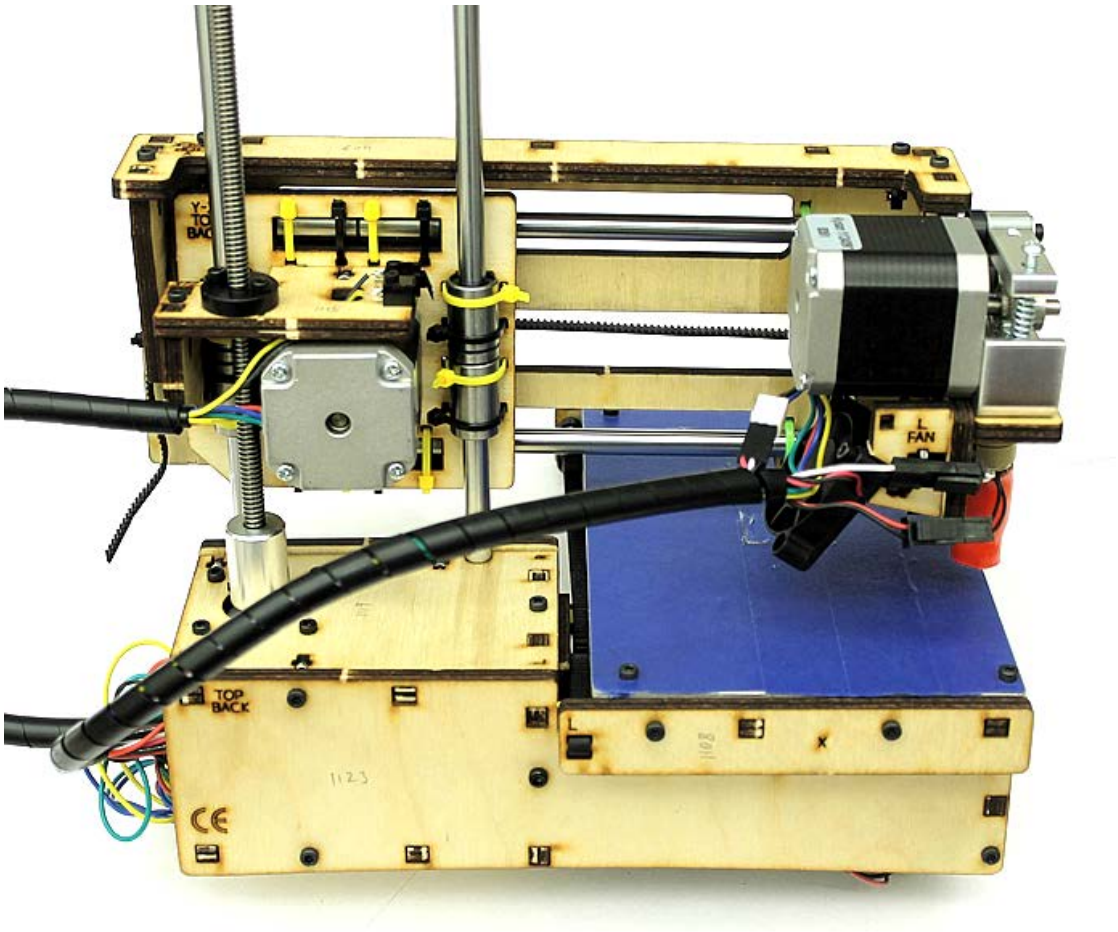
Assembly Guide for Printrbot - Simple Maker's Edition 1405

Last update: March 2016



Please Note: be careful on the steps that are **<u>underlined</u>**

Contents

Tools Needed: 3
First step: Check components and parts 4
Motors 5
Base 7
Module 1 – X and Z motor base 7
Module 2 – Print bed base installation 10
Module 3 – Connect together Module 1 and 2 12
Module 4 – attaching the print bed 15
Arm 20
Module 1 – Y Arm 20
Module 2 – Y-Z Assembly 24
Module 3 – Extruder apparatus 30
Module 4 – Printer arm assembly 35
Assemble the arm to the base 38
Cable connections 40
Calibration 48

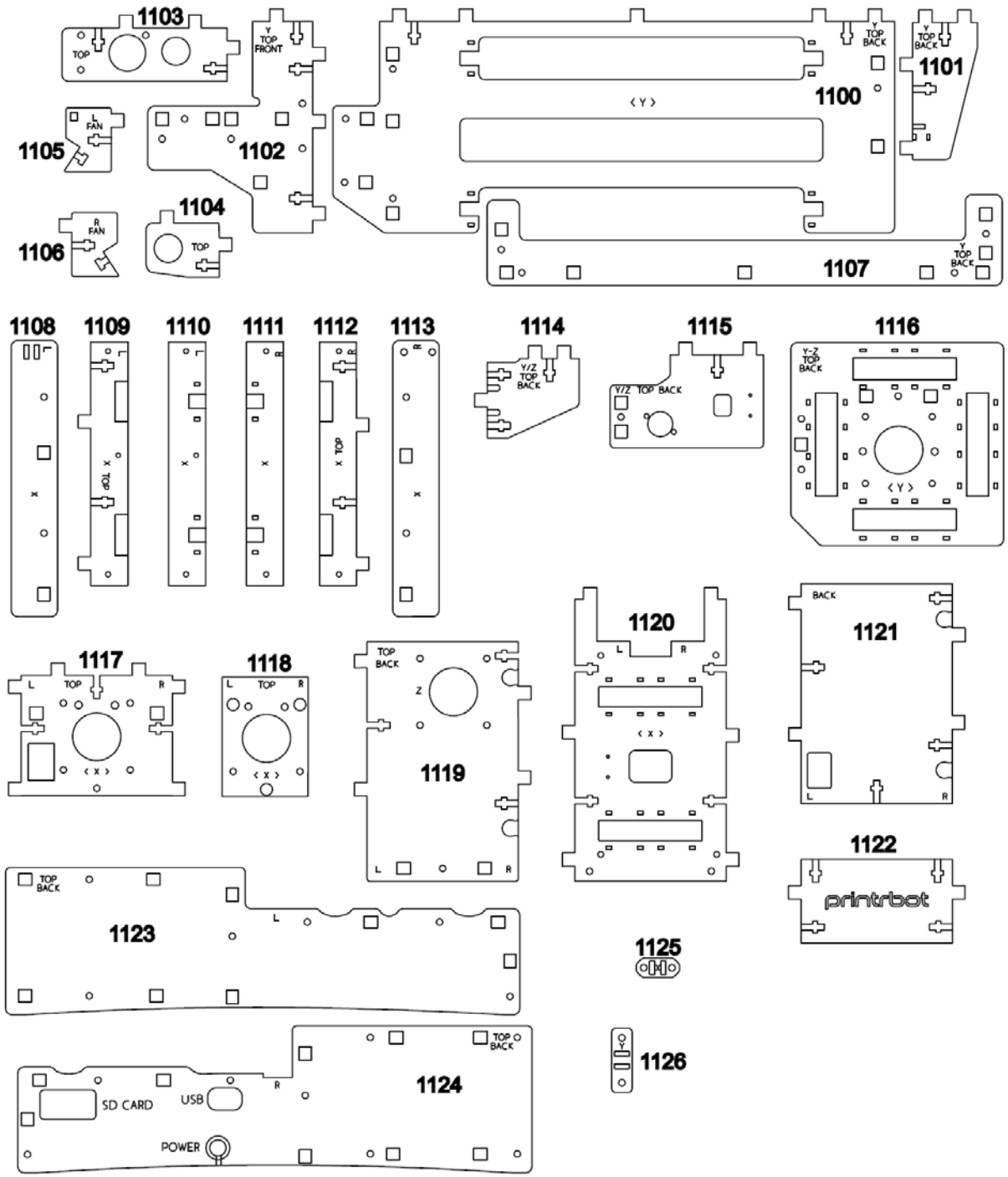
Required Tools:

1. Hex wrench set
2. Zip-tie
3. Hobby knife
4. Precision pliers set
5. Permanent marker
6. Philips head screw driver

Hex wrench set	Precision plier set	Hobby knife
Zip-tie	Permanent marker	Philips head screwdriver

First step: Check components and parts

- Double check the Bill of Materials to make sure you have everything required
- Separate the wood pieces using a hobby knife
- **Label each wood piece with their part numbers using a marker or pencil**



Motors

Components list

- 4 x Kysan stepper motor
- 1 x 5 mm to 8mm coupler
- 2 x GT2 pulley
- 1 x Direct drive gear
- 4 x M3 set screw

	Stepper motor Quantity: 4		Coupler Quantity: 1		GT2 pulley Quantity: 2
	Direct drive gear Quantity: 1		M3 set screw Quantity: 4		

1.) Collect all 4 motors. (x, y, z, and extruder)
   a. All 4 motors are identical so you can select whichever one you want.
      i. The assembled motors will look similar to the motors below

Figure 1. The assembled motors

1.) Assemble the Extruder motor
   a. Attach direct drive gear onto motor shaft, making sure there is a 5-mm spacing at the top of the drive gear.
   b. Lock together the parts with a single M3 set screw, using threadlocker on the screw. (The threadlocker ensures that the screw stays in place. Note that it is hard to remove a screw once the threadlocker has dried, so double check that you have the parts assembled correctly.)
   c. Make sure that the set screw is placed towards the flat side of the motor shaft.
   d. Mark the motor with an “E” using a marker or label with tape on the end of the wire/connector.

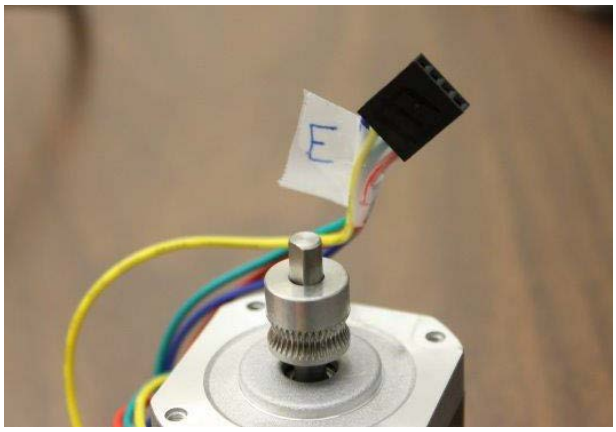


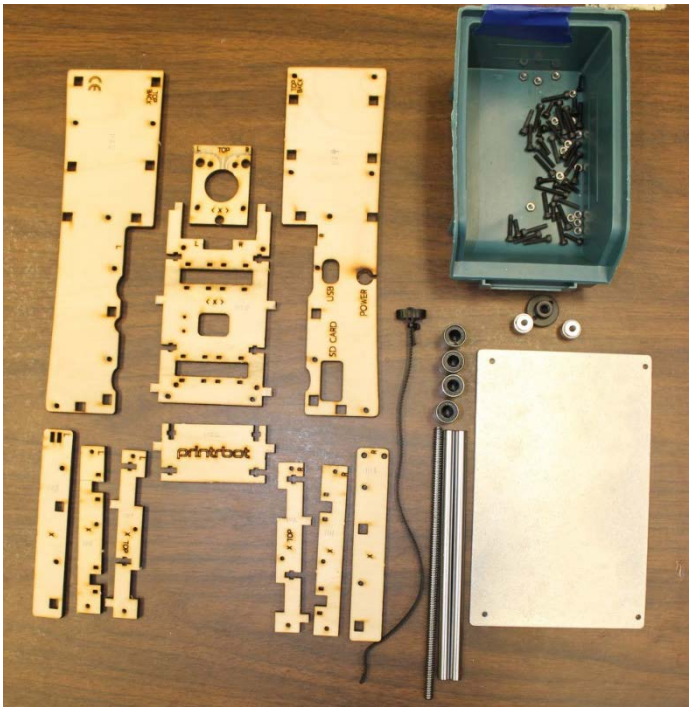
Figure 2. The label tag on the connecter end

2.) Assemble the X motor
   a. Attach GT2 pulley to motor shaft, making sure there is a 2 mm spacing at the top of the pulley.
   b. Make sure the set screw hole is on the **near side of the motor.**
   c. Lock together the parts with a single M3 set screw and using threadlocker on the screw.
   d. Mark the motor with an "X" with a marker or label with tape at the connector end.

3.) Assemble the Y motor
   a. Attach GT2 pulley to motor shaft, making sure there is a 2 mm spacing at the top of the pulley.
   b. Make sure the set screw hole is on the **far side of the motor.**
   c. Lock together the parts with a single M3 set screw and using threadlocker on the screw.
   d. Mark the motor with a "Y" by marker or label with tape at the connector end.

4.) Assemble the Z motor
   a. Attach the Z axis coupler to the large motor shaft, making sure there is a 3 mm spacing at the **BOTTOM** of the coupler.
   b. Lock together the parts with a single M3 set screw and using threadlocker on the screw.
   c. Mark the motor with a "Z" by marker or label with tape at the connector end.

Base



Module 1 – X and Z motor base

Components list

- 1 x Part 1117
- 1 x Part 1118
- 1 x Part 1119
- 2 x 624 Bearing
- 6 x #6 Washer
- 6 x M3 10mm screw
- 2 x M3 12mm screw
- 3 x M3 16mm screw
- 2 x M3 hex nut

1.) Attach the x-axis motor to part 1117 using two M3 10 mm screws. Screw on the top corner holes. **Note the direction of the wiring: The motor wire should come out to the left (look for the L on part 1117)**

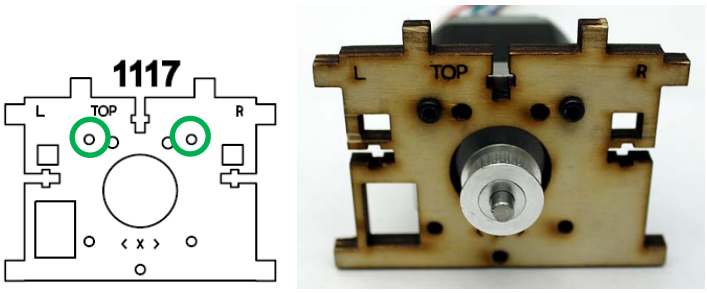


Figure 3. Screw positions to assemble 1117 and x-axis motor

2.) Attach part 1118 to 1117 with two M3 16 mm screws. Screws go on the bottom corner holes.

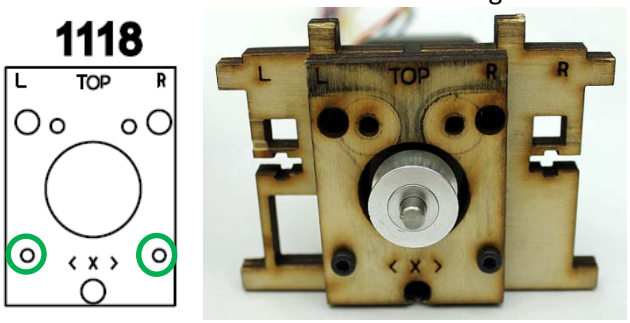


Figure 4. Screw positions to assemble 1117 and 1118

3.) Assemble 1117 to 1119 with one M3 16 mm screw and a hex nut.

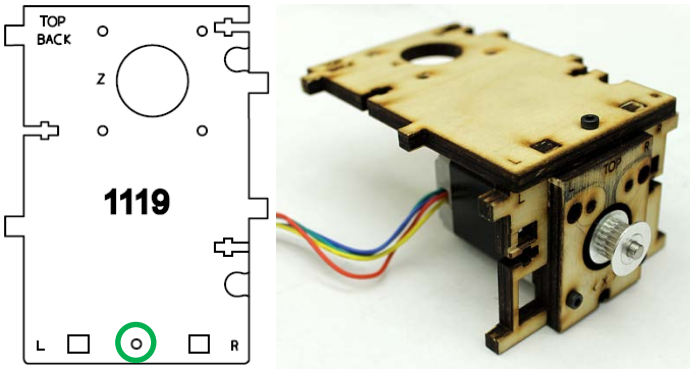


Figure 5. Screw positions to assemble part 1117 and 1119

4.) For each bearing, add two washers below and one on top. Use M3 12mm screws through the bearings and washer into the holes. Do this twice.

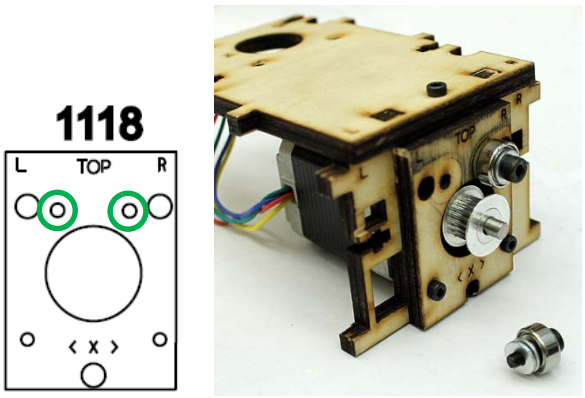


Figure 6. Screw positions to assemble bearings to part 1118

5.) Screw the z-axis motor into part 1119 with four M3 10 mm screws.
   a. **<u>Pay attention: The wire exits to the right as seen below</u>**.

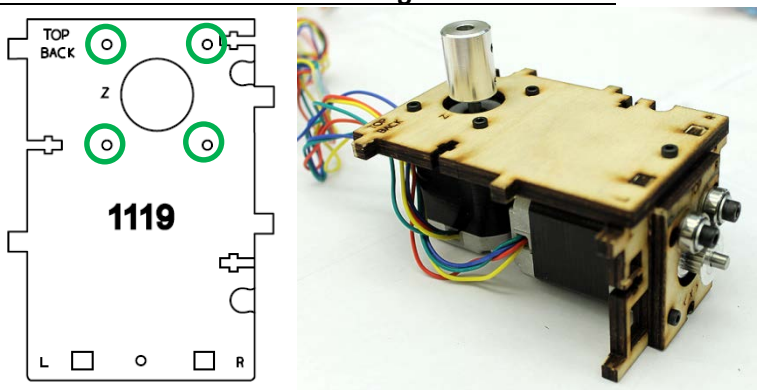


Figure 7. Screw positions to assemble the motor and part 1119

Module 2 – Print bed base installation

Components list

- 1 x Part 1120
- 4 x LM8UU Bearings
- 8 x zipties
- 1 x X-axis end stop (limit switch **with shorter wires**: the one with longer wires is for the Y-axis)
- 2 x M2 10mm screws

LM8UU Bearing	*Limit switch*

1.) Zip-tie the bearings to the top of part 1120. Pay attention to the notches of the zip tie. Compare with the picture below to make sure it is correct. Cut the hanging bits of the zip ties.
   - Warning: Be careful with which side you place the bearing. **Bearing should be on the top face.** (The side with the engraving on it)

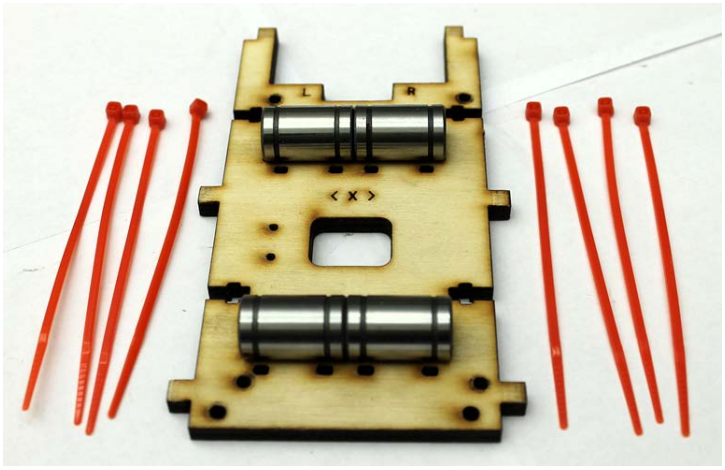


Figure 8. Linear bearings placed on the print bed base

2.) Attach the limit switch to part 1120 with M3 10 mm screws.
   a. Make sure to use the limit switch that has the shorter cable. (The limit switch with the longer cable is for Y axis)
   b. Make sure not to over tighten.
   c. Look carefully at the orientation of the end stop. It should point toward the edge of the wood piece as seen in picture.
   d. Label limit switch connector end as “x-stop”.

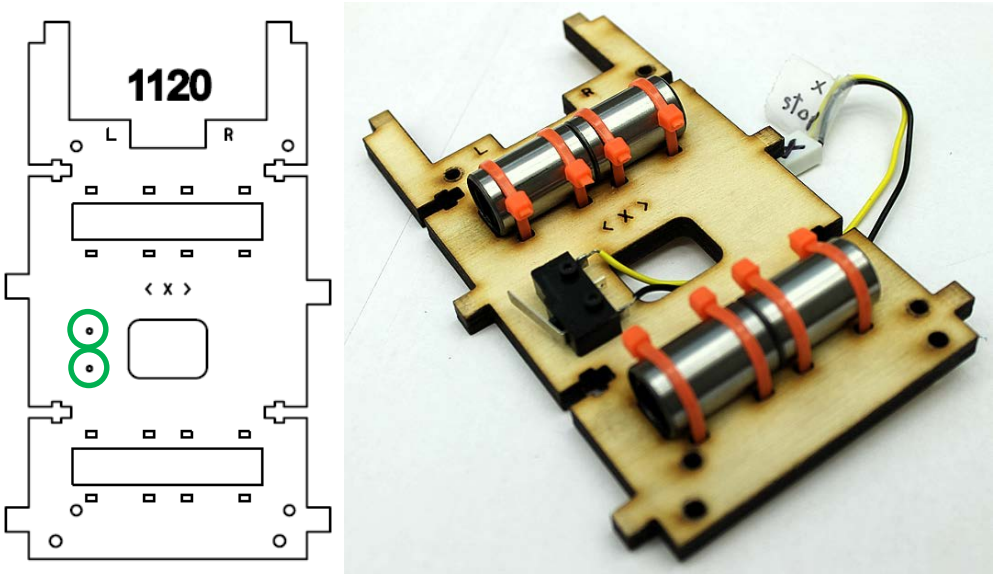


Figure 9. Screw positions to connect end stop and part 1120

Module 3 – Assemble Module 1 and 2

Components list

- 1 x Module1
- 1 x Module2
- 1 x Part 1122
- 1 x Part 1123
- 1 x Part 1124
- 4 x M3 10mm screw
- 9 x M3 16mm screw
- 9 x M3 hex nut

1.) Connect part 1127 to part 1118 to Module 1 using a M3 16mm screw and nut. Note: Part 1127's writing side should face toward the motors

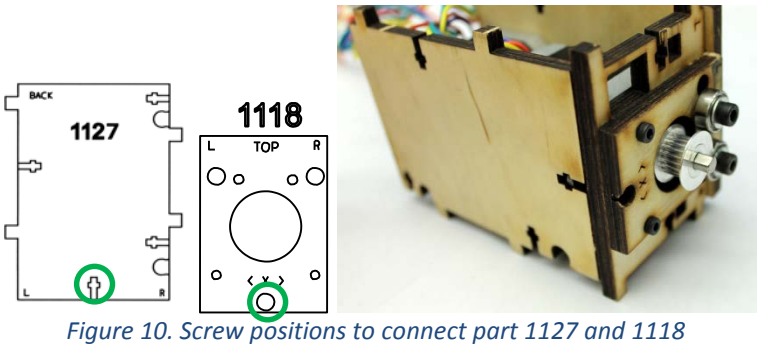


Figure 10. Screw positions to connect part 1127 and 1118

2.) Plug module 1 and module 2 together (no screw required)

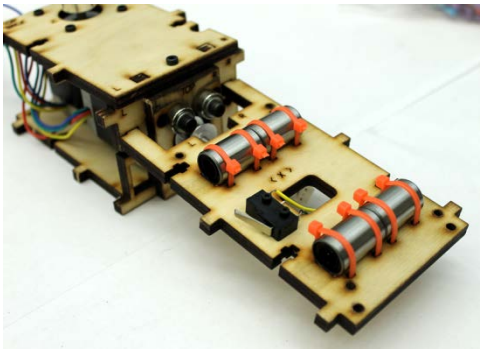


Figure 11. Plugging module 1 and module 2 together

3.) Assemble part 1122 to part 1120 using two M3 16mm screws and nuts. Note: The printrbot engraving should remain noticeable after assembly.

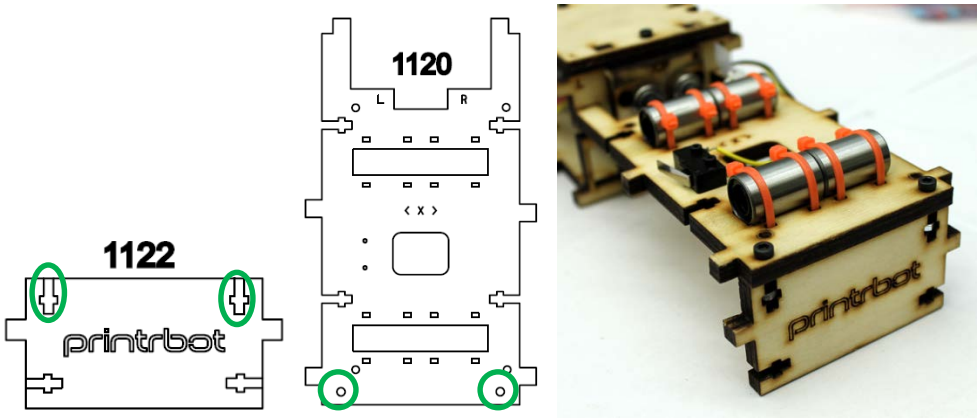


Figure 12. Screw positions to connect part 1120 and 1122

4.) Plug part 1123 to the left side of the completed Module 1 and Module 2 assembly. **Do not put screws in yet .** We will take this part off later for cable wiring.

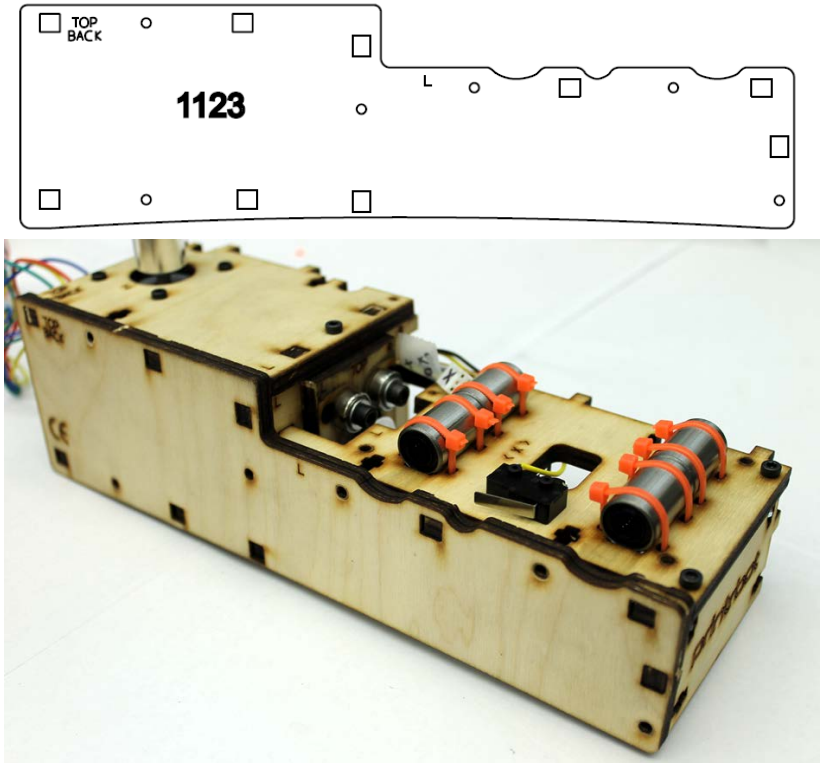


Figure 13. Part 1123 plugged to module 1,2 (no screws yet)

5.) Assemble the circuit board under the part 1120 using four M3 10 mm screws. Pay attention to circuit board orientation!

- Note: **Be careful not to overtighten the bolts**, the hole will strip easily. If the screw hole is loosened you can sacrifice a screw from a side piece (i.e. part 1123, part 1124) to use as the holding screw.

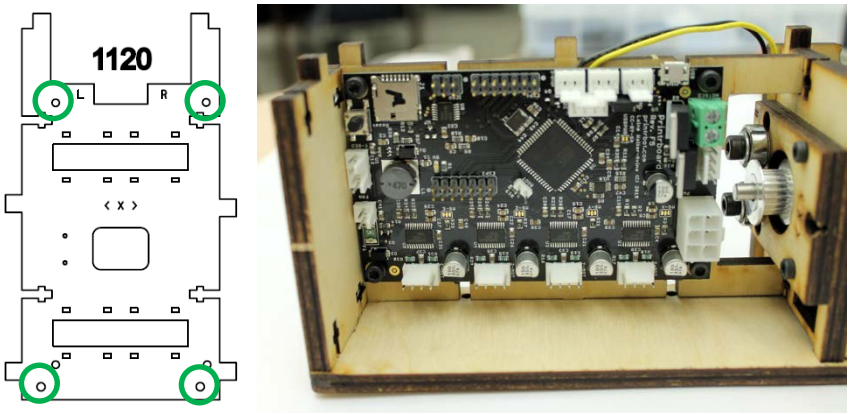


Figure 14. Screw positions to assemble circuit board and part 1120

6.) Add the red/black power port to part 1124 by tightening in the nut (that comes with the power cable). Leave this part separately for now. We will install it after we attach the Y arm to the base.

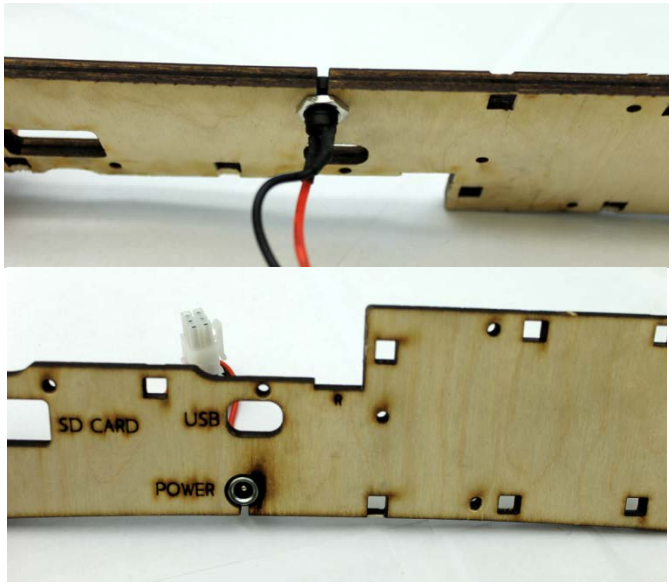
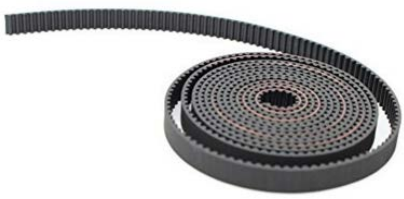


Figure 15. Part 1124 with Power adapter

Module 4 – attaching the print bed

Components list

- 1 x Module3
- 1 x GT2 Belt
- 2 x 6.5”8mm rod (shorter one)
- 1 x Part 1108
- 1 x Part 1109
- 1 x Part 1110
- 1 x Part 1111
- 1 x Part 1112
- 1 x Part 1113
- 1 x Print bed
- 4 x M3 10mm screw
- 9 x M3 16mm screw
- 9 x M3 hex nut



GT2 belt

6.5”8mm rods (shorter one)

1.) Attach the GT2 belt to part 1125 using zip ties. Make sure the teeth of the belt are facing each other

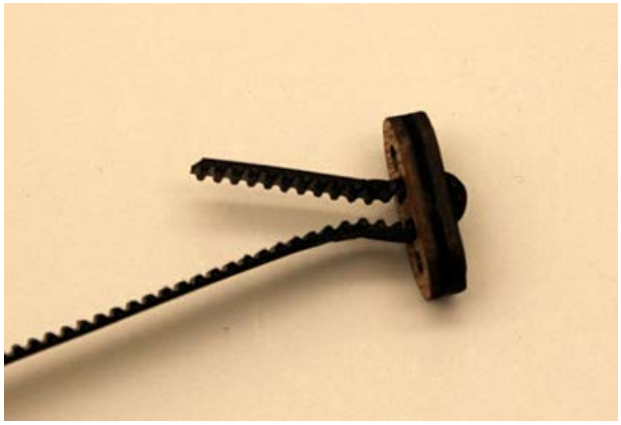


Figure 16. GT2 belt attach to part 1125

2.) Place the belt between the 624 bearings and the x-axis motor as shown in the picture. Make sure the teeth of the belt are facing up.

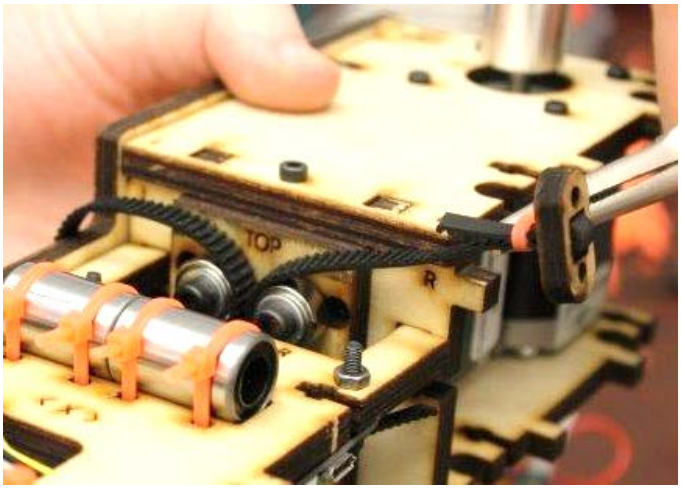


Figure 17. GT2 belt installed for x-axis

3.) Place the 6.5” 8 mm rods through the bearings for the x-axis. Attach part 1110 **on top** of the left-side rod ends using zip ties. Similarly attach part 1111 above the right-side rod ends.

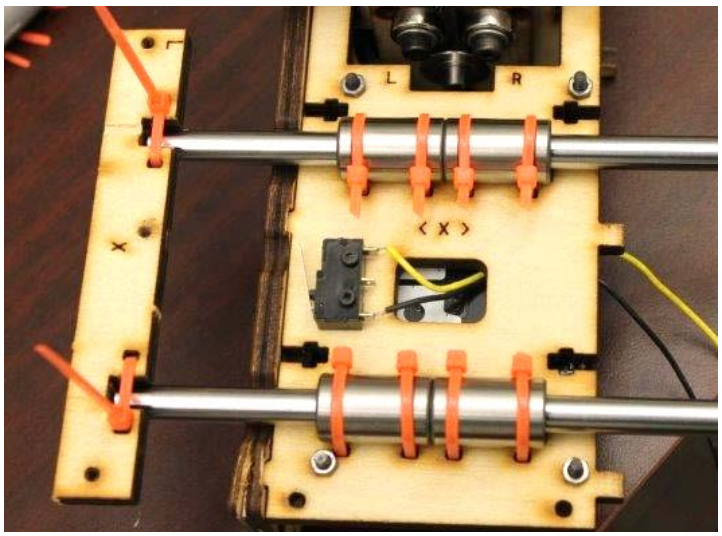


Figure 18. Part 1110 attached on top the left rod ends

4.) Assemble part 1108 and 1109 (left side) using two M3 16 mm screws and hex nuts. Similarly, assemble 1113 and 1112 (right side).

Figure 19. Screw positions to assemble part 1108 and 1109

5.) Attach (part 1108 and 1109) assembly to part 1110 (left side) using one M3 10mm screw from the bottom in the middle of 1110. **The head of the screw will activate the x axis end stop.**

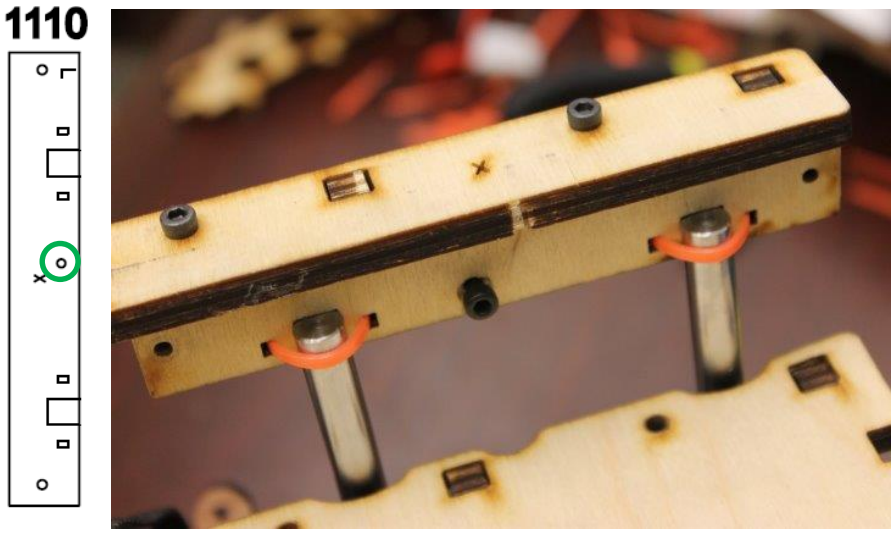


Figure 20. Screw position to assemble part 1108, 1109 to part 1110

6.) Attach (part 1112 and 1113) assembly to part 1111 (right side) using one M3 10mm screw from bottom in the middle of 1111.

7.) Place the metal bed on top of the rods and secure with four M3 16 mm screws on each corner. **The orientation matters. Make sure the larger gap is on the inside.**

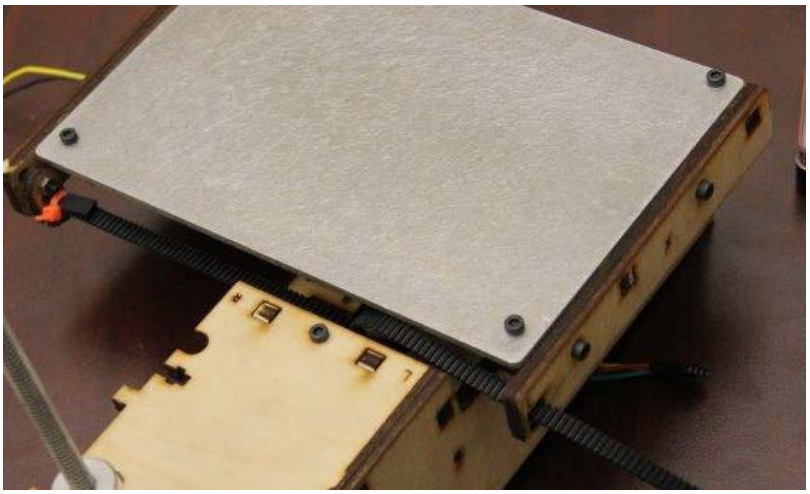
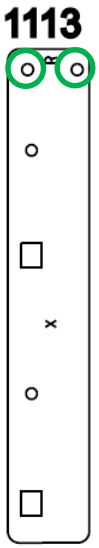


Figure 21. Installed metal bed

8.) Secure the GT2 belt with part 1125 to end of right side of the bed (part 1113) using two M3 20 mm screws and hex nuts. Leave room for tightening



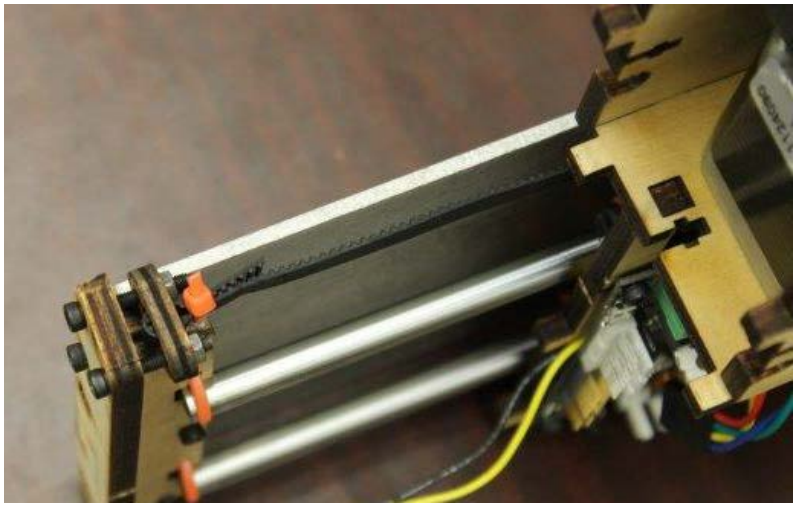


Figure 22. Screw positions to assemble part 1125 to part 1113

9.) Secure the other end of the belt onto part 1108 by placing it through the slots and fasten using a zip tie.

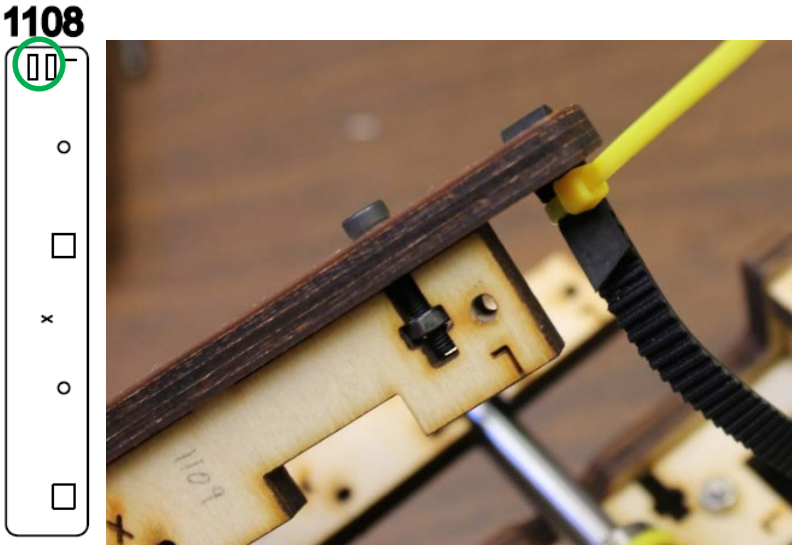
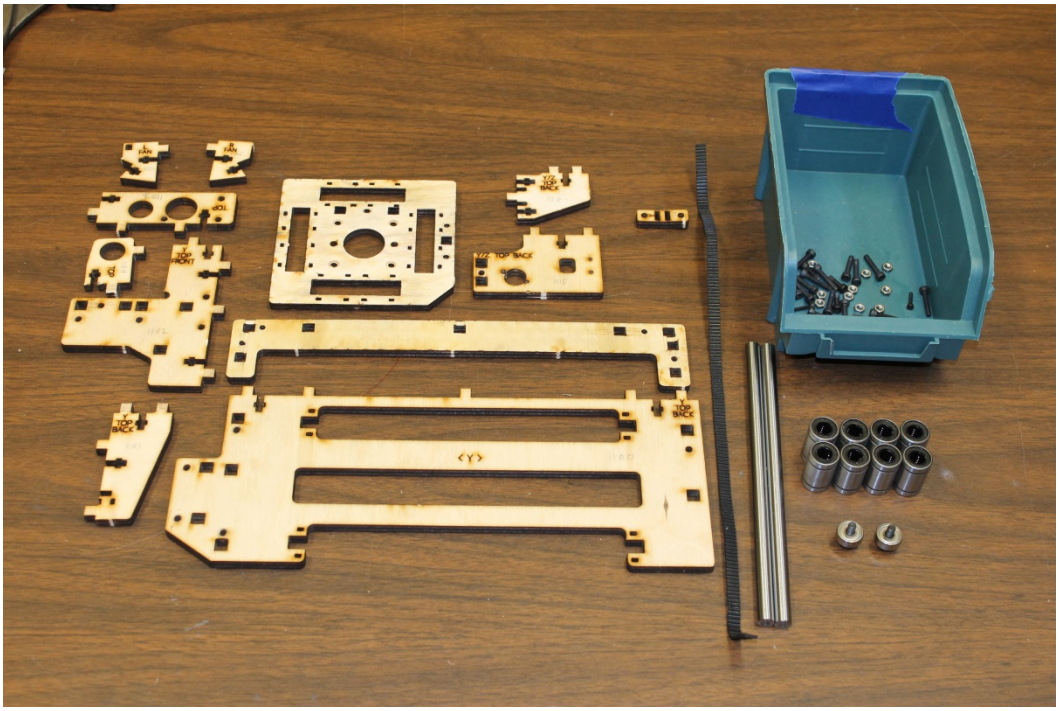


Figure 23. Slots to hold the belt end

Arm



Module 1 – Y Arm

Components list

- 1 x GT2 Belt
- 1 x Part 1100
- 1 x Part 1101
- 1 x Part 1102
- 1 x Part 1103
- 1 x Part 1104
- 1 x Zip tie
- 10 x M3 16mm screw
- 10 x M3 hex nut

1.) Assemble part 1101 to part 1100 using one M3 16 mm screw and hex nut

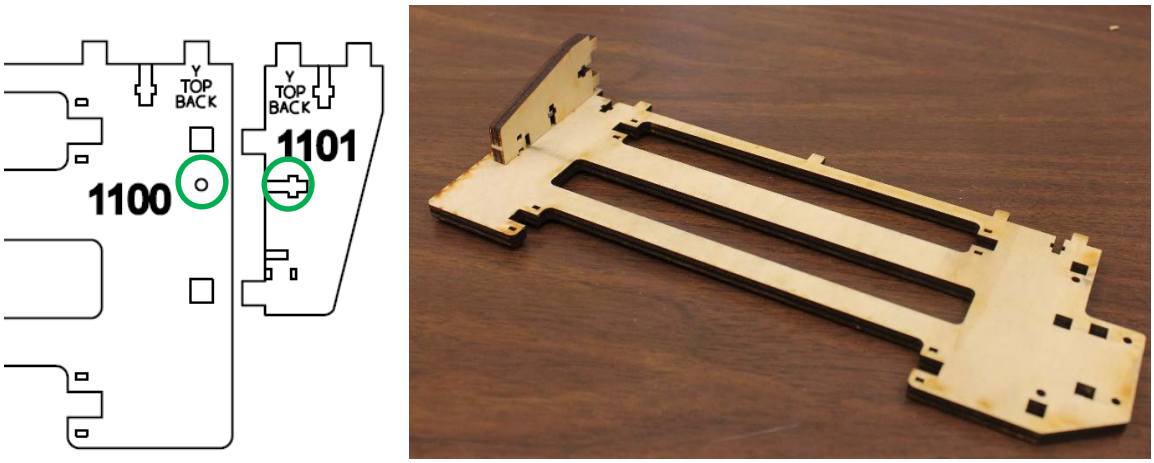


Figure 24. Screw position to assemble part 1100 to part 1101

2.) Add the belt in the hole of part 1101 with a zip tie. The zip-tie head should point outwards.

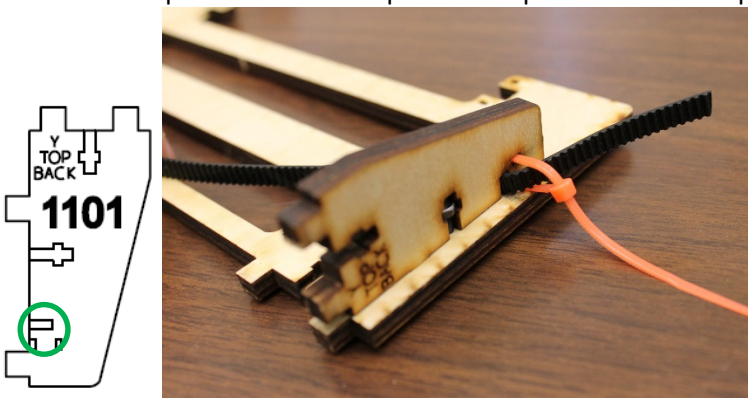


Figure 25. Hole position to insert belt into part 1101

3.) Assemble parts 1102, 1103, and 1104. Use only one M3 16mm screw and nut between part 1102 and part 1103.

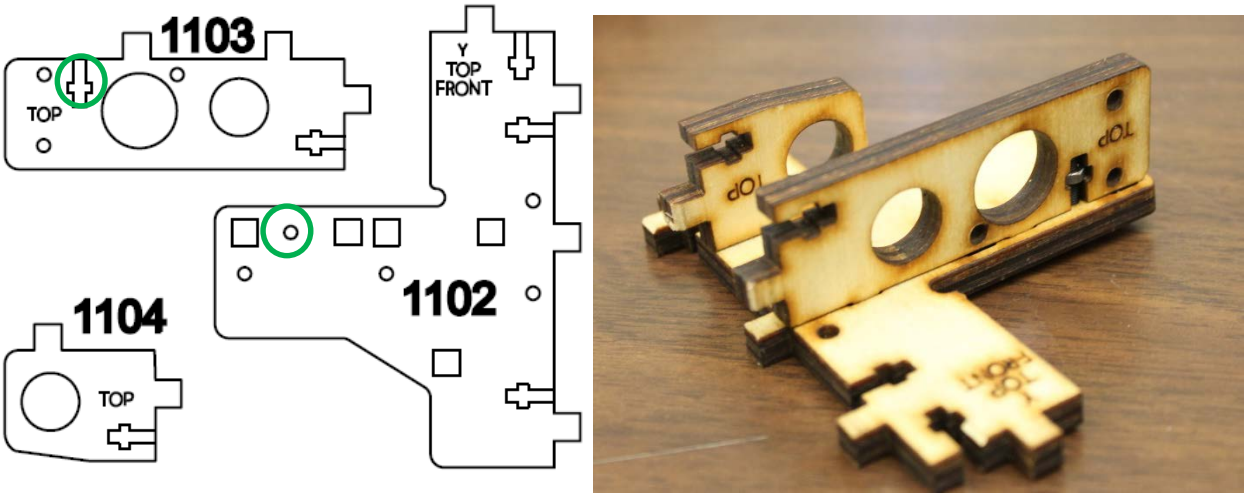


Figure 26. Screw position to assemble part 1102 to part 1103

4.) Assemble group part (1102, 1103 and 1104) to part 1100 using four M3 16 mm screws and hex nuts.

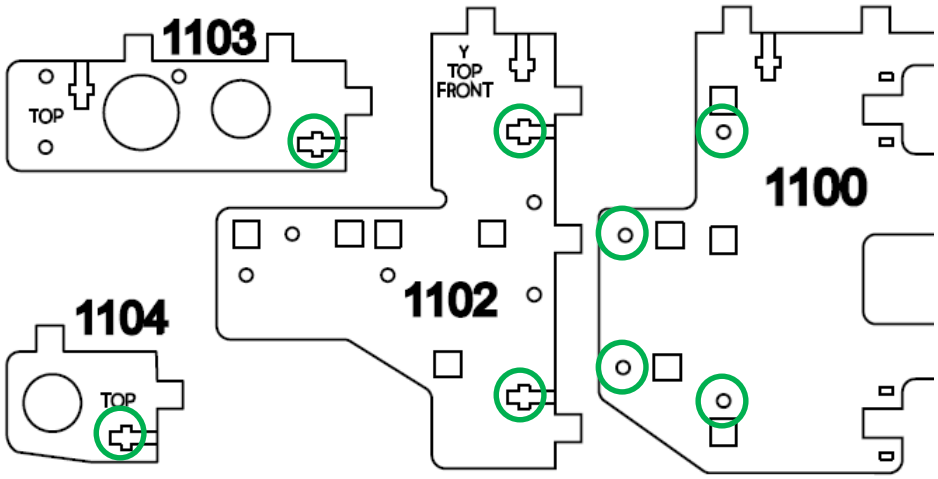


Figure 27. Screw positions to assemble group part 1102,03,04 to part 1100

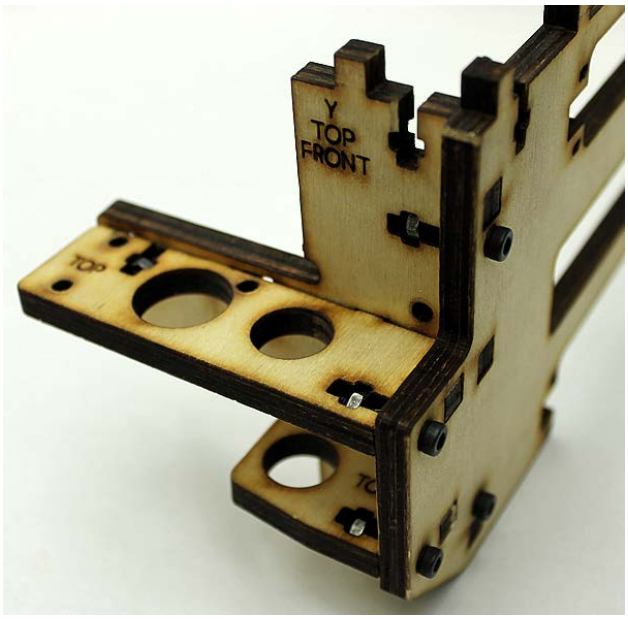


Figure 28. The assembled pieces

5.) Assemble part 1107 to the whole assembly using four M3 16 mm screws and hex nuts.

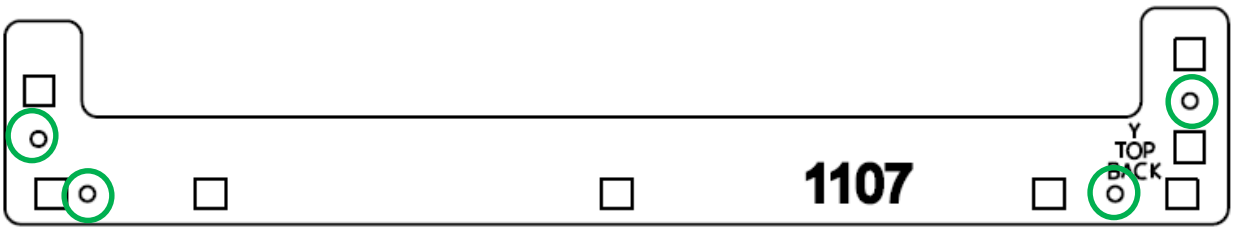


Figure 29. Screw positions to assemble part 1107

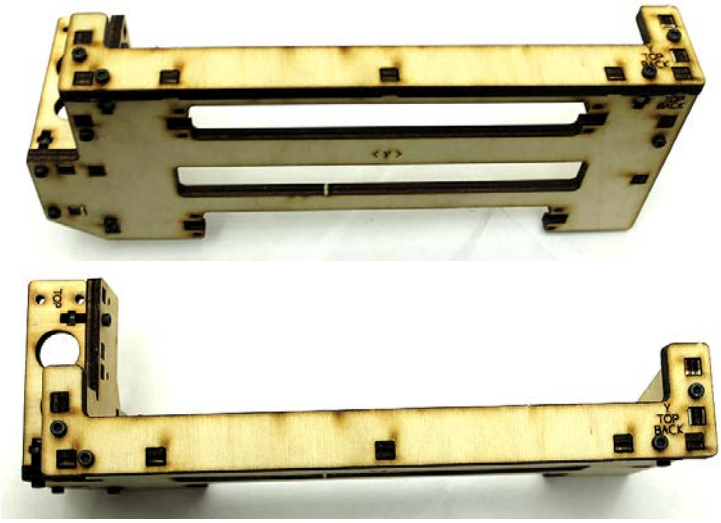
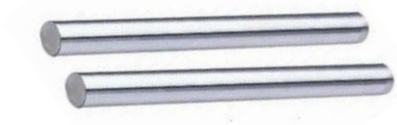


Figure 30. The assembled pieces together

Module 2 – Y-Z Assembly

Components list

- 1 x Part 1114
- 1 x Part 1115
- 1 x Part 1116
- 1 x Lead screw nut
- 1 x Y axis end stop (Limit switch with **longer cables**)
- 2 x 624 bearing
- 6 x #6 Washer
- 2 x M2 10mm screw
- 2 x M4 12mm screw
- 6 x M3 10mm screw
- 4 x M3 16mm screw
- 4 x M3 hex nut
- 16 x Zip tie

		
6.5”8mm rods (shorter ones)	*LM8UU Bearing*	*Lead screw nut*

1.) Assemble part 1114 and part 1115 using one M3 16 mm screw and hex nut.

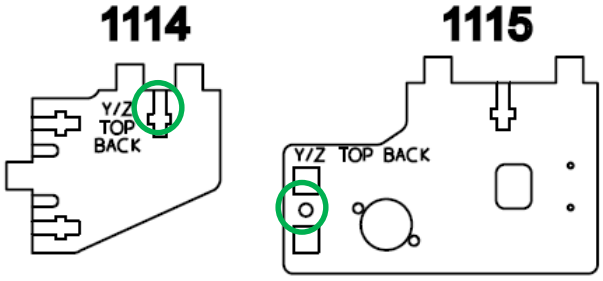


Figure 31. Screw positions to assemble part 1114 and part 1115.

Figure 32. Parts 1114 and 1115 together

2.) Assemble parts 1114 and 1115 to part 1116 using three M3 16 mm screws and hex nuts. Note: Assemble the parts to the top face (that has engraving) of part 1116.

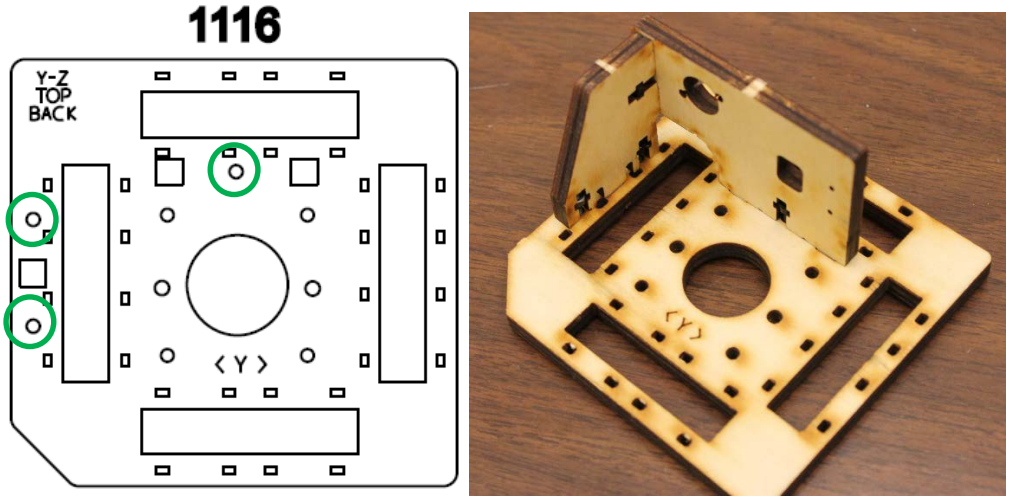


Figure 33. Screw positions to assemble group part 1114, 15 to part 1116

3.) Install the lead screw nut to part 1115 with two M3 10 mm screws. (Note: Do not use hex nuts in this step)

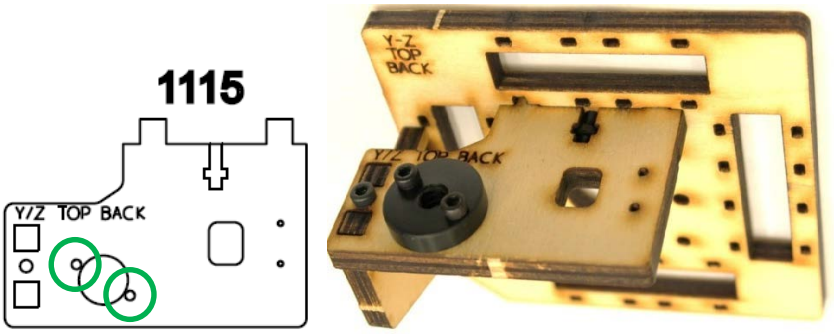


Figure 34. Screw positions to install lead screw nut to part 1115

4.) Install the 24” end stop (the longer cable) by **running the cable through the hole** in part 1115. Fasten with two M2 10 mm screws.

i. **Make sure the yellow wire is on the right side!**
ii. **Pay close attention to the position of the end stop!**

iii. Make sure not to over tighten to avoid damaging it
iv. Label the end stop's wire connector end for the Y-axis

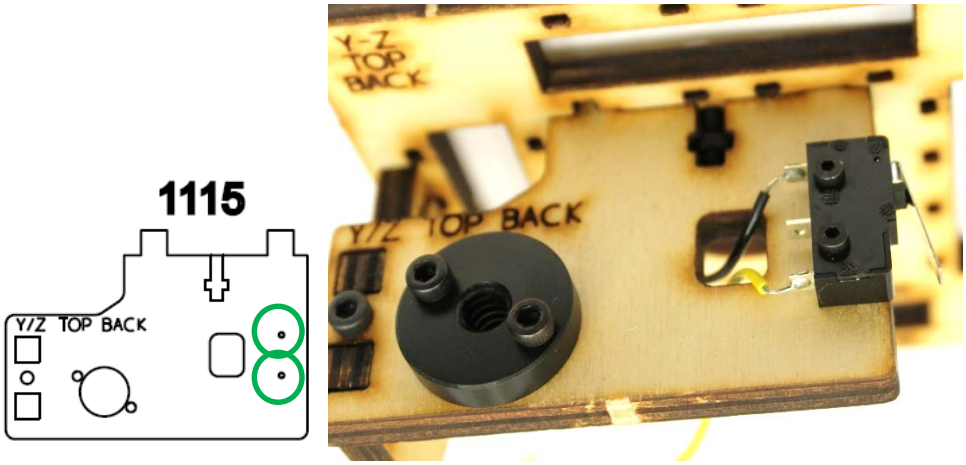


Figure 35. Screw positions to install end stop to part 1115

5.) Attach four LM8UU bearings to 1116 with zip ties on the **<u>top face.</u>**

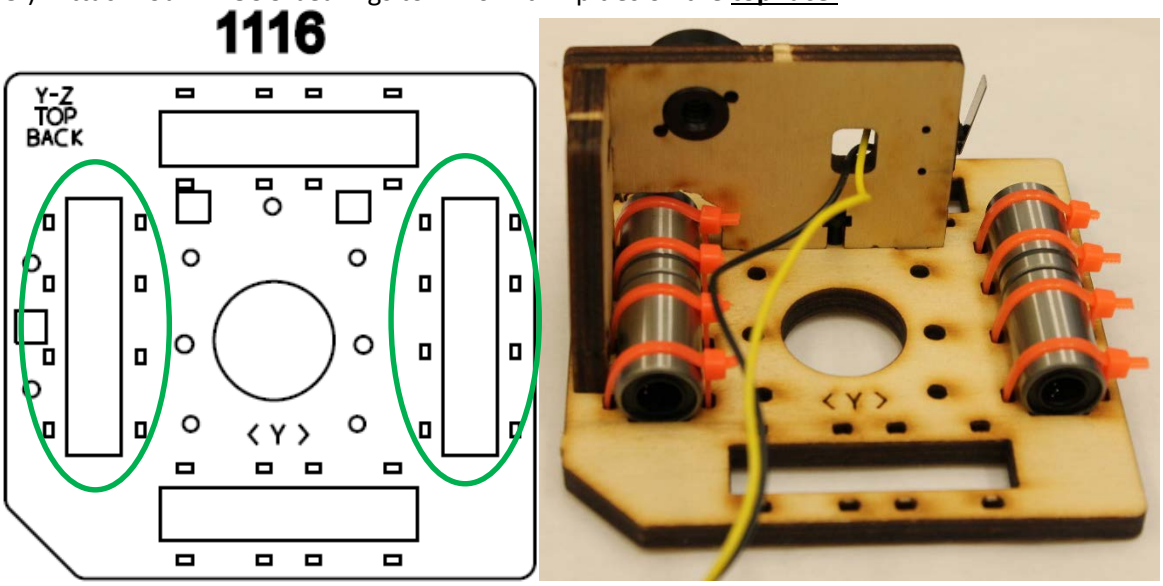


Figure 36. Zip tie positions to install bearings to part 1116 (top)

6.) **Flip over to the other side (the back)**. Then, zip tie the last four bearings to the correct position as shown in the picture below. **Note that the bearing groups are on opposite sides.**

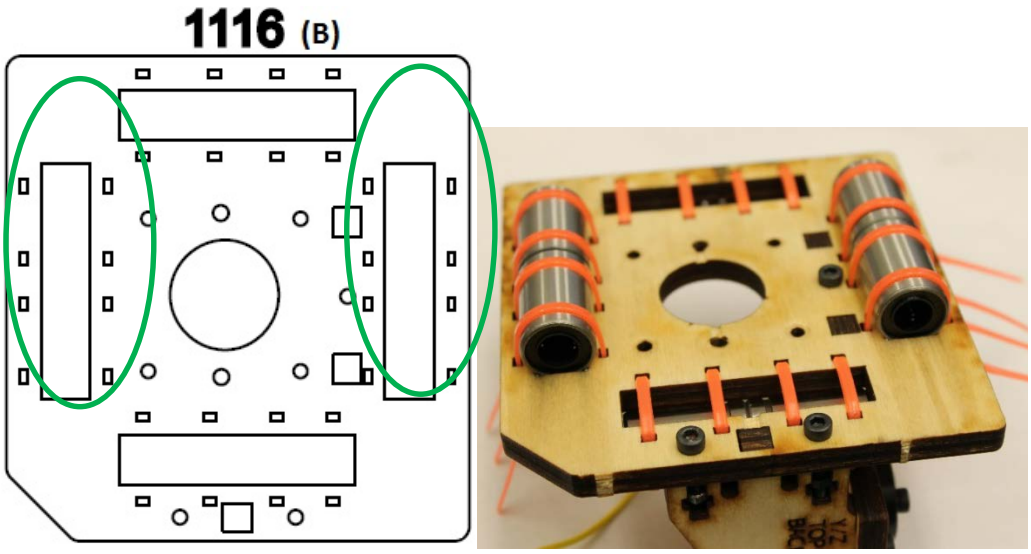


Figure 37. Zip tie positions to install bearings to part 1116 (bottom)

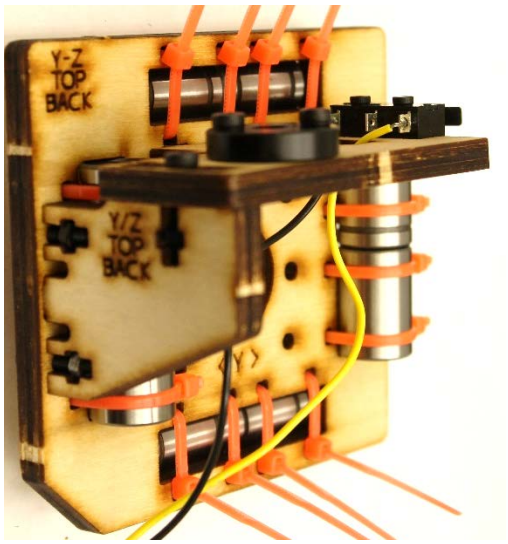


Figure 38. Finished assembly of part 1114, 1115, 1116 with end stop, lead screw nut and bearings

7.) Install the Y-axis motor to the group assembly (part 1114, 1115 and 1116) with four M3 10 mm screws. Pay attention to the direction of the wiring. **The motor cable should point in the direction as shown in the picture.**

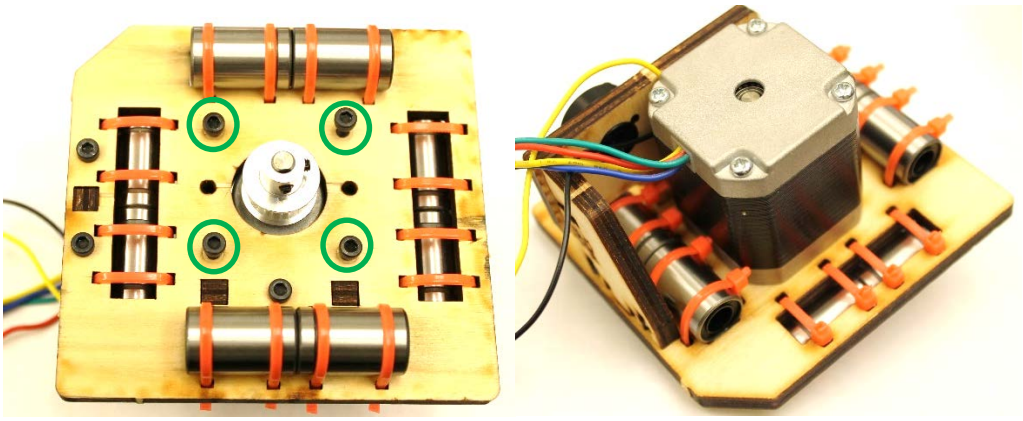


Figure 39. Screw positions to install Y-axis motor to part 1116

8.) Install the bearings to part 1116 using two M4 12mm screws and six #6 washers. On each bearing, there should be two washers below and one washer on top as shown in the picture.

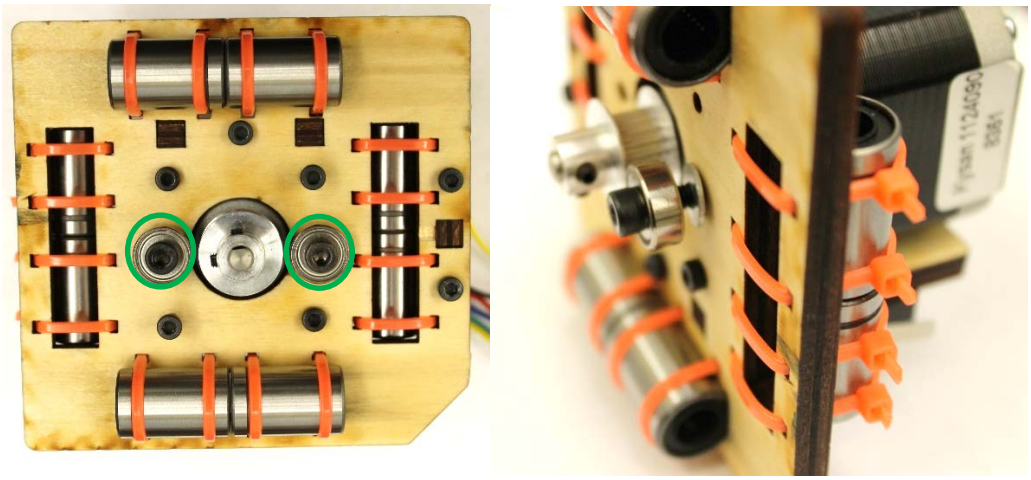


Figure 40. Screw positions to install bearings to part 1116

Figure 41. Screw configuration for part 1116

9.) Place two 6.5” 8 mm rods through the LM8UU bearings on the side that has the 624 bearings.

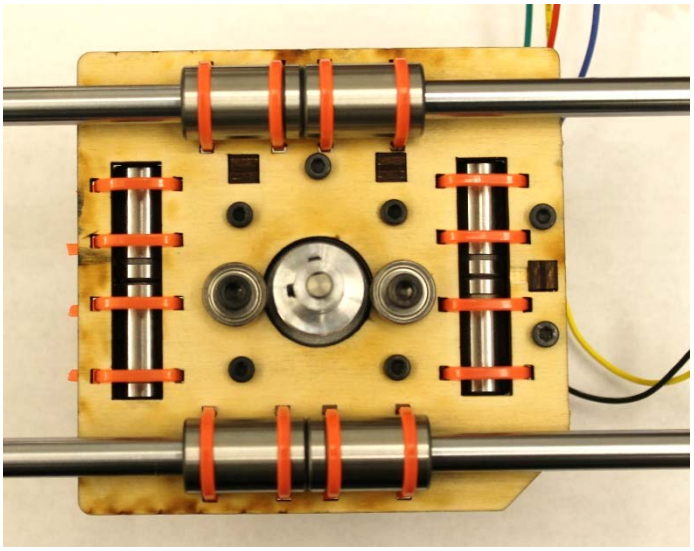


Figure 42. 6.5" 8mm rods install on LM8UU bearings

Module 3 – Extruder assembly

Components list

- 1 x Y-arm module 2
- 1 x Part 1105
- 1 x Part 1106
- 1 x Extruder motor
- 1 x Auto leveling probe
- 1 x Hot end
- 1 x Fan
- 1 x metal extruder base
- 1 x metal extruder arm
- 1 x Spring
- 1 x 1 ½" 6-32 Philips head screw (long)
- 1 x Philips head screw (short)
- 1 x 625 bearing
- 1 x #6 Washer
- 1 x delrin post
- 2 x 6-32 Hex nut
- 2 x M3 10mm screw
- 4 x M3 16mm screw
- 3 x M3 20mm screw
- 4 x M3 hex nut

Delrin post

1.) Attach the auto leveling probe (z-limiter) to part 1103 and place one nut through the probe between parts 1103 and 1104. Then place the other nut after part 1104. Secure after estimating the correct height. The probe should be just above the hole in part 1103. **Note: The probe cable needs to be in the small notch in part 1102**.

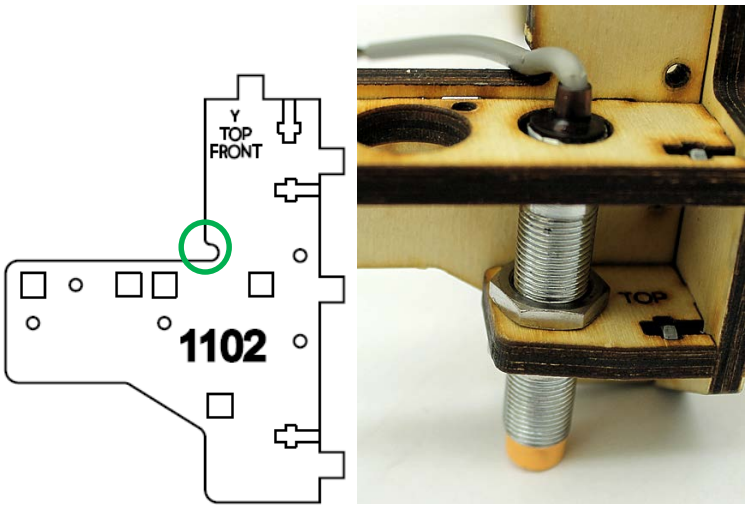


Figure 43. Wiring position for auto leveling probe cable

2.) Assemble the extruder arm:

a. Put the 6-32 screw through the extruder arm, inserting the spring on other side with a nut. View figure below for reference.

b. Install the 625 bearing to the extruder arm using one Philips head screw.

Figure 44. Extruder arm assembly

c. Mount the extruder arm onto the extruder motor with one washer spaced between the M3 20 mm screw and the delrin post. The motor cable should point downward.

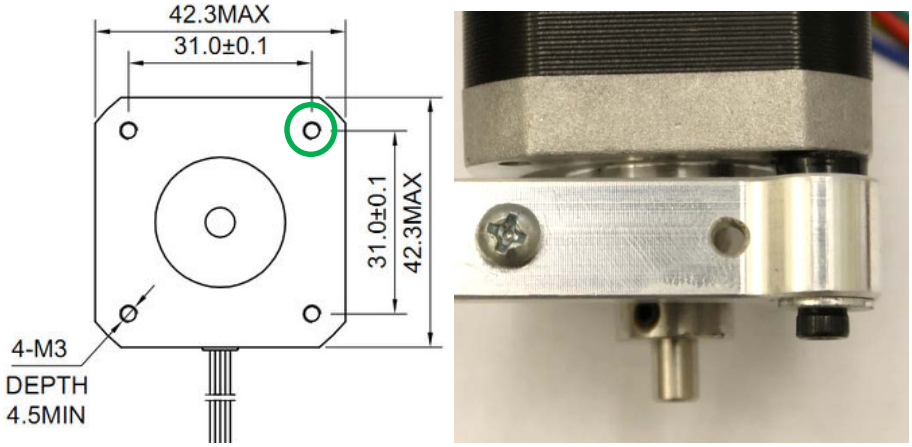


Figure 45. Screw position to mount extruder arm to the extruder motor

d. Make sure to arrange the drive gear of the motor to the center of the 625 bearing.

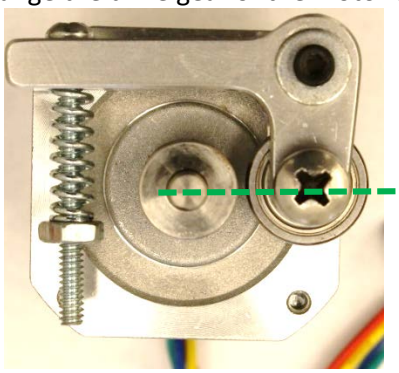


Figure 46. Alignment between extruder drive gear and 635 bearing

3.) Connect the base of the extruder to part 1103 using two 10 mm screws

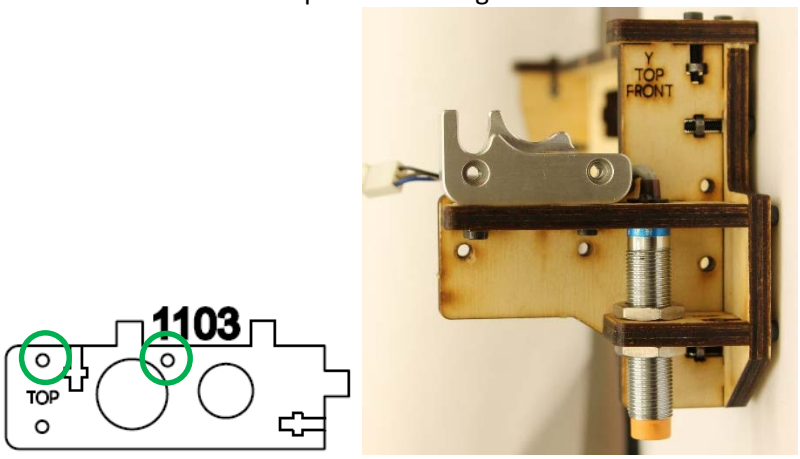


Figure 47. Screw positions to install extruder base to part 1103

4.) Add the wood fan parts 1105 and 1106 onto the base using two M3 16 mm screws and hex nuts.

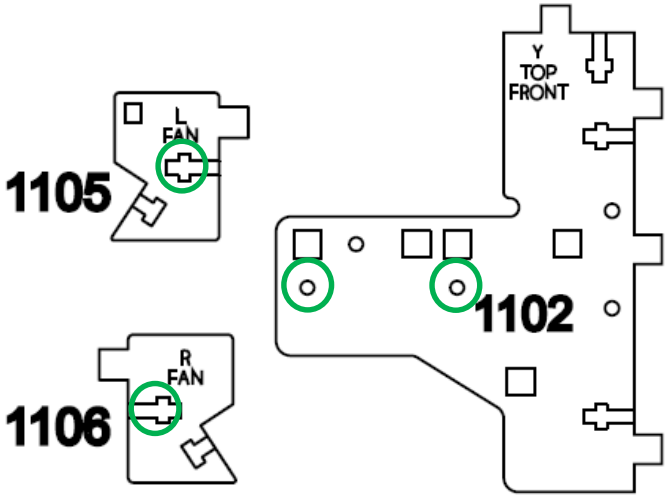


Figure 48. Screw positions to install fan mount base to part 1102

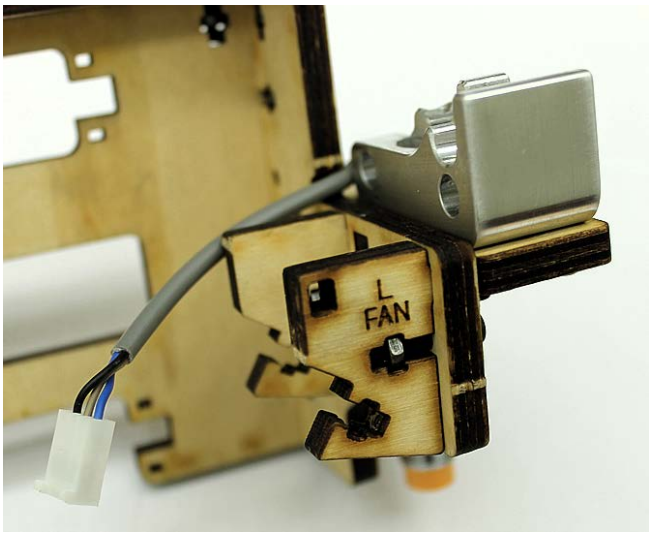


Figure 49. Installed fan mount base

5.) Fasten the fan onto the two wood fan pieces with two M3 16 mm screws and hex nuts.
    a. Ensure the silver sticker is pointed towards the extruder and the wires are facing you. See image for details.

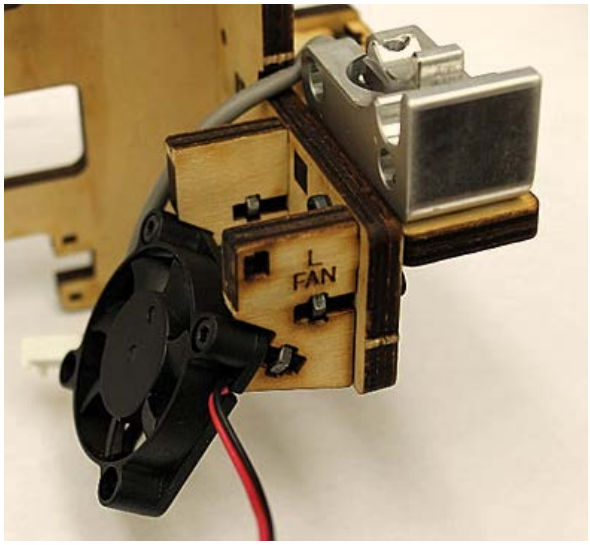


Figure 50. Fan mount position

6.) Finally, insert the light-brown side of the hot-end through part 1103 into the metal extruder base (upwards, from below). The hot-end wire should point in the same direction as the fan cables. Insert a M3 20 mm screw on the right side hole of the metal extruder base to hold the hot-end. Do not fully tighten.

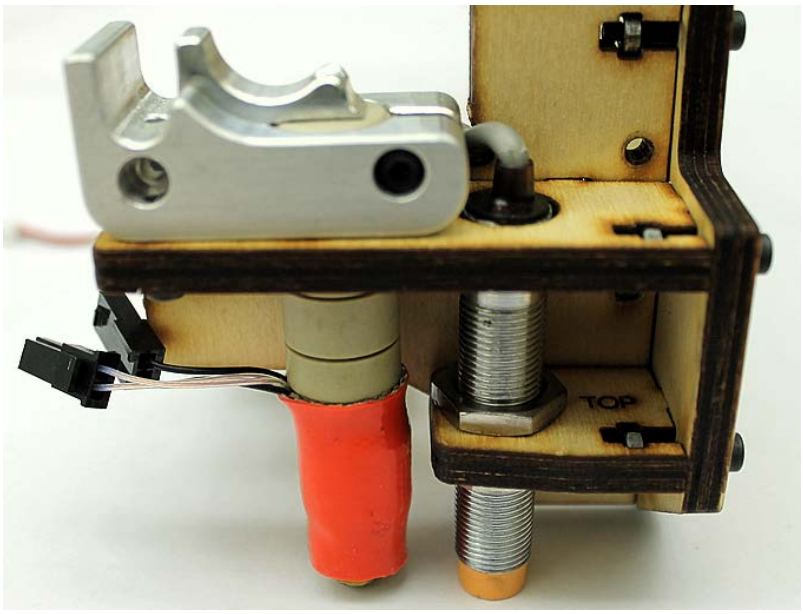


Figure 51. Installed hot end

7.) Mount the extruder motor to the metal extruder base using the M3 20mm screw from step 6 and one additional M3 20mm screw. Make sure the stepper motor wires face downward. Tighten the bolt from step 6 until the extruder cannot easily be pulled out of the metal base.

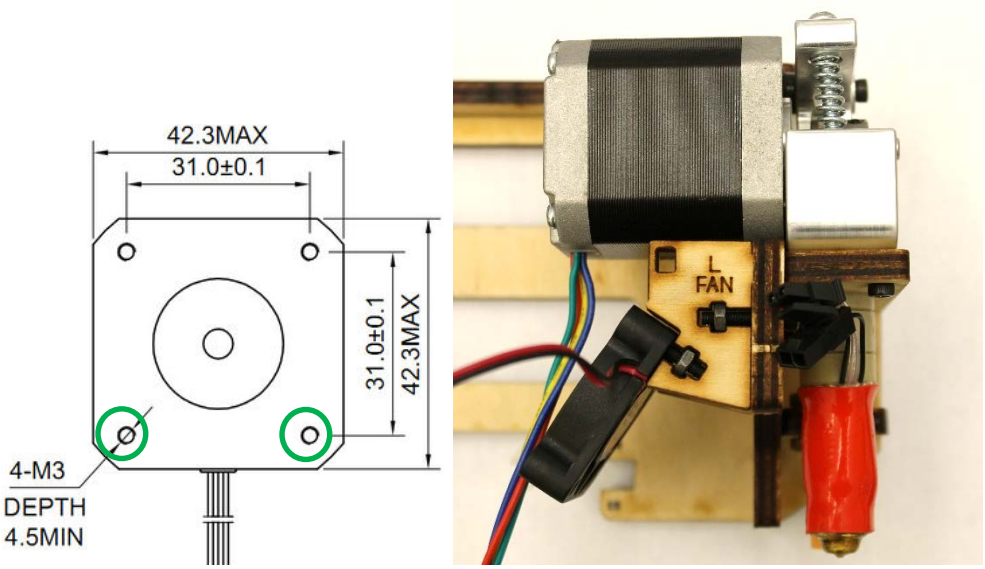
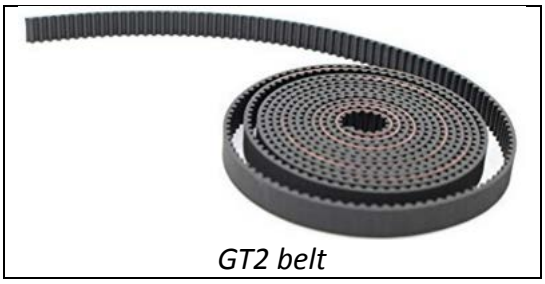


Figure 52. Screw positions to mount extruder motor to the metal extruder base

Module 4 – Printer arm assembly

Components list

- 1 x GT2 Belt
- 1 x Y arm module 1
- 1 x Y arm module 2
- 6 x Zip tie
- 2 x M3 20 mm screw
- 2 x M3 hex nut



GT2 belt

1.) Add module 1 and 2 of the arms together by zip tying the 8mm rods onto the arm as shown. They should sit on top of the wooden slots and not directly inside of them. Tighten and cut off the excess.

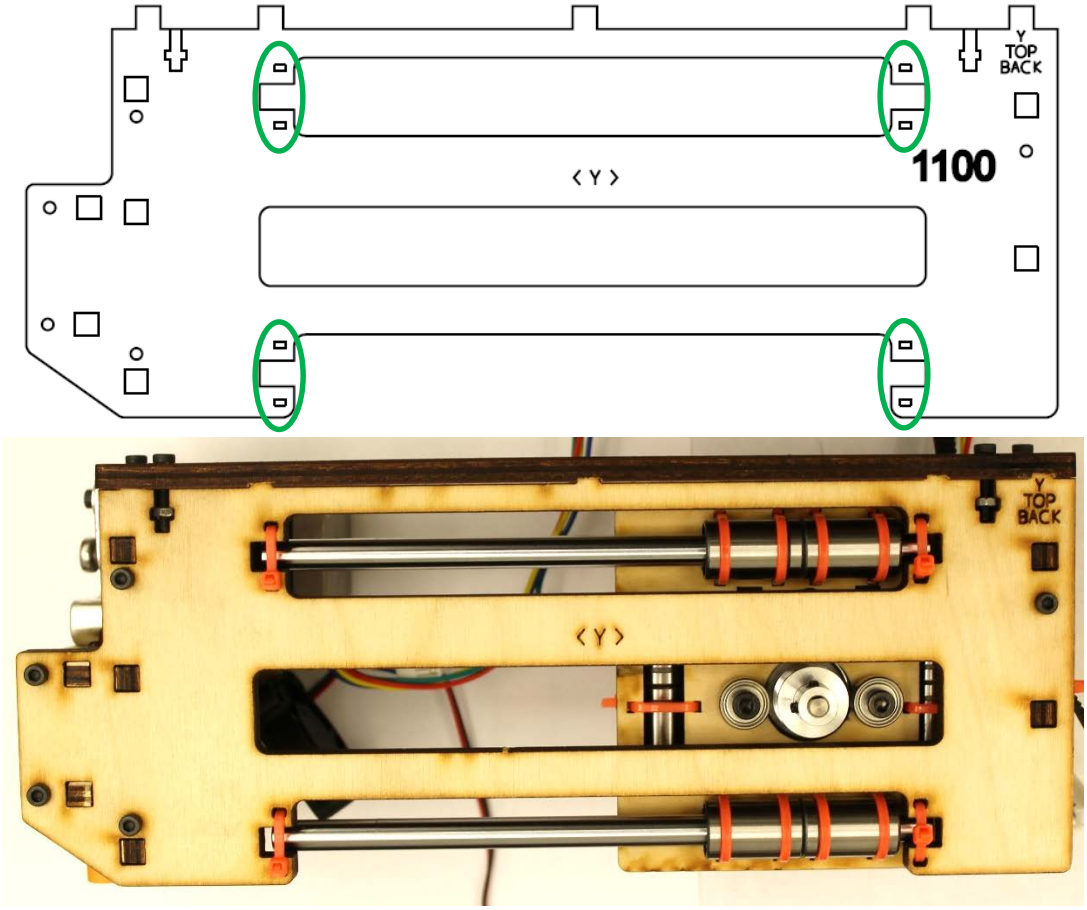


Figure 53. Zip tie positions to assemble module 1 and 2 together

2.) Attach the GT2 belt through the bearings so that the teeth lock with the motor drive axis.

Figure 54. GT2 belt placing between bearings and motor drive axis

3.) Attach the side of the GT2—that is toward the extruder—to part 1126 using a zip tie.

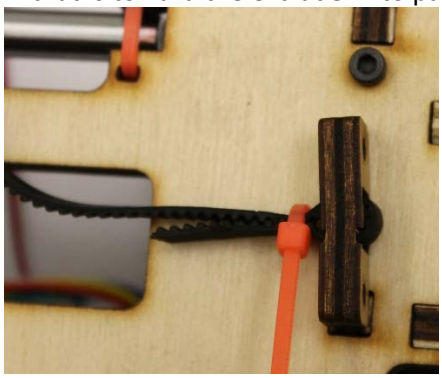


Figure 55. GT2 belt attach to part 1126

4.) Attach part 1126 to 1102 using two M3 20mm bolts and hex nuts. Make sure to leave room for belt adjustment.

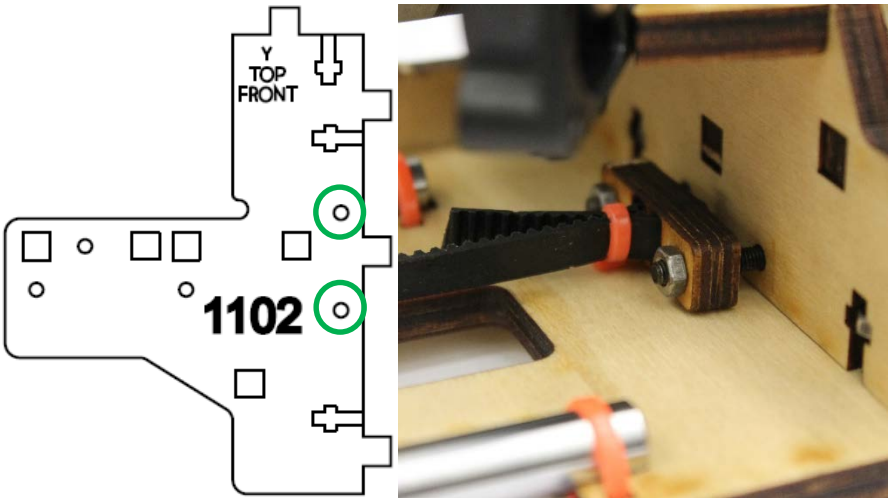


Figure 56. Screw positions to attach part 1126 to part 1102

5.) Pull the GT2 belt tight where it feeds through part 1101 and tighten the zip tie.

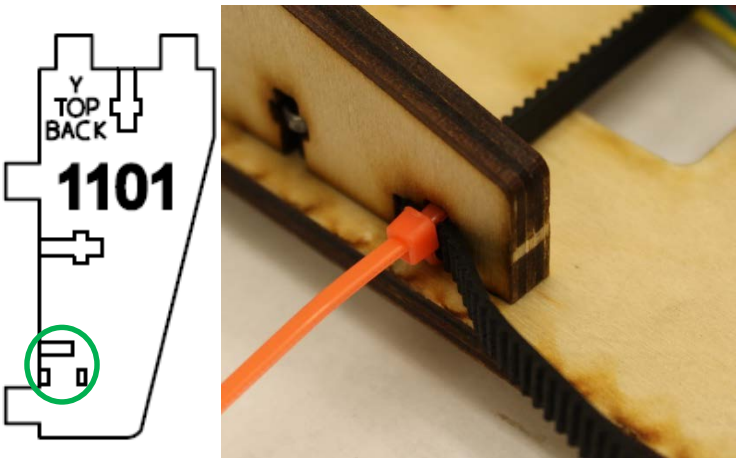


Figure 57. Zip tie position to hold the GT2 belt end

6.) Tighten GT2 belt by adjusting the M3 20mm screws on part 1126. Be careful not to over tighten the belt.

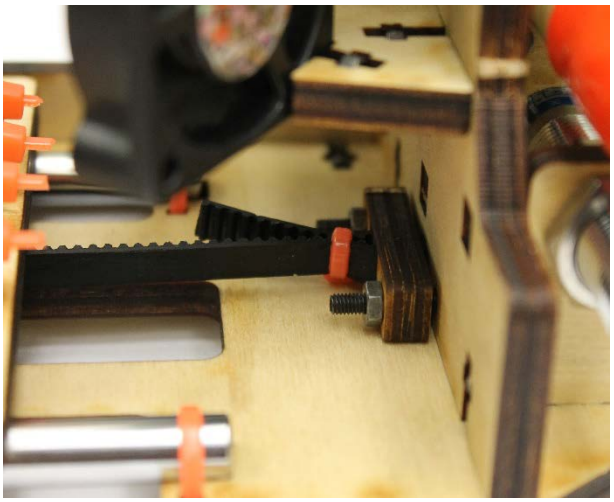


Figure 58. GT2 belt tighten by adjusting M3 20mm screws

Assemble the arm to the base

Components list

- 1 x Base module
- 1 x Arm module
- 2 x 10” 8 mm rod
- 2 x 8mm Lead screw
- 1 x Set screw

1.) Slide in the two 10” 8 mm rods (the longer ones) into the notches in 1119 and 1121. They should fit snug for extra stability.

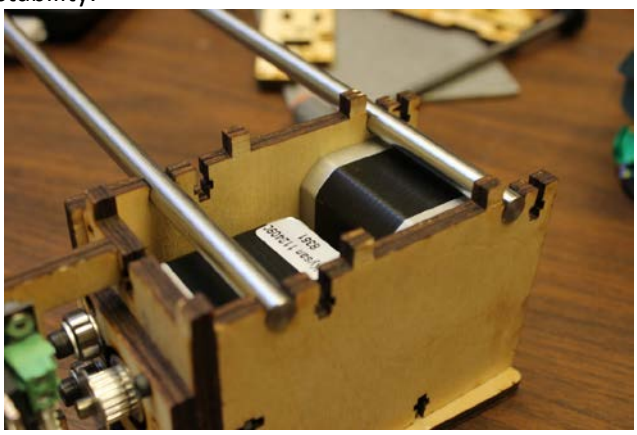


Figure 59. Two 10” 8mm rods fit into the base

2.) Add the lead screw rod to the Z-axis motor shaft coupler. Fasten by using a set screw.

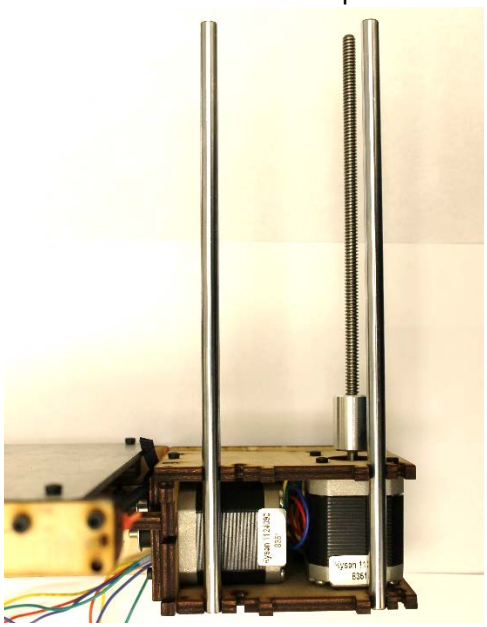


Figure 60. Z-axis guide rods

3.) Place the Y-arm onto the base.
    a. Rotate the threaded z-axis rod counter clockwise to connect and bring the arm down. The threaded rod should go through the black or white lead screw nut located on the y-arm.

Figure 61. Lead screw go through the black lead screw nut

4.) Assemble part 1124 to the side of the printer bed using eight M3 16mm screws and nuts

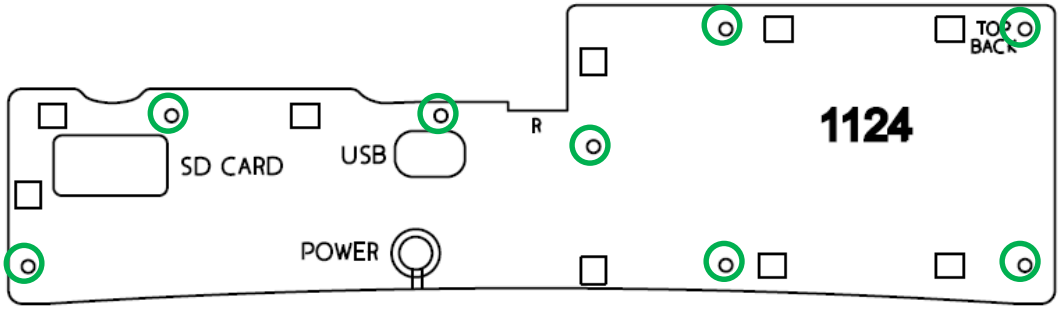


Figure 62. Screw position for assemble part 1124 to the base

Cable connections

1.) Connect the probe extension cable to the auto level probe.
   a. **Pay attention to the orientation of the wiring! (The red wire goes to black, white to brown, Blue to black)**
   b. **You will ruin the z-probe if the wires are not connected correctly!**

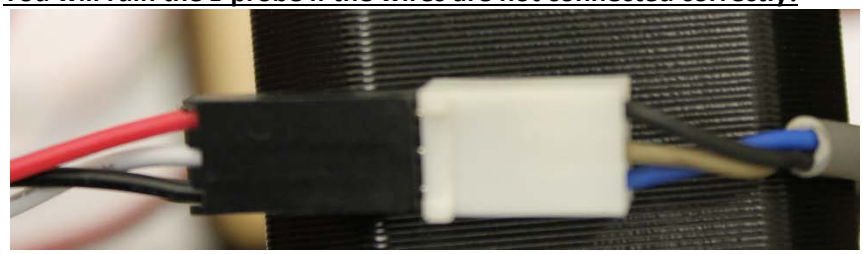


Figure 63. Auto leveling probe connection

2.) Connect the fan and extruder wiring.
   a. Hot end power cable to hot end power lead (red and black cables)
   b. Hot end thermistor to hot end thermistor lead (white and black cables)
   c. Fan extension cable to fan wiring (red and black cables)
   d. Group the wires together with a zip tie

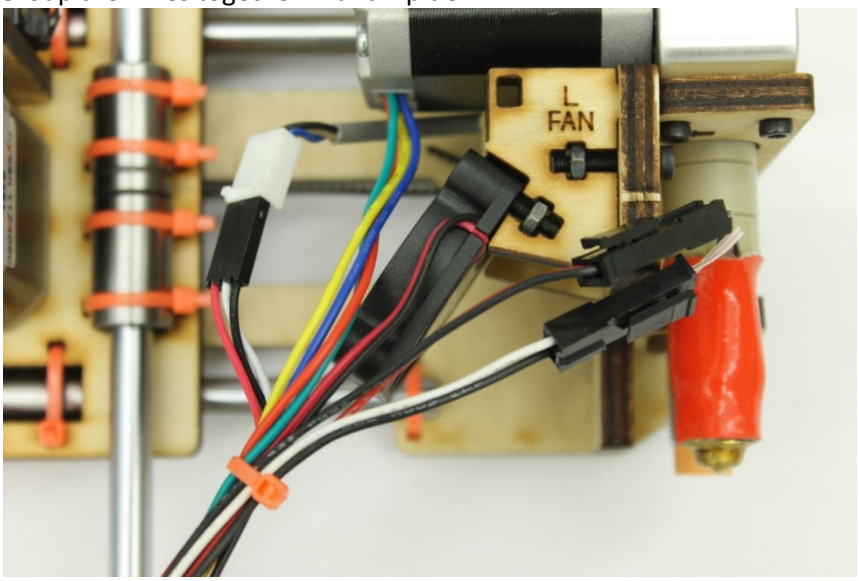


Figure 64. Extruder cables connection

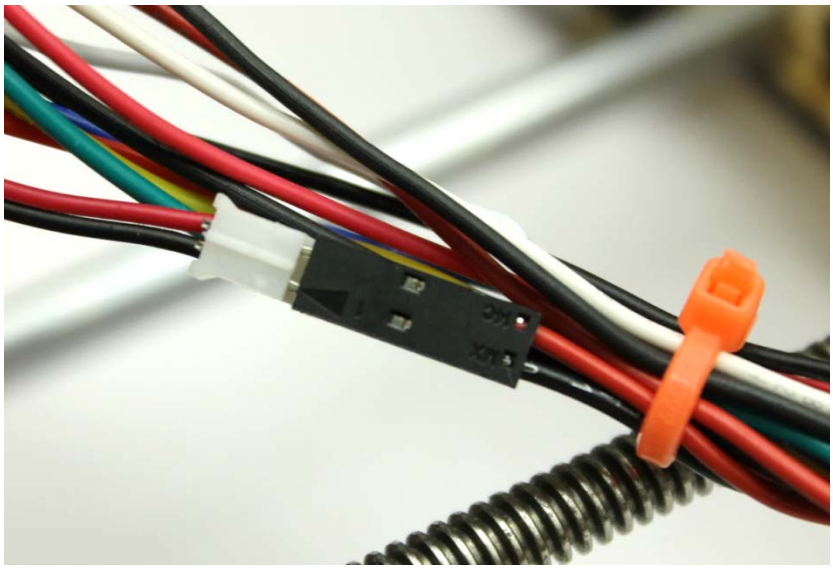


Figure 65. The connection of fan cables

3.) Make sure all of the cables are labeled at the wire connector end.
4.) Remove part 1123 on the left side of the module 1 and module 2 assembly for cable wiring.

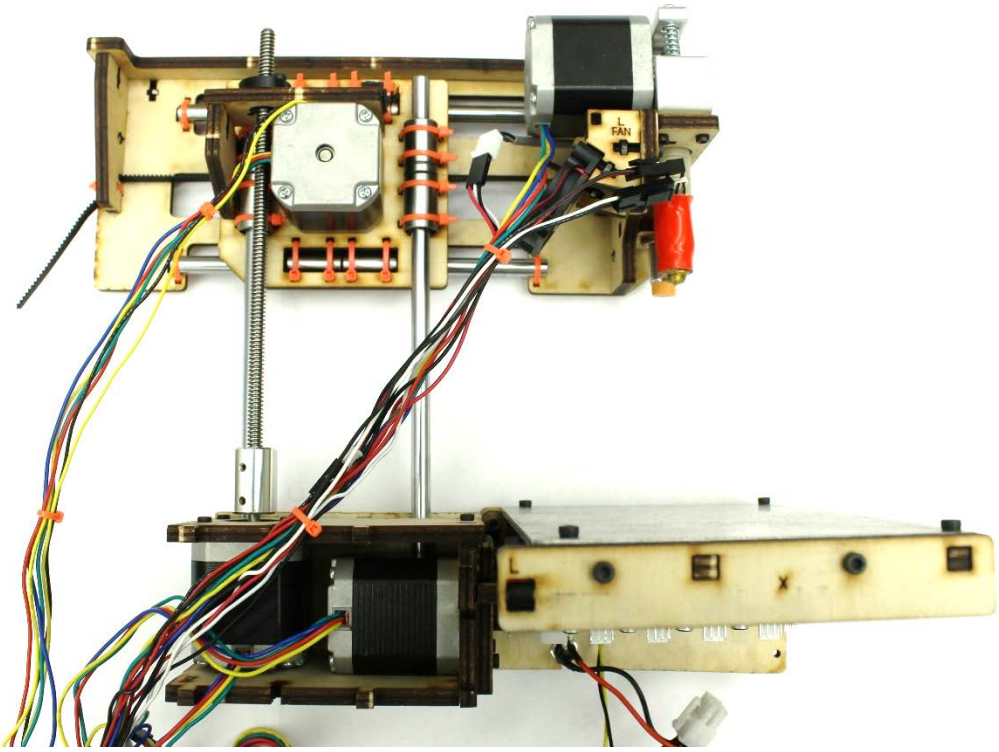


Figure 66. The printer after remove part 1123 (part 1122 removed for clarity)

5.) Use Spiral Cable Tubes to wrap wires into two groups. One for extruder group and another for the Y-axis group. The extruder cable consists of the extruder motor cable, fan cable, hot end cable, and leveling probe cable. The y-axis cables consist of Y-axis motor cable and Y-axis end stop cable.

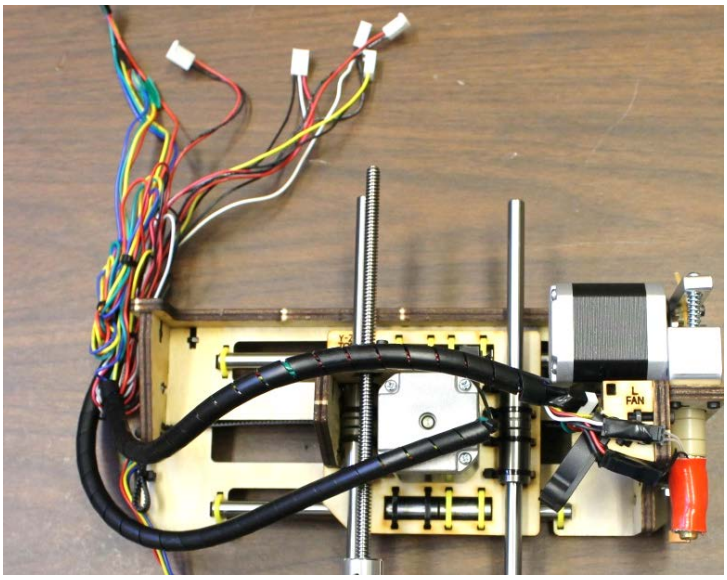


Figure 67. Spiral tubes wrapping two set of cables

6.) Bring y-axis arm wires through the base motor compartment and then through the small hole of part 1117 to where the circuit board is located.

   a. Because **the hole is small, you should let the bigger connector go through the hole first**.

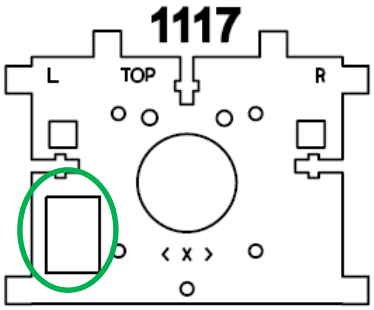


Figure 68. Main cable hole

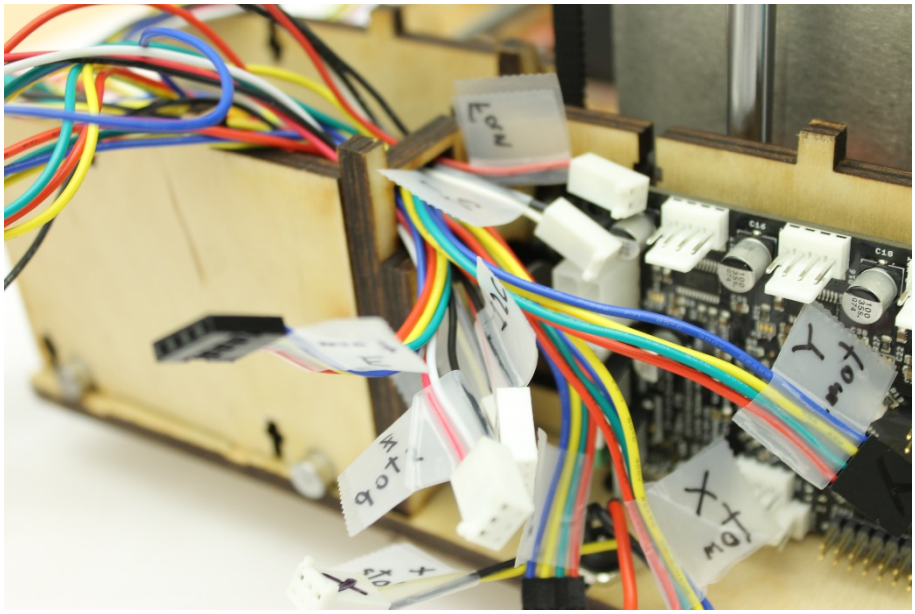


Figure 69. The cables through the hole

7.) Connect the cables to the control board by following the small marks on the board

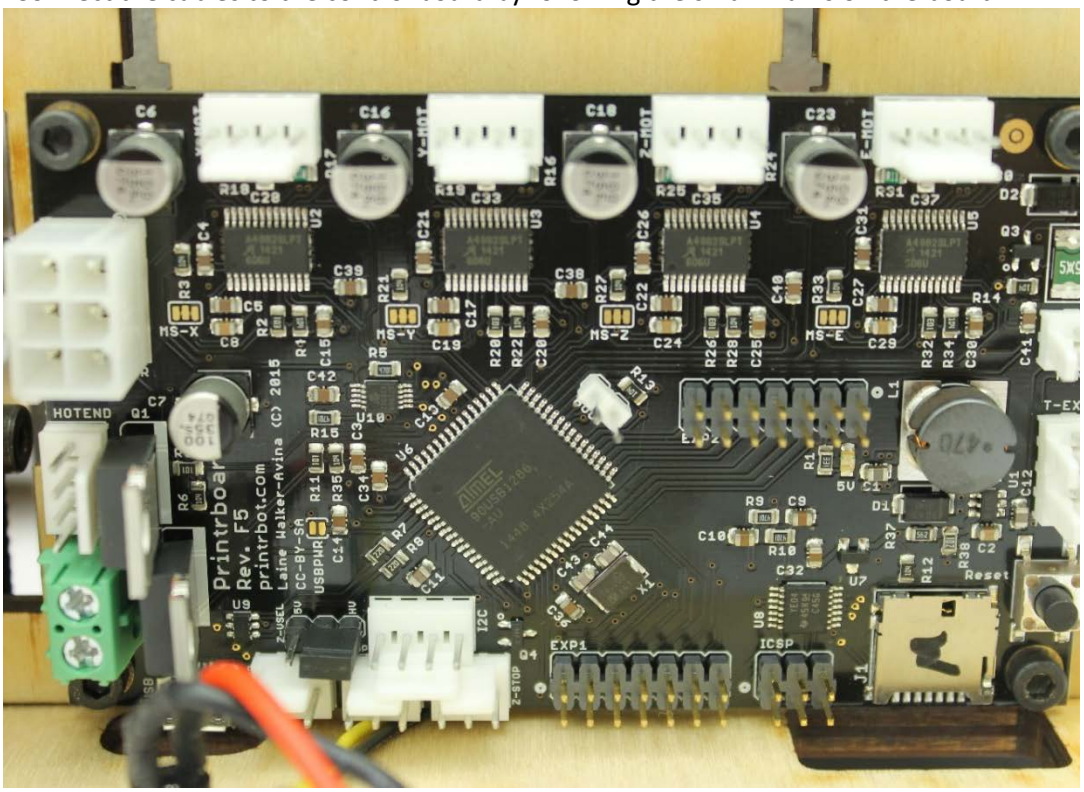


Figure 70. Control board with guide marks

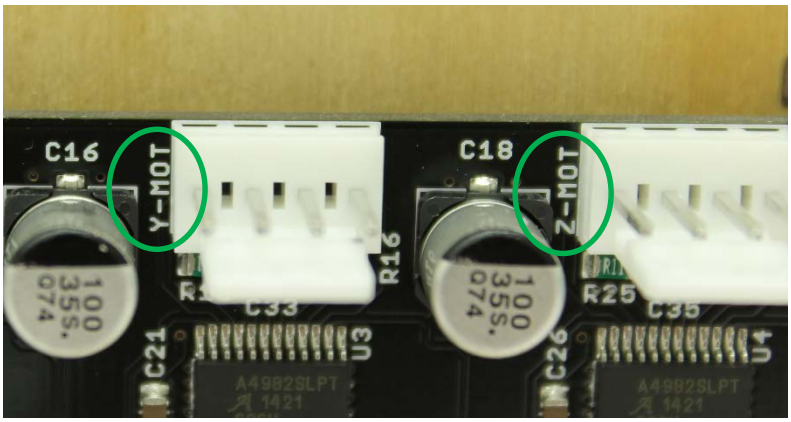


Figure 71. Close up picture of control board mark

8.) Connect the motor connecter to the board
   a. X-axis motor labeled X-MOT (Blue, yellow, green, red)
   b. Y-axis motor labeled Y-MOT (R,G,Y,B)
   c. Z-axis motor labeled Z-MOT (B,Y,G,R)
   d. Extruder motor labeled E-MOT (R,G,Y,B)
   e. **<u>The orientation of the colored wires vary! Double check!</u>**

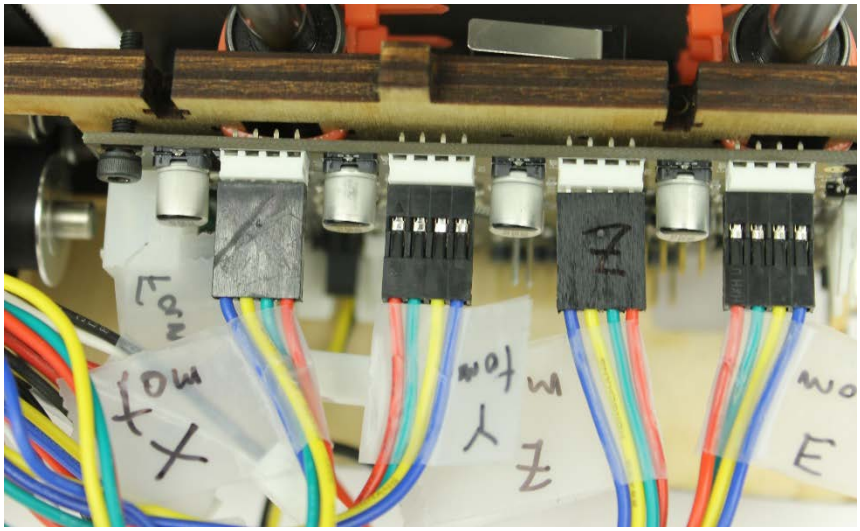


Figure 72. Cable alignment for motors (Note the different sequence in each motor connector)

9.) Attach the rest of the wires
   a. Power Adapter (red/black) inserted to the “PWR”
   b. Fan extension inserted to the “Fan”
   c. X End Stop inserted to the “X-Stop”
   d. Y End Stop inserted to the “Y-Stop”
   e. The probe inserted to the “Z-Stop”
   f. The extruder inserted to the “Extruder”
   g. The thermistor inserted to the “T-Ext”

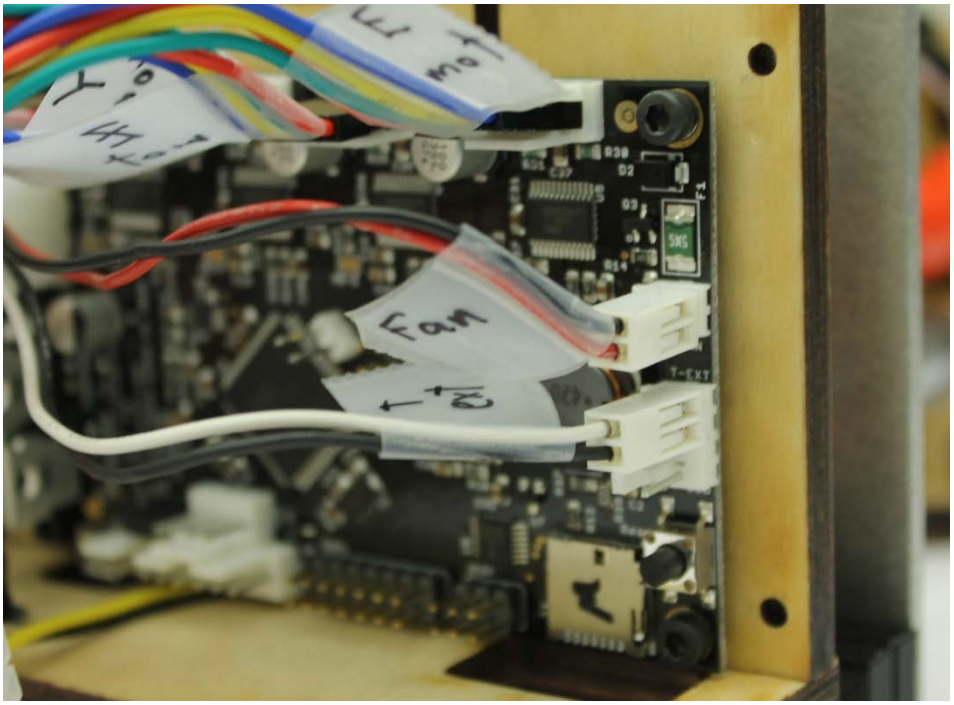


Figure 73. Connection of fan and extruder thermistor (part 1122 removed for clarity)

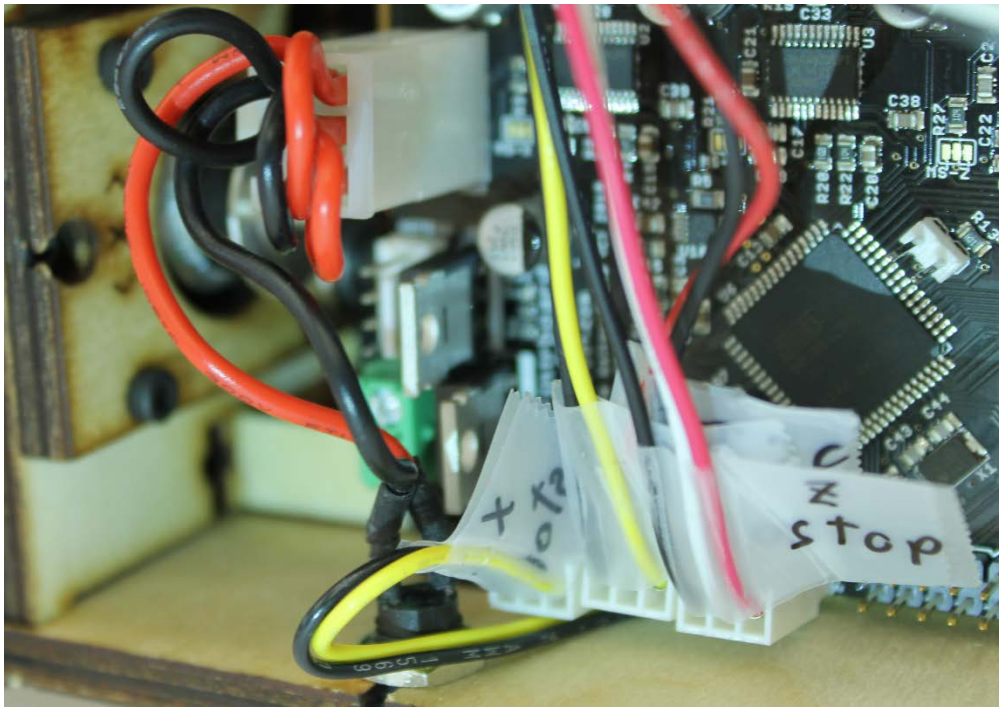


Figure 74. Connection of power cable and x,y,z stop

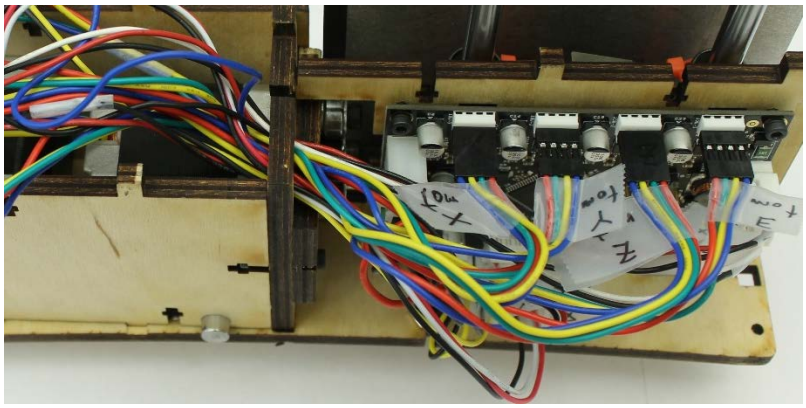


Figure 75. Fully connected cable with control board (part 1122 removed for clarity)

10.)Assemble part 1123 to the left side of the base using six M3 16mm screws and nuts.

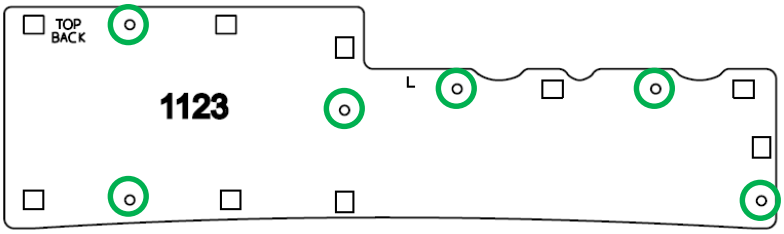


Figure 77. Screw position for assemble part 1123 to the base

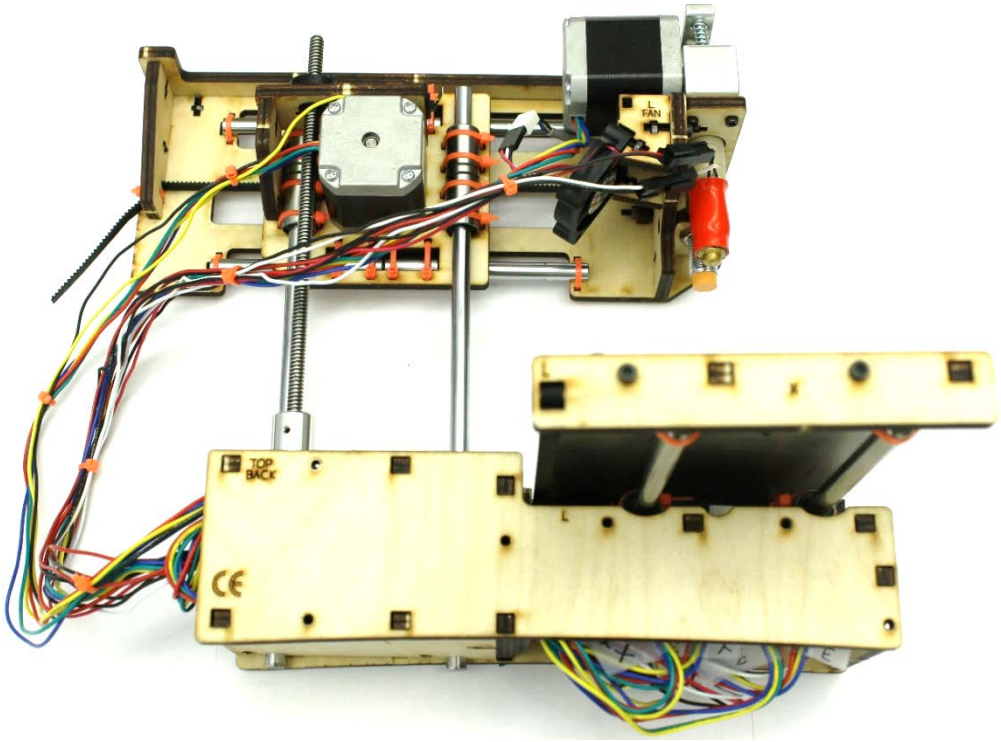


Figure 78. Fully assembled printer (Spiral cable wrap removed for clarity)

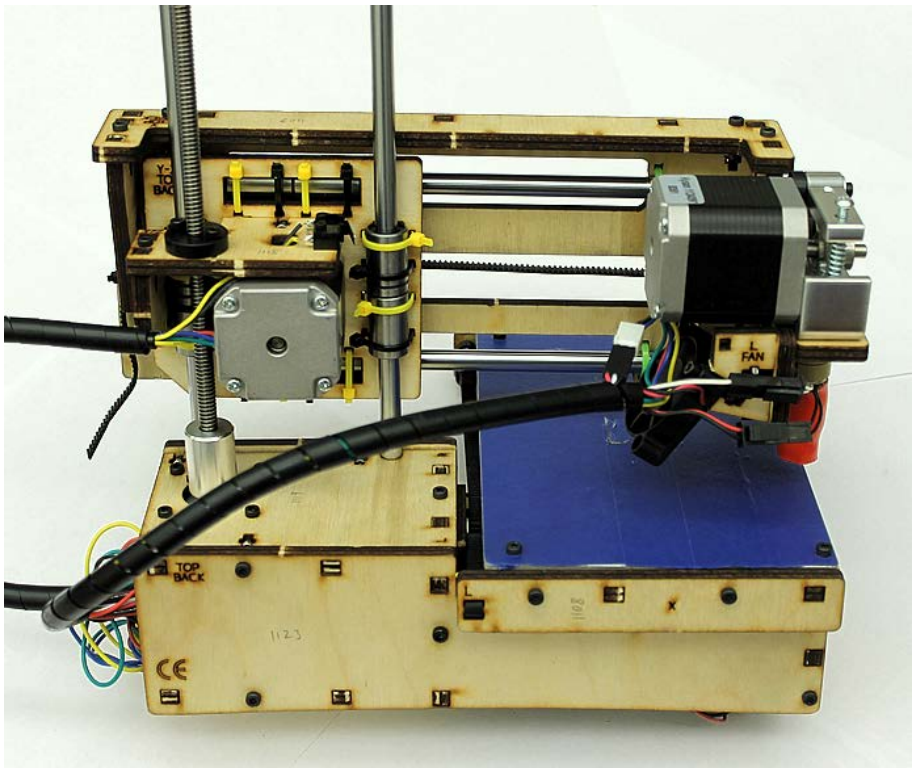


Figure 79. Fully assembled printer

Calibration

You can pause here and watch the 3D printer Operations and the Troubleshooting videos.

1.) Connect the Printrbot to laptop and power source using a usb to micro-usb cord

Figure 80. Cord Connections

2.) Insert the filament into the extruder

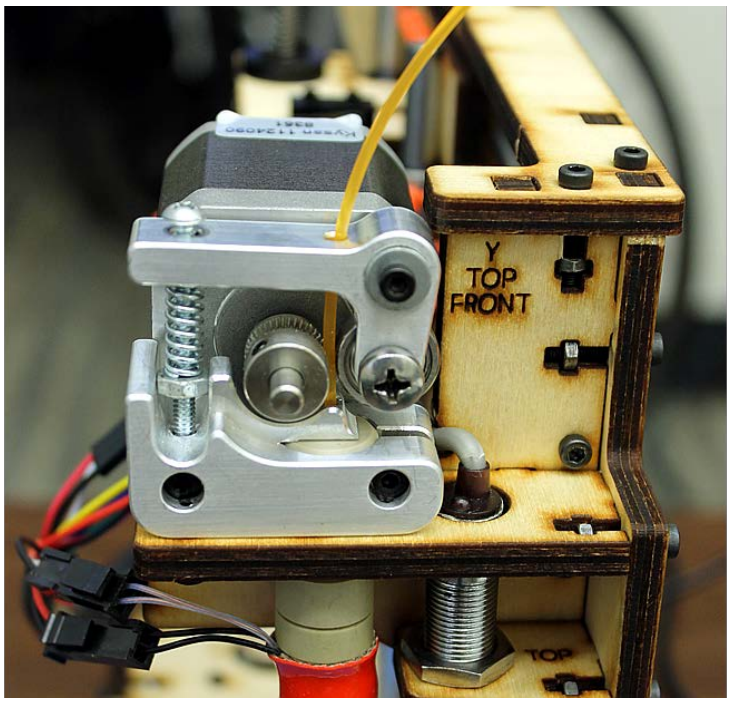


Figure 81. Filament placed in the extruder

3.) Make sure that the filament fits snug between the motor and touches the teeth of the extruder apparatus so that it can move down to the hot end.

4.) Double click the Cura icon on the desktop to open the Cura software:

5.) Load 3 mm box .stl file
   a. Select the file button on the top left
   b. Select load model file (Or use the shortcut Ctrl – L)
   c. Navigate to where the 3 mm .stl file is located and double click to select it

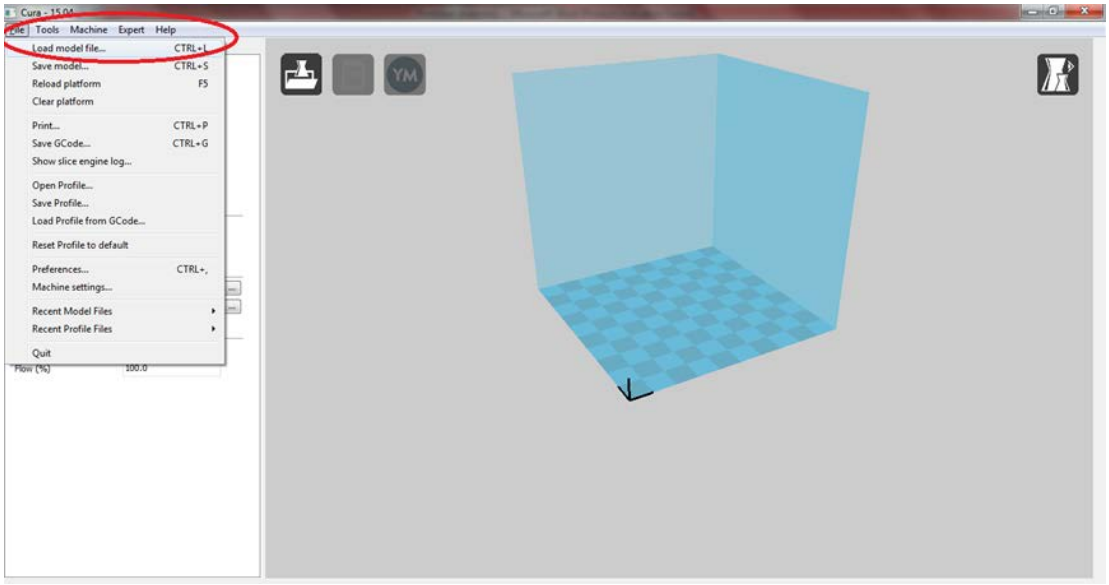


Figure 82. Cura interface

6.) The 3 mm box will appear in the large virtual space to the right of the interface

7.) Press the “Print with USB” icon on the top left part of the screen

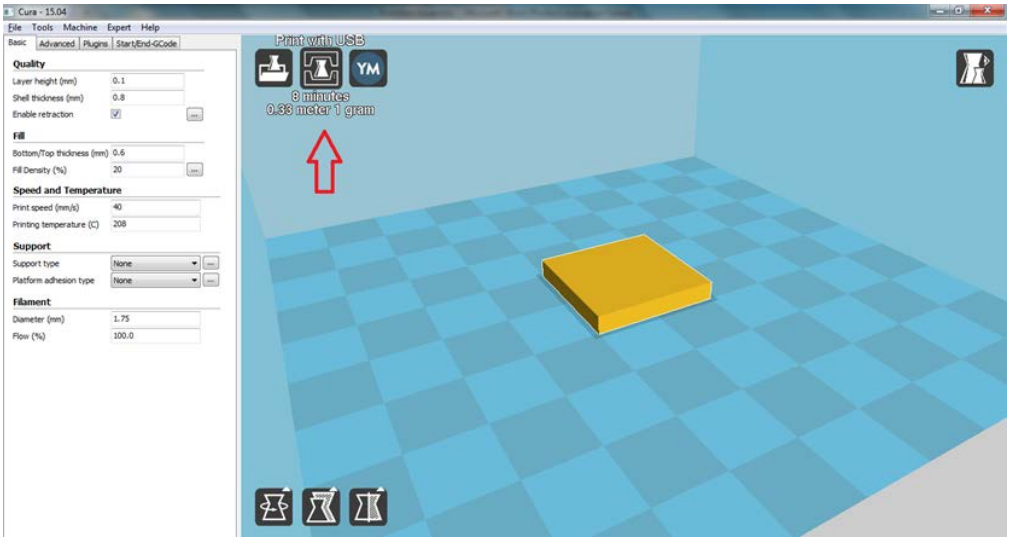


Figure 83. Cura Interface with loaded stl file

8.) A new interface will appear on top of the old one. Pause and wait while the interface loads. The top left will state “Operational, Temperature: #” when it is ready.

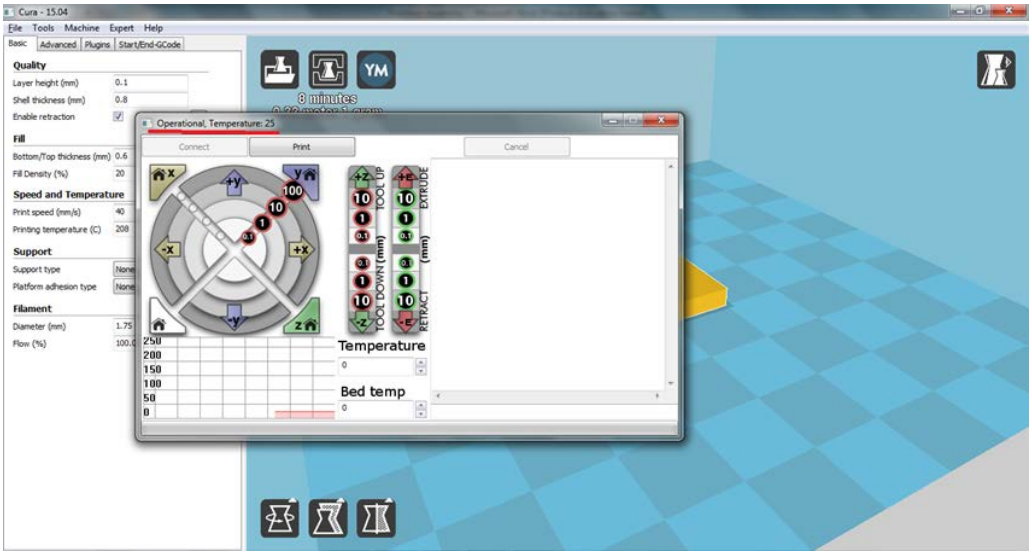


Figure 84. Cura interface with smaller dialog menu

9.) Select the “10” button on the “+Z” icon one time to raise the z-axis to 10 mm. (This is to check that it can move in the desired direction.)

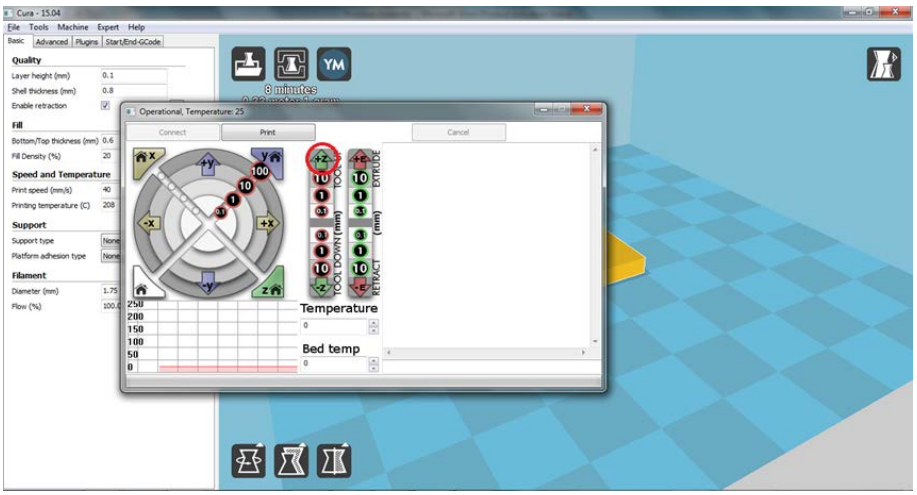


Figure 85. Cura interface with smaller dialog menu

10.)Next, click Home X then Home Y

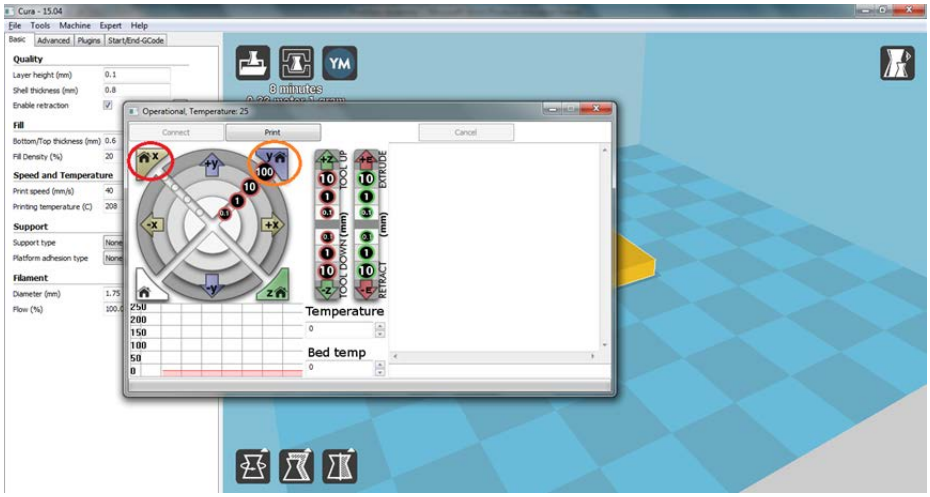


Figure 86. Home X and Home Y

11.)Enter 210 in the temperature box and tab out of the box.

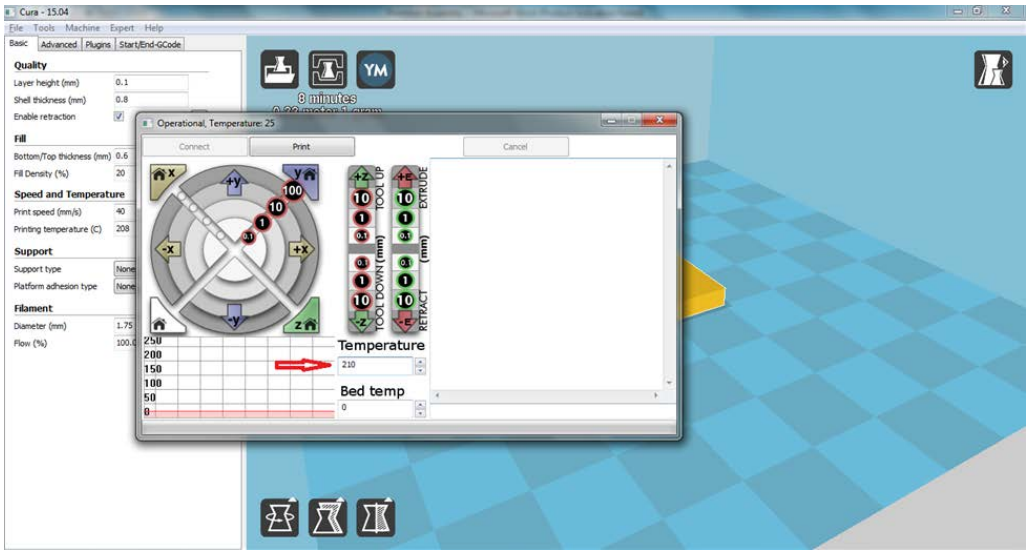


Figure 87. Temperature

12.)Then enter M501 into the command line located on the bottom right, and hit enter. A large number of lines will appear.

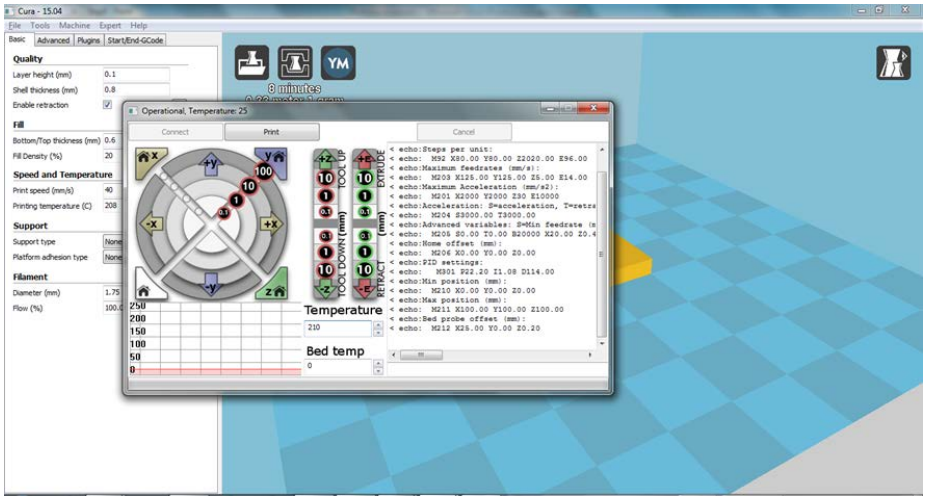


Figure 88. Command line interface

13.) To calibrate the probe, the “z” value “M212” line needs to be adjusted to zero. To do this, adjust the auto-leveling probe by using the large screws on both sides of the apparatus.

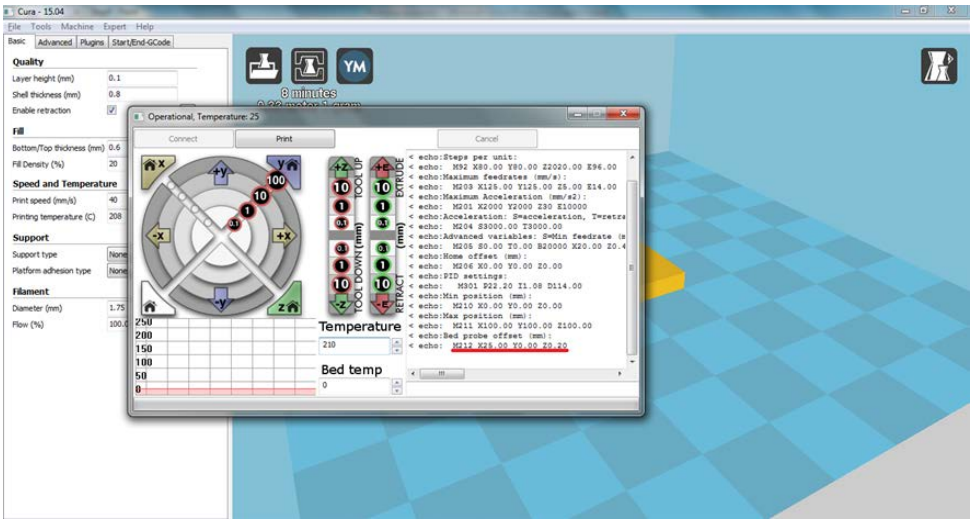


Figure 89. Z Calibration

14.) Once the interface indicates that the temperature is at 210, you are ready to begin printing.

15.) Press the +10 extrude button on the interface until the melted filament comes through the tip.

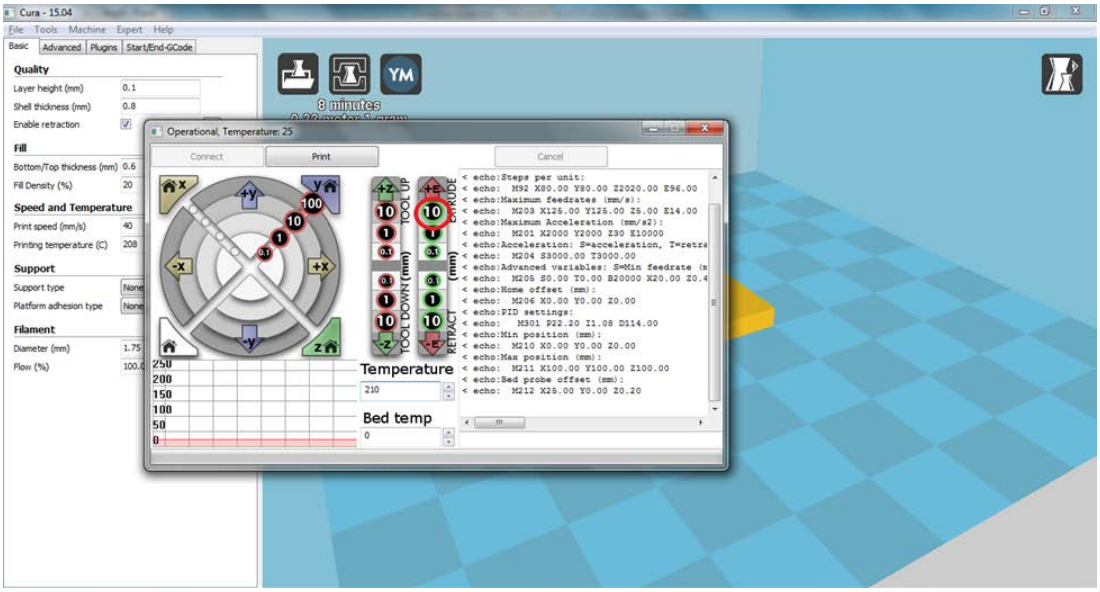


Figure 90. Extruder

16.)Press the “Print” button on the interface to begin printing.

a. **DO NOT TOUCH THE HOT END!!**
b. **DO NOT LEAVE WHILE YOUR PRINTRBOT IS RUNNING.**

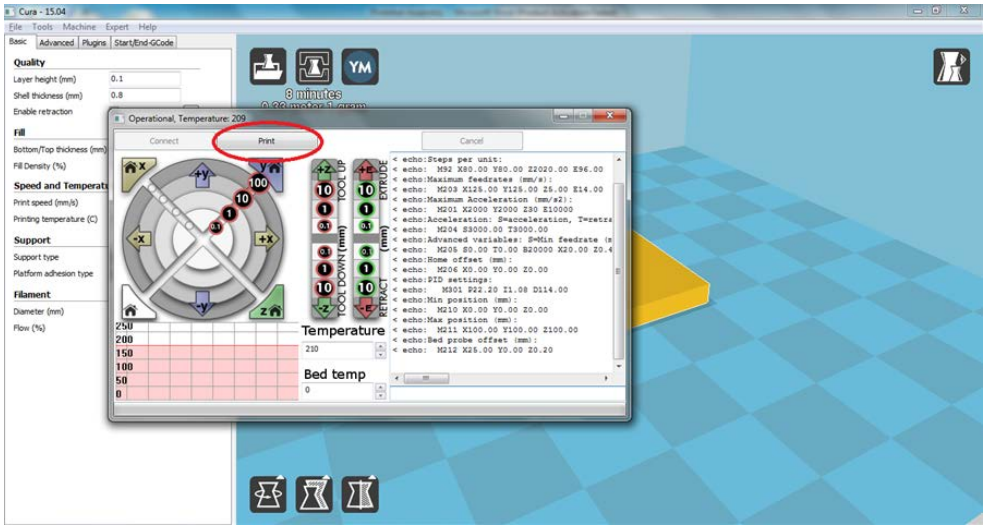


Figure 91. Print button

17.) Aim to calibrate the autoprobe so that your Printrbot will have a perfect bead. This means that the hot end is **not too high, causing the filament to just fall down, or too low, causing the tip to dig into the filament as it is extruded.**

18.)When the 3 mm box is finished, remove it from the bed with a putty knife or similar tool.

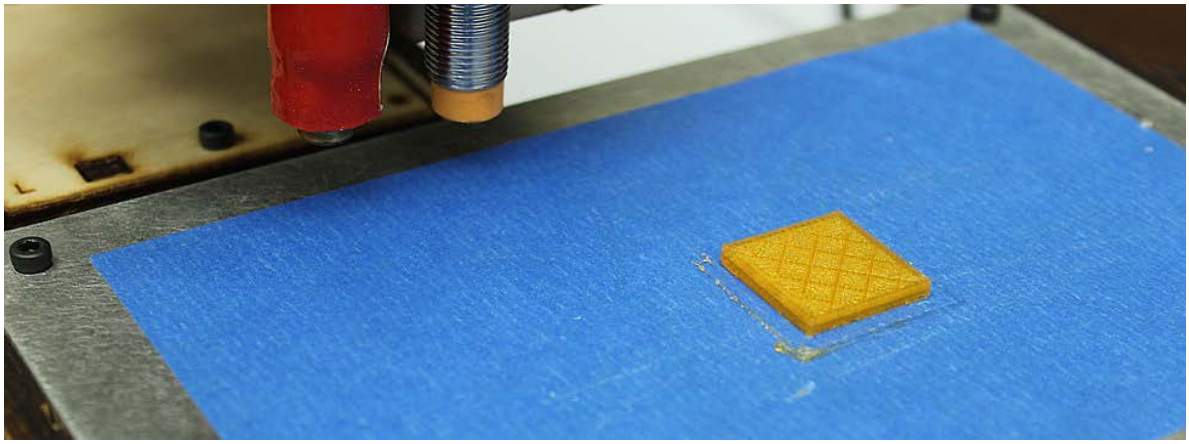
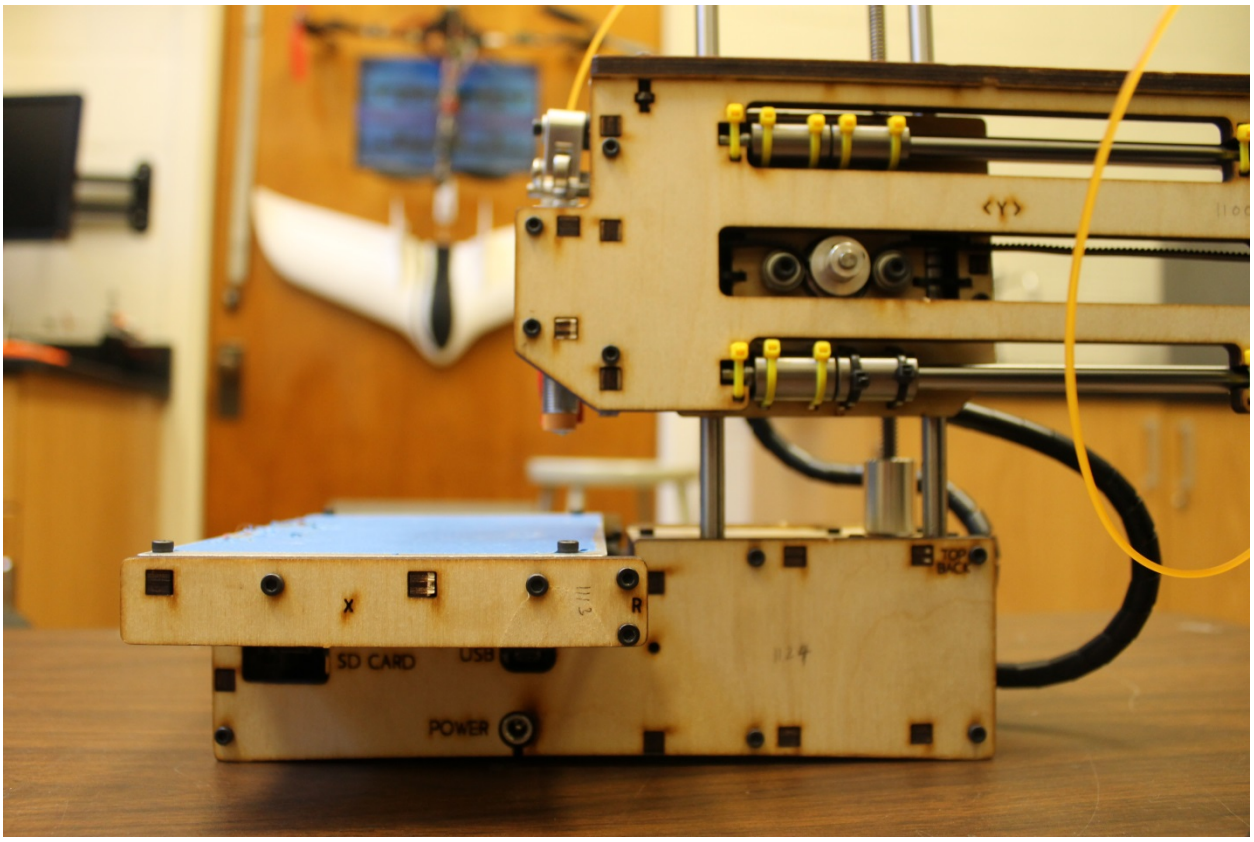


Figure 92. Finished printed 3mm box

Cura Software: https://ultimaker.com/en/products/cura-software
Getting Started with Cura:
https://printrbot.dozuki.com/Guide/2.+Getting+Started+with+Cura+on+Your+Printrbot+Simple/164
Link to calibration: https://printrbot.dozuki.com/Guide/4.+Using+Cura+to+Set+Up+Your+Auto-Leveling+Probe+and+Create+Your+First+Print+with+Your+Printrbot+Simple/190


SD CARD
POWER

Frequently occurring problems:

Problems	Troubleshoot suggestion
The printer doesn't connect with the Cura program	Check all the power cable and connection cables, and the drivers for the control board
The motor move in opposite direction	Check the connection cable with the control board. Try switch the cable connectors
The extruder motor doesn't move	Check the temperature setting. The extruder will not move until the nozzle reaches the required temperature.
The filament does not attach to the print bed	Check the extruder height calibration
The nozzle collides with print bed	Check the extruder height calibration
The X-axis does not stop at the limit when you hit X home position	The end stop doesn't work. Check the wire connection. Check that the head of screw* hits the end stop when it reaches the limit. *below the print bed
The Y-axis does not stop at the limit when you hit Y home position	The end stop doesn't work. Check the wire connection.
The Z-axis doesn't move but the Z motor works	Check the coupler set screw. Make sure it is tightened well.
The drive belt is loose	Check the belt tension and tighten the screw.