.P2	
LM8UU linear bearing	2	NO.40	

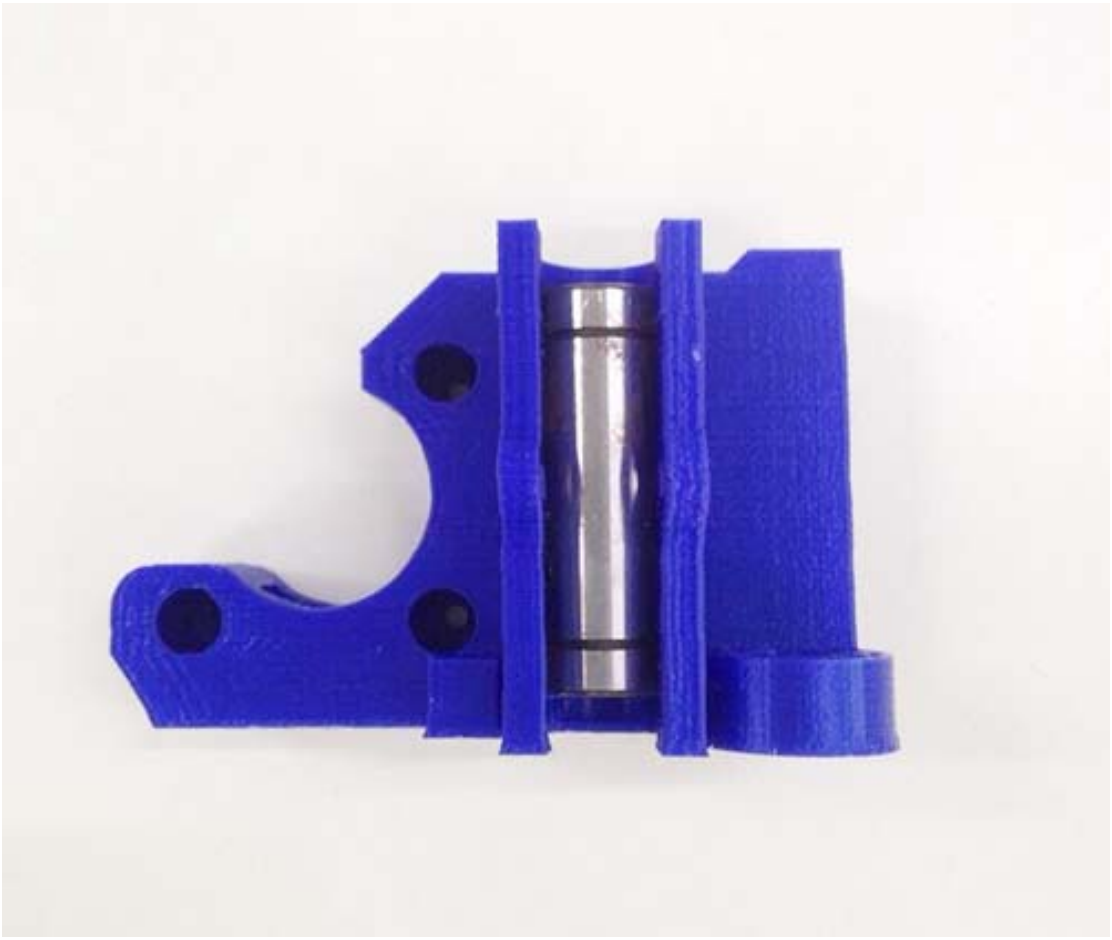
M3 wing nut	1	NO.15	
M3 x 16 screw	2	NO. 26	
M3 nut	2	NO. 11	

Step1. Mount the assembled idler into the right X-axis end. Here, you can insert the linear bearing into the end.

Step2. Lock it up tightly with a wing nut and insert a linear bearing into the slot. Pay attention to the direction of the idler. Please lock the M3X30 screw tightly in case any

jam caused for the belt.

Step3. Insert another linear bearing into the slot of left end. Then lock the bearing with M3x 16 screw and nut. Do the same to the right end.



7.4 Assemble the X-axis rods and both ends

Required parts	Required number	Part ID	pic
Brass nut	2	NO.17	
M3 x 16 screw	8	NO.26	

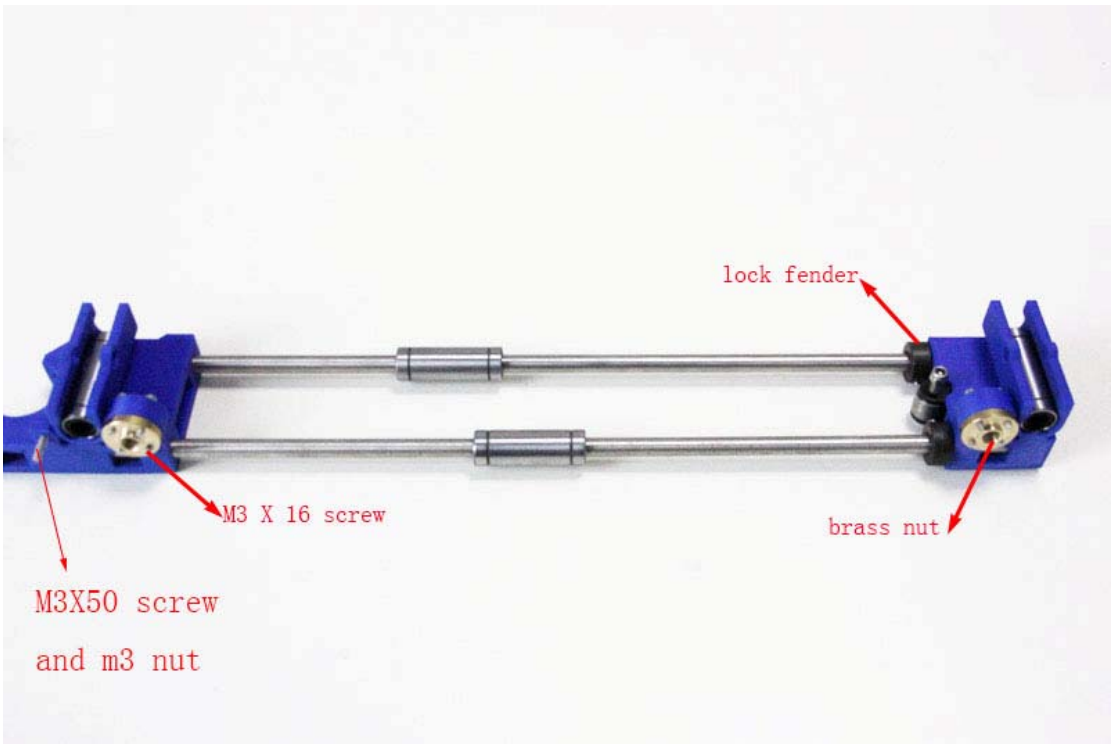
M3 x50 screw	1	NO.31	
M3 nut	1	NO.11	
Screw locking ring	2	NO.19	

Step1. Thread the screw locking ring to both rods respectively. Screw them up

Step2. Thread the two rods into the two X-axis ends.

Step3. Mount the brass nut under both ends with 4 M3 x 16 screws for each.

Step4. Fix the M3x 5 screw on left end. (This is for the Y end stop)



7.5 Mount the X-axis belt bracket on the smooth rods.

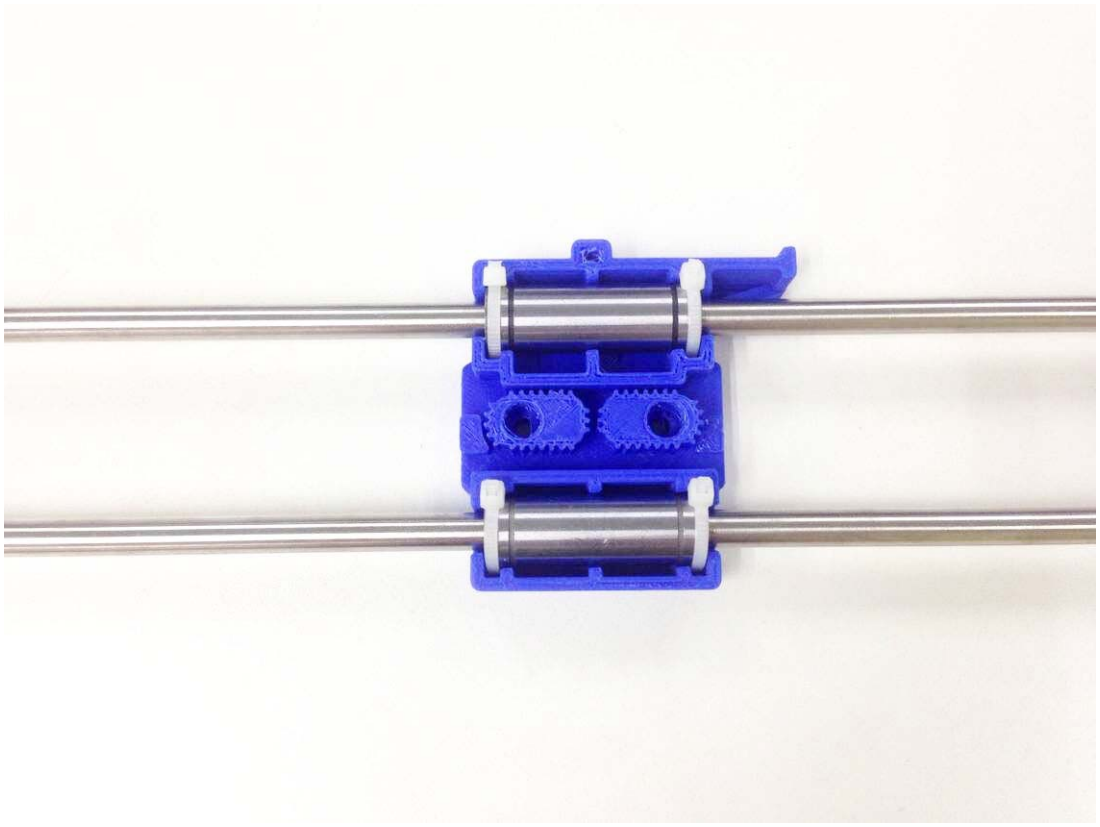
Required parts	Required number	Part ID	pic
print bracket	1	NO.P3	
Zip tie	4	NO.54	
LM8UU linear bearing	2	NO.40	

Step1. Mount the print bracket on the smooth rods.

1) Insert the linear bearings into the slot of the bracket as you can see from the picture.

2) Thread the zip-tie through the extruder bracket. Tie them up with zip ties.

* the stretching-out part is towards the Left end of X axis.

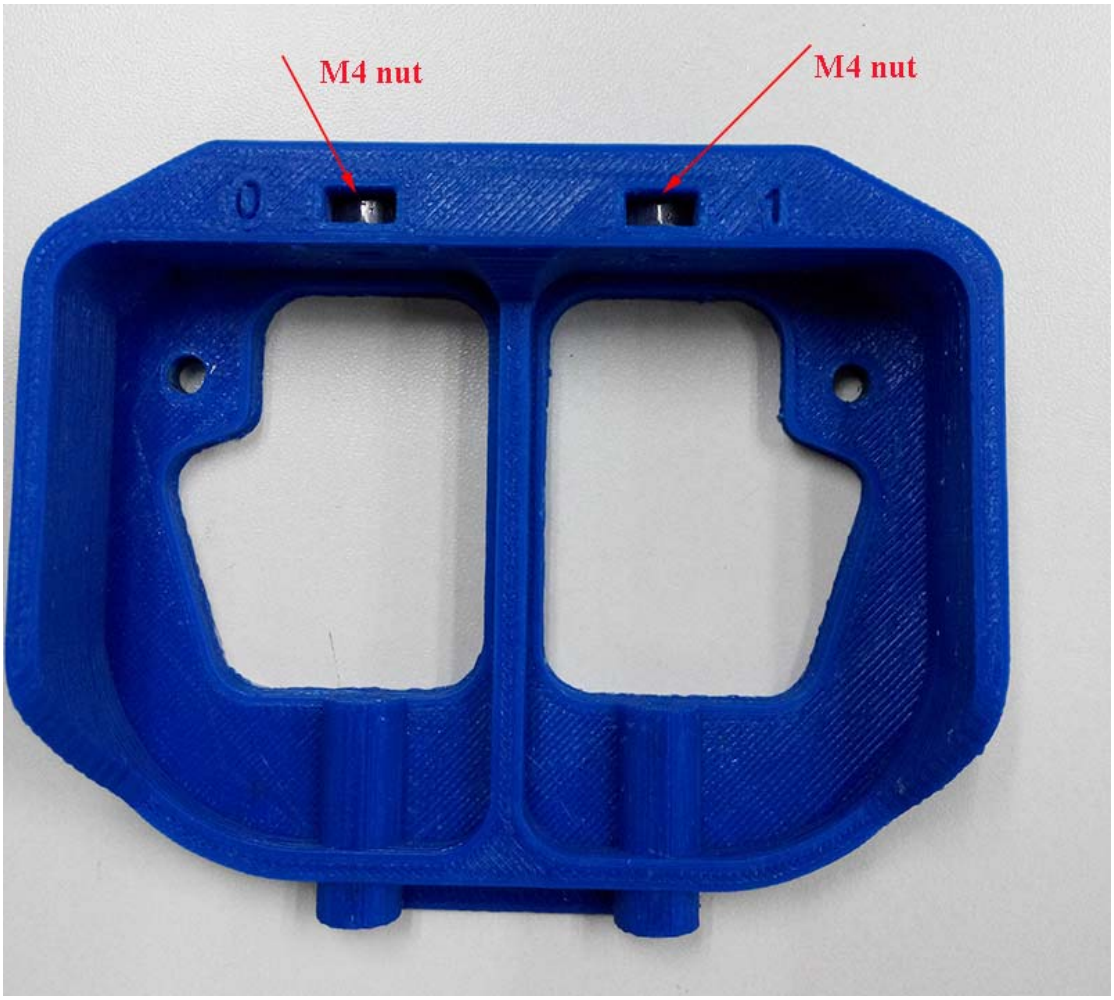


7.6 Mount the extruder holder.

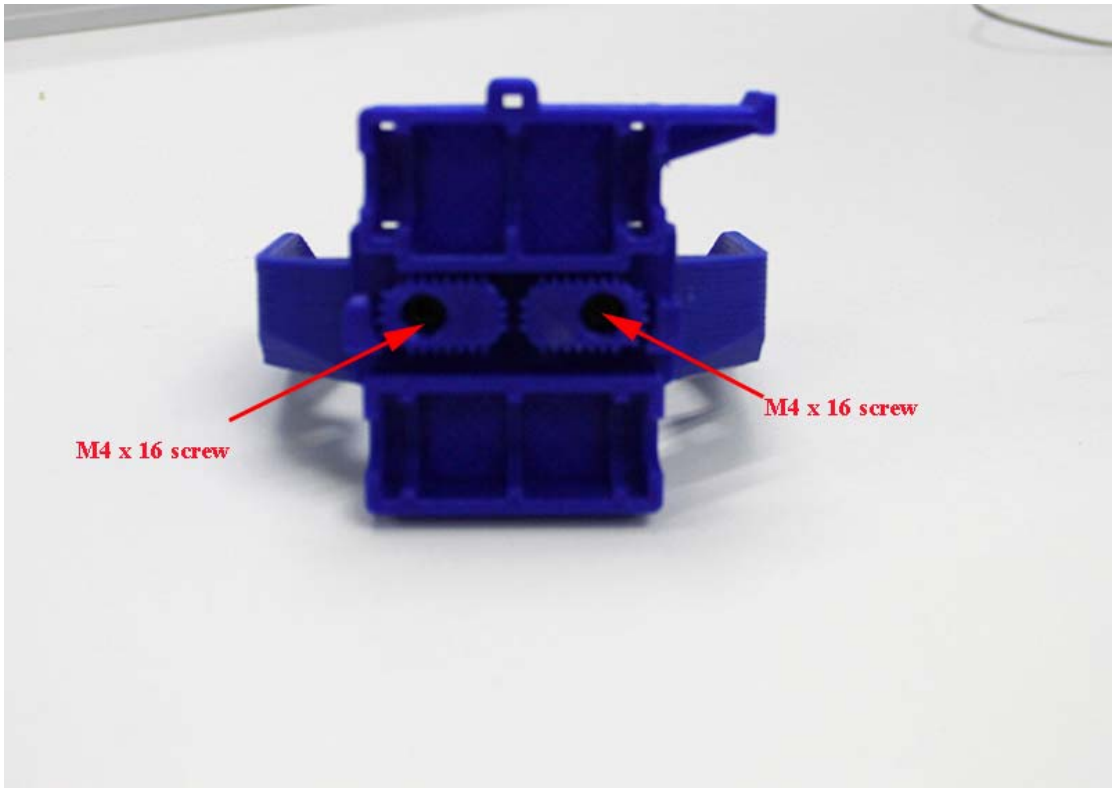
Required parts	Required number	Part ID	pic
Extruder bracket	1	NO.P4	

M4 x 16screw	2	NO.34	
M4 nut	2	NO.11A	

Step1. Put the 2 M4 nut into the hole, as shown in the picture.



Step2. Screw up the belt bracket and the extruder support with two M4 x 16screws.



7.7 Mount the extruder

Required parts	Required number	Part ID	pic
MK8 dual extruder	1	NO.79	
M4 x 12 screw	2	NO.33	
M4 nut	2	NO.11A	

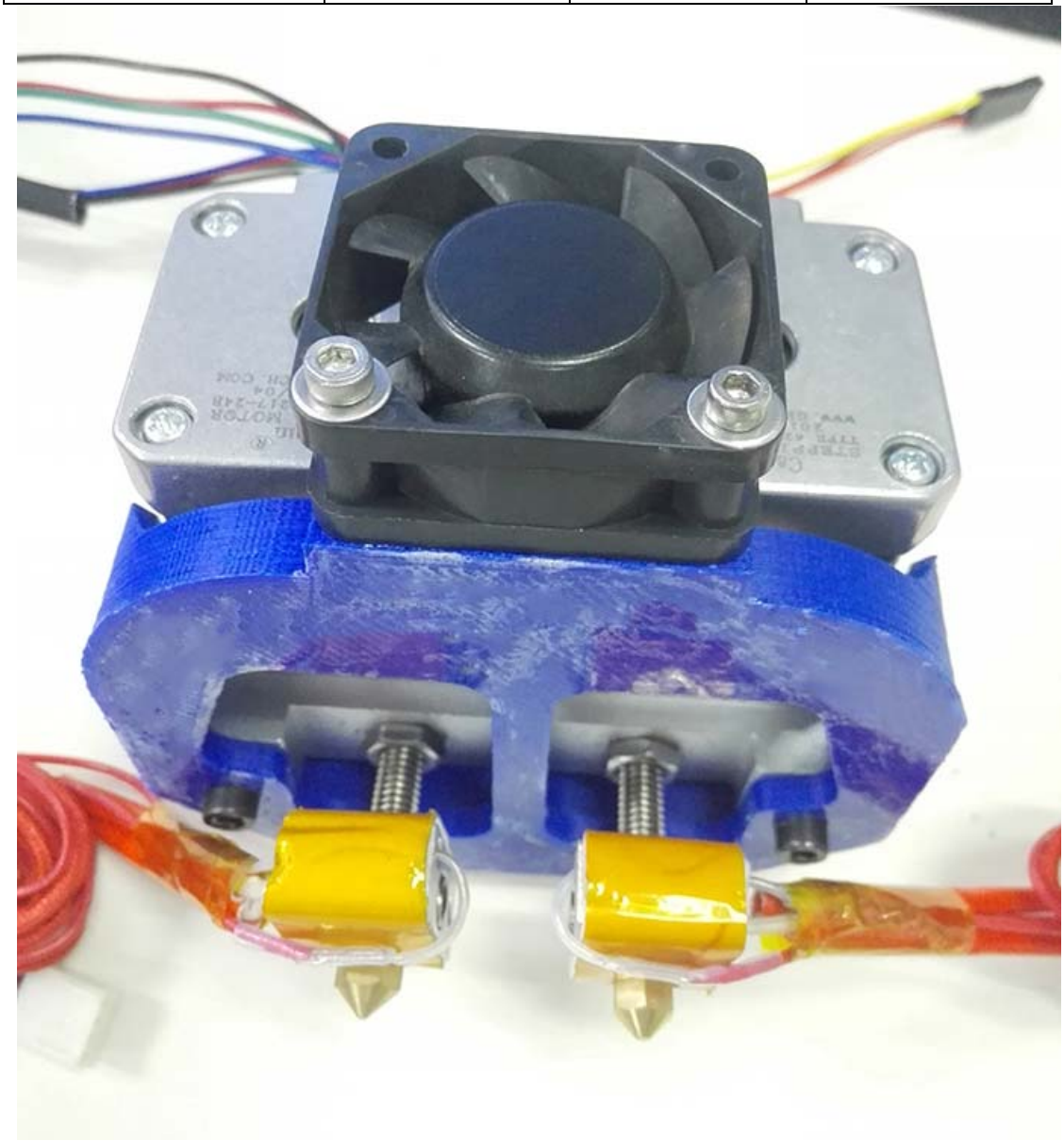
Step1. Mount the assembled extruder on the extruder support. Fix it up with two M4 x 12 screw and M4 nut.

Tips: keep the two nozzles flush.

7.8 Mount the fan for extruder

Required parts	Required number	Part ID	pic
Fan	1	NO.70	

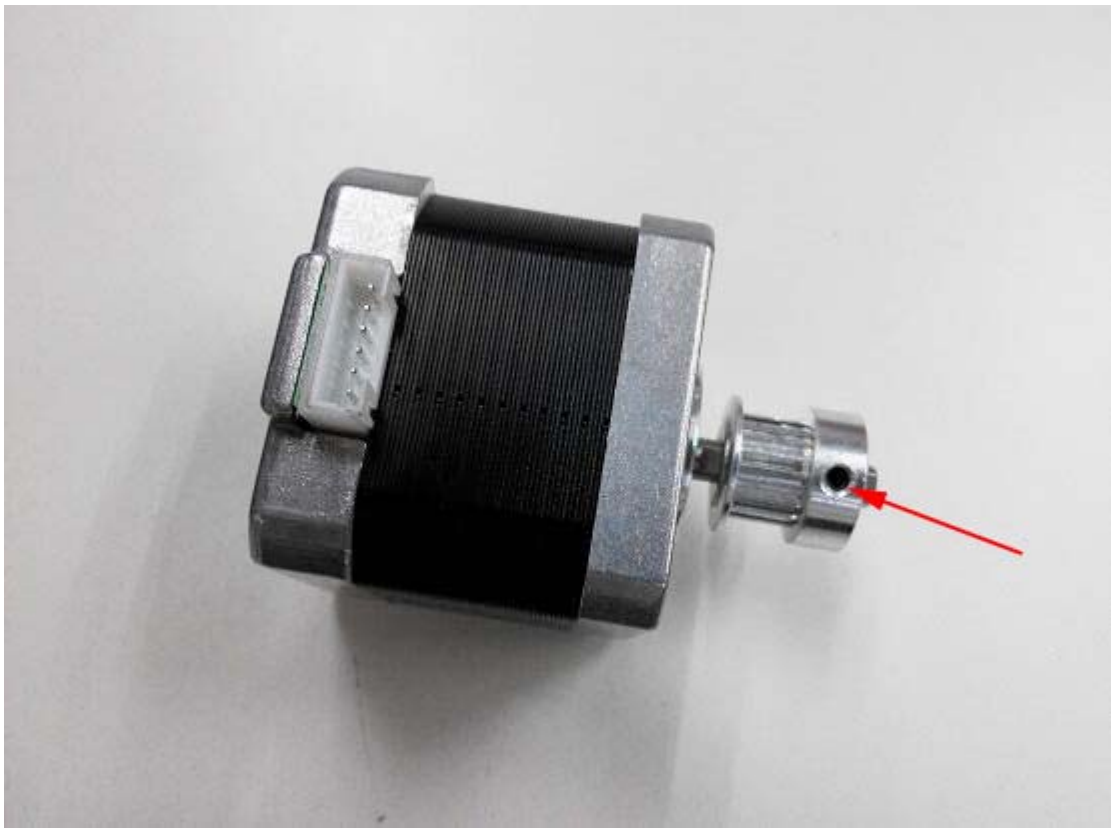
M3 x 30 screw	2	NO.28	
M3 washer	2	NO.7	

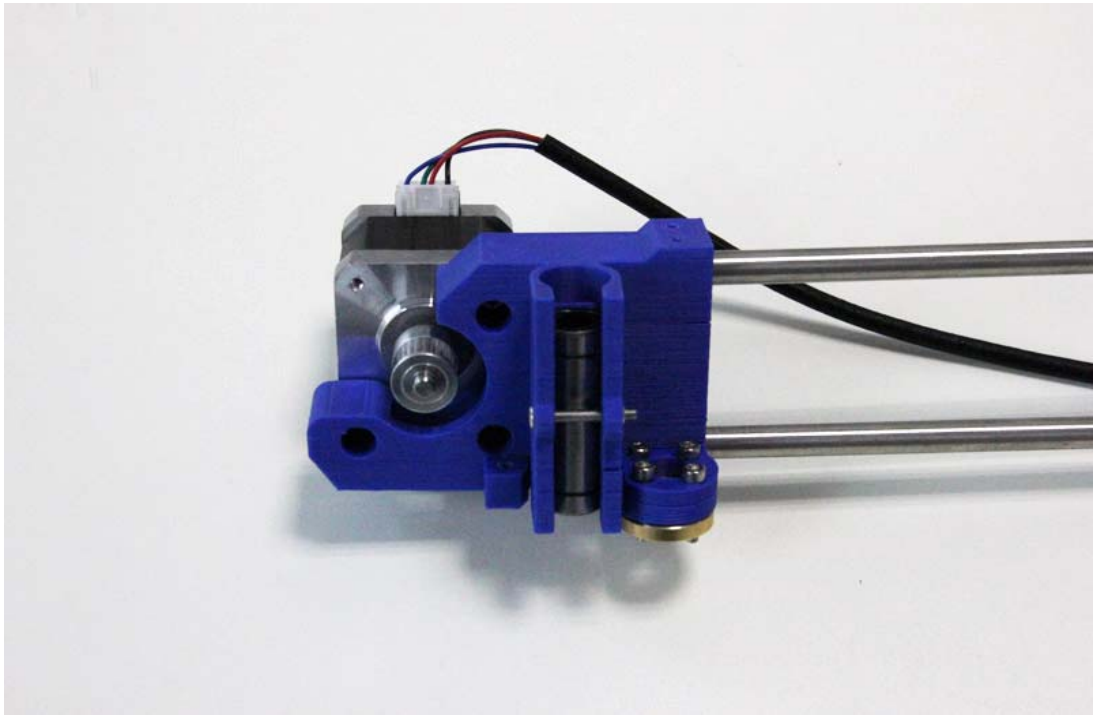


7.9 Mount the X-axis motor.

Required parts	Required number	Part ID	pic
Stepper motor	1	NO.75	
Pulley	1	NO.43	
M3 x 8 screw	3	NO.23	

Please pay attention to the mount direction of the pulley, which is opposite to that of the Y-axis.



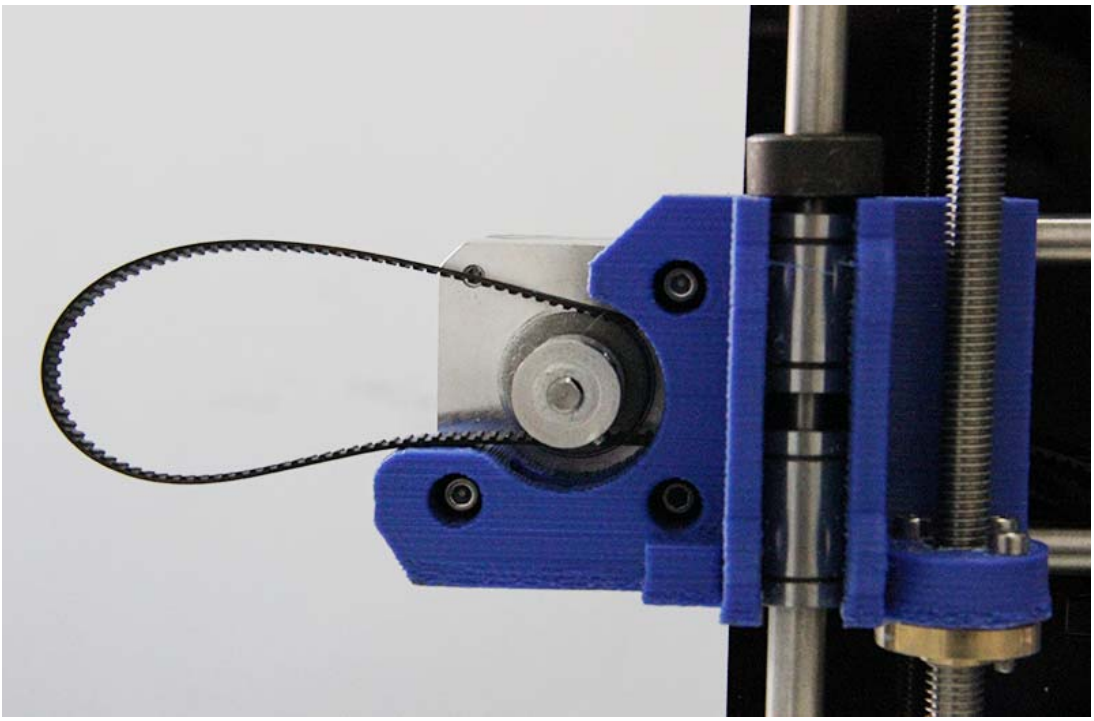


7.10 Amount the X-axis belt.

Required parts	Required number	Part ID	pic
Timing Belt	1	NO.42	
Zip tie	2	NO.54	

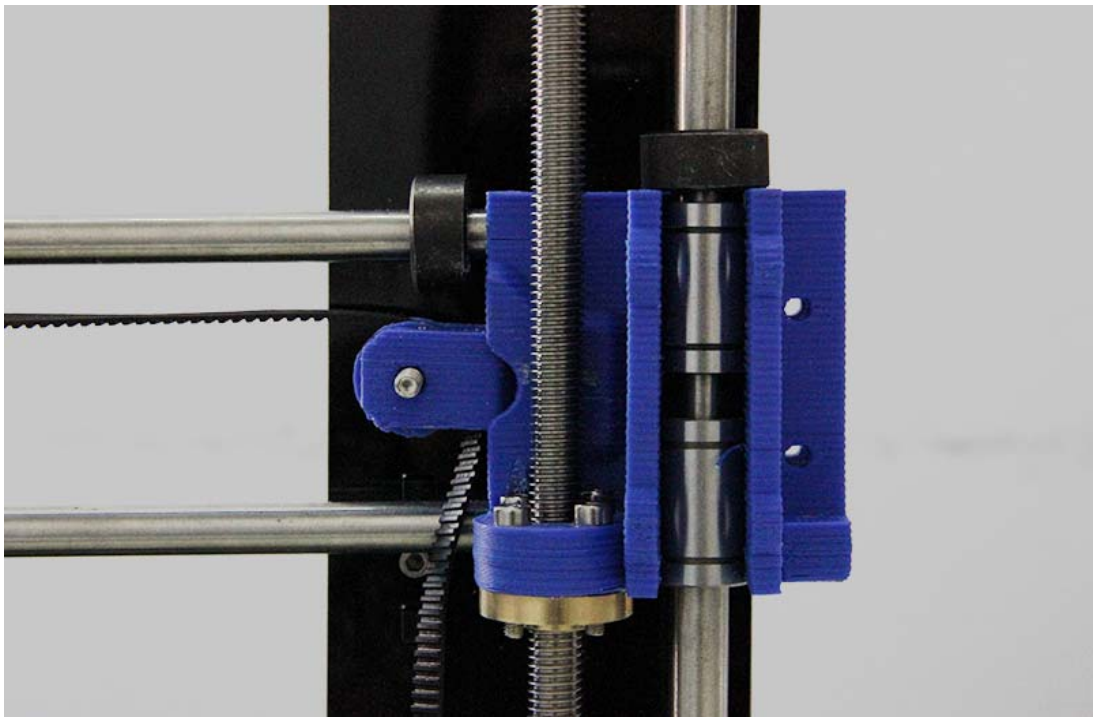
Step1. Thread the belt around pulley on the motor end.

(*The two linear bearings in the picture should be a longer one, please ignore it)



Step2. Another end of the belt should be threaded through the belt holder on the right end of the X-axis.

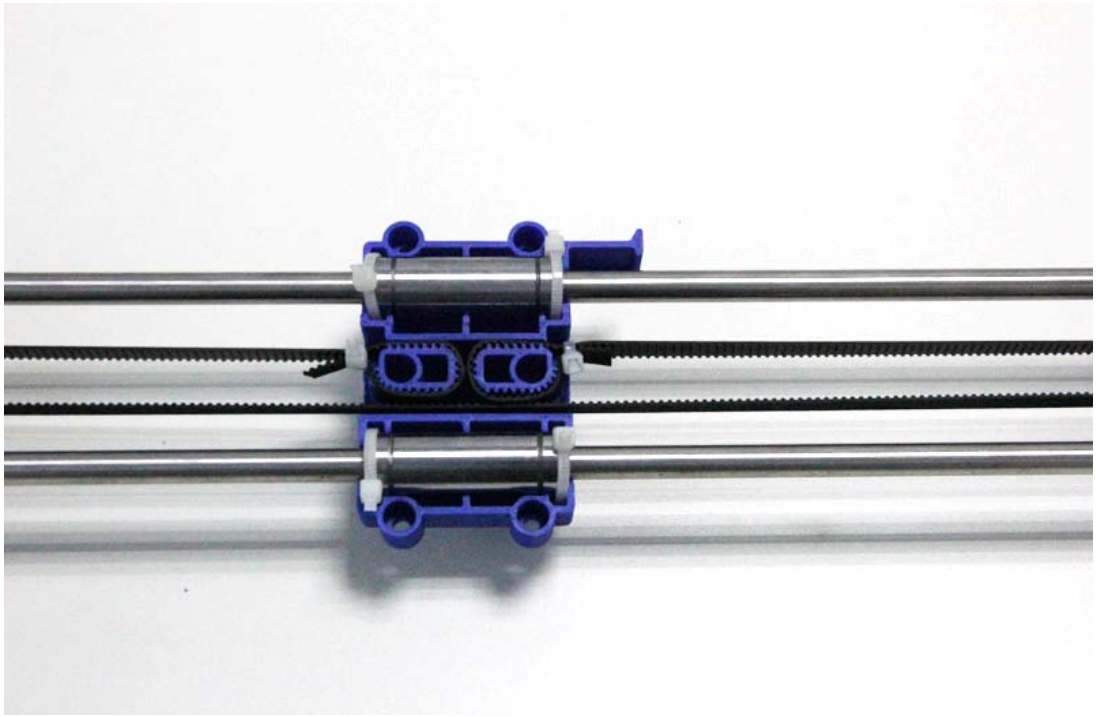
(The belt holder in the picture is different from yours, do not worry, it is ok for you to understand)



Step3. Insert the belt into the slot.

*Pay attention to the tooth mesh of the belt and that on the bracket. Tie up both ends tightly. (This bracket may be a bit different from yours, but it doesn't matter)

In this step, when attach the second side of the timing belt for the x-axis, h you may not estimate accurately the length of the whole belt until the z-axis stage has been mounted. So, please do not rush to cut the extra belt, you need to re-adjust it later after the z-axis has been mounted.

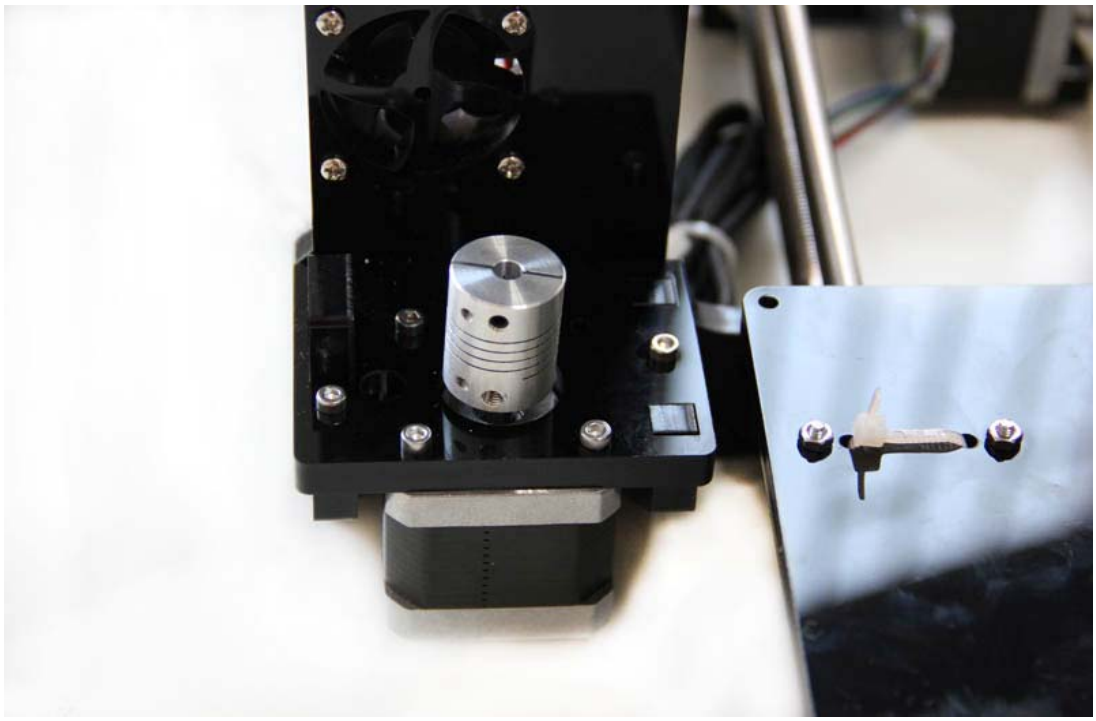


8 Assemble the X-Z axis.

Required parts	Required number	Part ID	pic
Couplings	2	NO.69	
L322 threaded rod	2	NO.4	

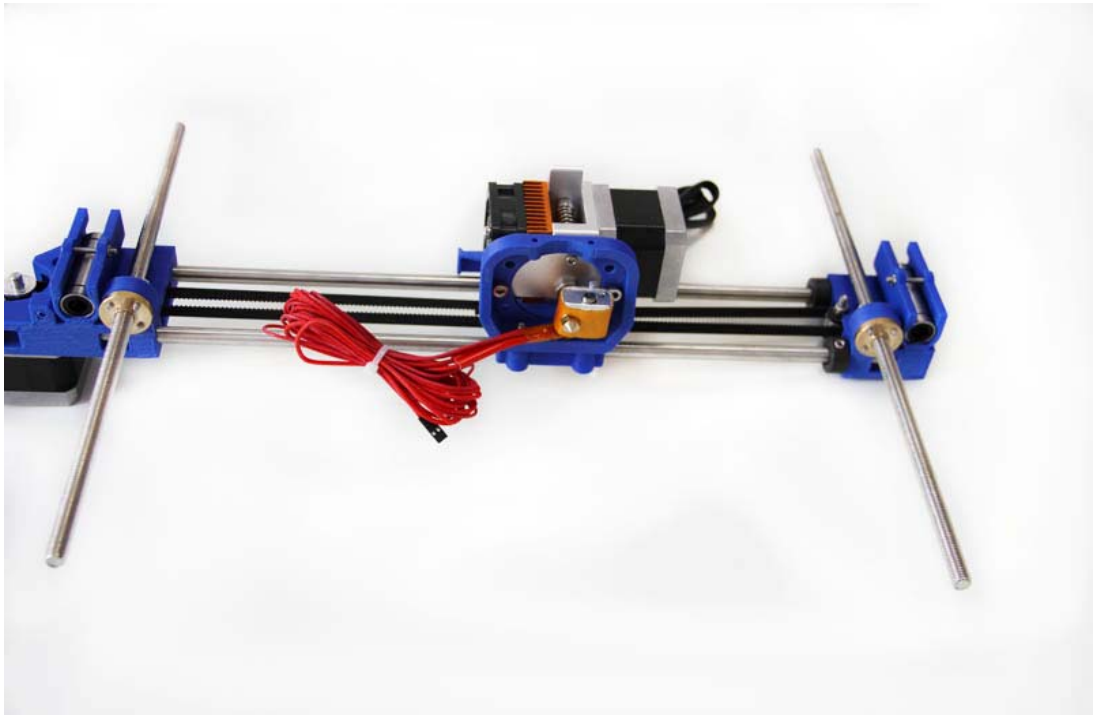
Step1. Fix the two couplings on both of the threaded rod. And plug it on the motor shaft.

*Mind the opening of the couplings, the larger opening should be connected to the threaded rods.



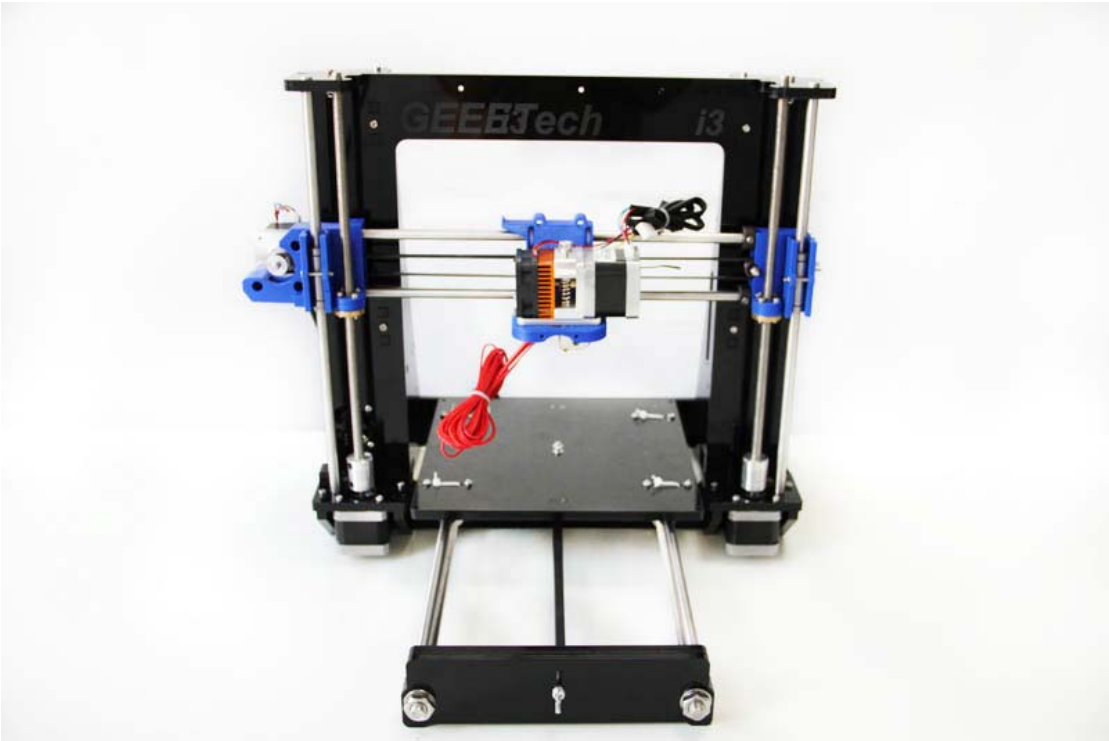
Step2. Thread the threaded rods of Z axis through the brass nuts. It would be easier to do it now. Keep both end of the X axis flush.

(Please ignore the MK8 extruder in this picture, if you are moving to this step, please send me a right picture with dual extruder, thanks.)



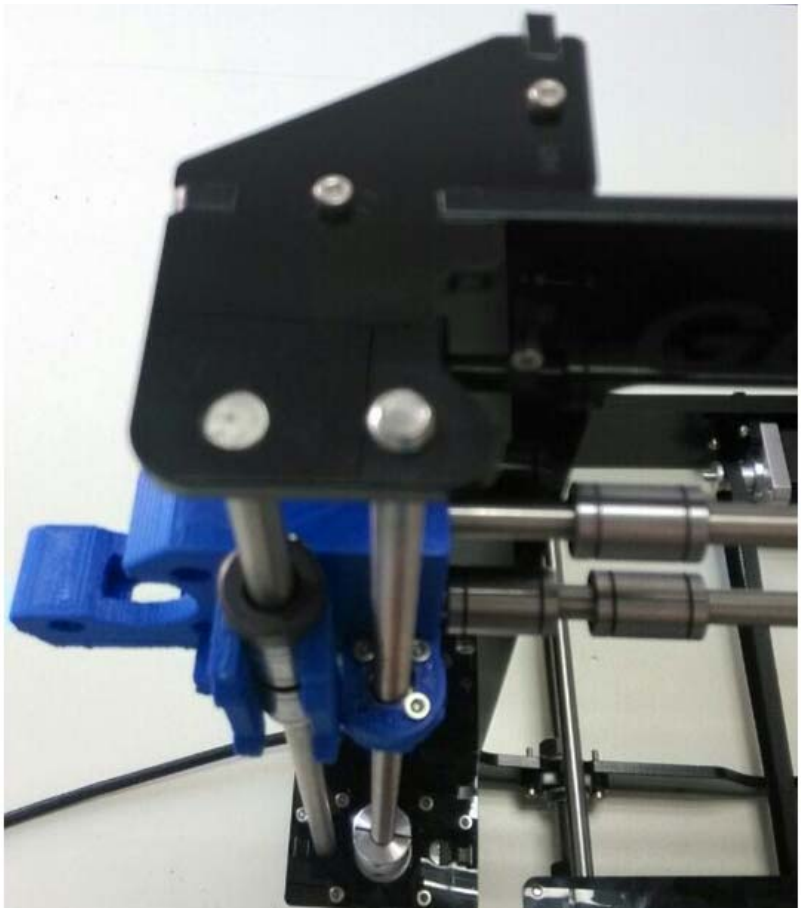
Step3. Put the assembled X-axis on the Z-axis. Then slide the smooth rod into the linear bearings.

(Please ignore the MK8 extruder in this picture, if you are moving to this step; please send me a right picture with dual extruder, thanks.)



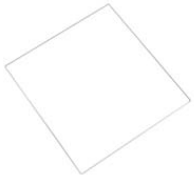
Step4. Assemble the top mount of the Z-axis.

Required parts	Required number	Part ID	pic
Z-axis top mount	2	NO.A8	
M3 x 16 screw	4	NO.26	
M3 square nut	4	NO.16	



9 Attach he heated bed.

Required parts	Required number	Part ID	pic
MK2A Heat bed	1	NO.71	

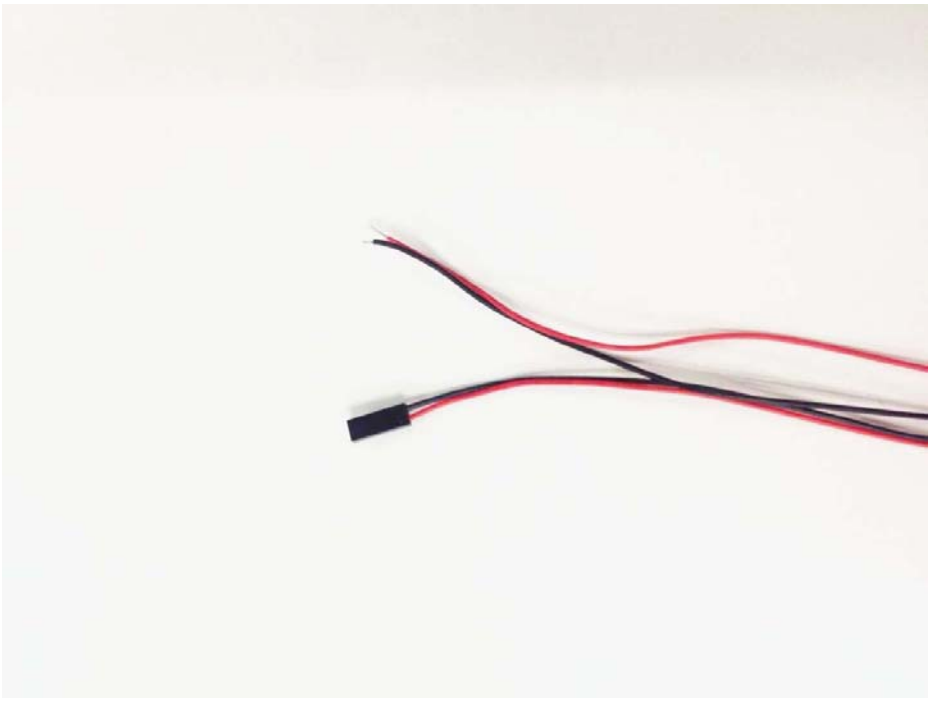
Borosilicate glass	1	NO.72	
Heating wire	2	NO.51	
Thermistor	1	Attached on the bed	
Thermometry wire	2	NO.50	
Wing nut	4	NO.15	
Spring	4	NO.37	
M3 x35 screw	4	NO.29	

clamp	4	NO.53	

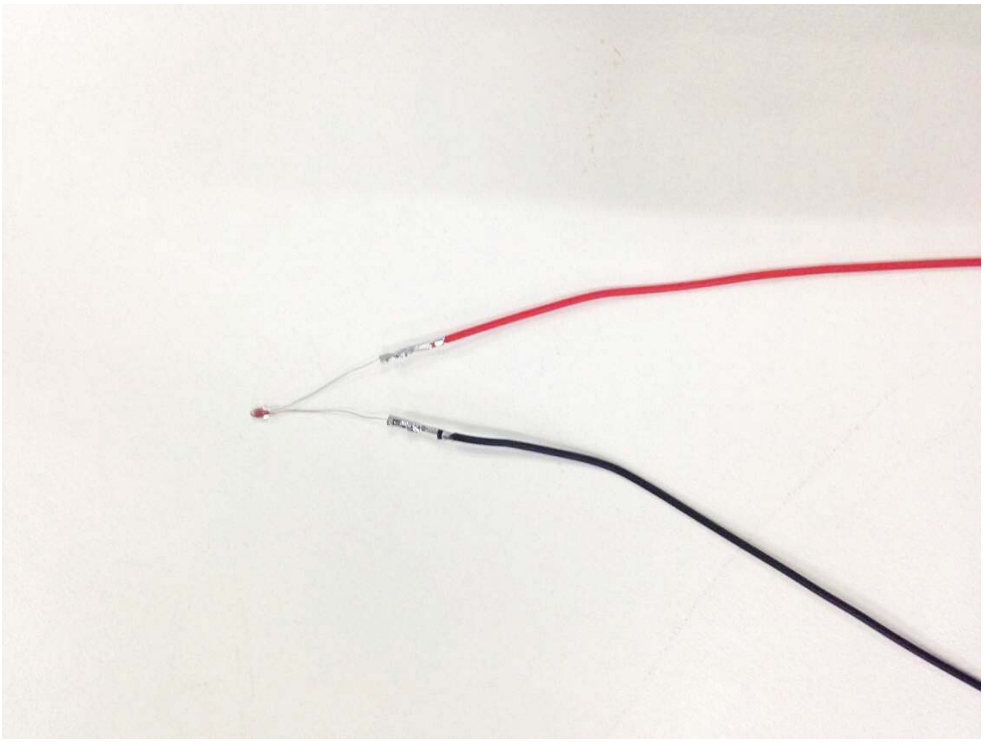
*All our heated bed is pre-soldered before shipping; you can attach the bed directly here. The following steps are just for reference if you need to change the bed in the future.

Step1. Solder the heating wire on the edge of the bed.

Step2. Take out the 2-pin DuPont wire and take off one the adapter.



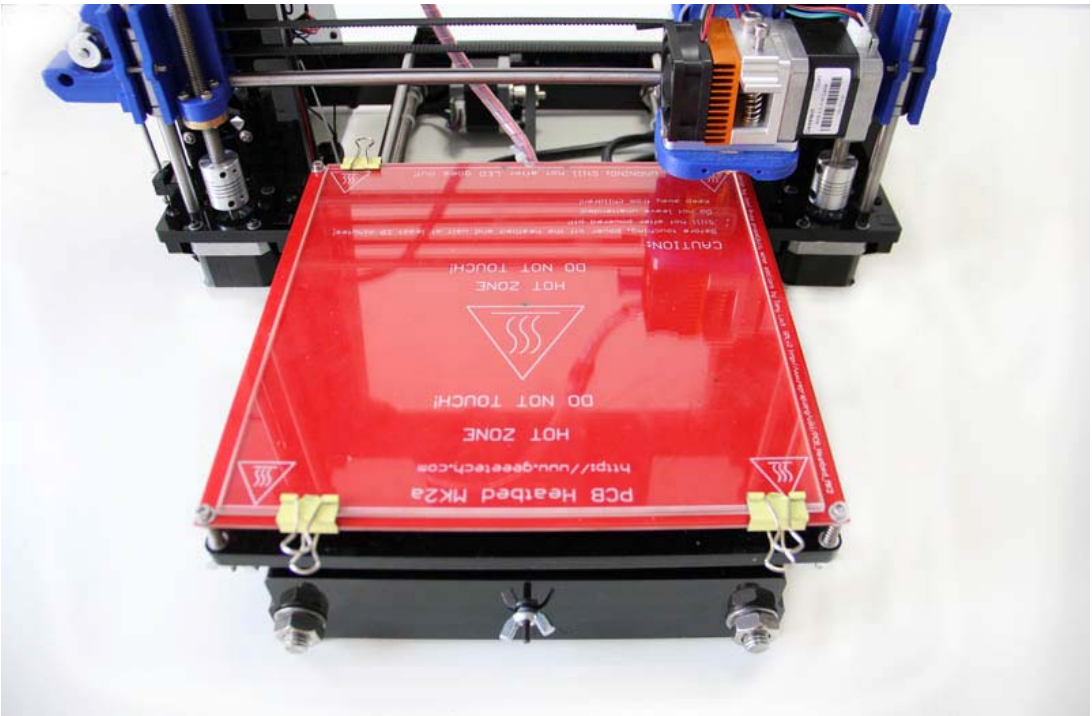
Step3. Solder the DuPont wire and the thermistor together.



Step4. Attach the DuPont wire and the thermistor on the bed with Kapton tape.

Step5. Mount the heat bed on the platform with 4 M3 x35 screws and wing nuts with springs in between. Clamp the heat bed and the glass sheet.

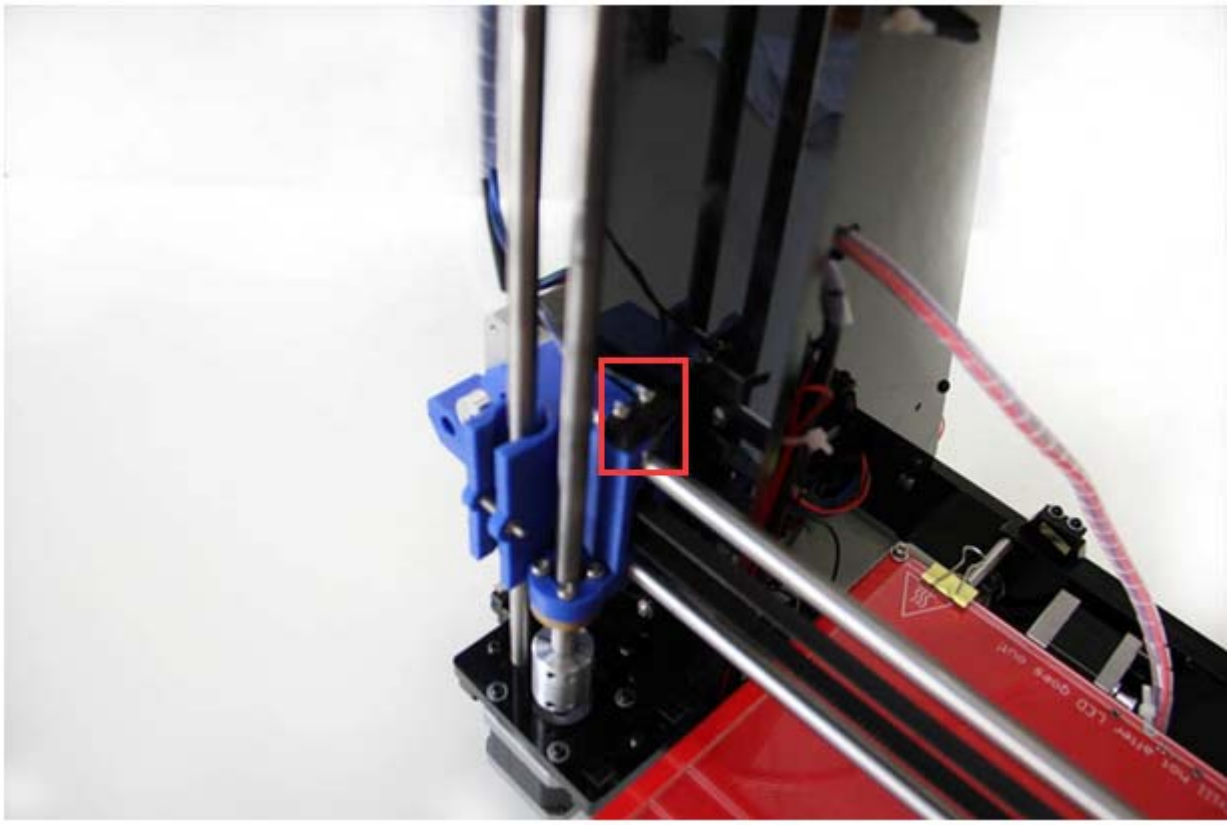
*the soldered side is better to be attached downwards.



10 Mount the end stops.

Step 1.End stop of X-axis

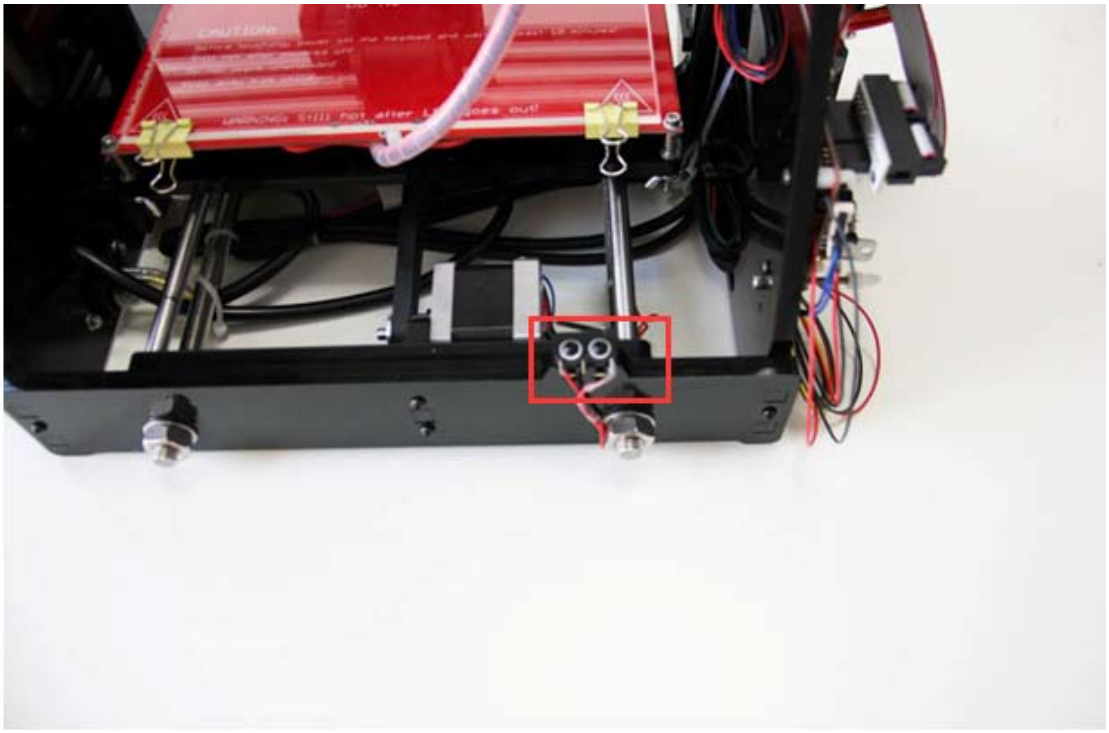
Required parts	Required number	Part ID	pic
End stop	1	NO.44	
M2.5 X 12 screw	2	NO.21	



Step2. End stop of Y-axis

Required parts	Required number	Part ID	pic
End stop	1	NO.45	
M2.5 X 16 screw	2	NO.22	
M2.5 Hex nut	2	NO.10	

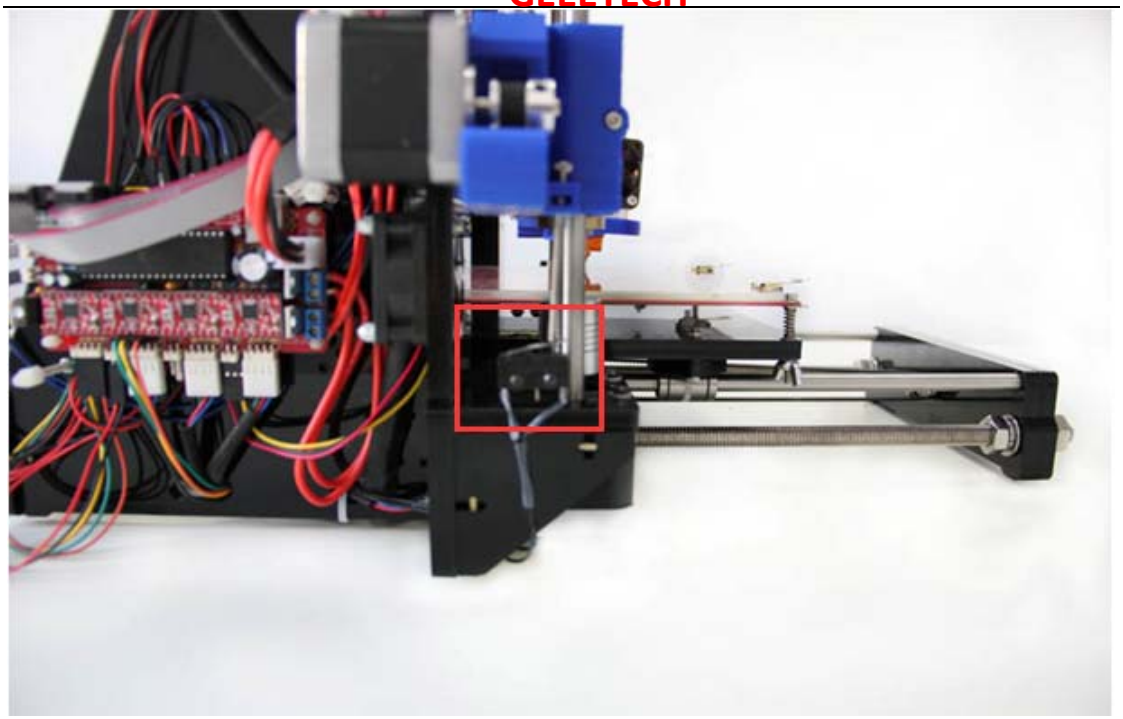
Note: there is no “+” and “-” for endstops, so there is no difference for the wires.



Step3. End stop of Z-axis

Required parts	Required number	Part ID	pic
End stop	1	NO.46	
M 3 X 16 screw	2	NO.22	
M 3 nut	2	NO.11	

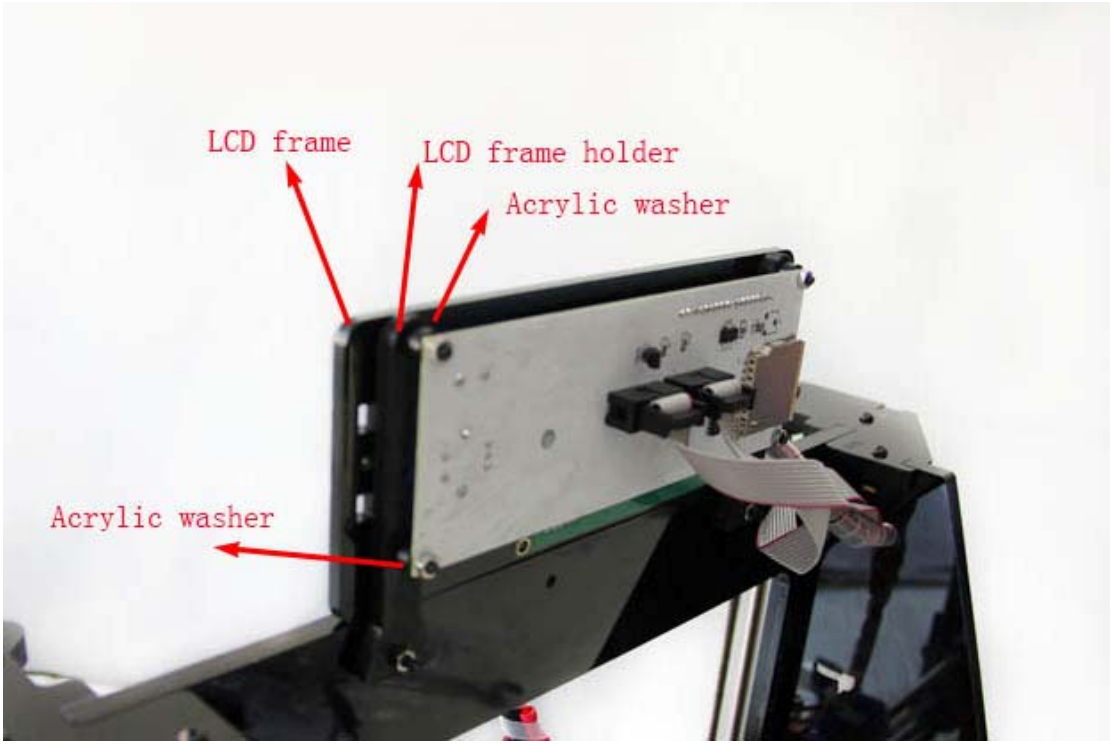
Here, you may need to use a bit force to drill the screw into the endstop.

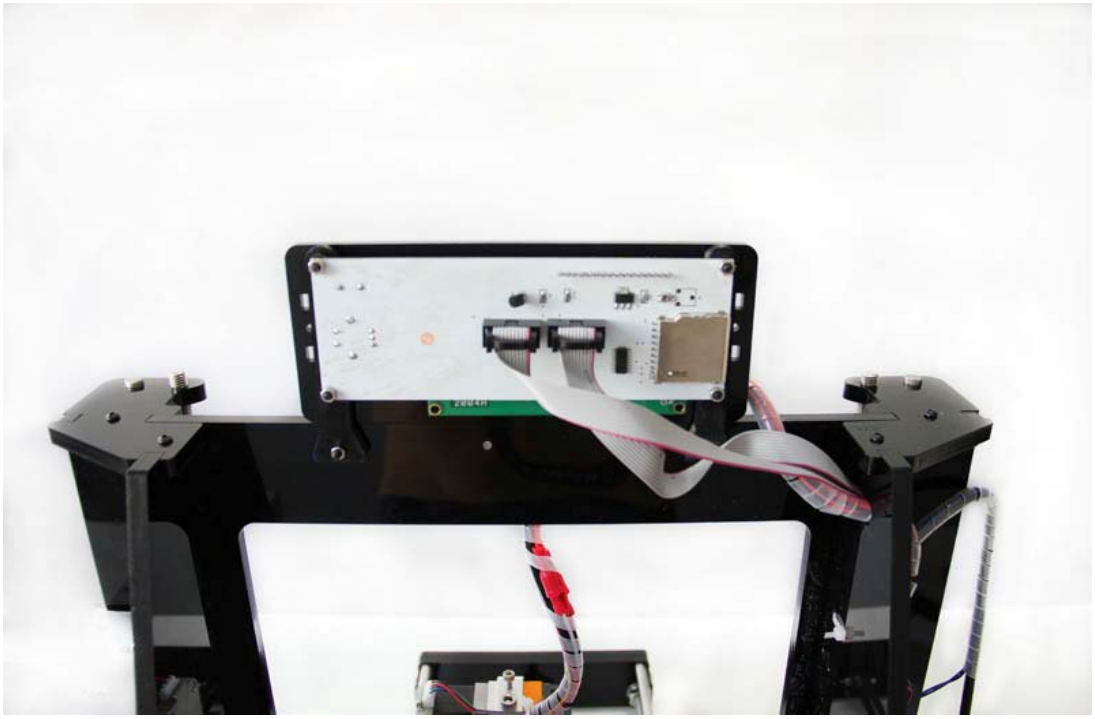


11 Mount the LCD panel frame.

Required parts	Required number	Part ID	pic
LCD 2004	1	NO.80	
LCD frame	1	NO.A20	
LCD frame holder	2	NO.A21	
Acrylic washer	4	NO.A19	

M3 x 20 screw	6	NO.27	
M3 nut	4	NO.11	





12 Mount the PSU

Required parts	Required number	Part ID	pic
Power supply	1	NO.74	
M3 x 10 screw	3	NO.24	

M3 x 16 bolt	2	NO.36	
M3 nut	2	NO.11	
3D Power cable	1	NO.52	

Step1. Mount the PSU (Power supply unit) on the right side panel with 3 M3 x 10 screws.

Step2. Mount the AC socket with M3 x 16 screws.

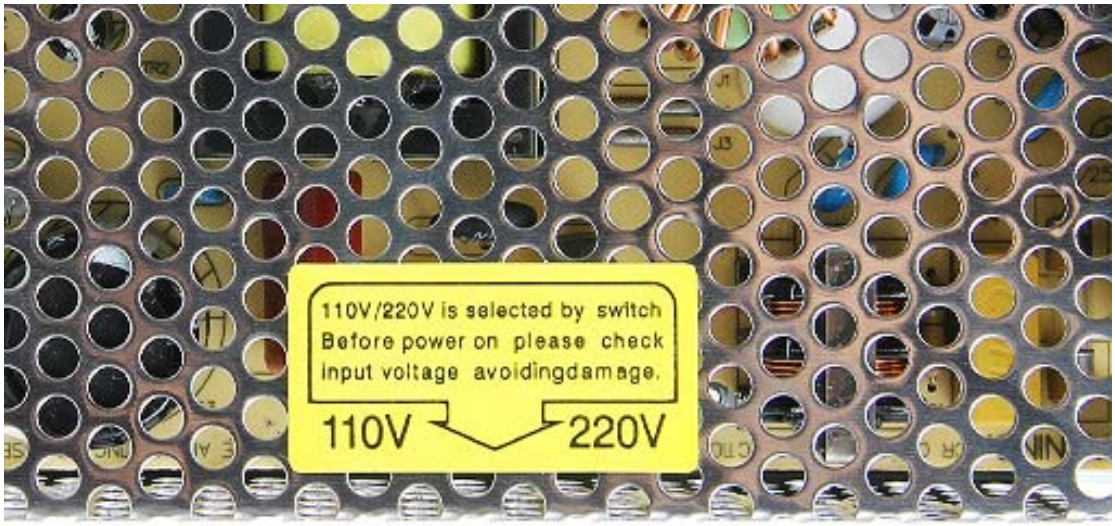
First you have to take off one end of the connectors to get both the power button and the power socket into the hole.

***(The connection of wire in this picture is very important; you should pay close attention in case the PSU suffer a shortcut)**

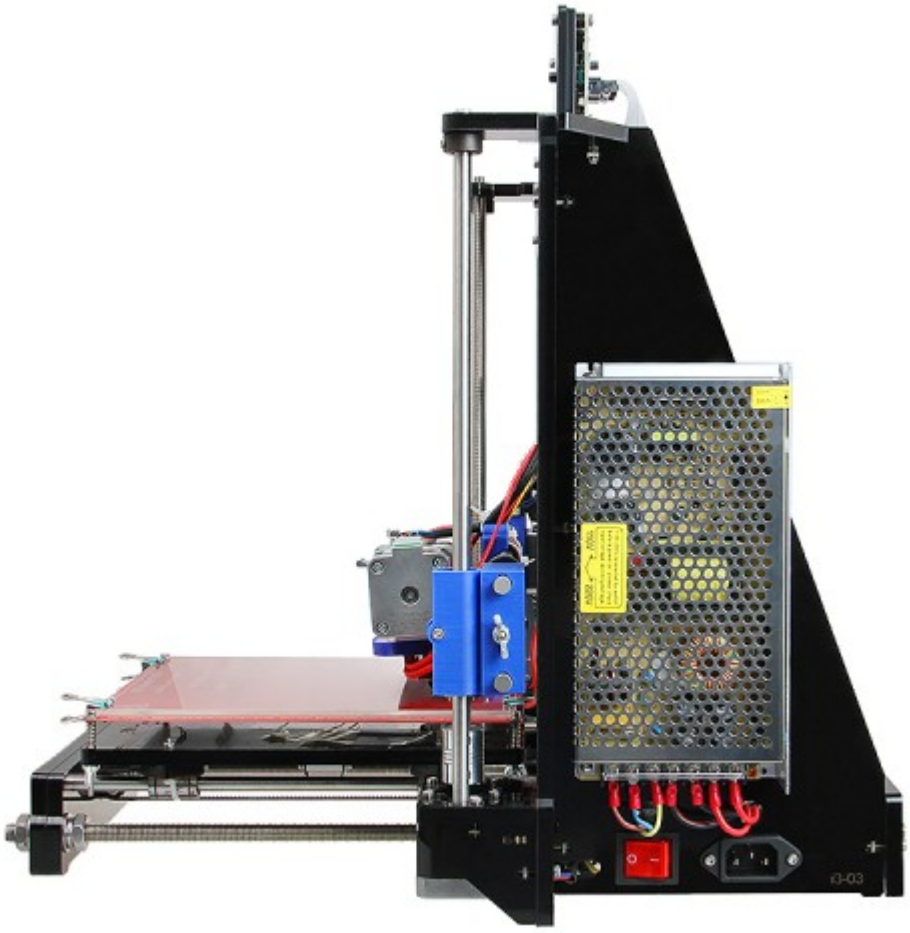
Step3. Connect the power cable to PSU.

1) Mind the color of the wires. The wrong connection of the wire will cause serious damage to the PSU and even to the control board of the printer.

2) Pay attention to the switch on the right side of the PSU, there are two options of voltage: 110 V and 220V, choose according the standard in your country. As shown in the following picture. You can use some hard sticks to reach the switch.



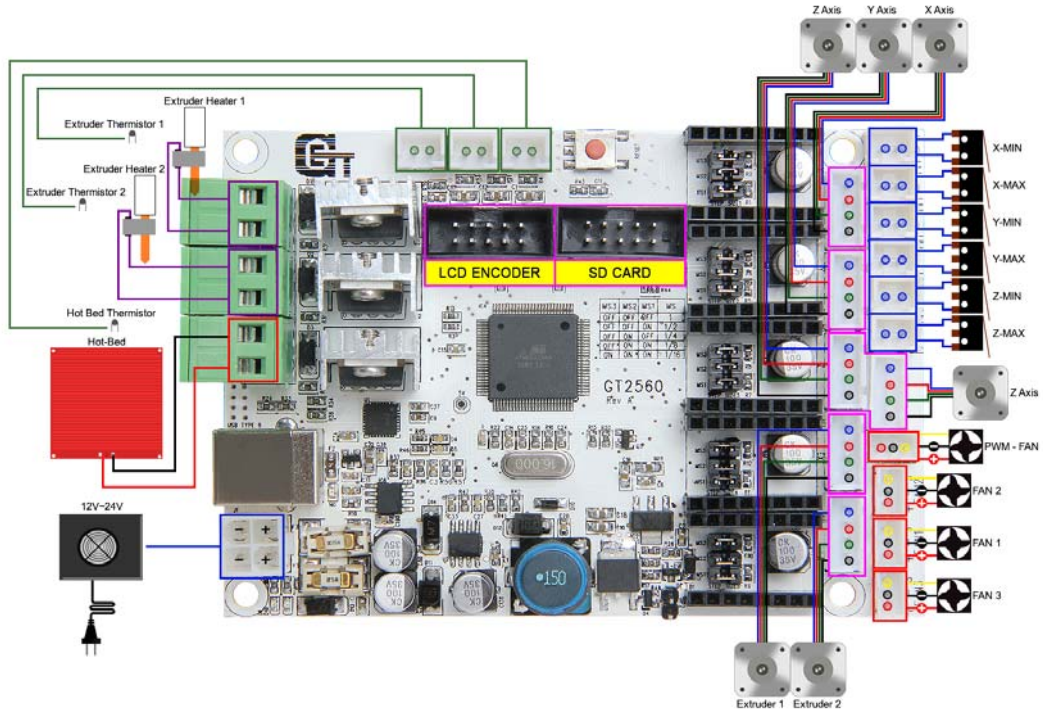
see the finished picture here.



13 Wiring

GT2560

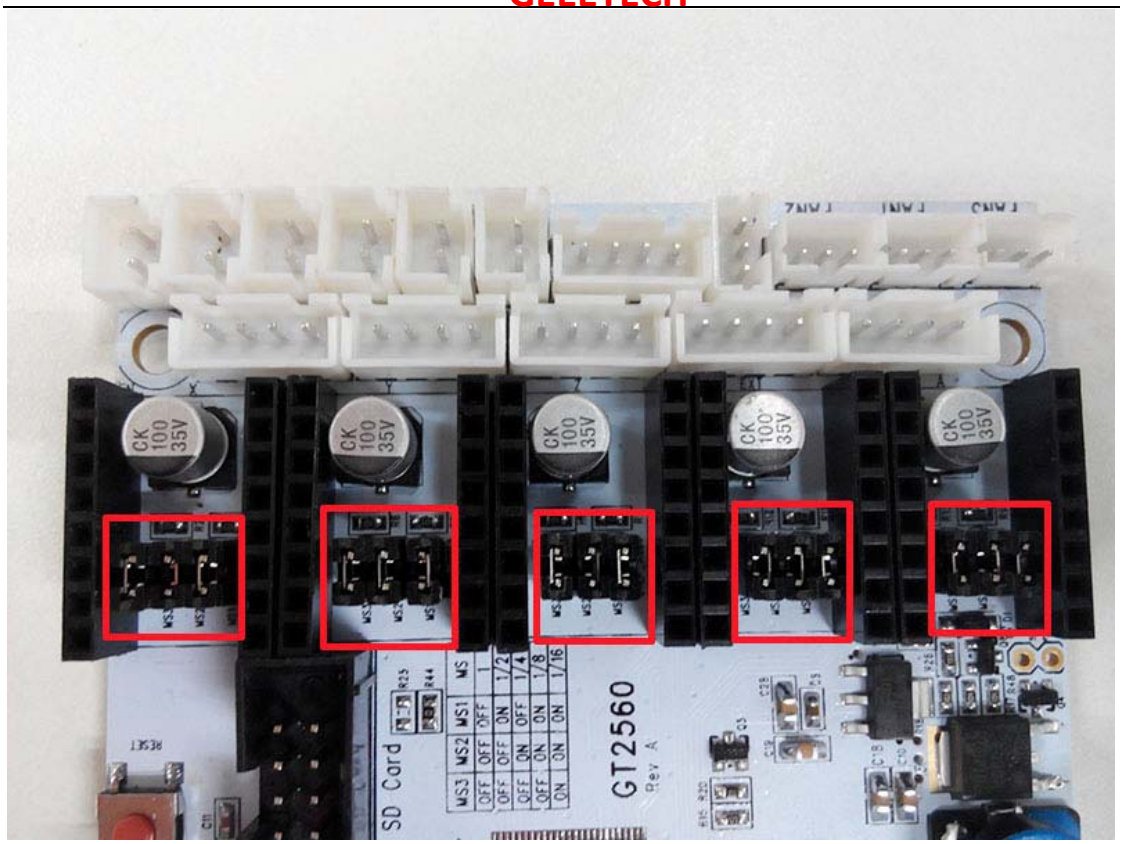
Before you start wiring, please take a look at the wiring schematics.



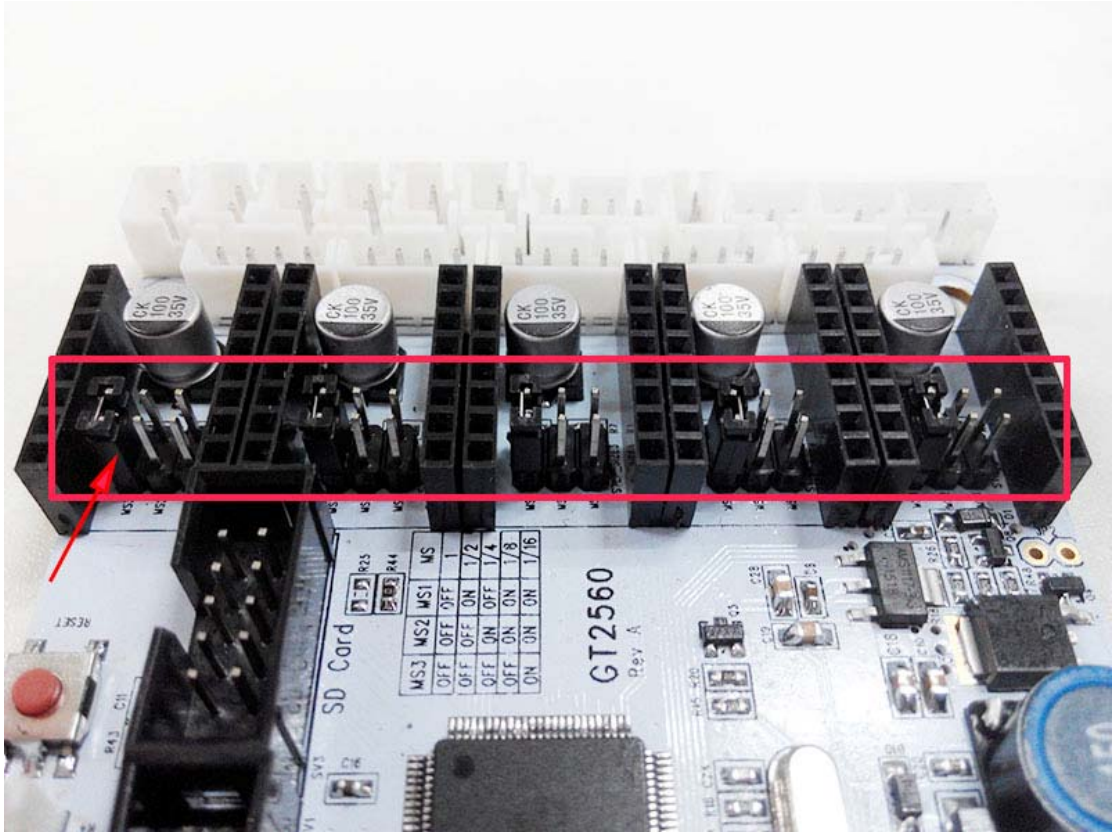
You can see original picture here.

There is one thing you need to note that the extruder number in this picture is 1 and 2, but in the following steps, I referred them as 0 and 1 correspondingly.

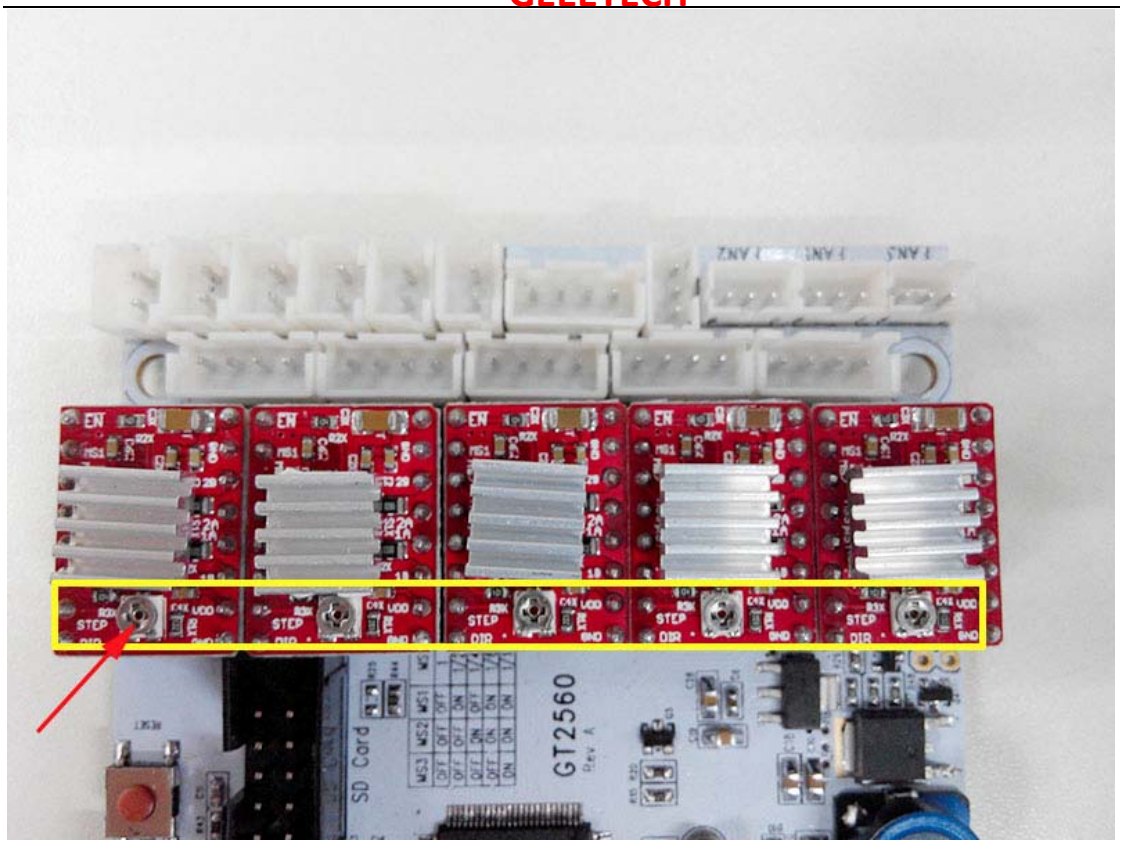
Step1. The subdivision of stepper motor can be setup by jumper cap, plug all the jumper caps (For A4988)



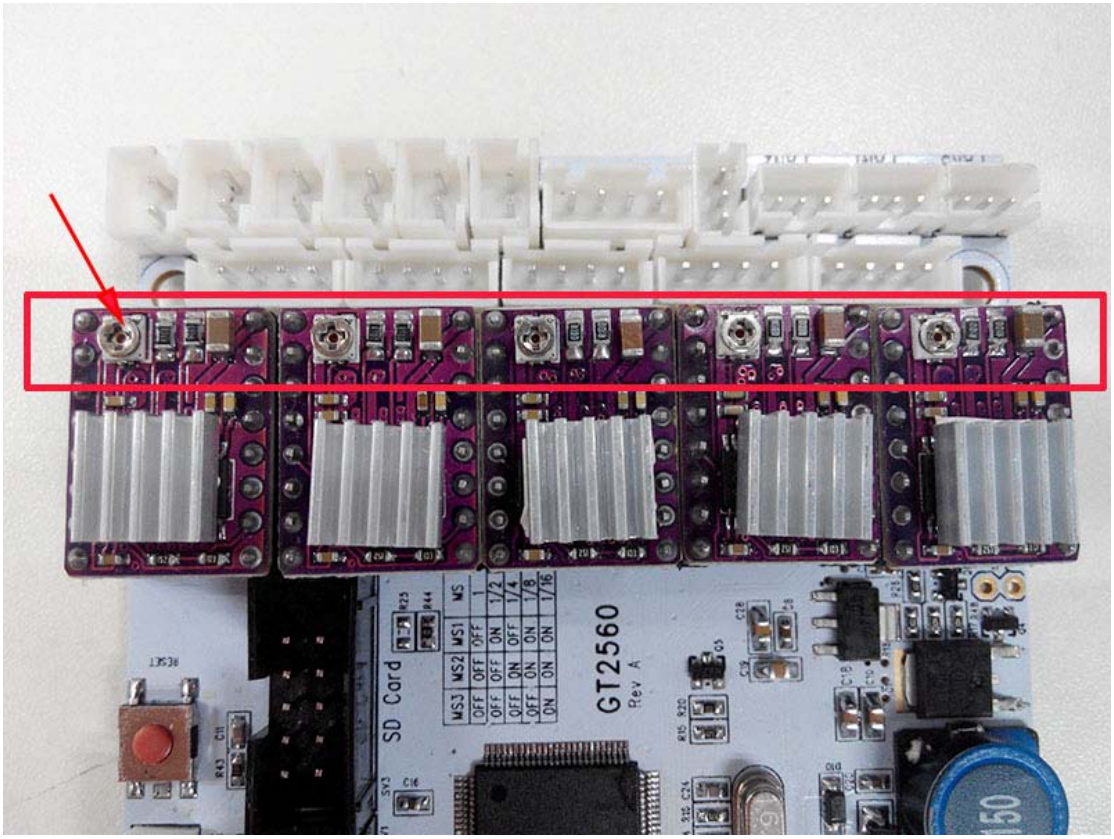
If you are using DRV8825 instead of A4988, the jumper caps should be changed as follow:



Step2. Plug the 5 A4988 into the stepper motor driver slot. Mind the directions of A4988.



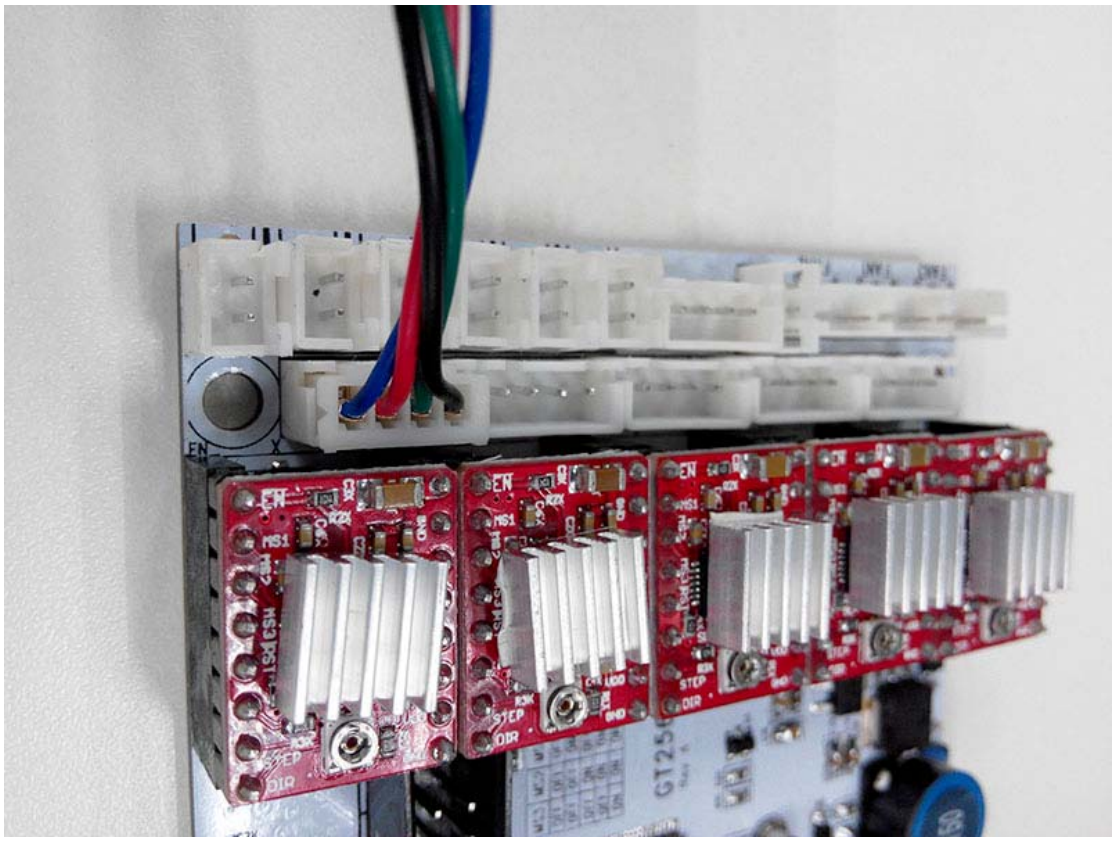
If you are using DRV8825 instead of A4988, The correct connections are as follow:



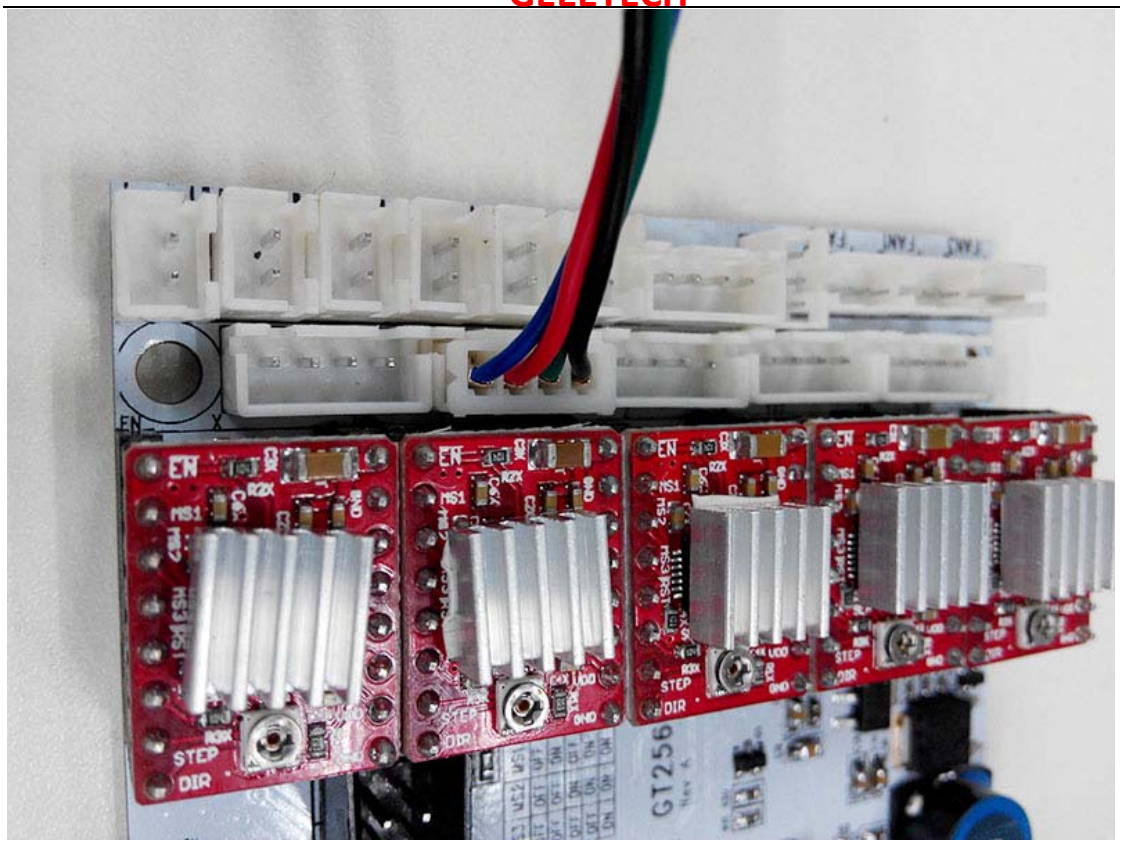
For your convenience, the above two steps is finished by us. you can skip them.

Step3. Connect wires for motors.

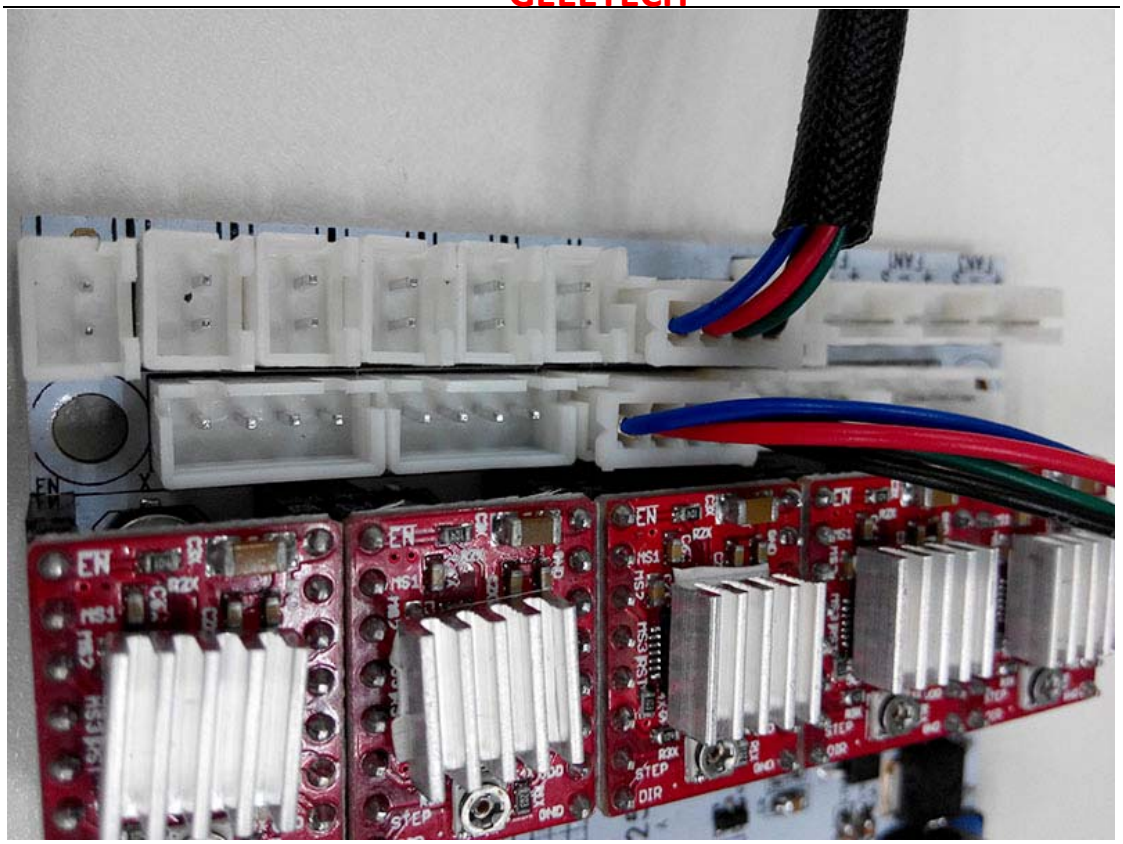
1) Connect wires for X-axis motor.



2) Connect wires for Y-axis motor.

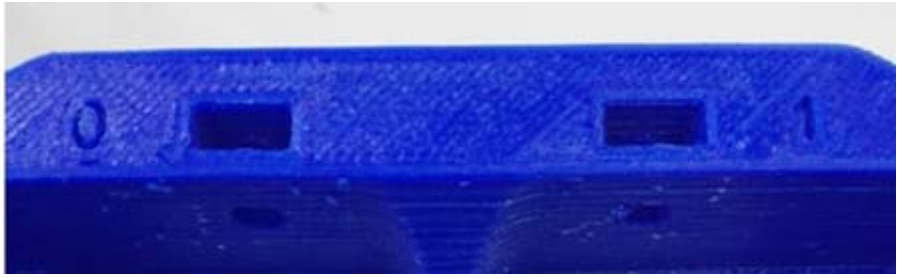


3) Connect wires for Z-axis motor.

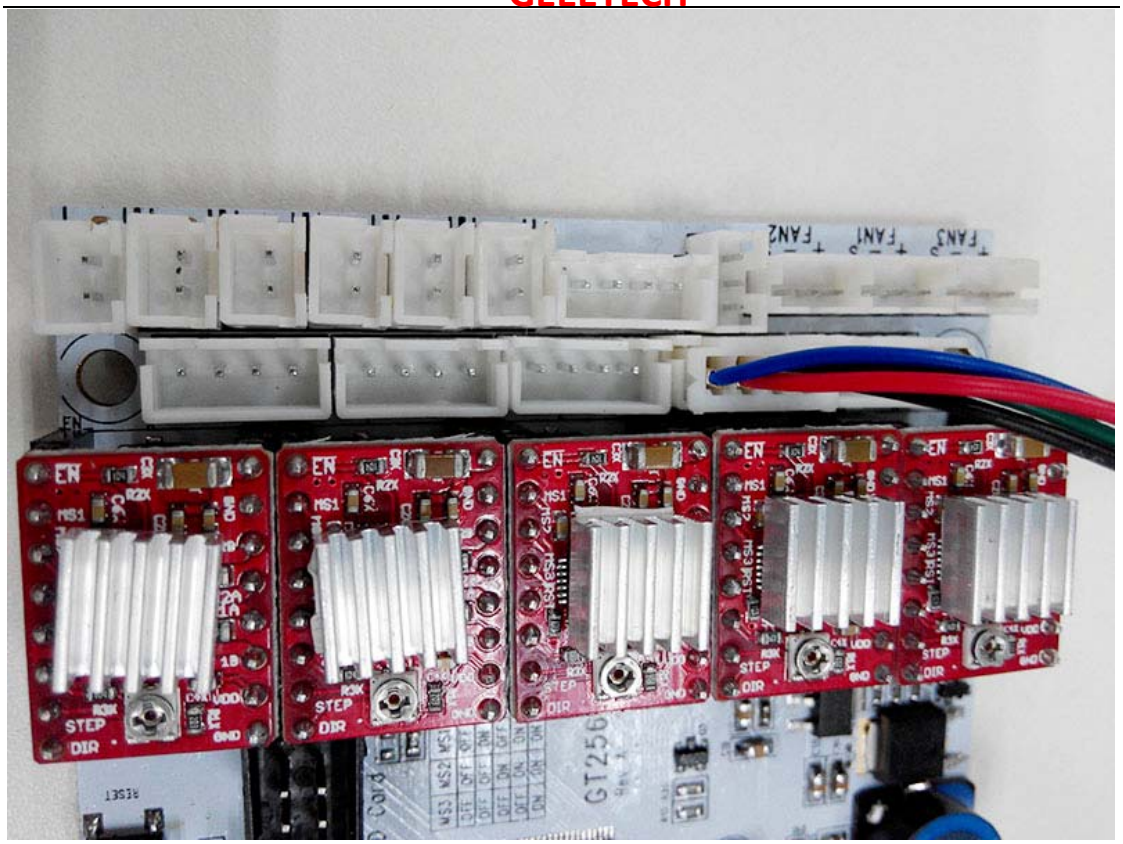


4) Connect Extruder motors

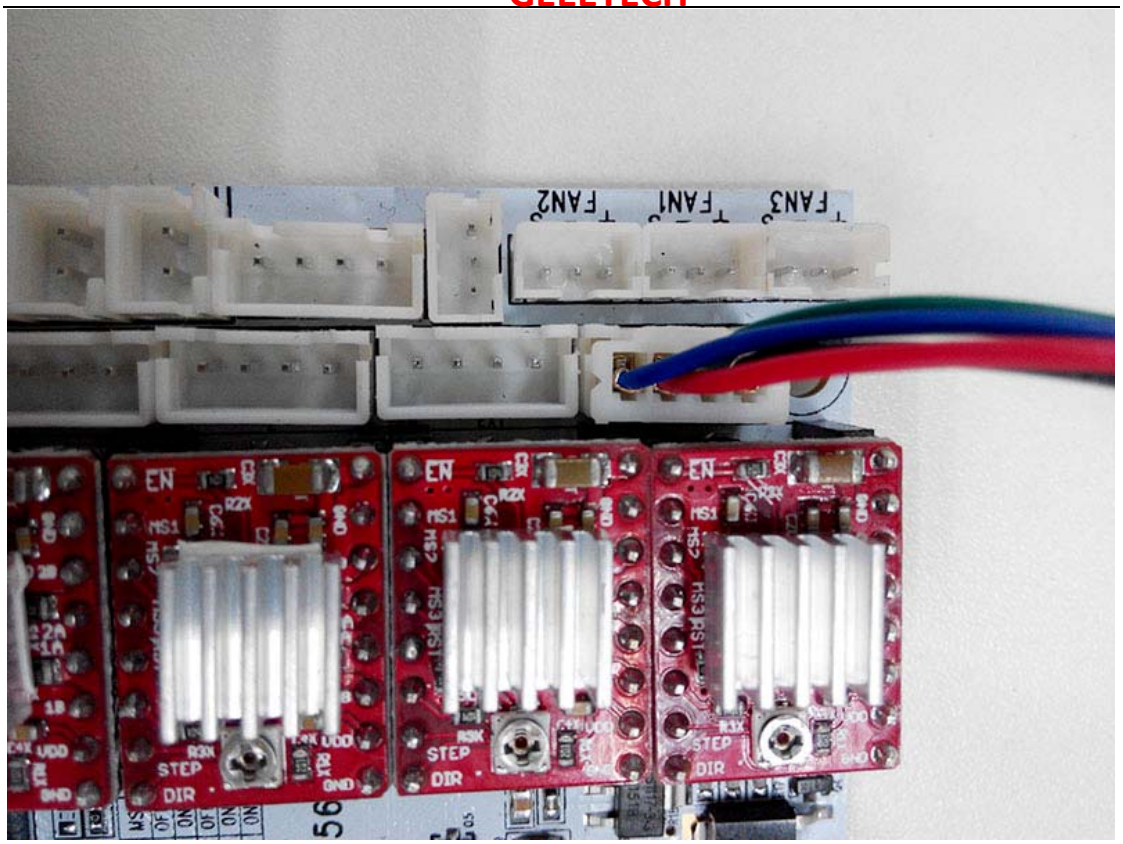
As you can see 0 and 1 from the extruder holder [NO.P4], you need to straighten out the two wires and do not mix them up.



Connect extruder 0.

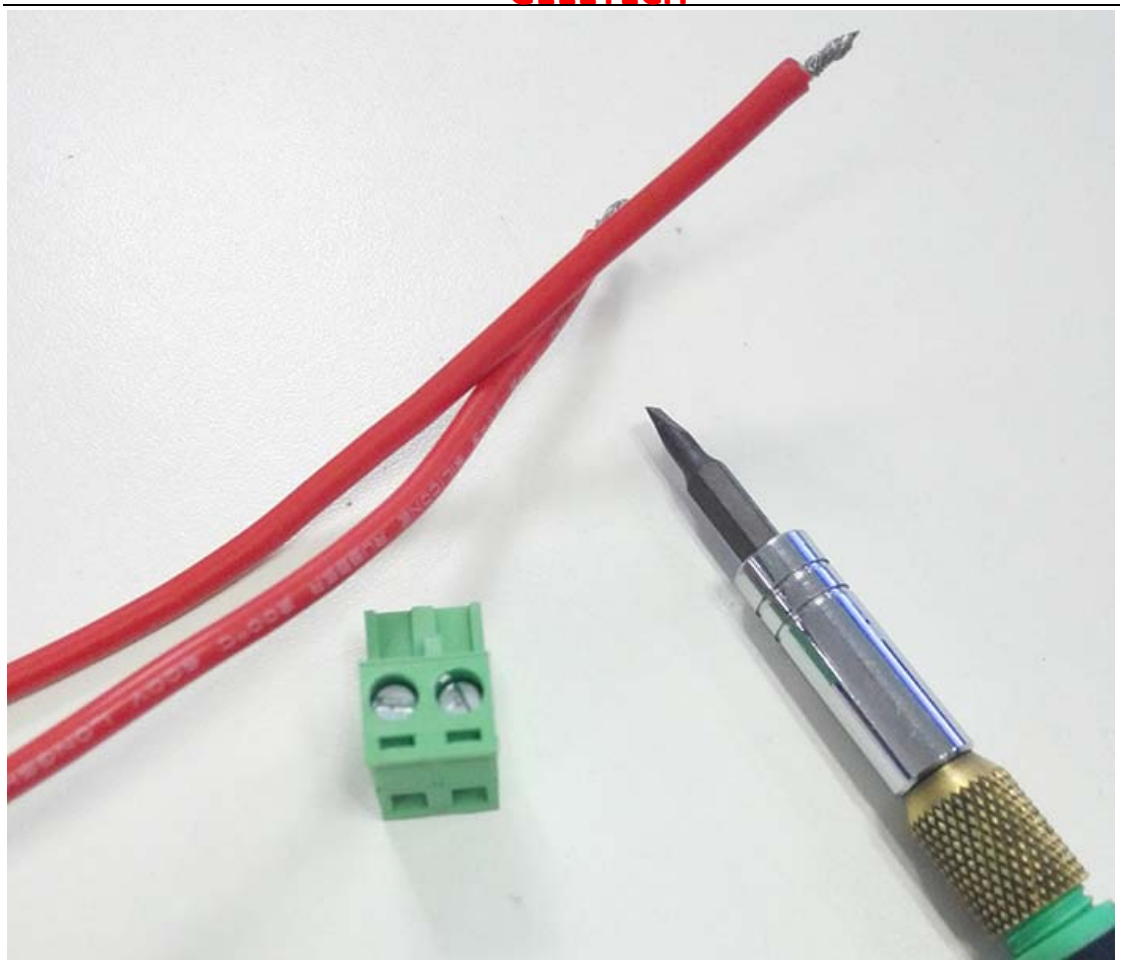


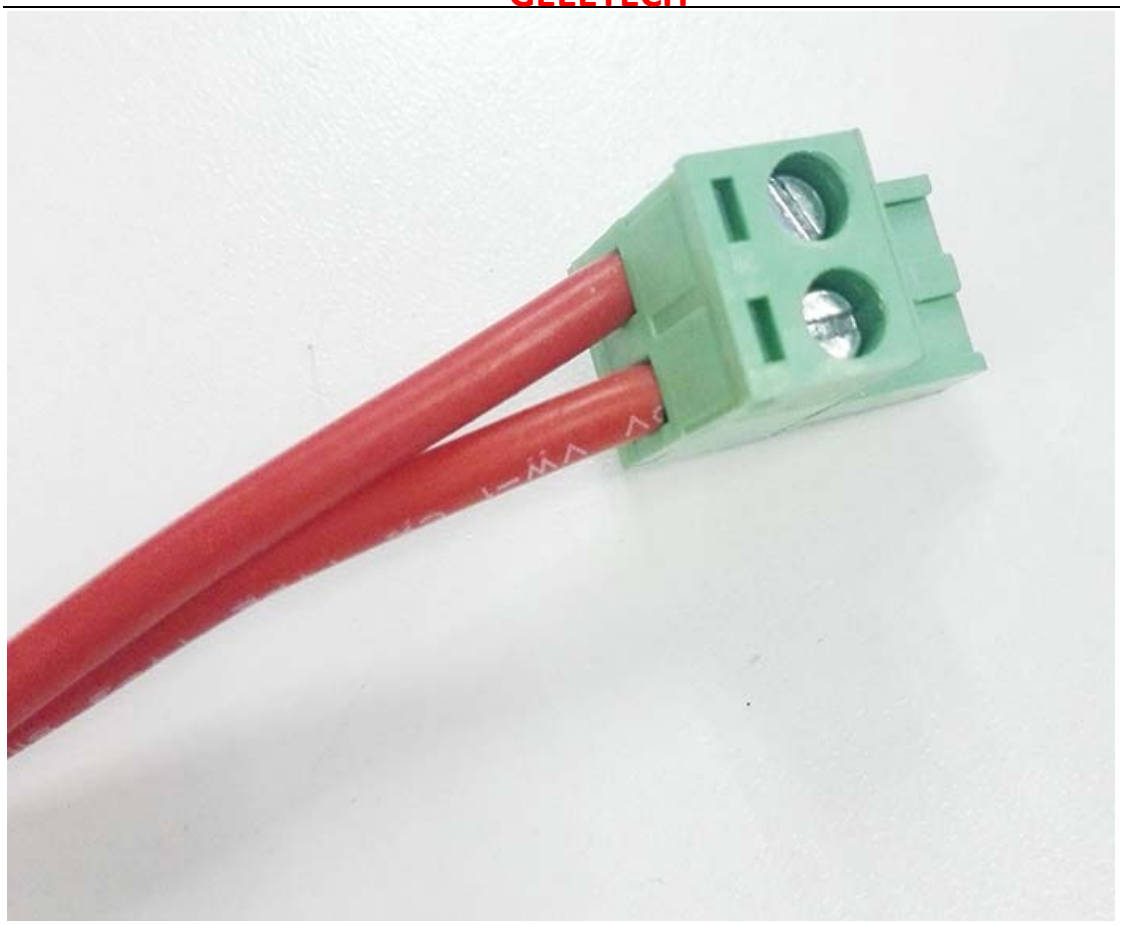
Connect extruder 1.



Step4. Connect heating wires.

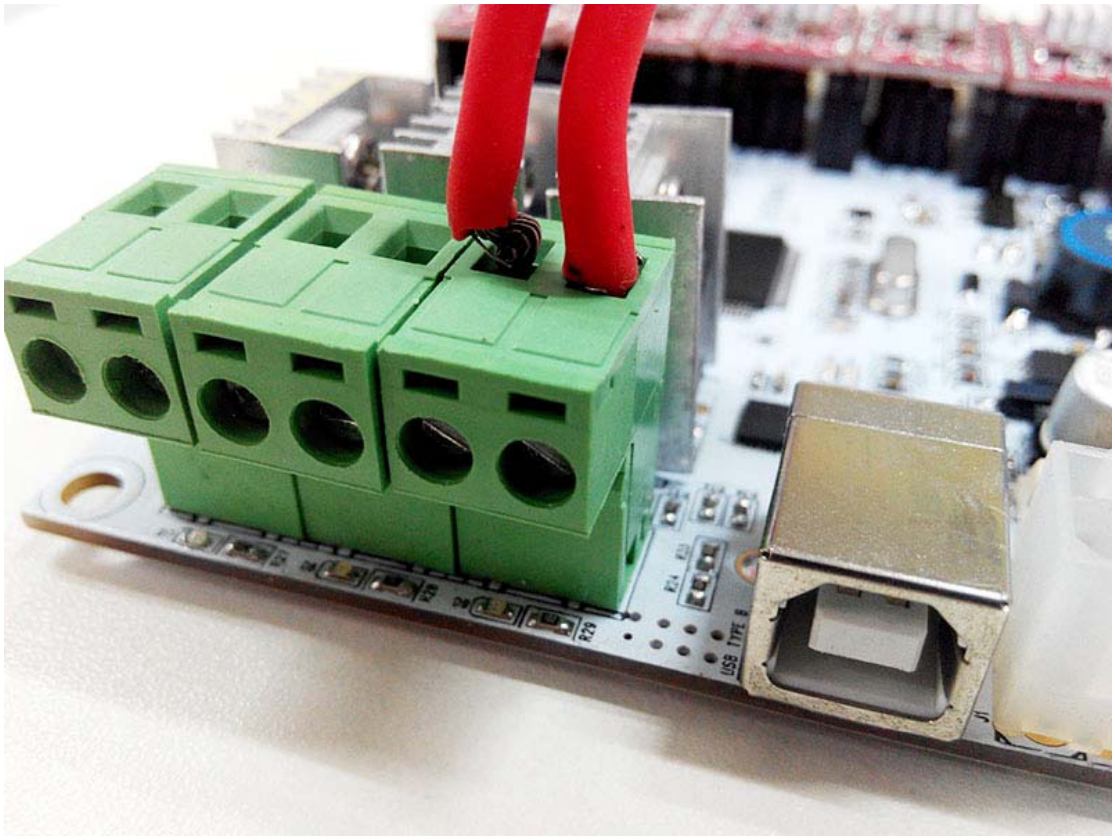
Loosed the screws in the green terminal and put the red wires into the slot and screw it up.



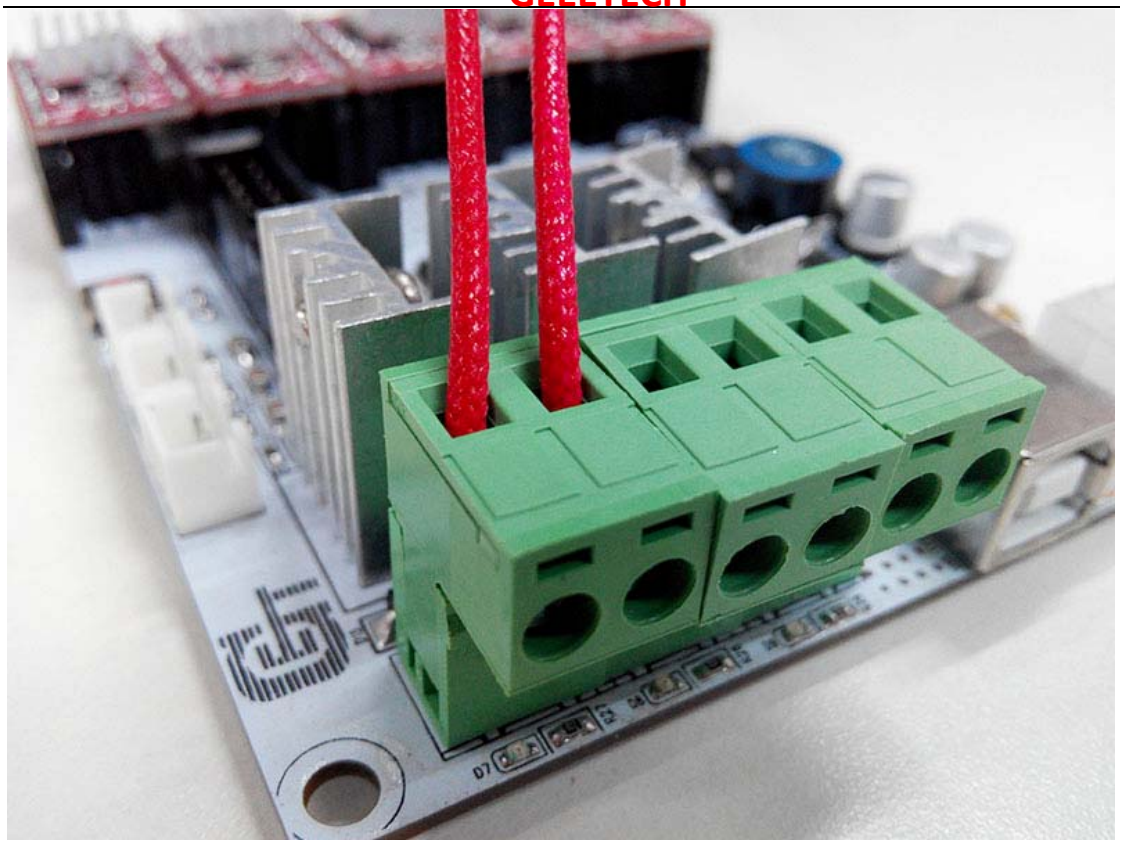


* There is no “+” and “-“for heating wires

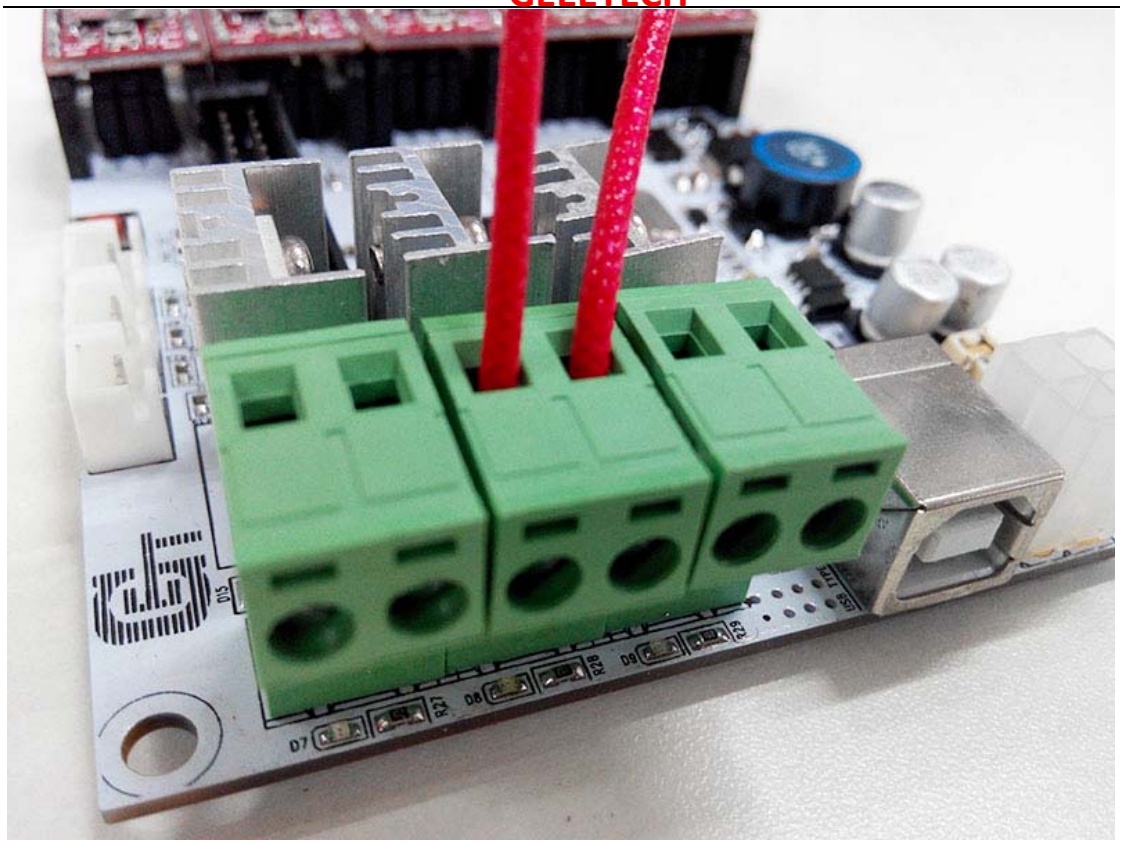
1） Connect heating wires for heatbed.



2） Connect heating wires for extruder 0.

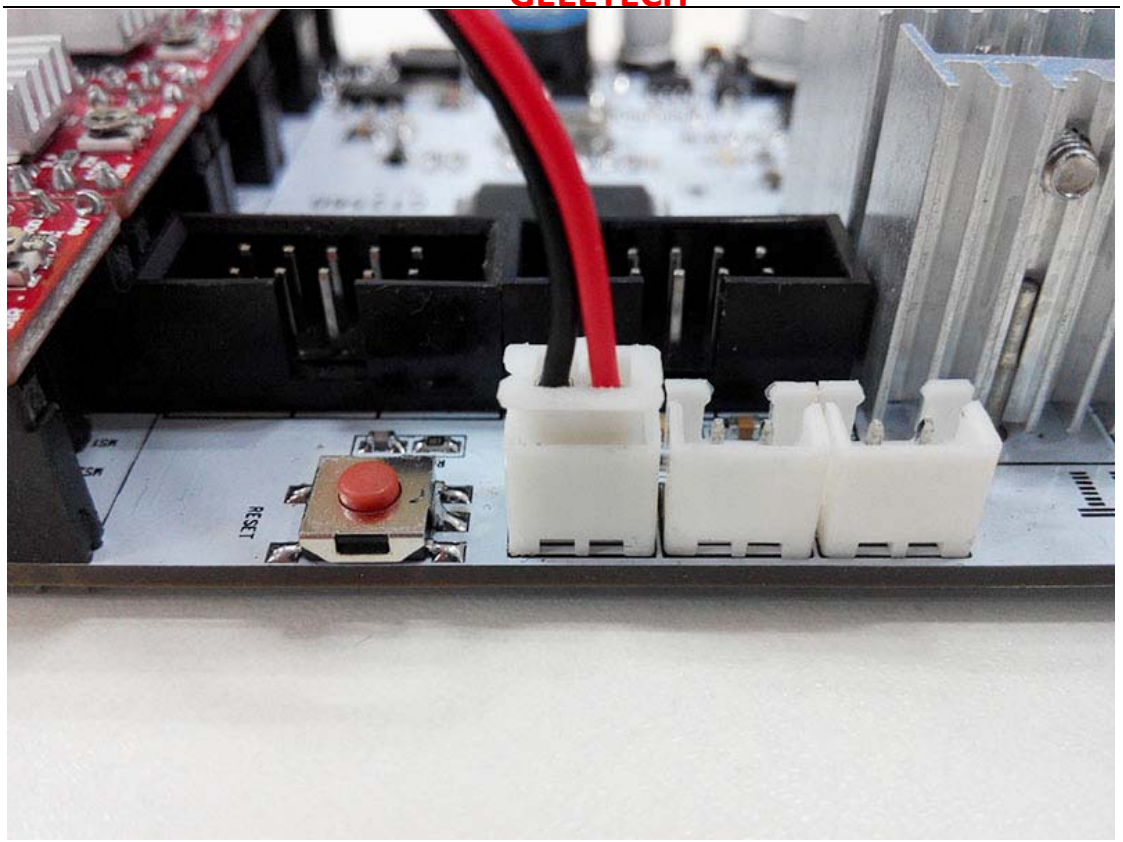


3） Connect heating wires for extruder 1.

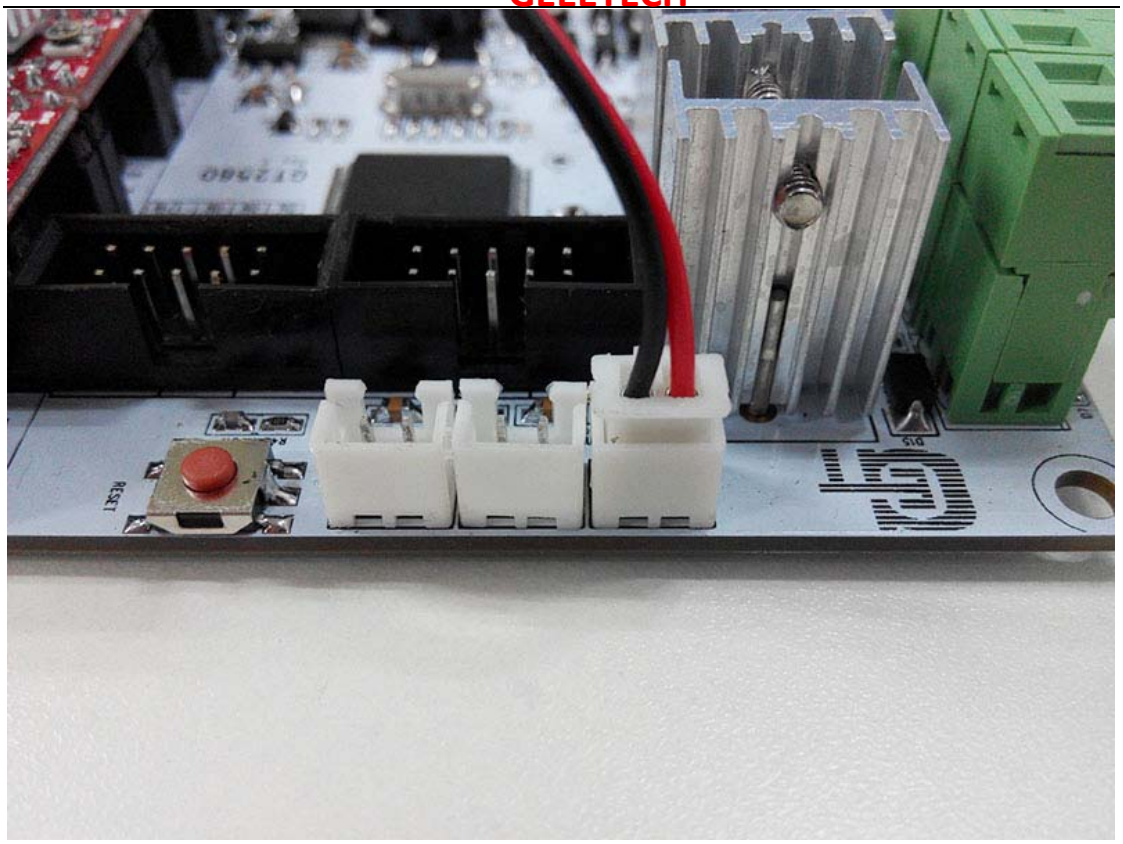


Step4. Connect wires for thermistor.

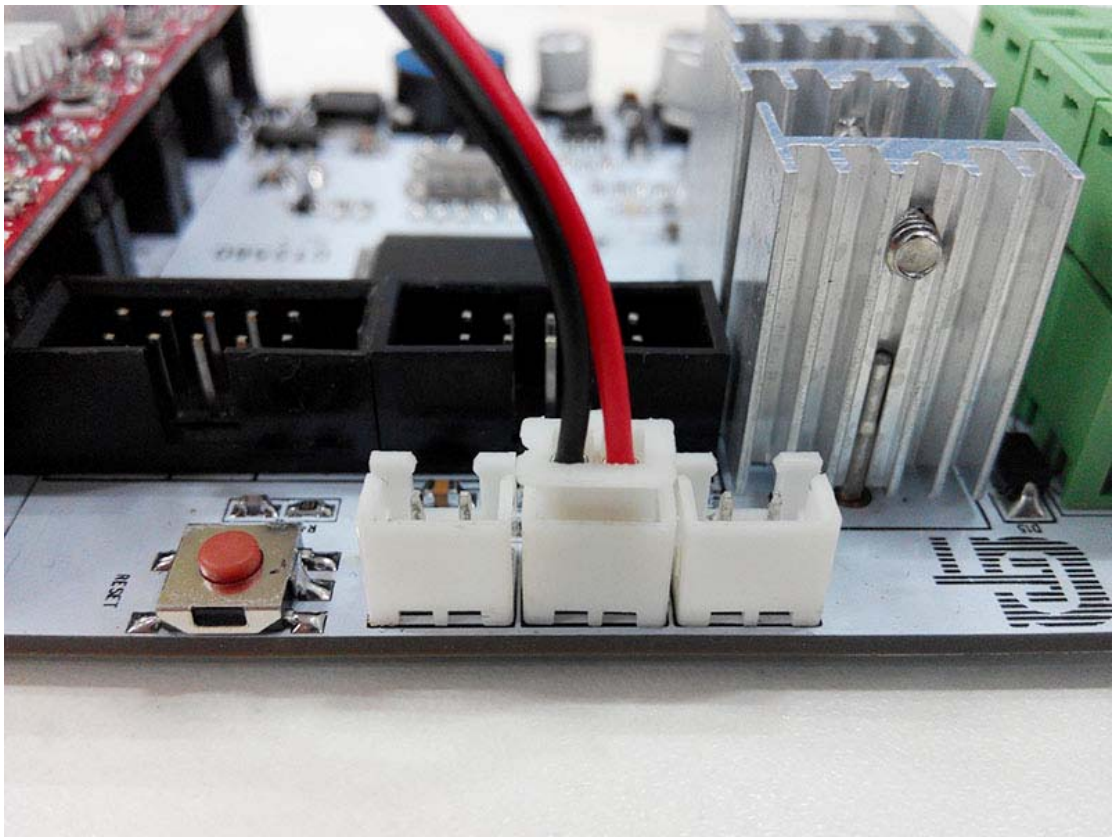
1) Connect wires for thermistor of heatbed.



2) Connect wires for thermistor of extruder 0.



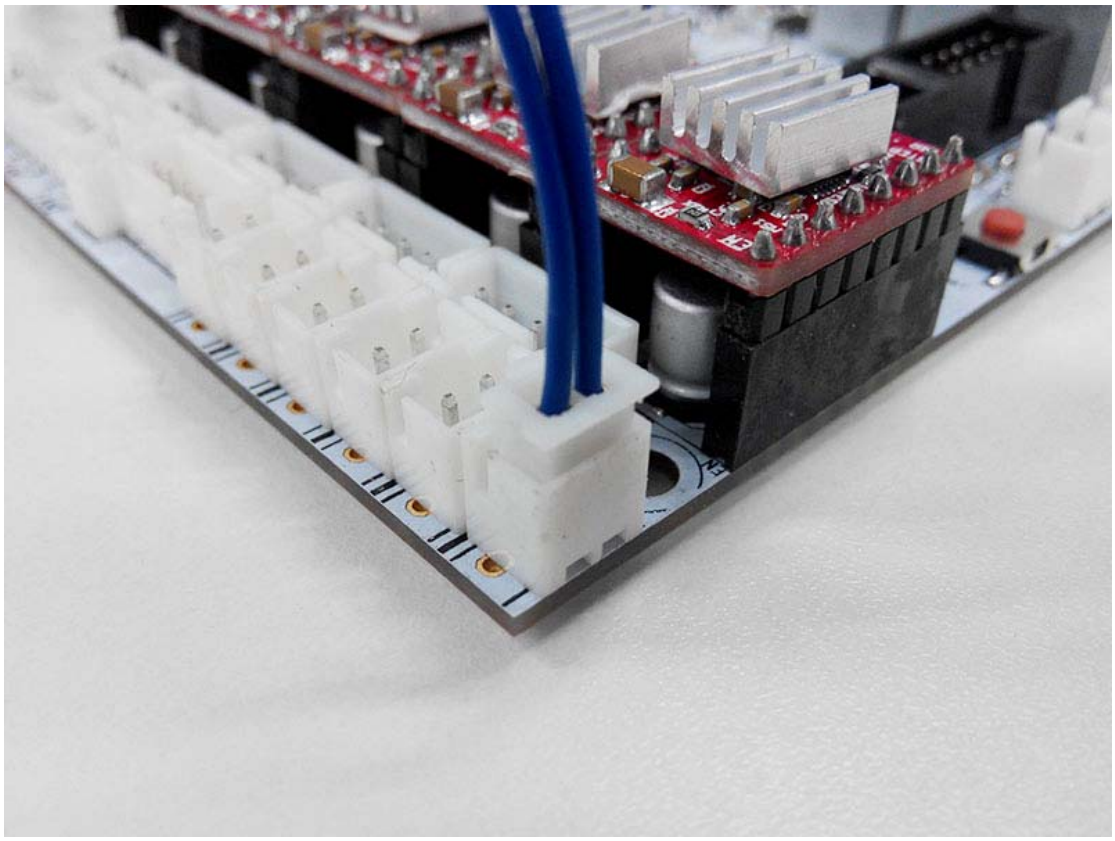
3) Connect wires for thermistor of extruder 1.



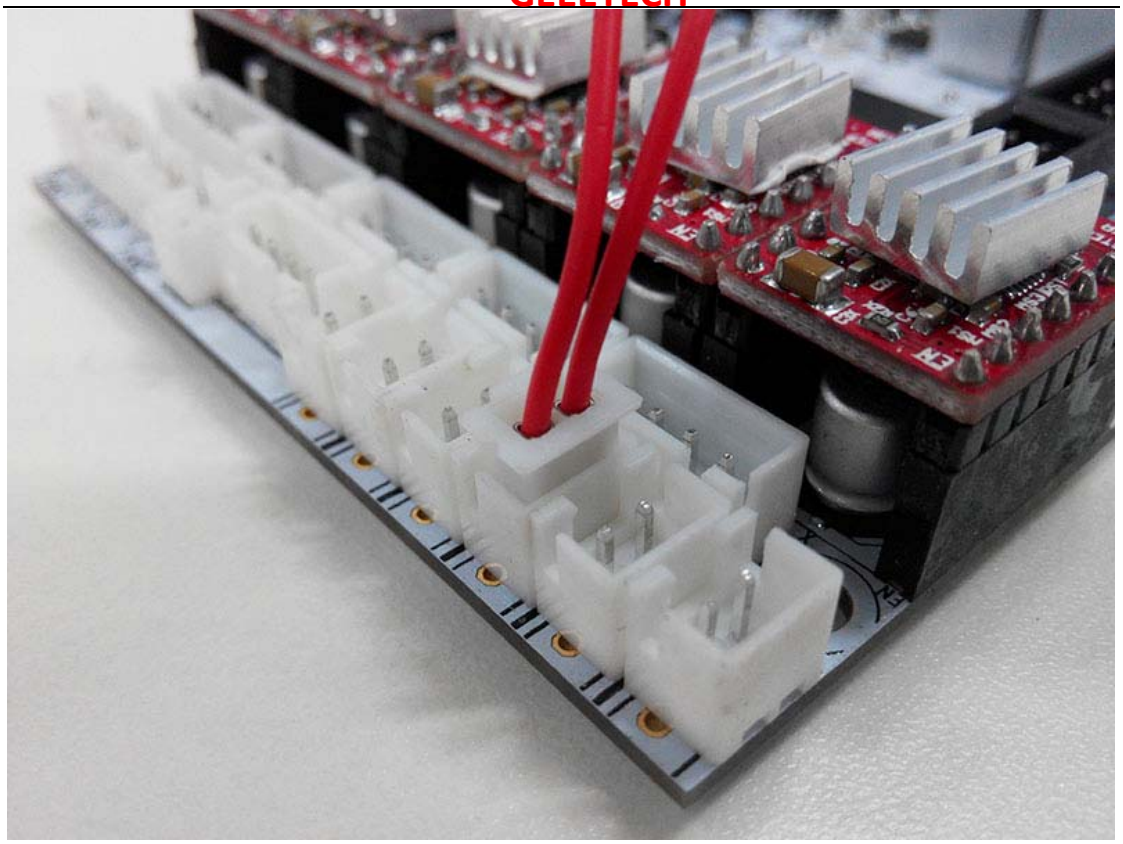
Step5. Connect wires for endstop.

* There is no “+” and “-“for endstop

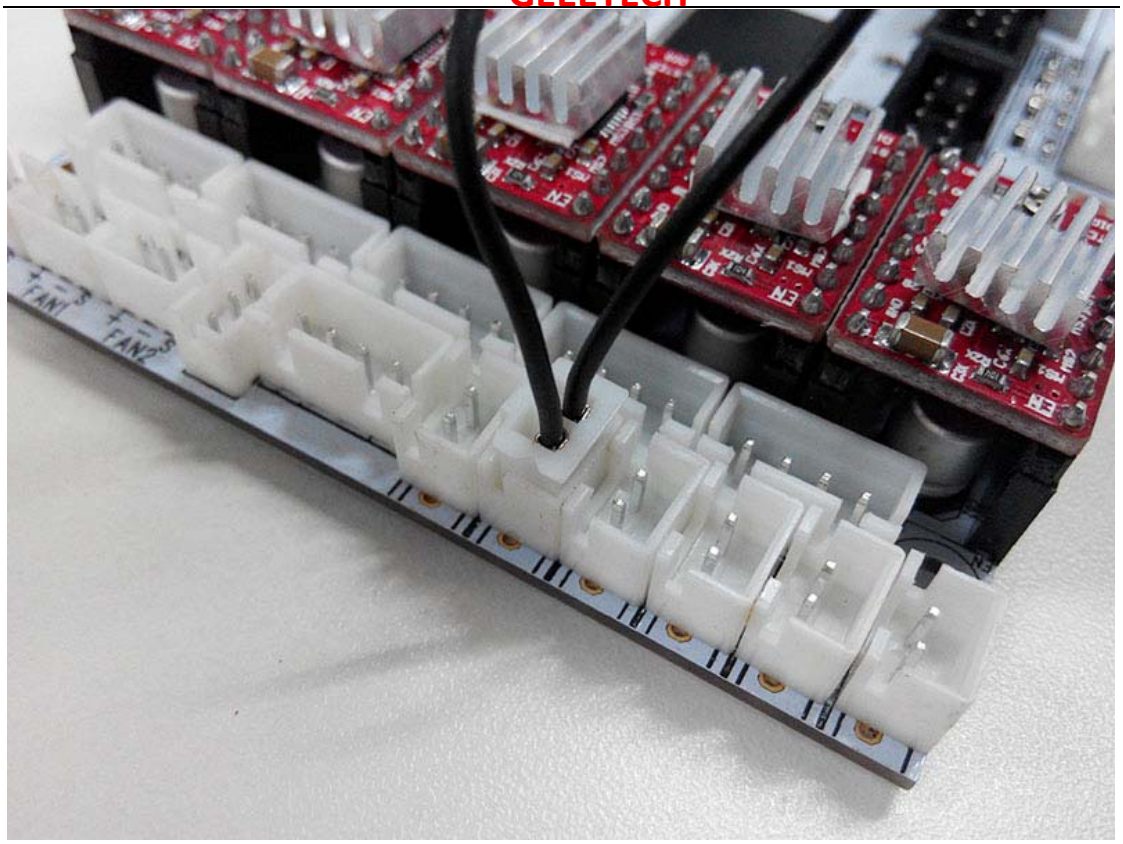
1) Connect wires for endstop of X-axis at X-Min.



2) Connect wires for endstop of Y-axis at Y-Min.



3) Connect wires for endstop of Z-axis at Z-Min.



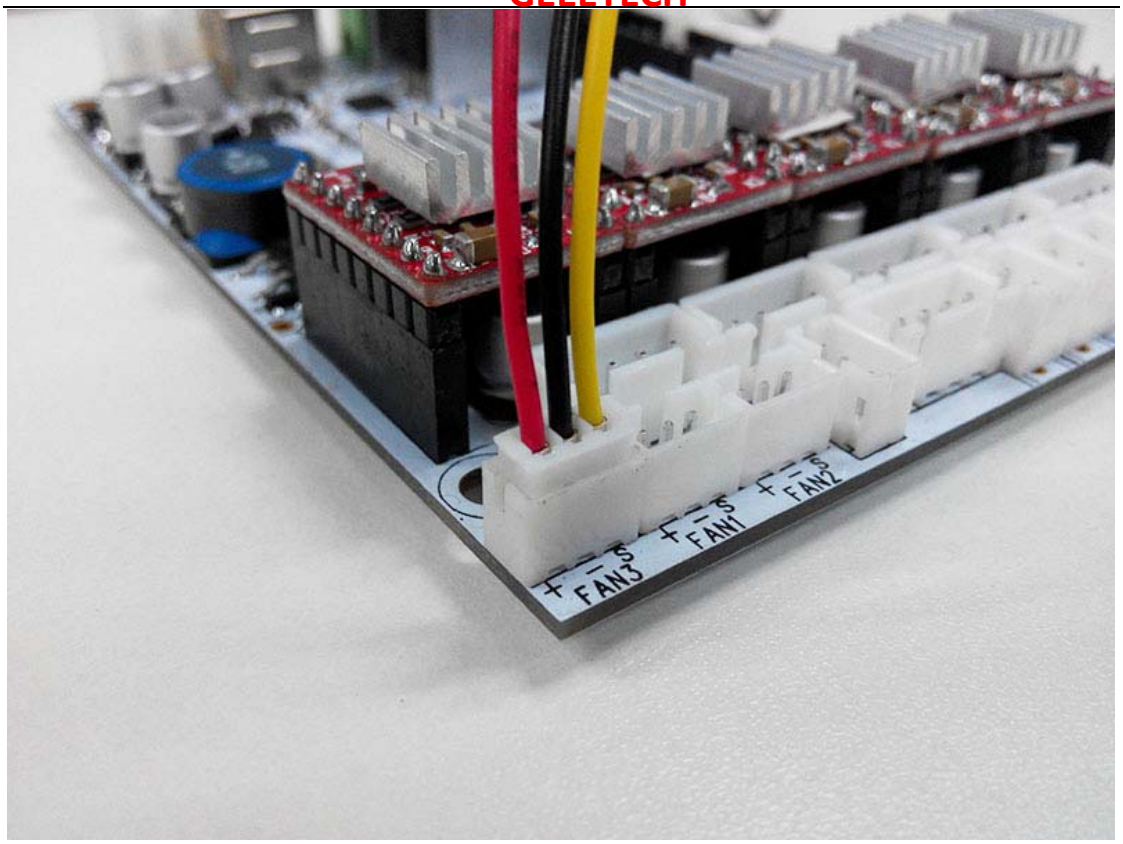
Step6. Connect wires for Fan.

1) Connect fan for control board at FAN3.

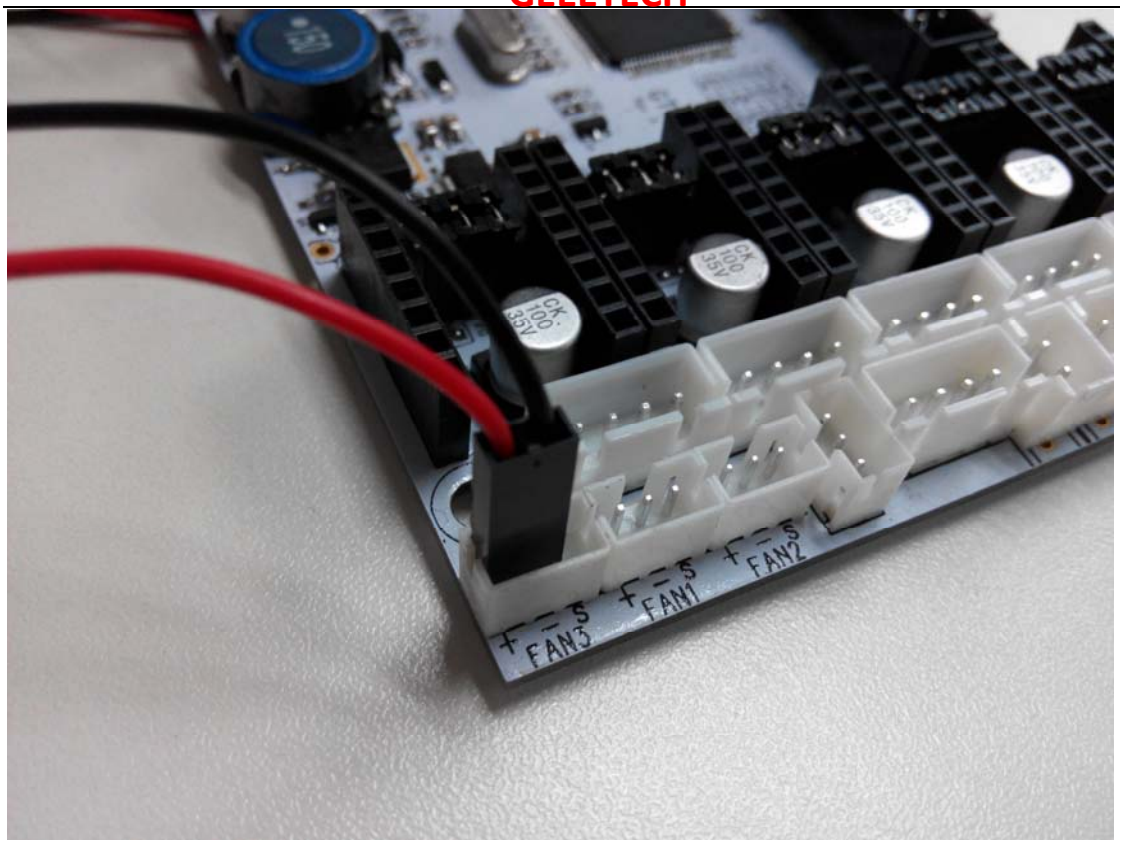
Note the “+” and “-“for fan

Red: +

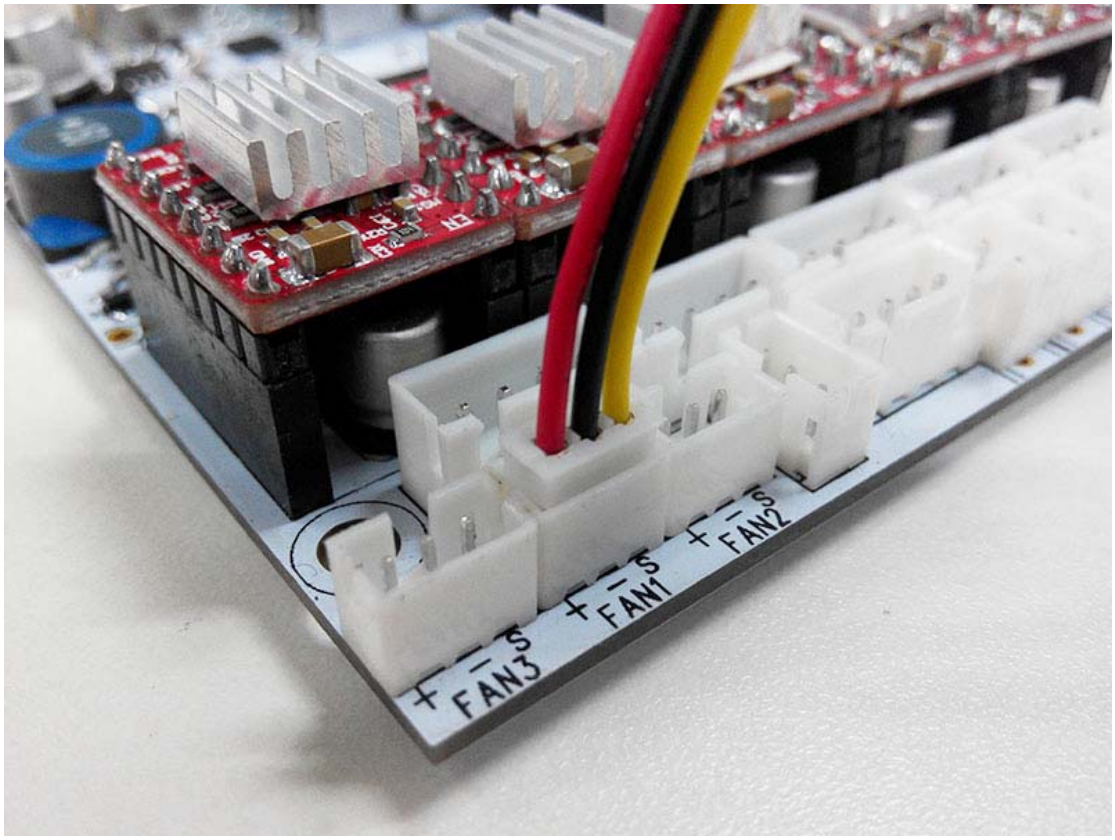
Black: -



If you use the 2-pin extension wire for the fan, just plug them on the + and - of the sl ot.

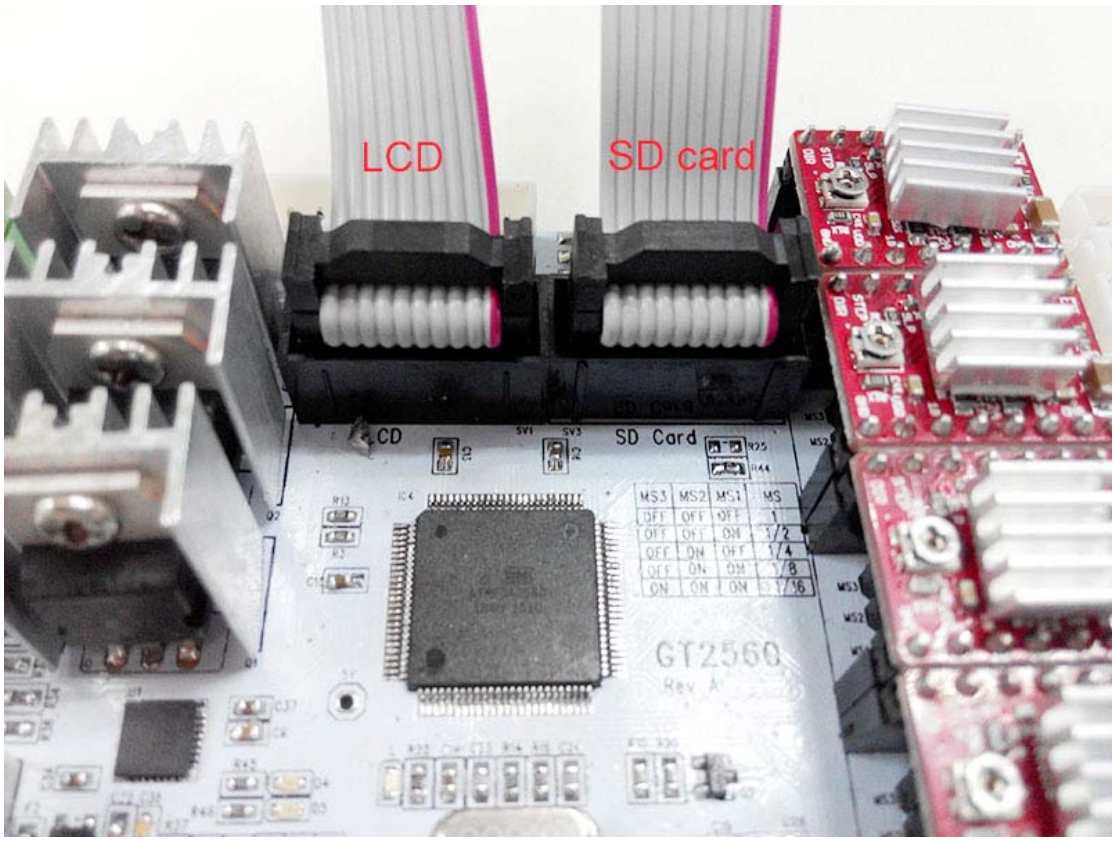


2) Connect fan for extruder at FAN1.

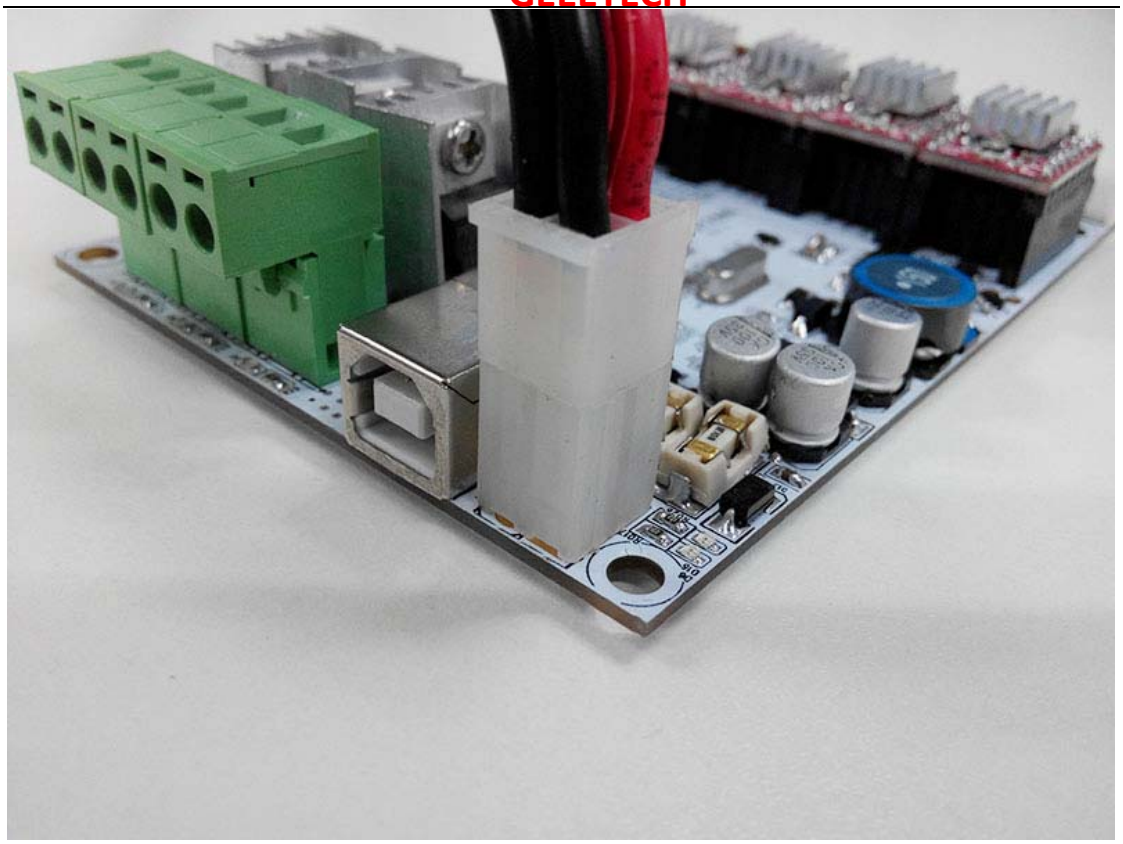


Step7. Connect wires for LCD panel.

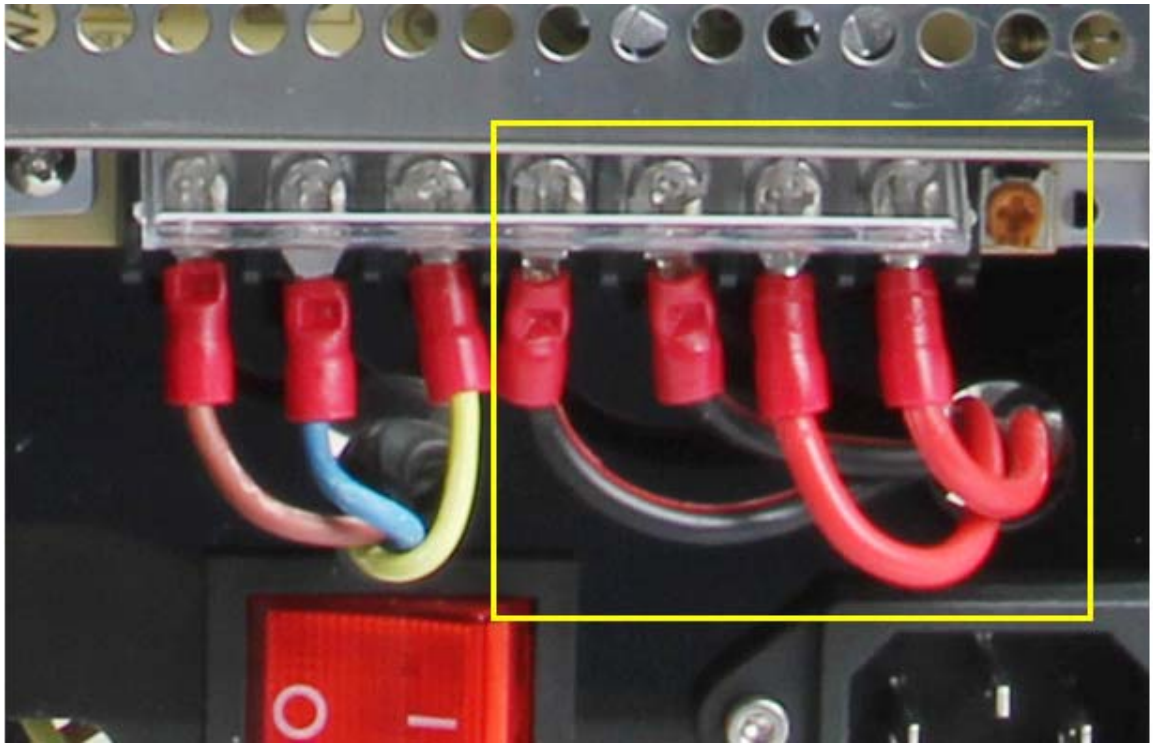
There are two cables, one is for LCD encoder, the other is for SD card, do not connect them reversed.



Step8. Connect wires for power input.



Plug the other end into the PSU.



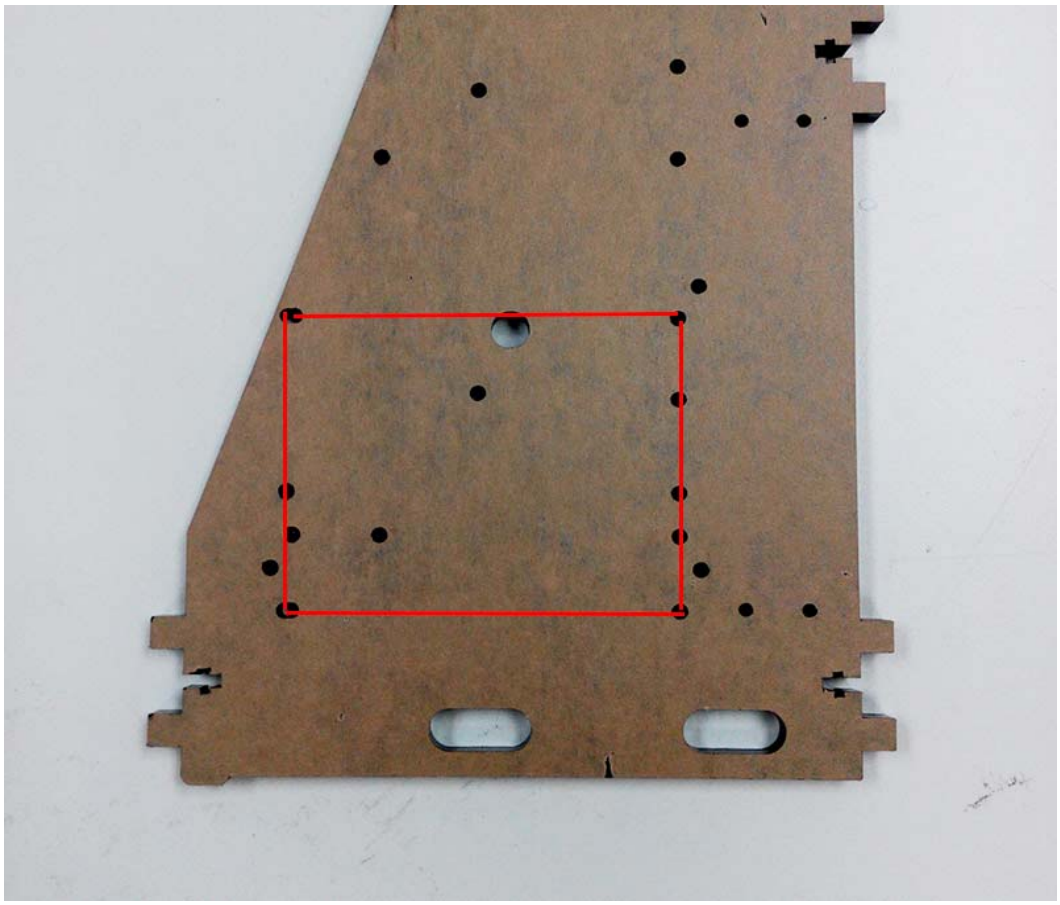
That is all for the wiring of GT2560.

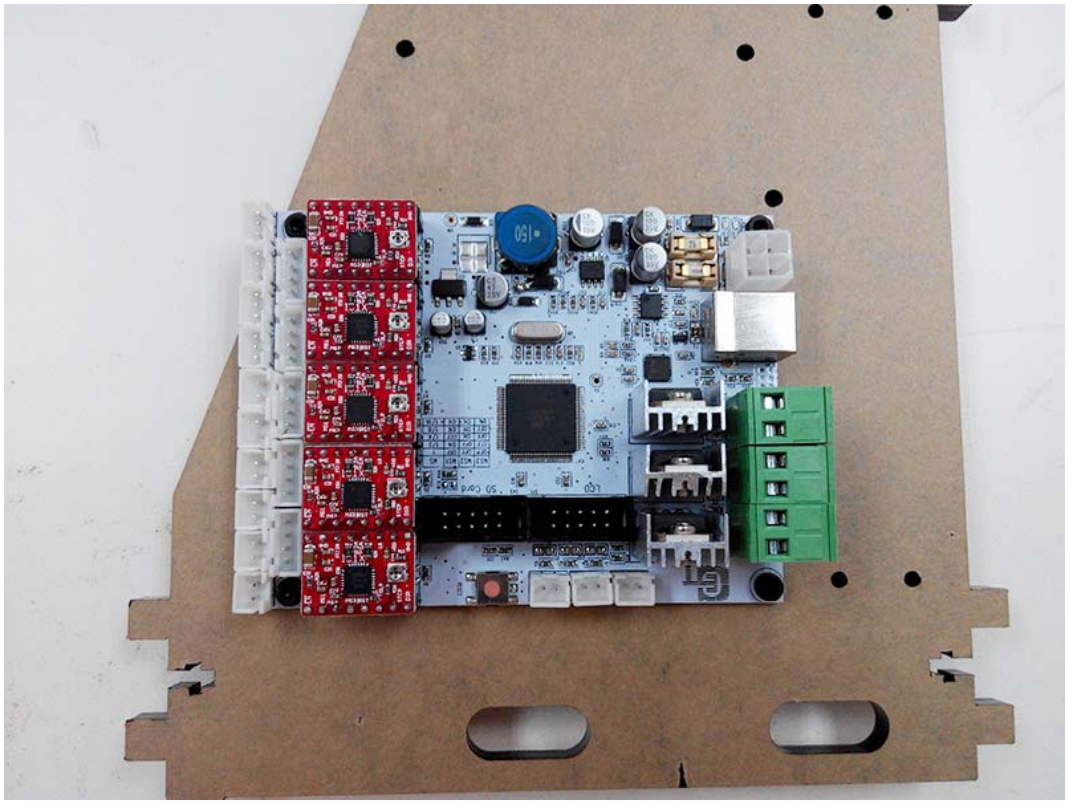
14 Mount the board

Required parts	Required number	Part ID	pic
Control board	1	NO.77	
M3 x 16 screw	4	NO.26	
M3 nut	4	NO.11	

Mount the board on the left side panel of the printer. You can see the locating hole as shown in the following picture. Screw it up with M3 x 16 screws and nuts.

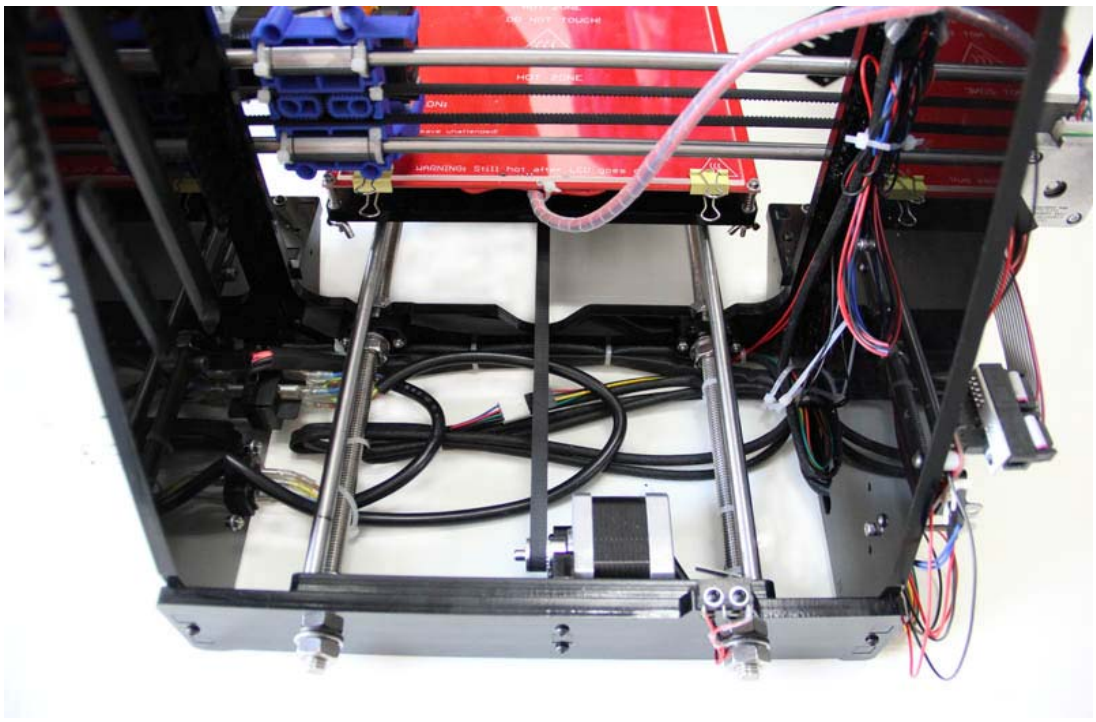
Please pay attention to the direction of the board, the end with Capacitor should be mounted towards the fan for better heat dissipation.



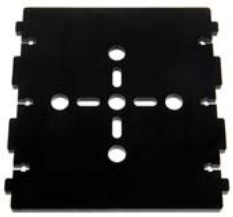


15 Tidy out the wires.

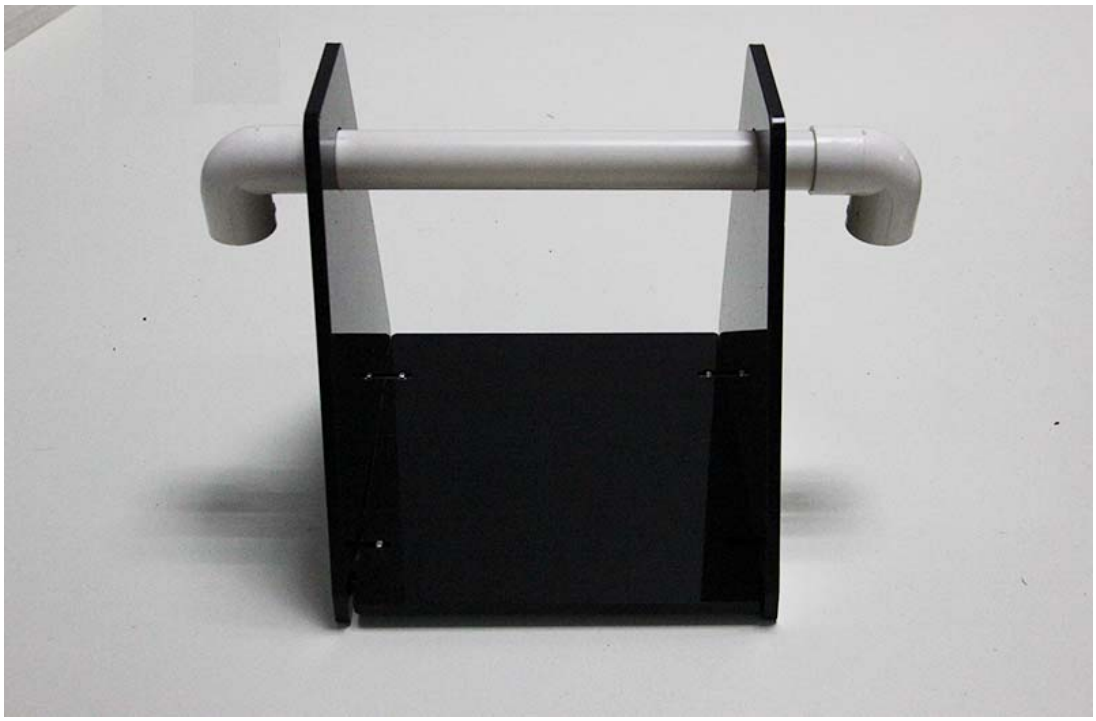
Use the wire coil to tie put those wires together. There are holes on the acrylic plates for the wires, you can arrange them as you like.



16 Mount the filament spool.

Required parts	Required number	Part ID	pic
Filament side panel	3	NO.A17,A18	

M3 x 16 screw	4	NO.26	
M3 square nut	4	NO.16	
PVC tube	2	NO.60,61	



The whole printer assembly work is already done.

Before even attempting the first print it is vital that the printer is correctly calibrated. Skipping or rushing this step will result in frustration and failed prints later, so it is important to take the time to make sure the machine is correctly set up.

Each machine may have its own calibration procedure and this manual will not attempt to cover all the variations. Instead here is a list of key points that should be addressed.

- Frame is stable and correctly aligned.
- Belts are taut.
- Bed is level in relation to the path of the extruder.
- Filament rolls freely from the spool, without causing too much tension on the extruder.
- Current for stepper motors is set to the correct level.

Firmware settings are correct including: axis movement speeds and acceleration; temperature control; end-stops; motor directions.

Extruder is calibrated in the firmware with the correct steps per mm of filament.

The point regarding the extruder step rate is vital. Slic3r expects that the machine will accurately produce a set amount of filament when told to do so. Too much will result in blobs and other imperfections in the print. Too little will result in gaps and poor inter-layer adhesion.For how to set up the printer, please visit:

To know how to set up, please refer to wiki:

http://www.geeetech.com/wiki/index.php/Acrylic_Prusa_Mendel_I3

If you have any ideas on improving the building instruction, please send your suggestions and pictures to rita.xiang@geeetech.cn. Thanks!