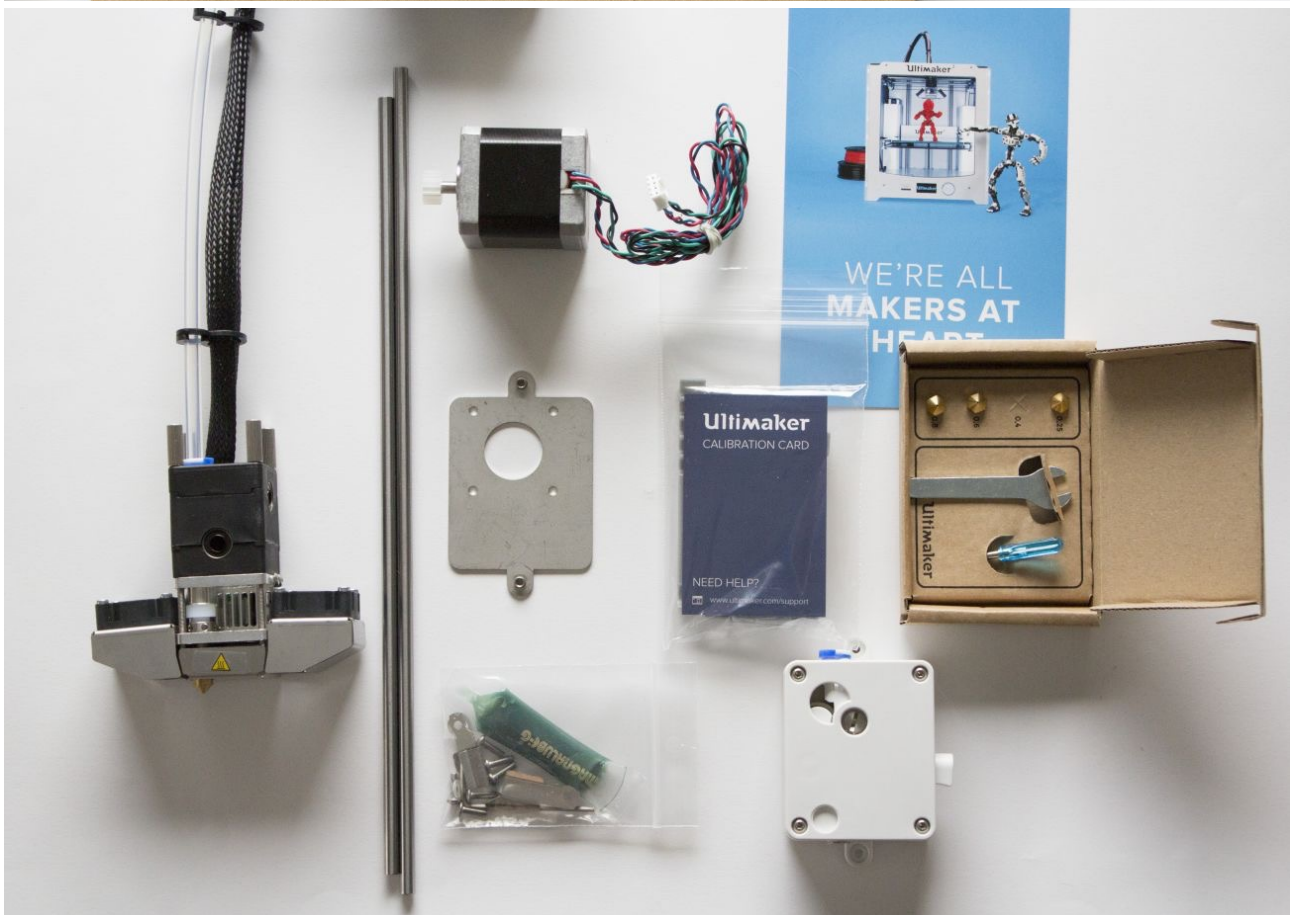


## Ultimaker 2 Plus Kit on Ultimaker Original Plus

Well I finally got one UM2kit and I'm getting ready to install it on one of my umo+.  
So far everything it's just very plug and play.



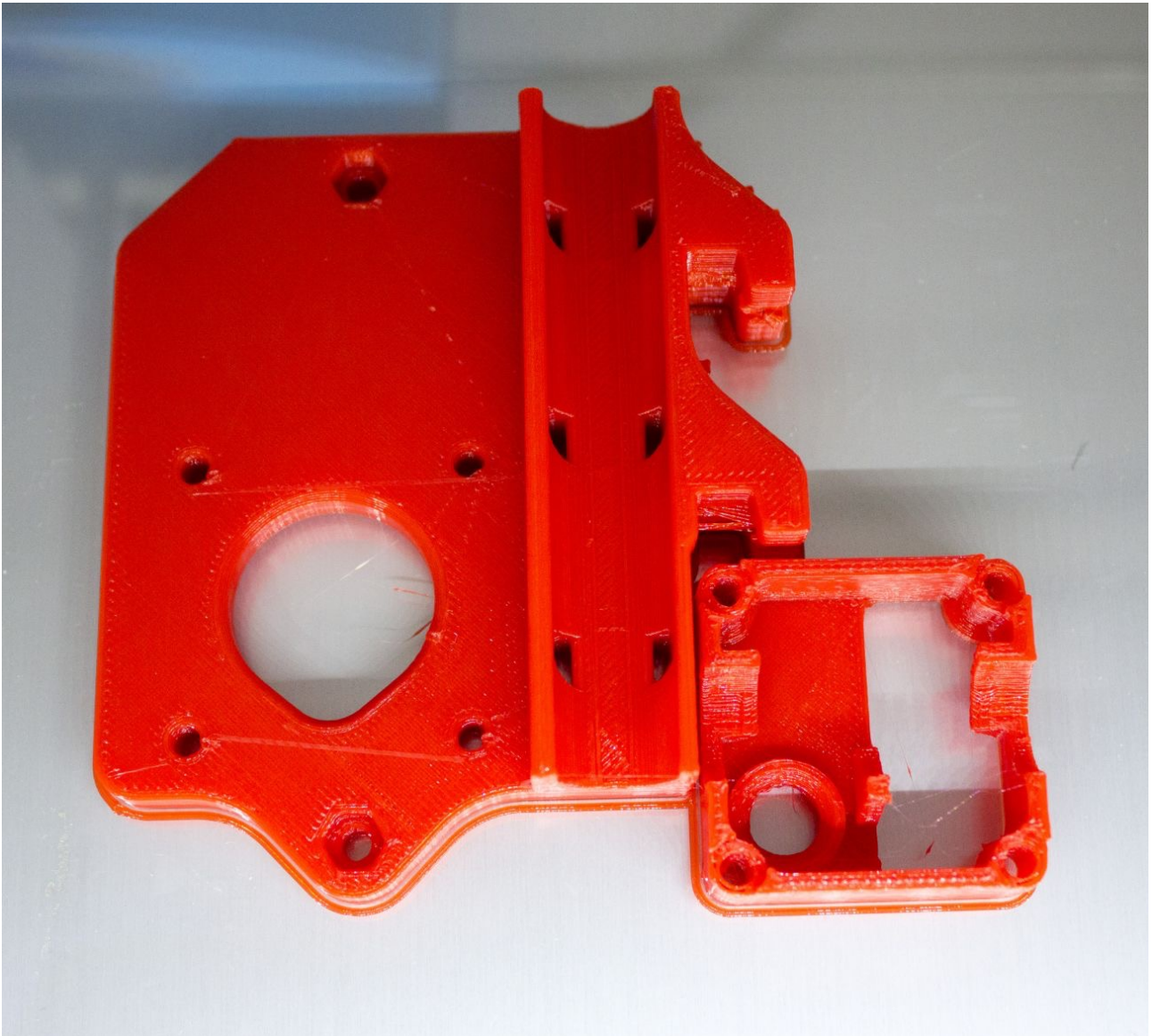
[Meduza](#) Addon's to install it on Umo+

**Rotated printhead**

<https://www.youmagine.com/designs/um2-printhead-top-for-umo>

**Feeder adaptor**

<https://www.youmagine.com/designs/um2-extrusion-upgrade-kit-mount-for-umo>



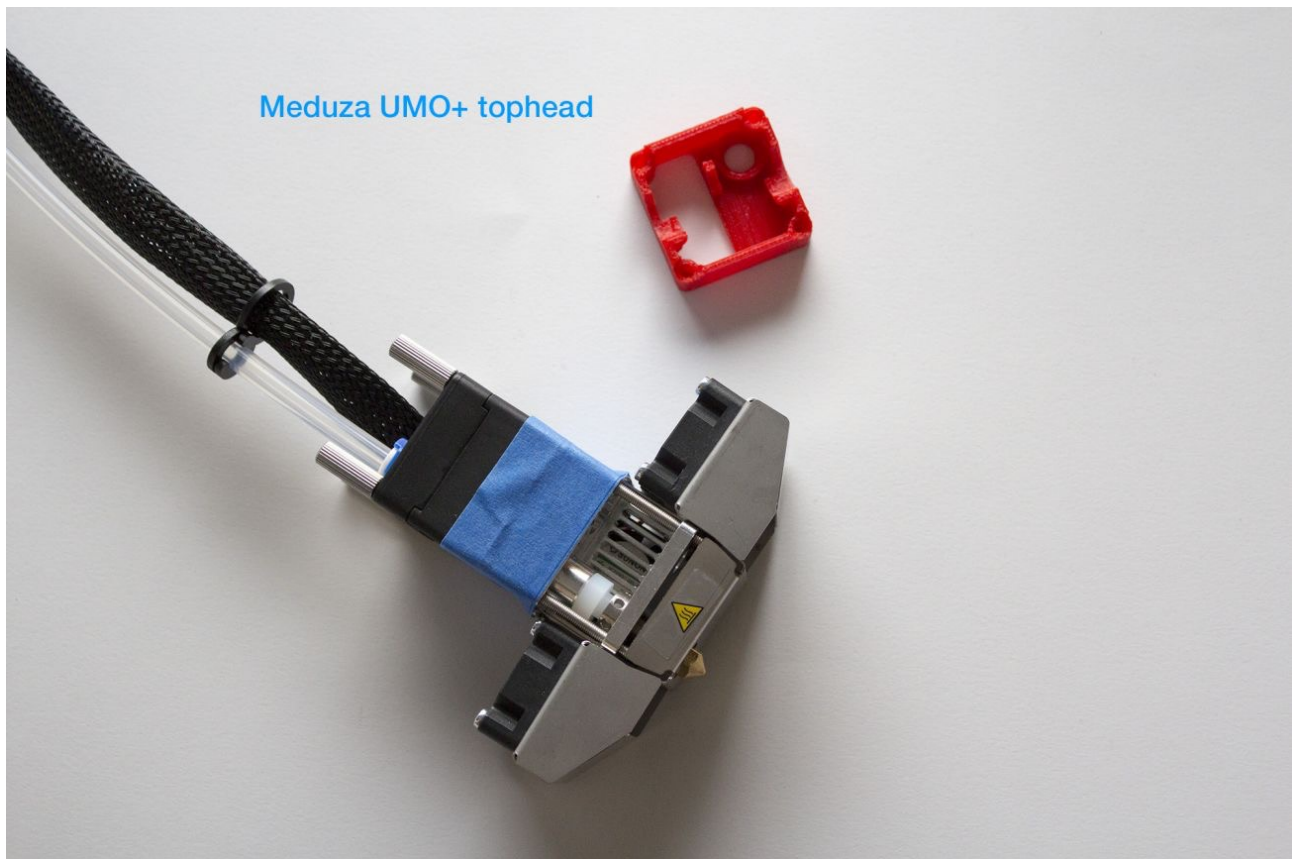
I'll post more as soon I get my hands dirty this weekend, but since the printed parts are ready I suppose it won't take much time, unless I stop for an ice-cream or a coffee.

I'm also making slideblocks to use the longer um2 shafts, and I'll try to advance in that direction after the basic installation it's done and running. For more on that go to:


<https://ultimaker.com/...se-um2-shafts-hotend>

## First steps - Setting all ready

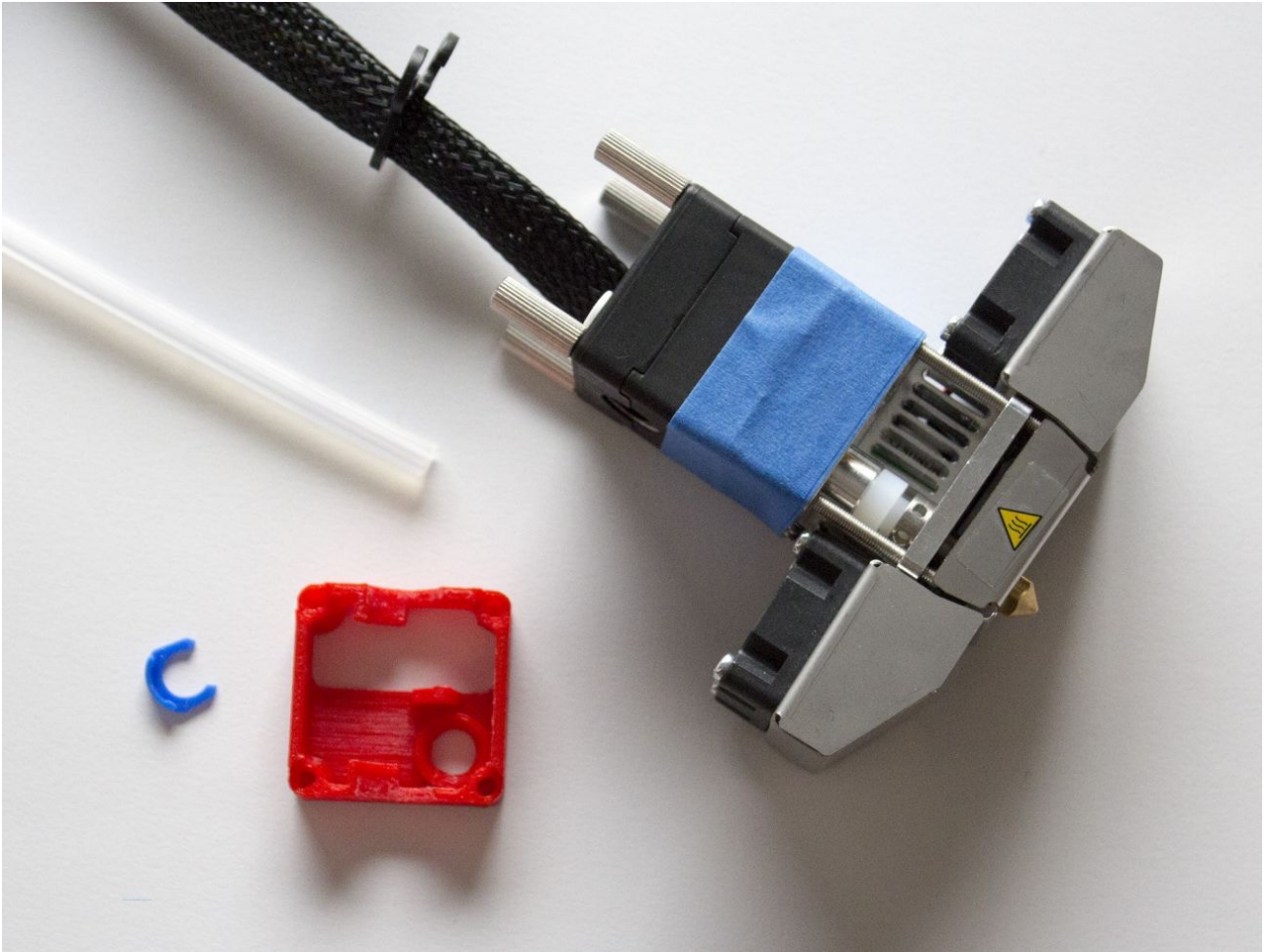
Hotend



Make sure the screws pass smoothly  
(if not, clean with a 3mm drill or a file)

A photograph showing the red plastic cover cap from the previous image. A silver metal screw is being inserted into one of the holes in the cap. The text "Make sure the screws pass smoothly (if not, clean with a 3mm drill or a file)" is overlaid in blue.

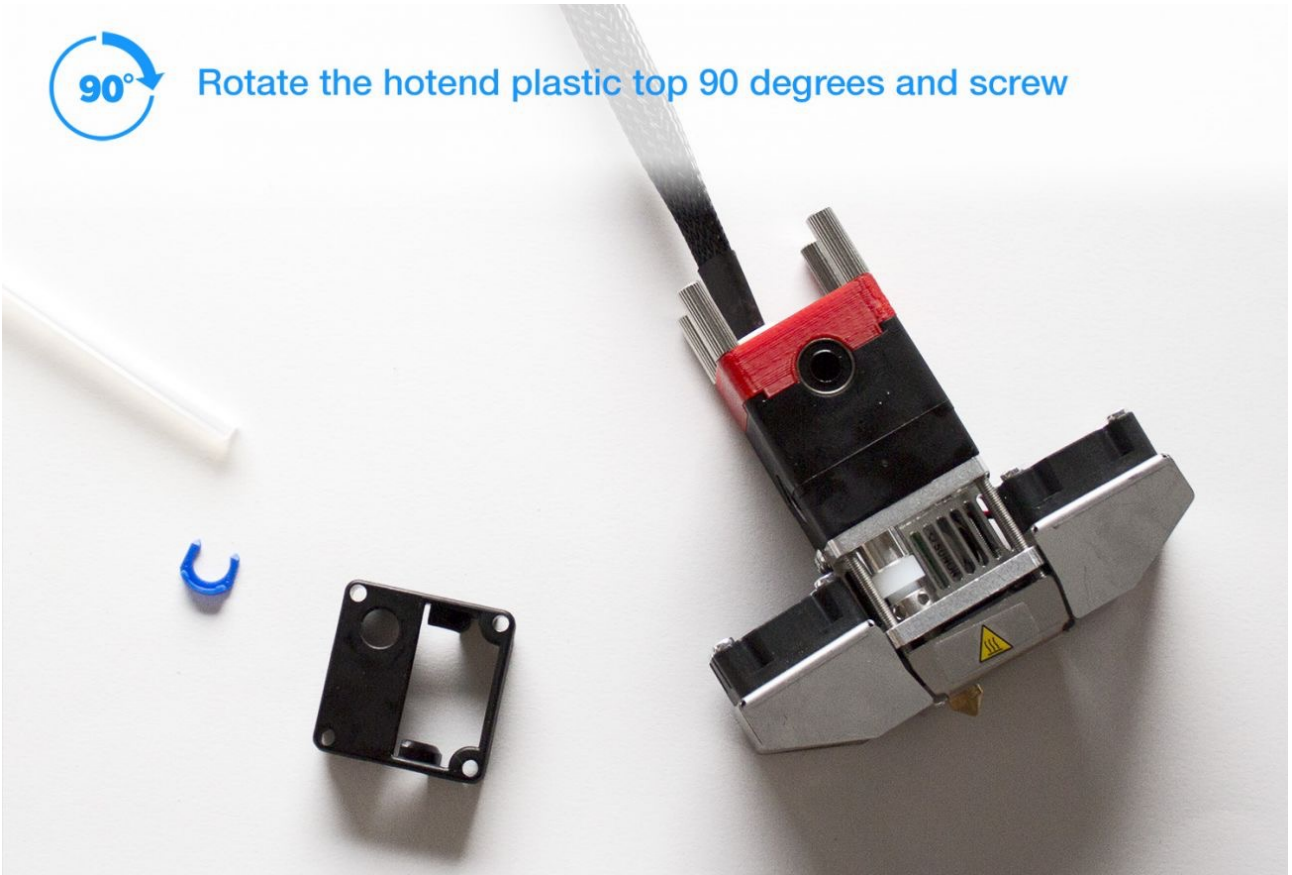
Before starting. You will need to be sure that the printed part x4 screw holes are clean and the long hotend screws are clean. If not, use a 3mm drill bit or a file (or the screws until they pass clean and smoothly).



Take out the bowden and the clip from the um2+ hotend. Unscrew the x4 long screws and take out the top of the hotend black plastic. Don't worry the bottom part with the coupler, nozzle and all that won't move a bit, that part it's independent on um2/um2+ hotend.



Rotate the hotend plastic top 90 degrees and screw



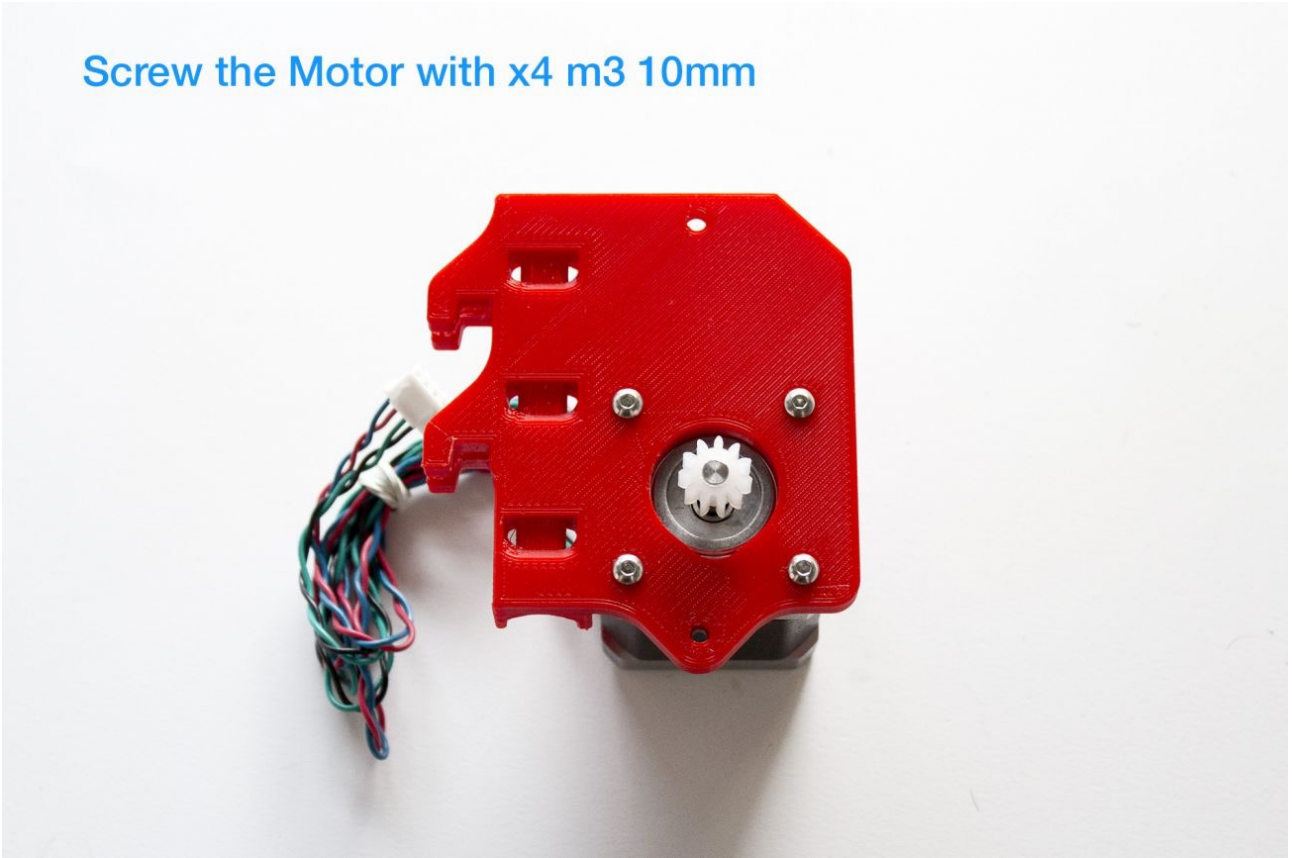
Then take out the um2 top and replace it with the new printed part. BUT remember to ROTATE it 90 Degrees, so the top bearing it's facing you. Make sure that the back CABLES ain't being crush and they are just like they where when we started this. I must say that it's almost imposible to crush them since they are really neatly installed, but better safe than sorry.

Insert the bowden clip, bowden and blue thingy. Ok, hotend ready to use. Let's do some other stuff.

### Feeder time

The metal adaptor that comes with the upgrade kit won't be needed for umo+. Just the white feeder part. Get x4 m3 10mm and screw the motor to the feeder hanger.

Screw the Motor with x4 m3 10mm

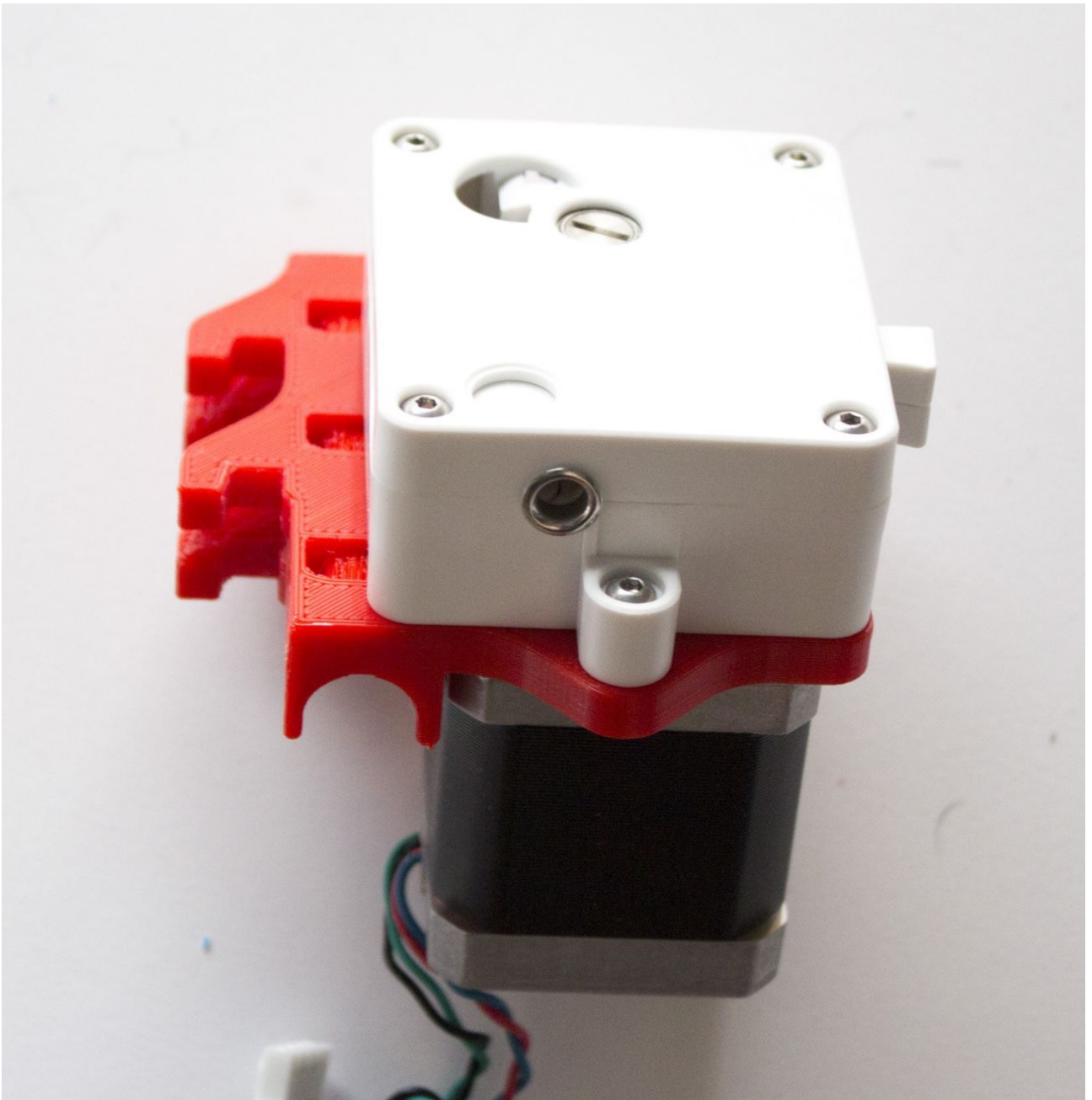


After that, you need to secure the white gear feeder to the meduza adaptor. This time you need x2 nuts and x2 m3 14-16mm. You could even use 20mm or longer for this since they won't touch anything but to make it look clean try to use 14-16mm.

Screw the Feeder with x2 m3 14-16mm

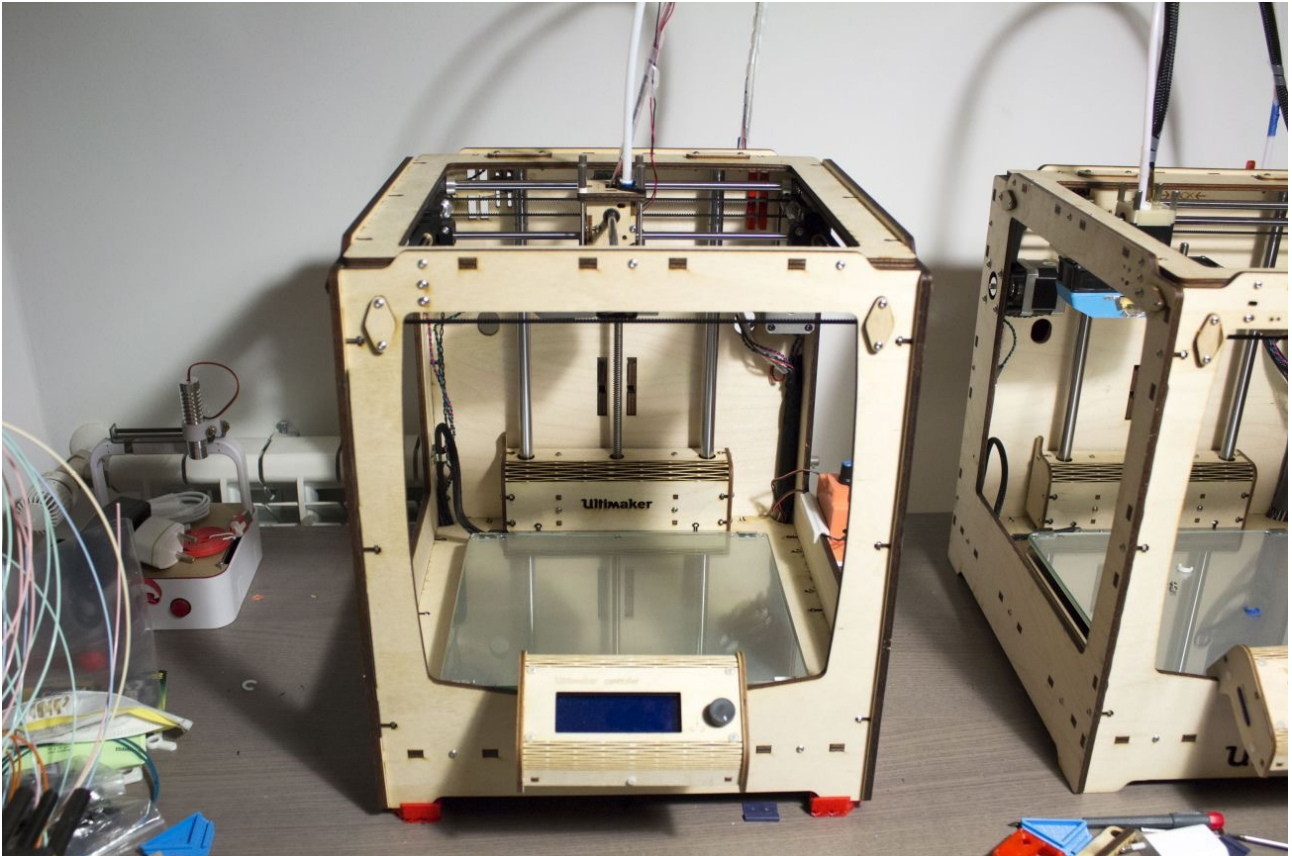


Ok feeder done. One think I noticed [meduza](#) it's that there's no clearance to grip the cable later on. So this part might need a little bit of adjustment. Anyhow isn't biggie.



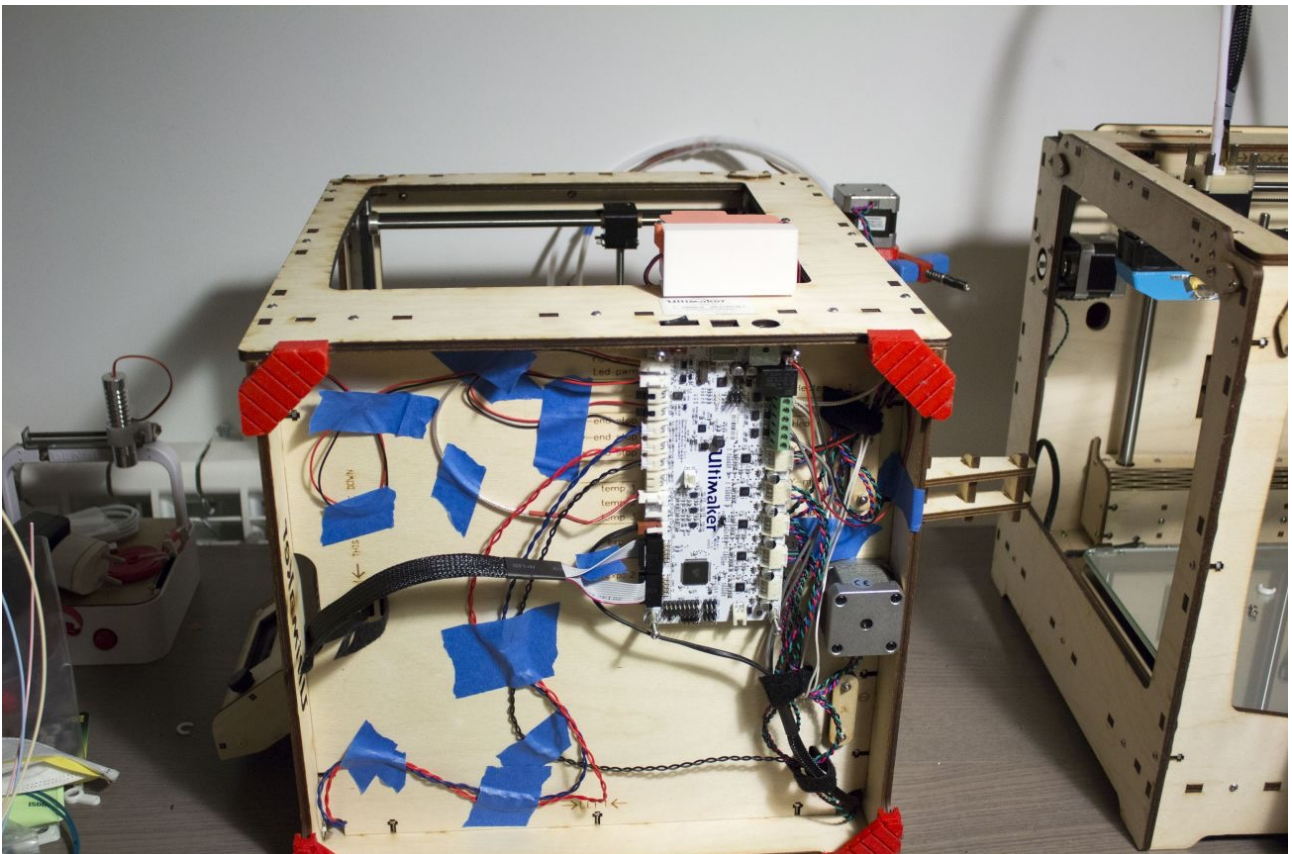


## Time to update the hardware!

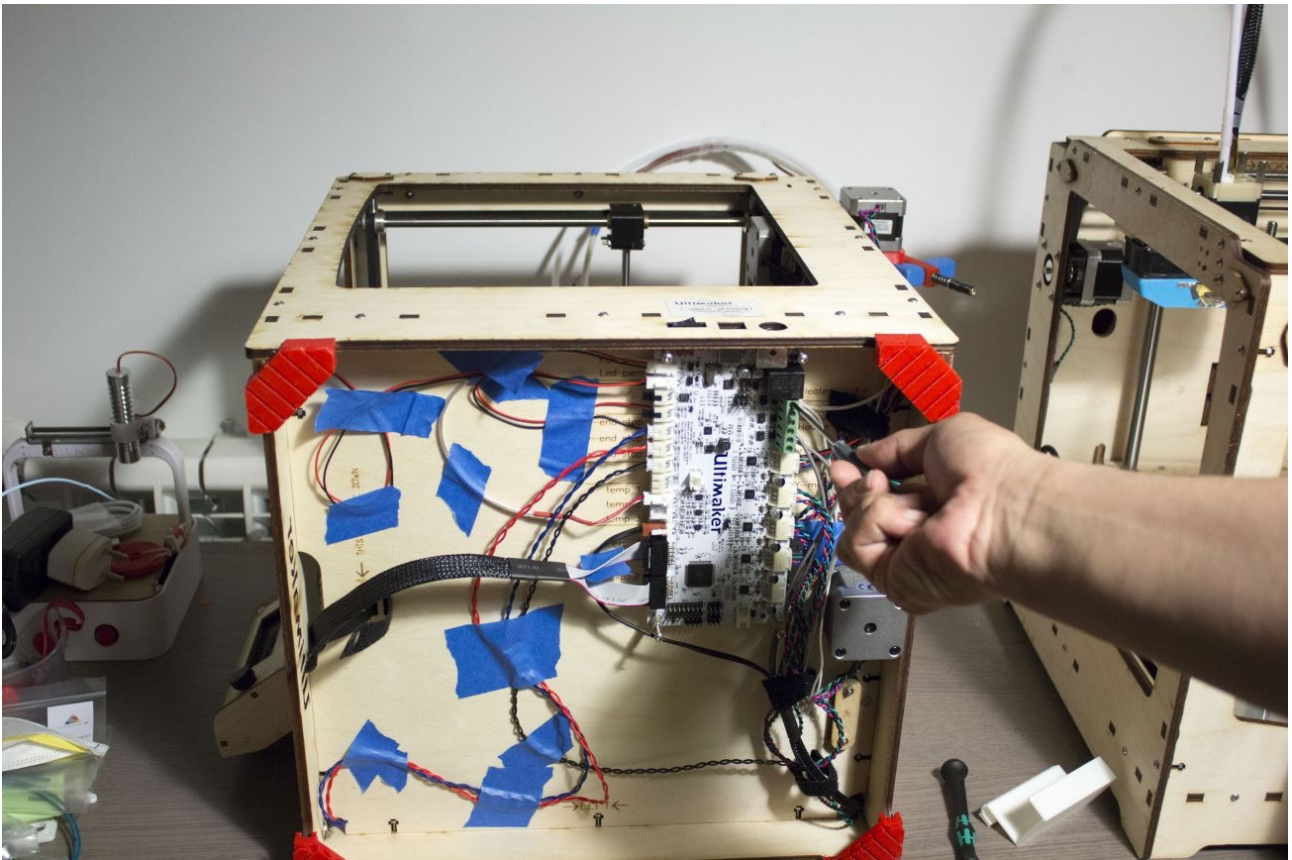


First, disconnect the power and make sure there's no residual power on the machine (do a turn on/off while unplugged)

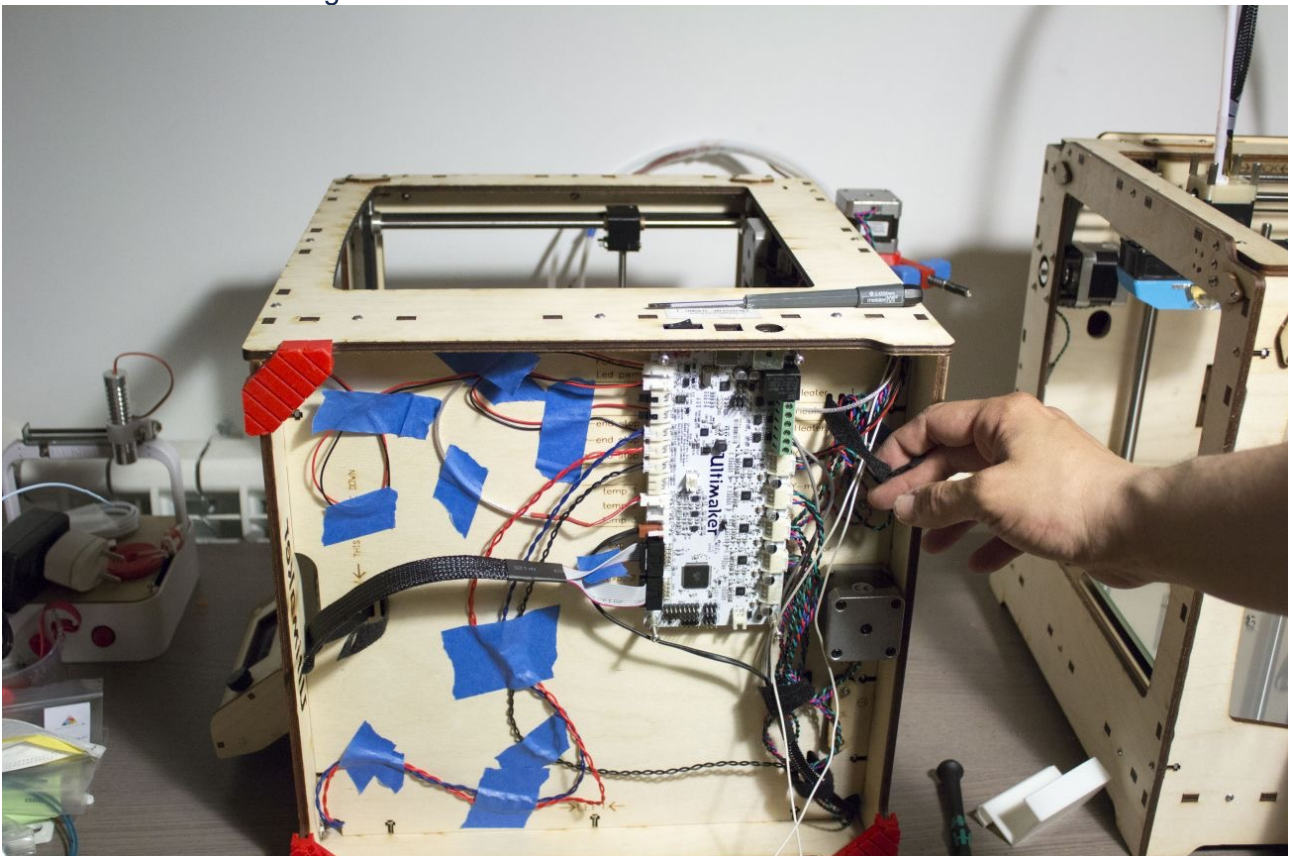
Take out the board Wooden cover



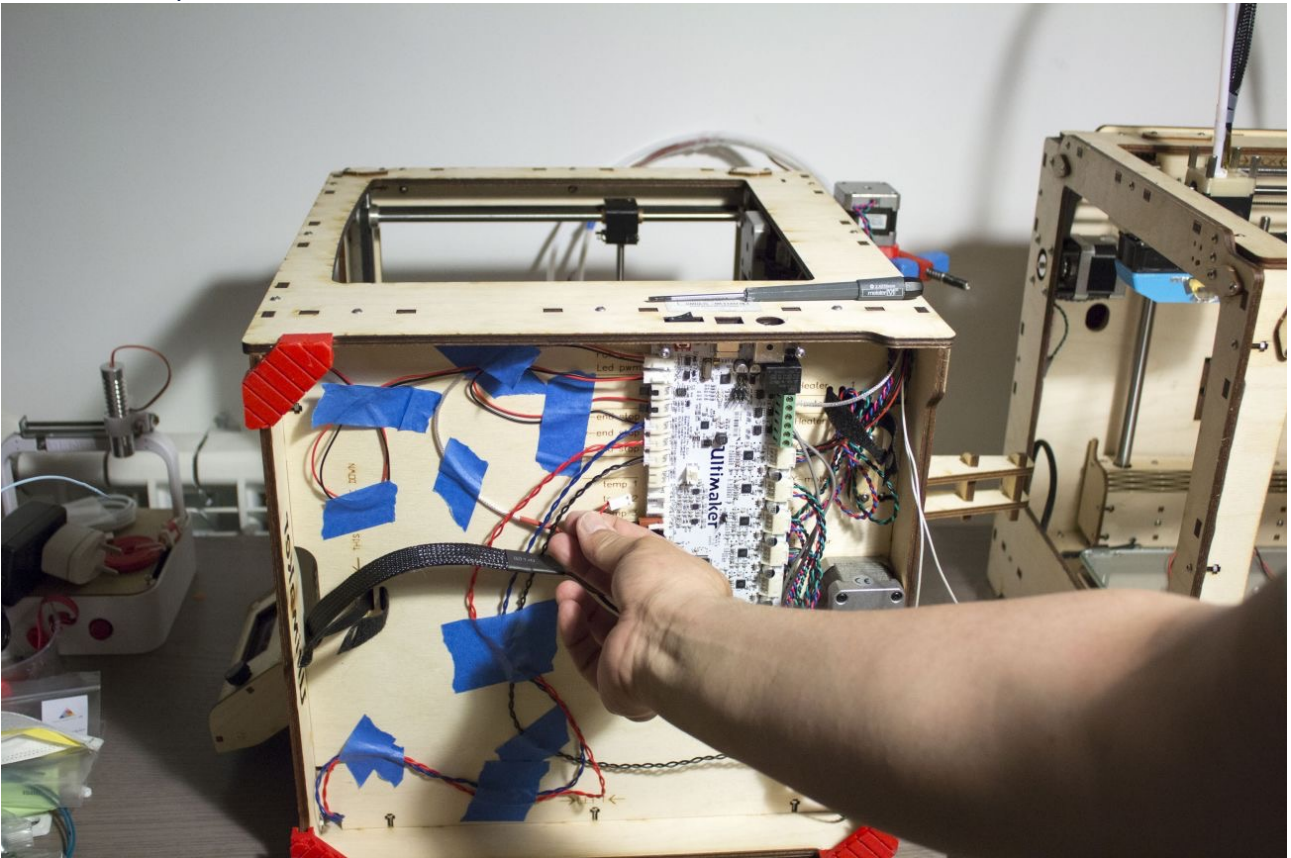
This part depends on what model of board you have, 2.1.1 needs a flat screw driver while 2.1.4 have a different clamp system for the Heater.  
Unscrew the heater 1 cables



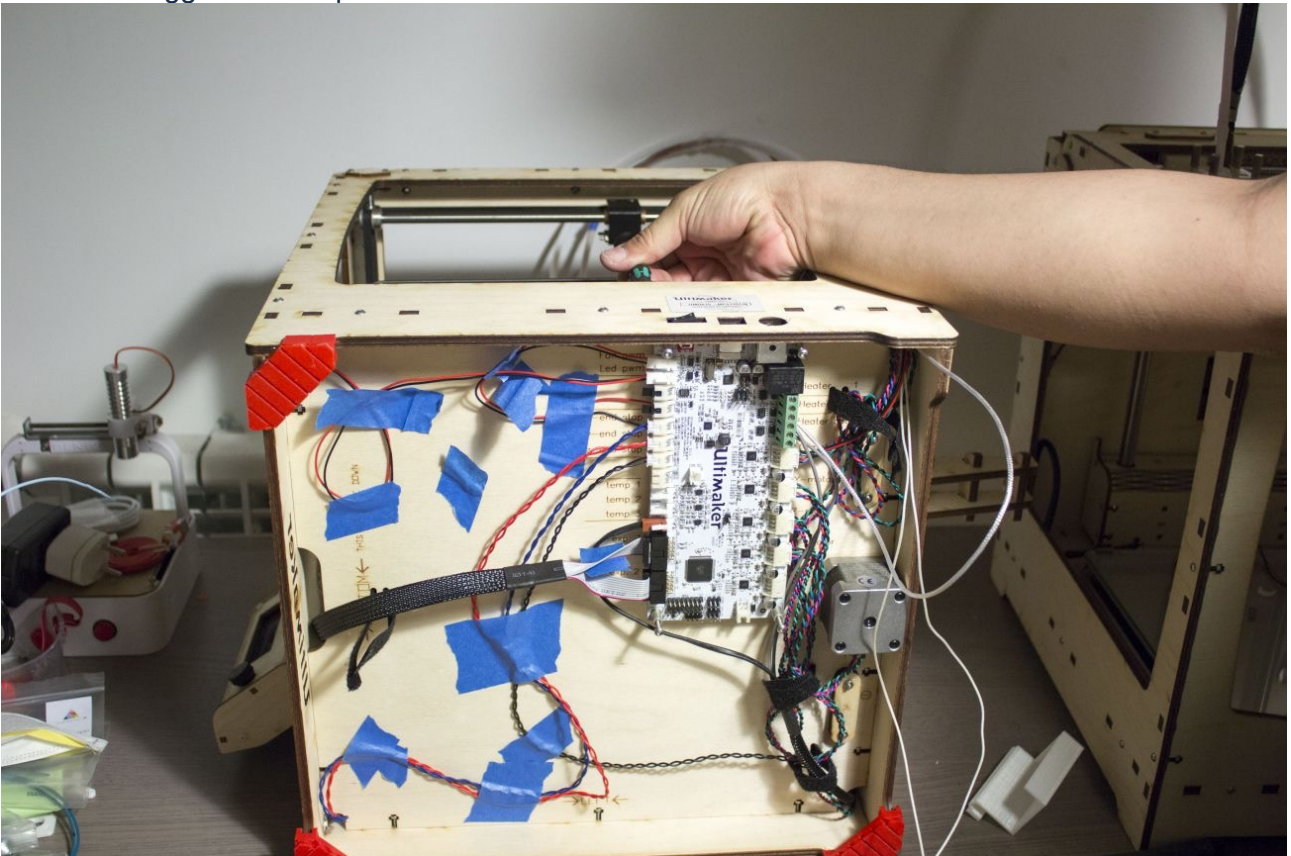
Relax the velcro fastening.



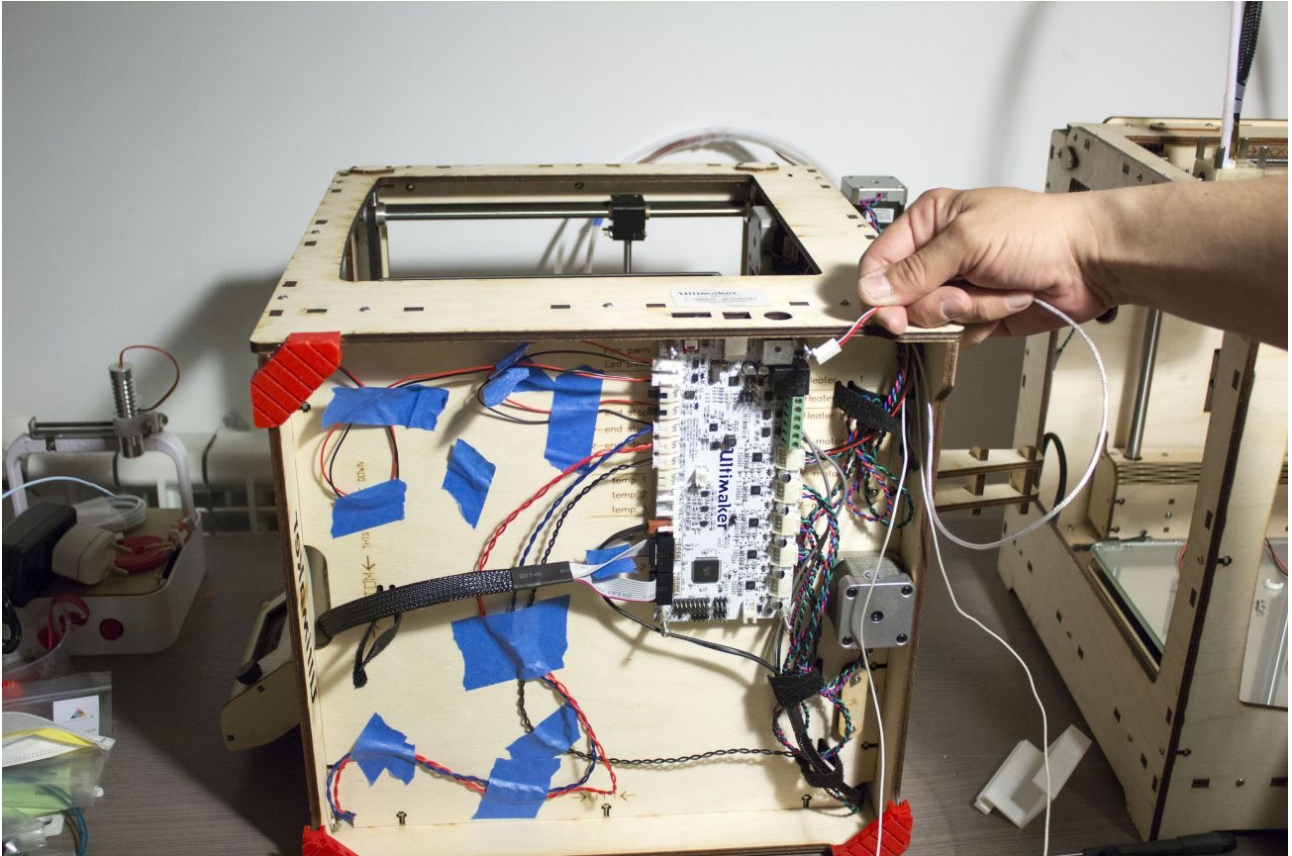
Take out Temp 1 sensor.



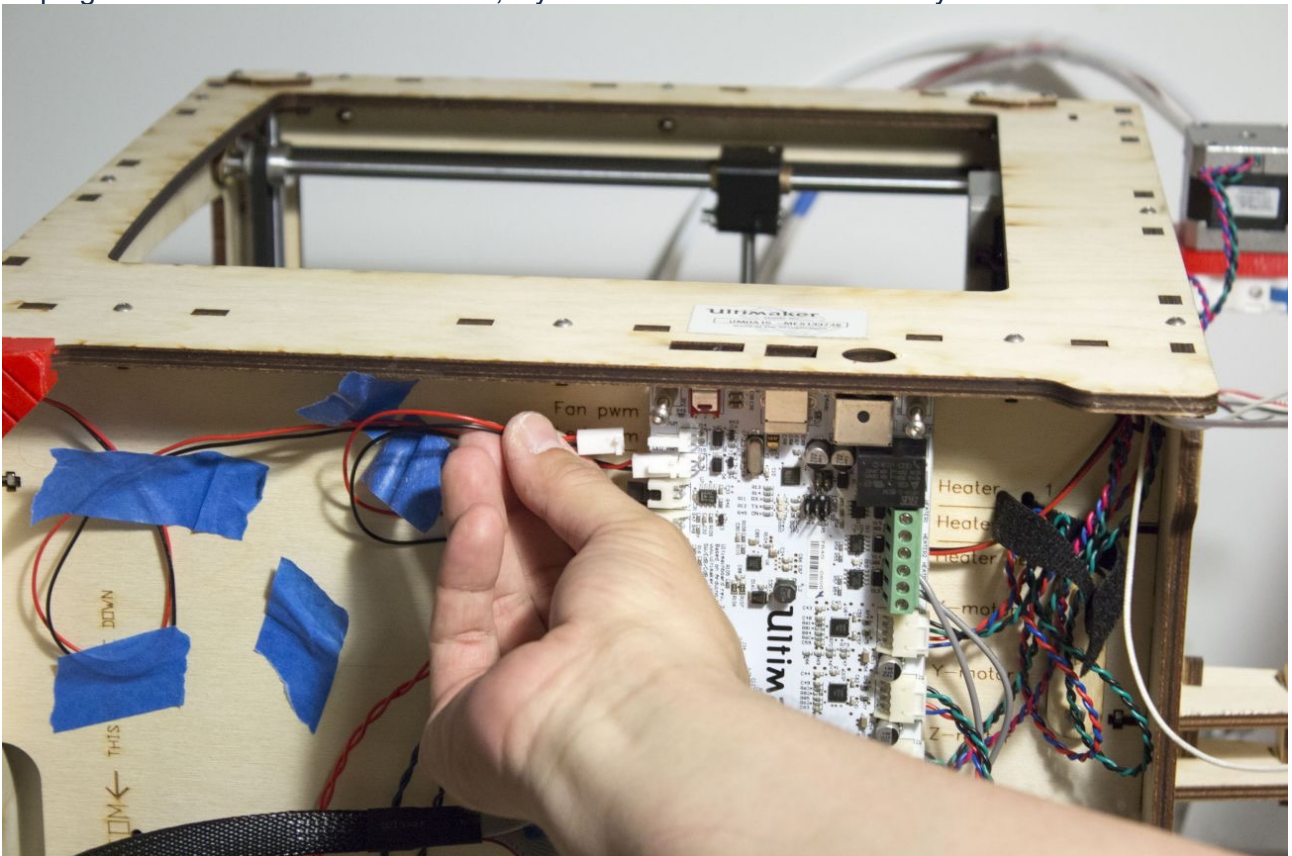
If you installed it like me, with the pt100 behind the board, you will need to unscrew the board a bit so there's wiggle room to pull it out. Move the bed to the z if needed.



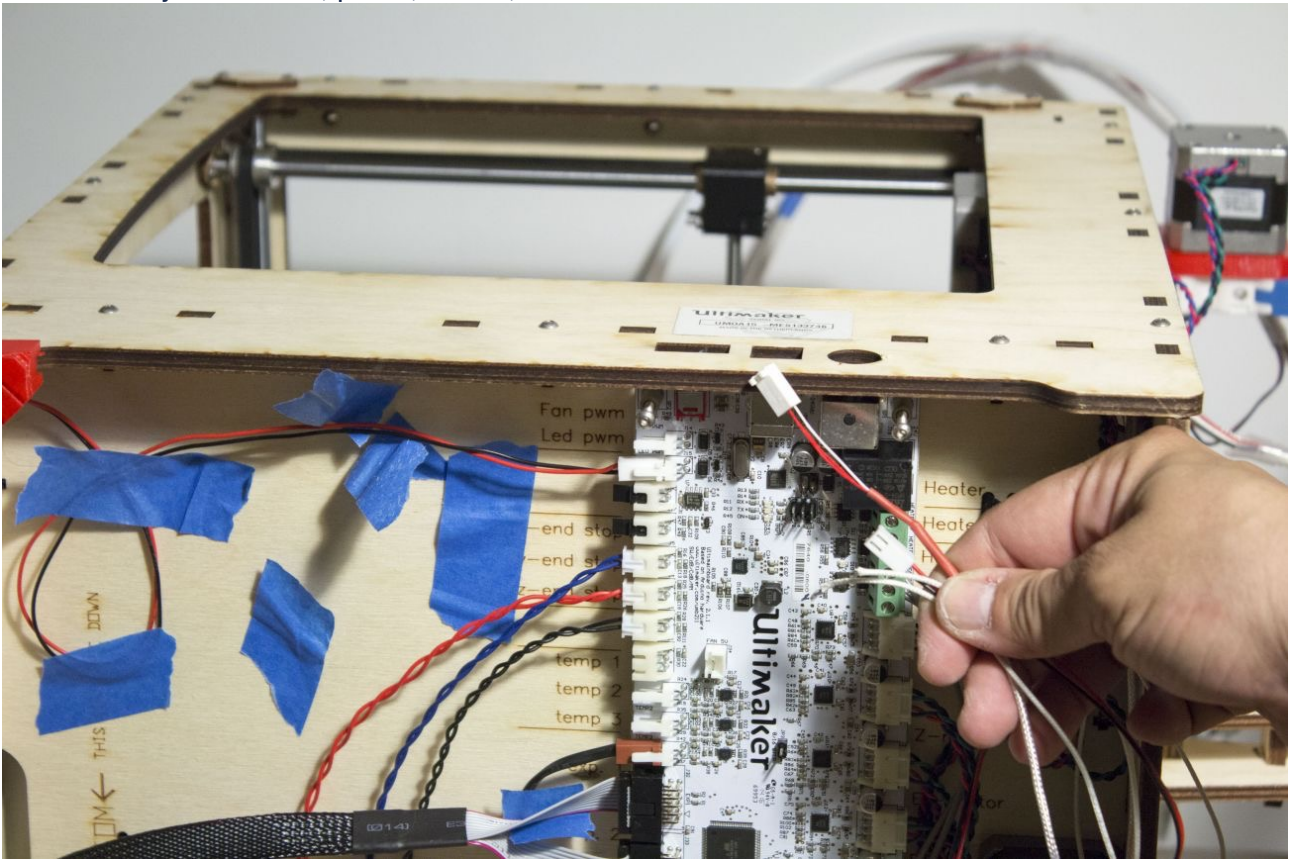
Pt100 disconnected fully



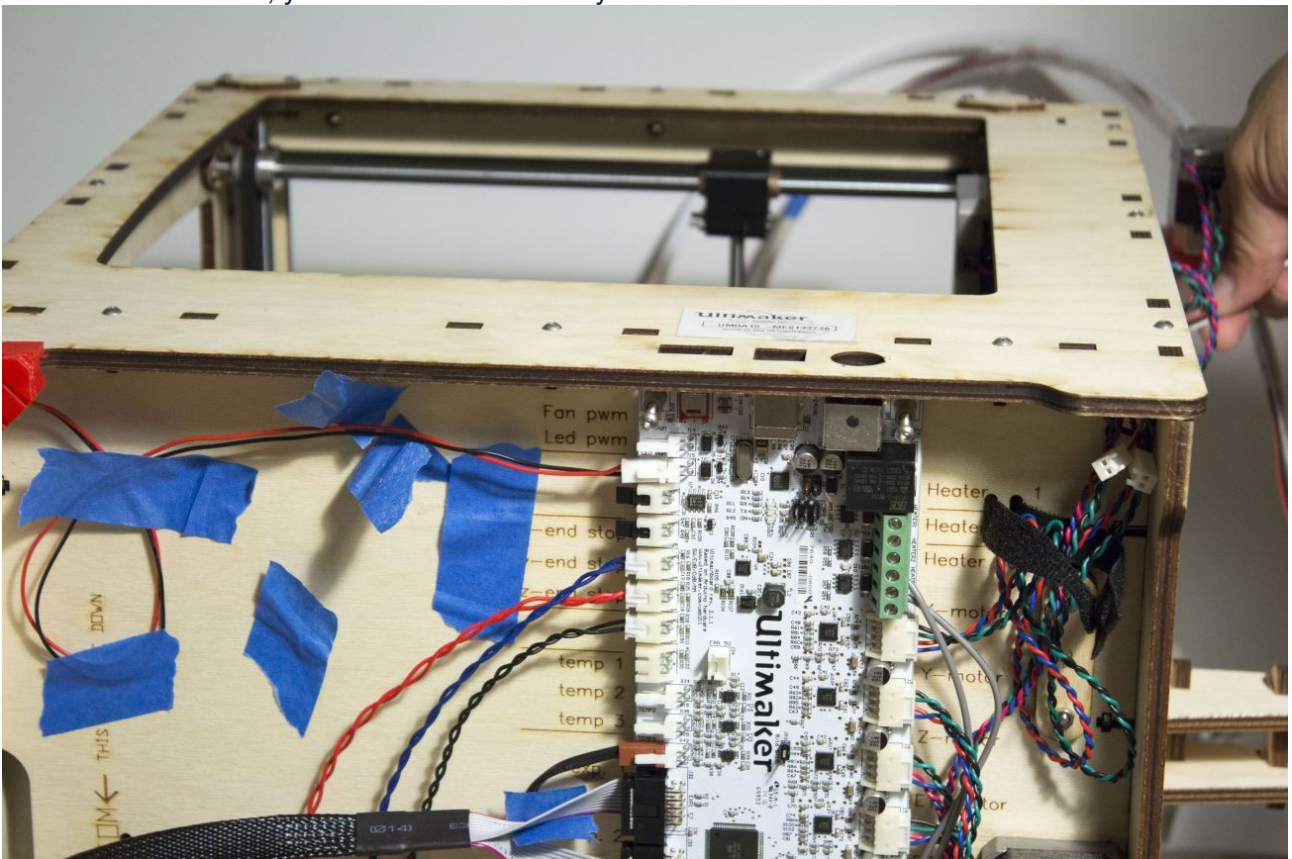
Unplug the fan cable. Same as before, if you installed behind the board you know the drill.



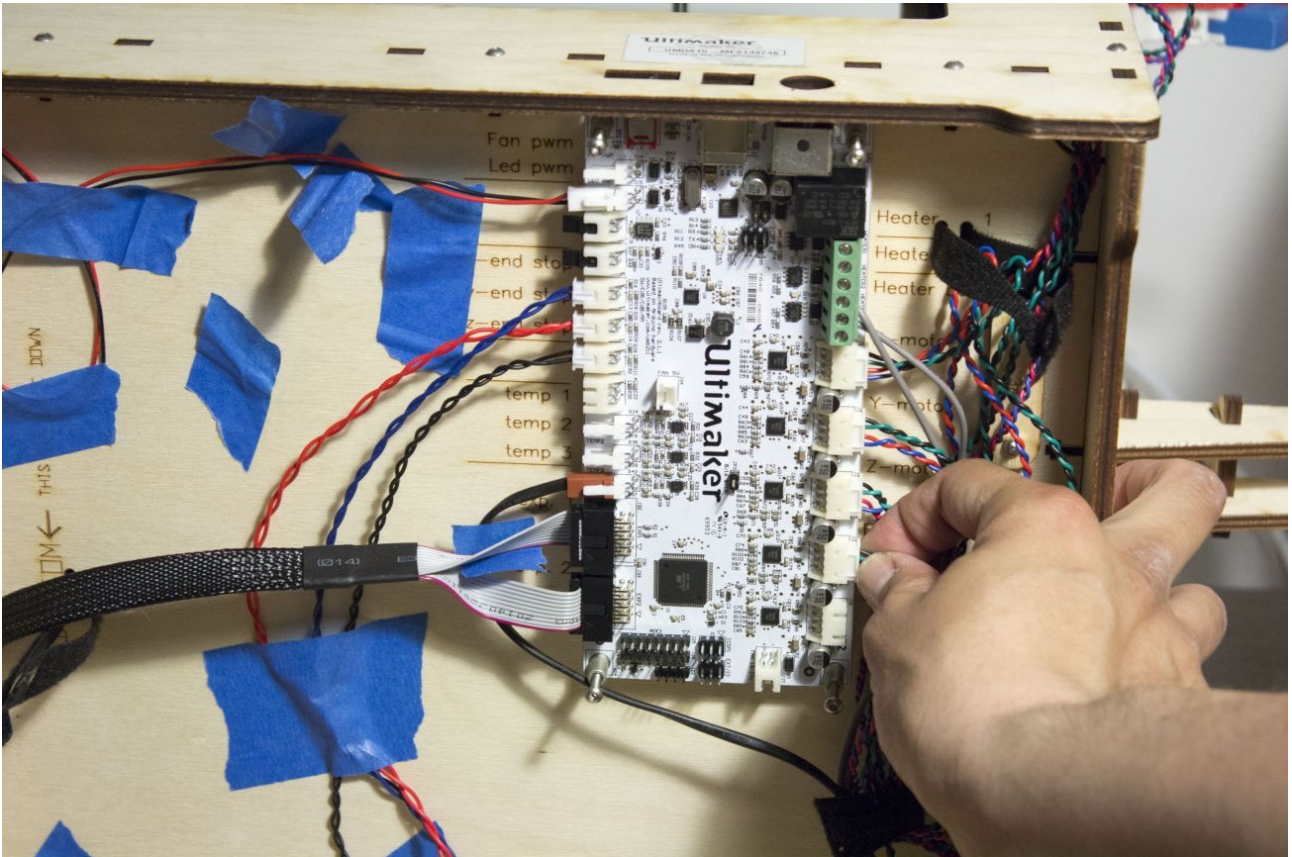
Cables ready to take out, pt100, heater, fan.



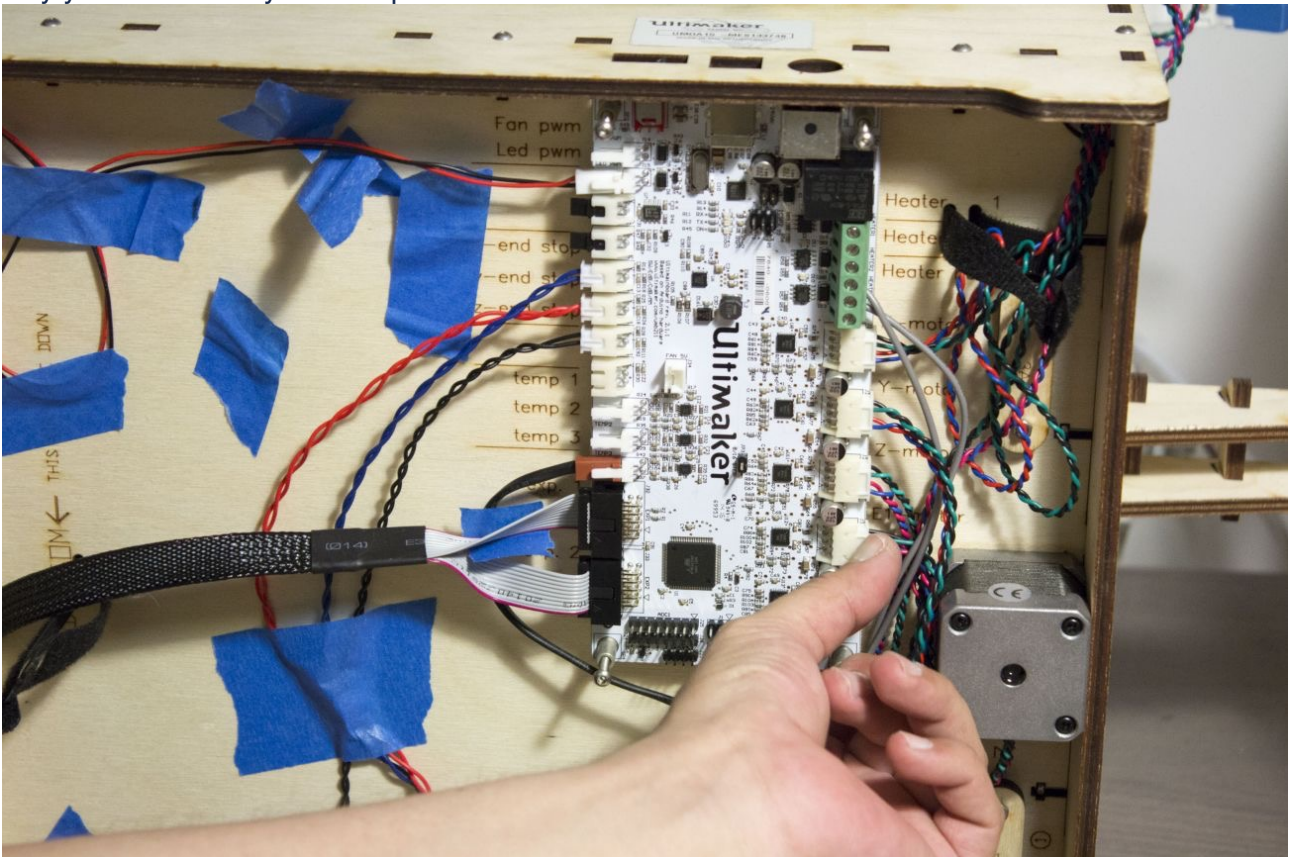
Pull out the 3 cables, you won't need them anytime soon.



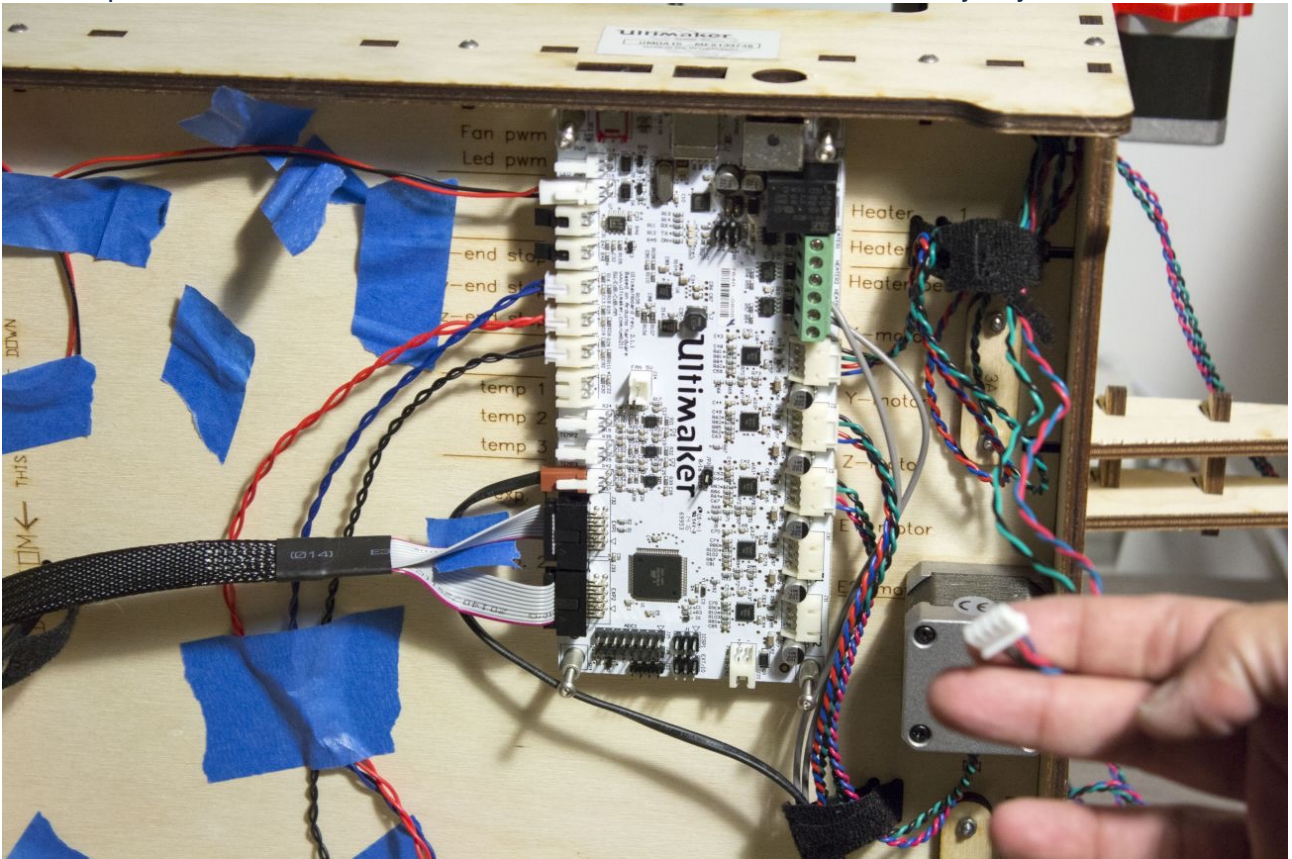
Disconnect feeder 1 motor



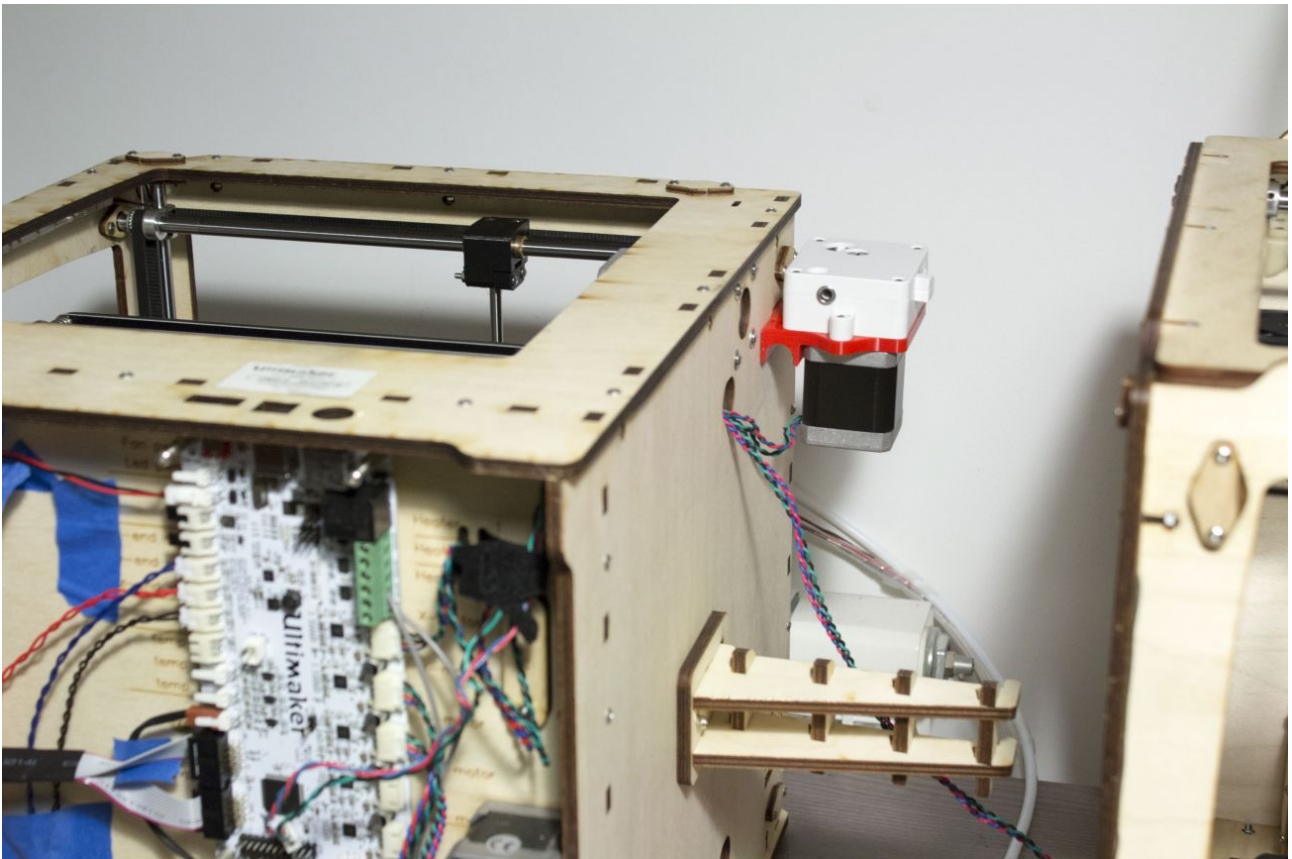
To take the feeder 1 cable out it's better to push with the fingernail on the top of the plastic, this way you make sure you don't pull the cables out of the connector.



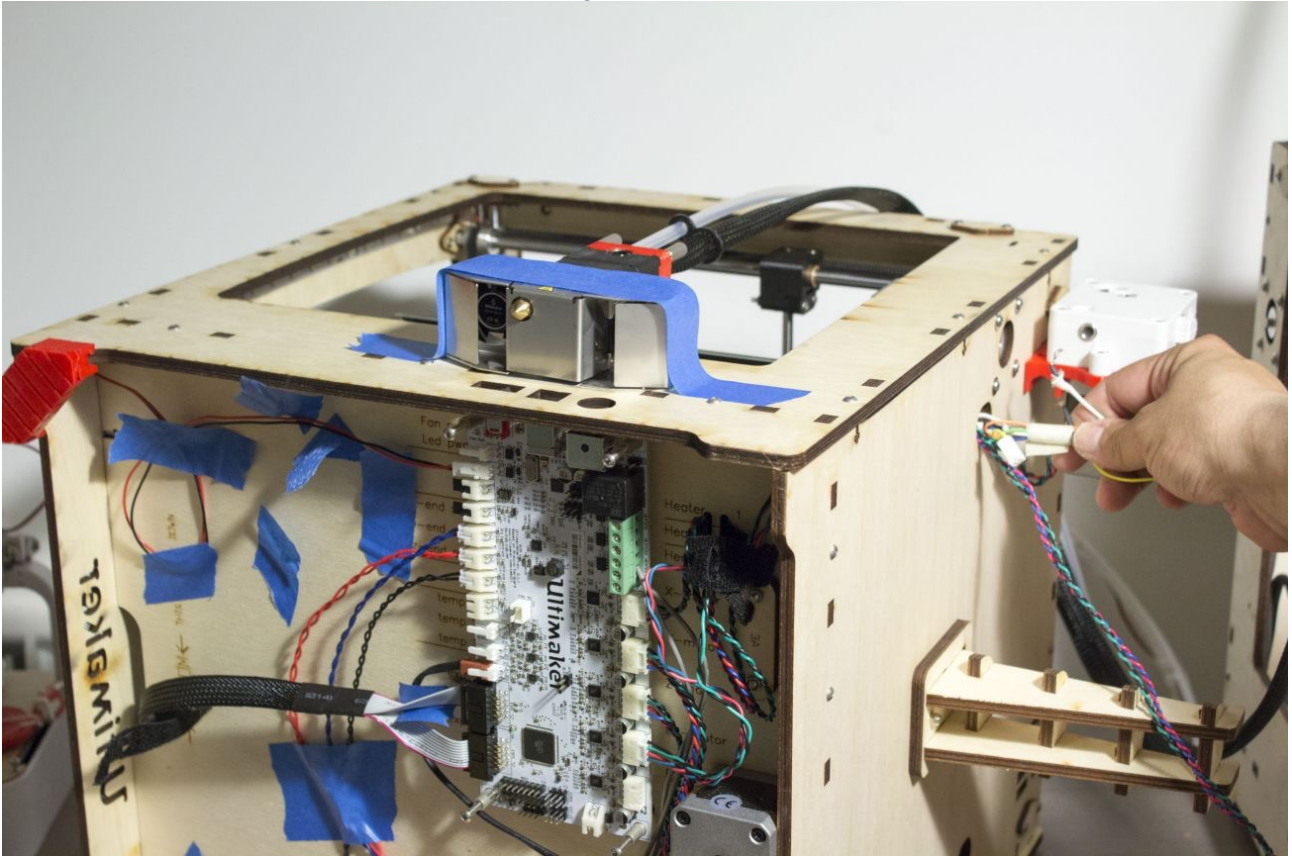
Time to pull out the feeder motor and from the frame too. Save it for a rainy day.



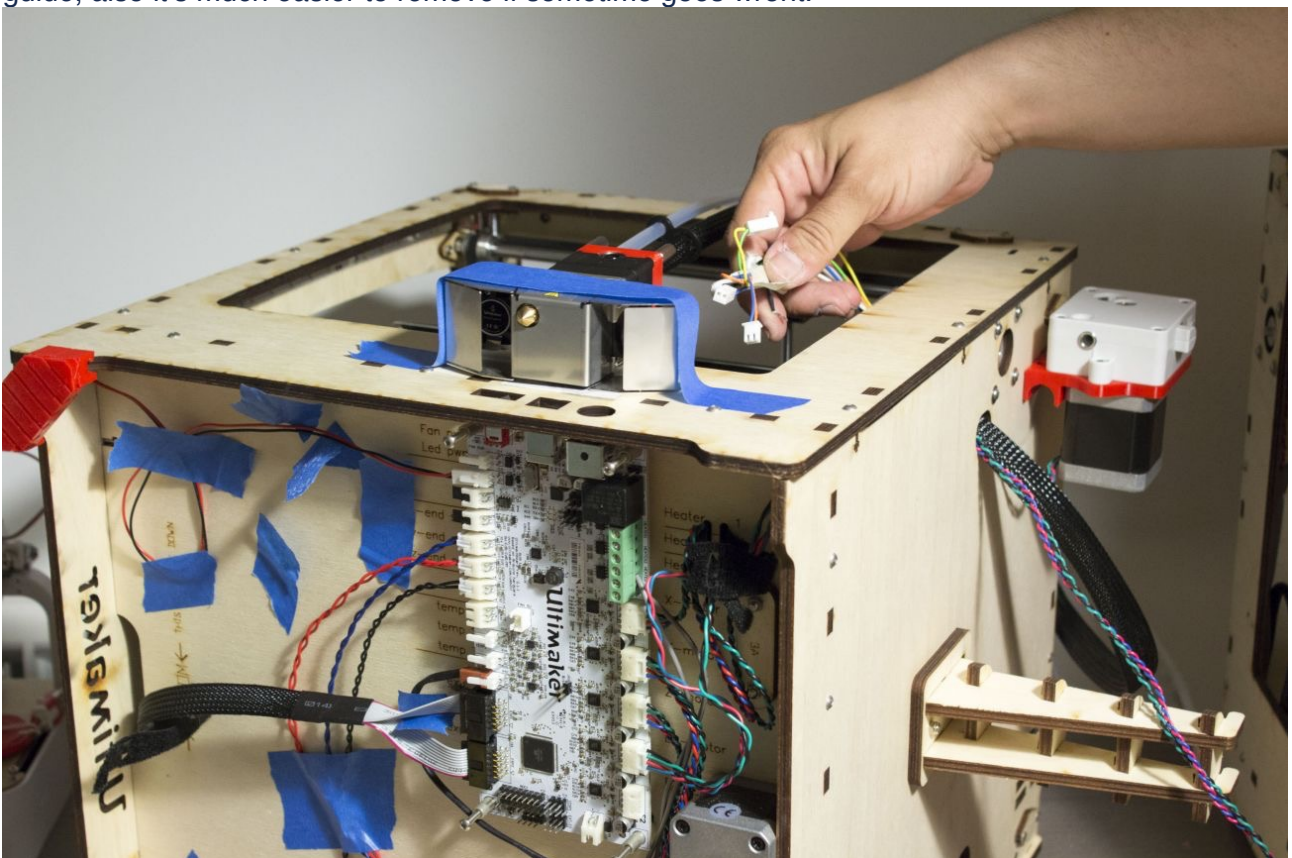
Hang the new feeder motor with its adaptor and pass the cable trough and plug it where the old feeder was.



Fix the hotend somewhere safe so you can work with the new um2+ hotend cables. They come with a tape so it's very easy to pull them through the hole.

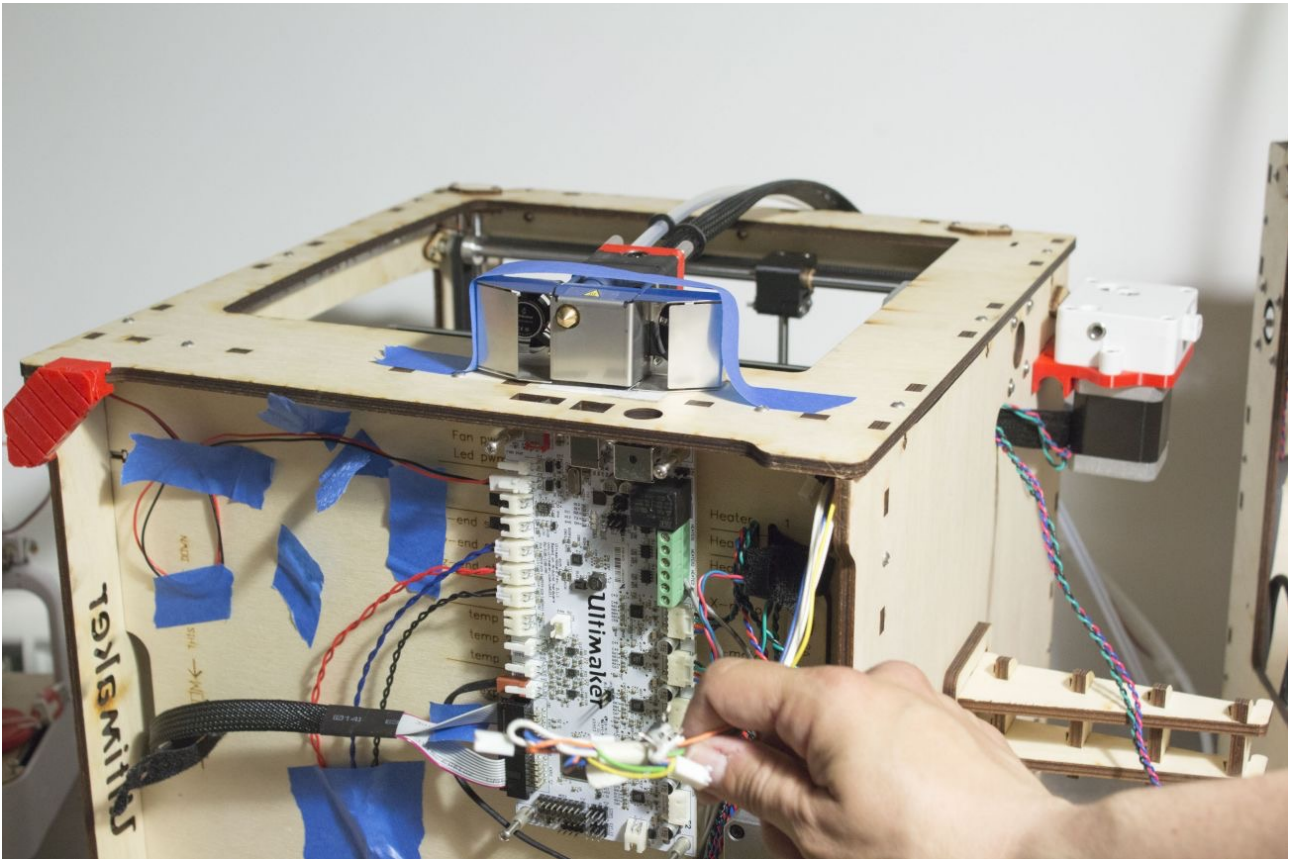


Since the cables come with a snake's skin protector, you can avoid to insert them on the umo+ guide, also it's much easier to remove if sometime goes wrong.

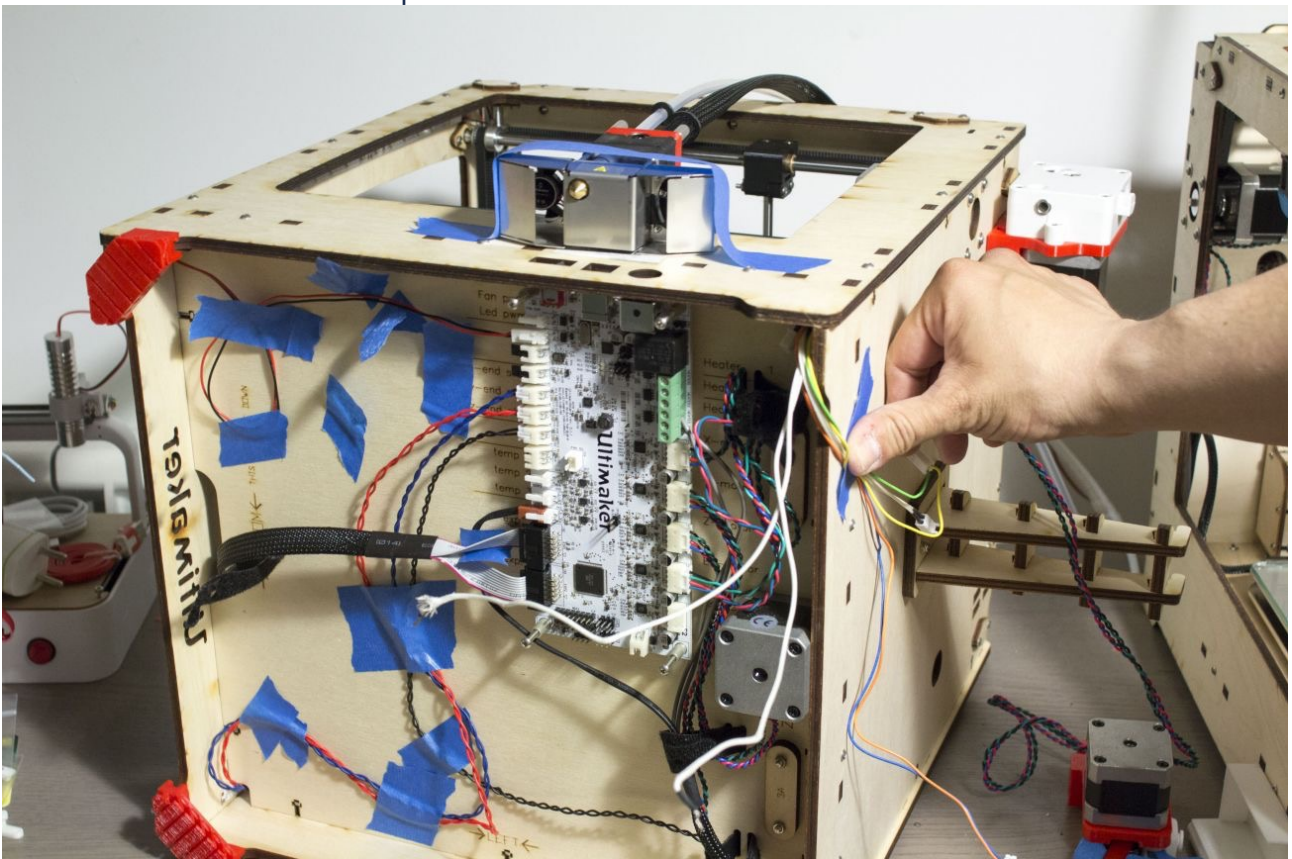




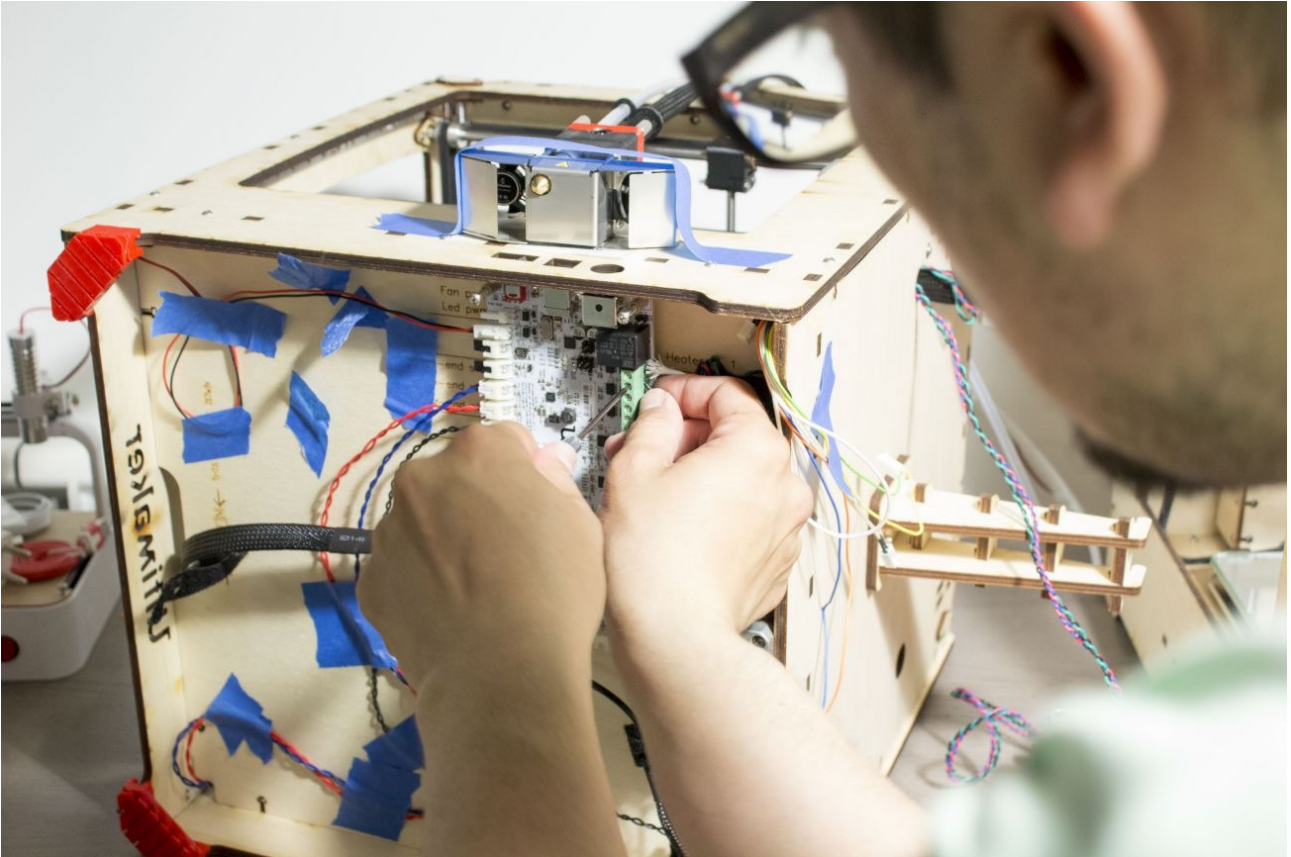
Ok cables in.



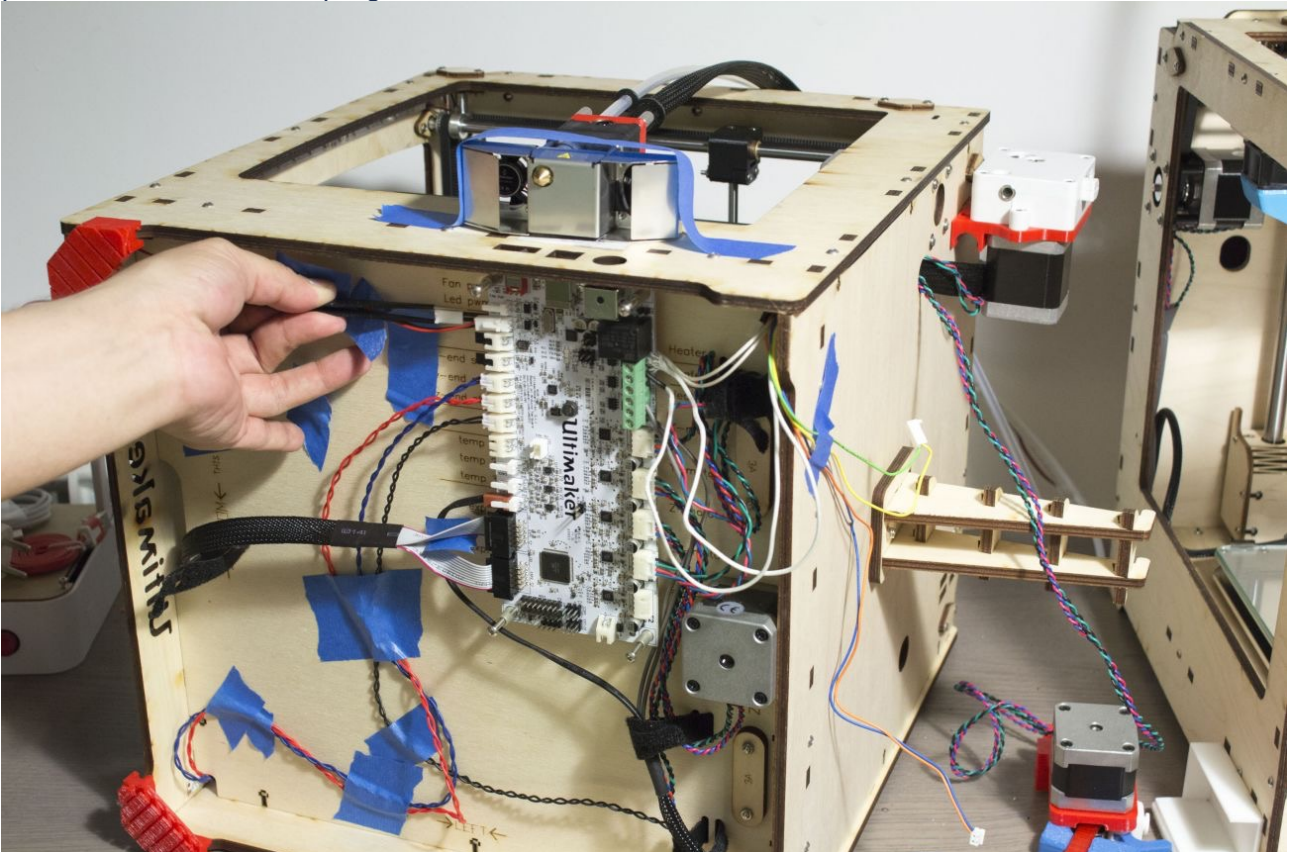
Stick the cables on a side and pick the heater cables to install then.



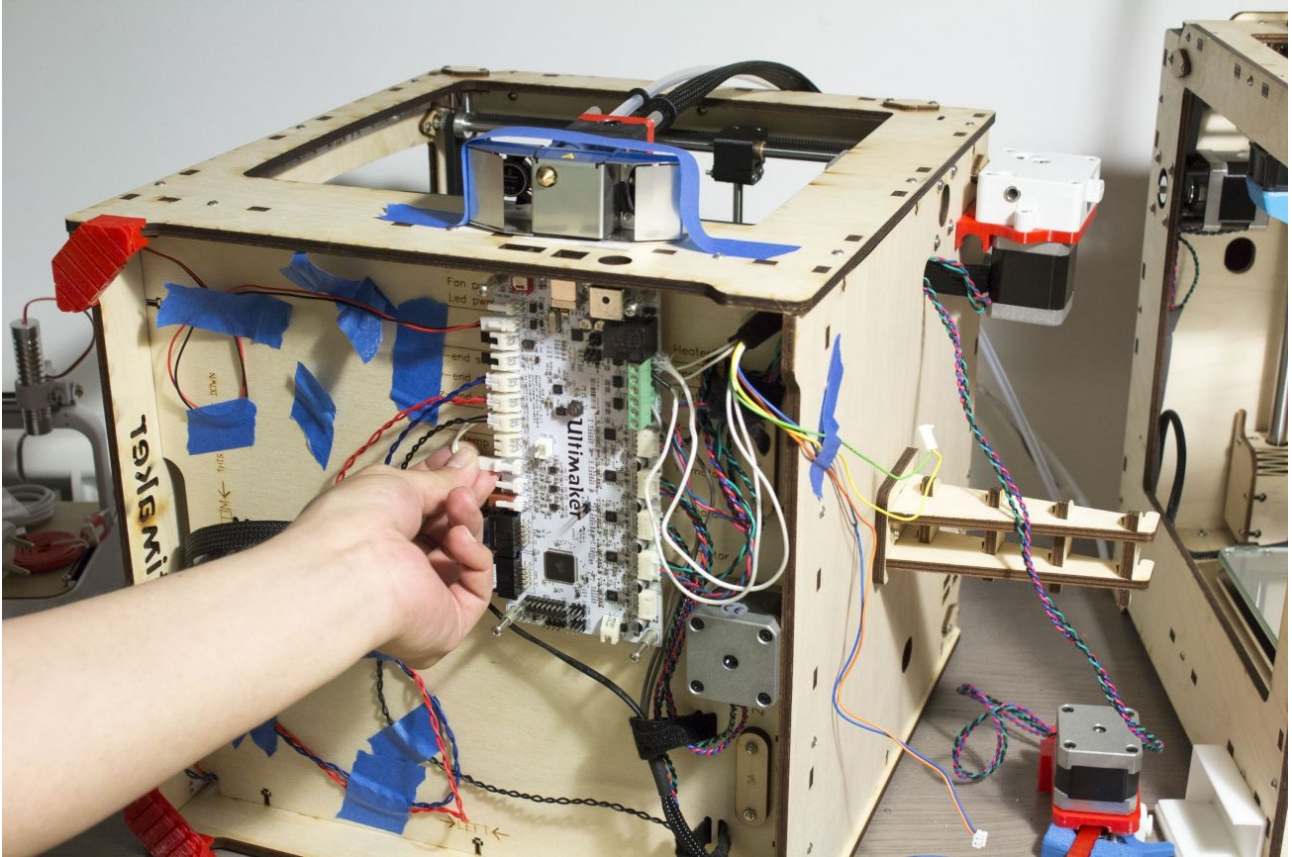
## Install heater 1



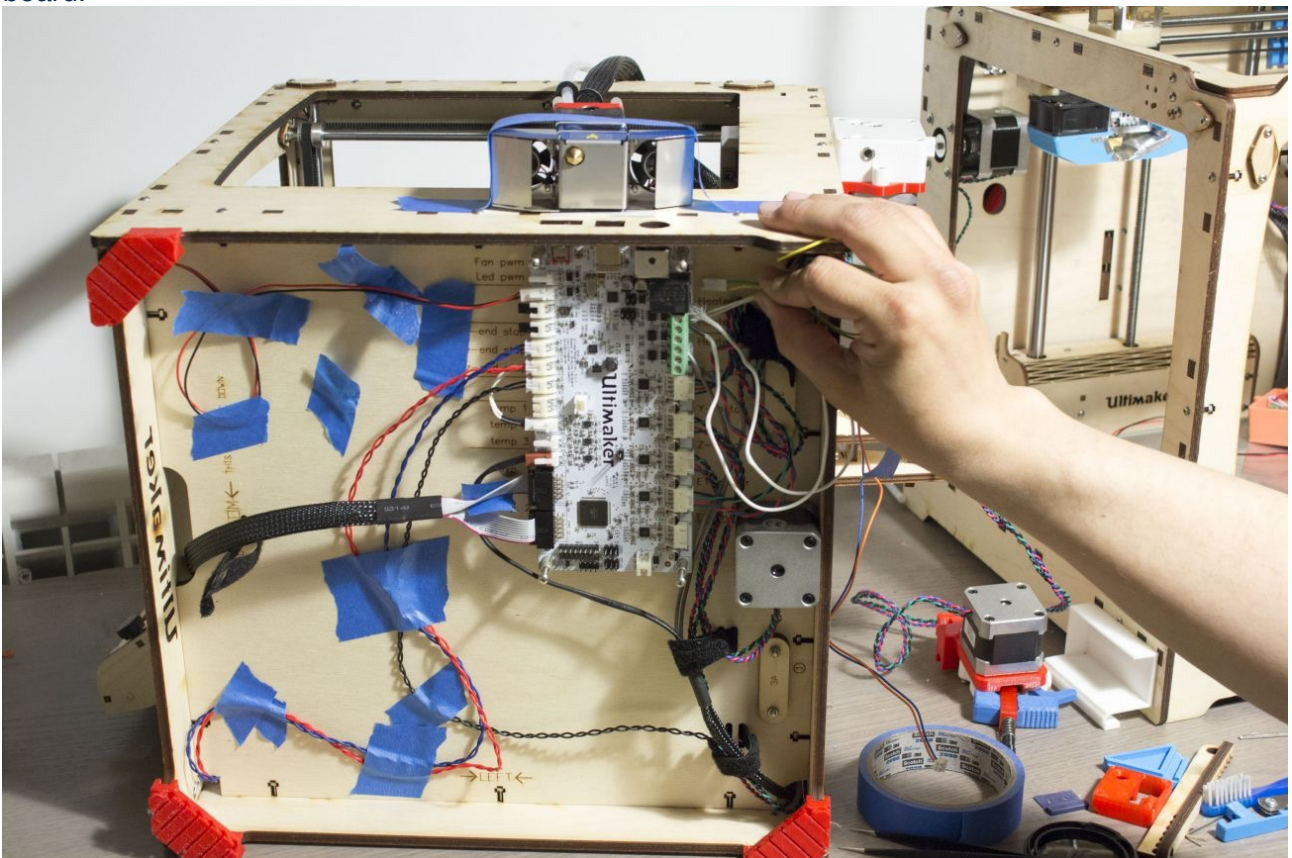
**IMPORTANT STEP.** Now the PT100, I really recommend to pass it behind the board. Pass it behind the board, if you didn't unscrew a bit the board (from inside the machine, not the ones outside) you can do it now. Use sometime to pass the cable behind. I used the tweezers I use to pick the filament when it purges.



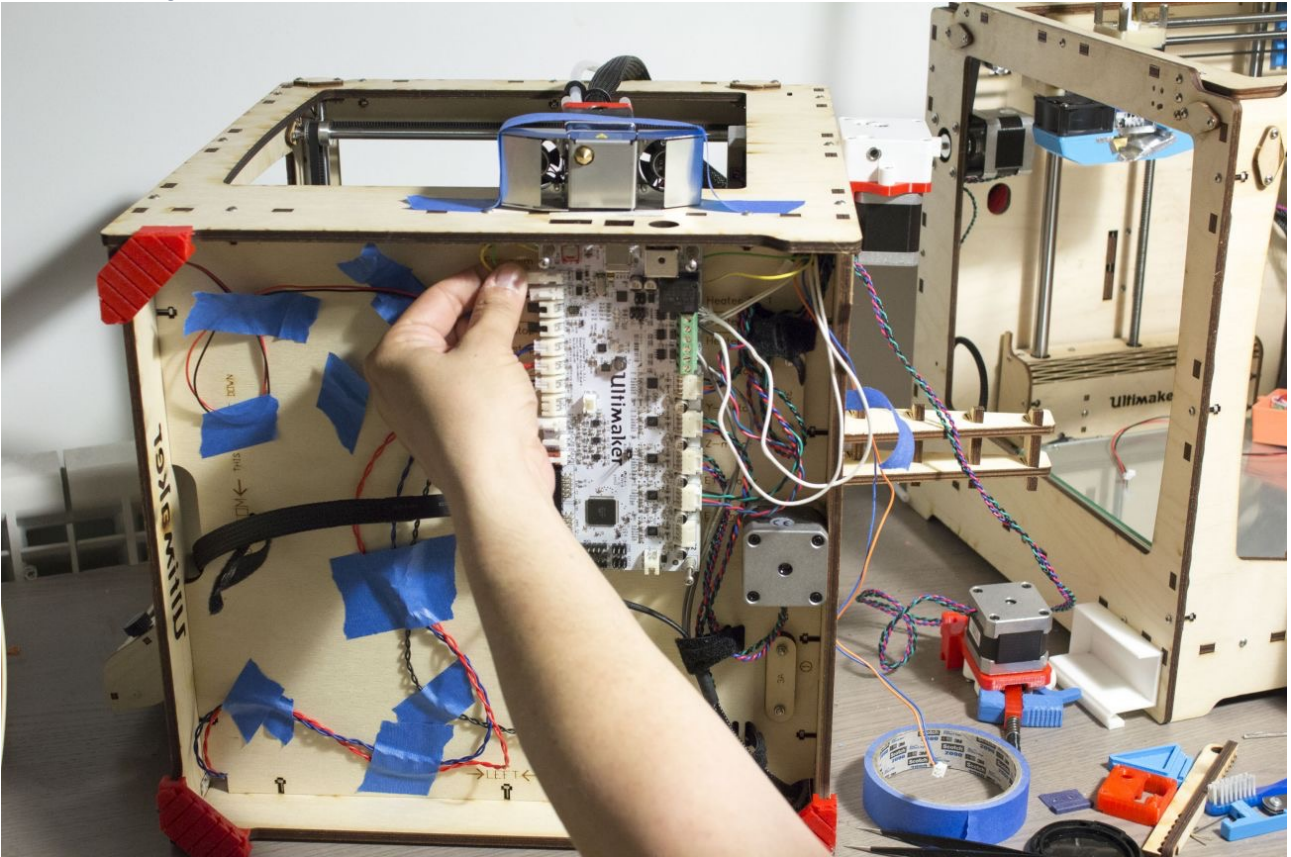
Connect the pt100. As you can see the cable reach perfectly, but there's very little wiggle room, that's why it's important to pass it behind the board.



Now the fan. Cable yellow/green colors with a molex. Same as the pt100, pass it behind the board.

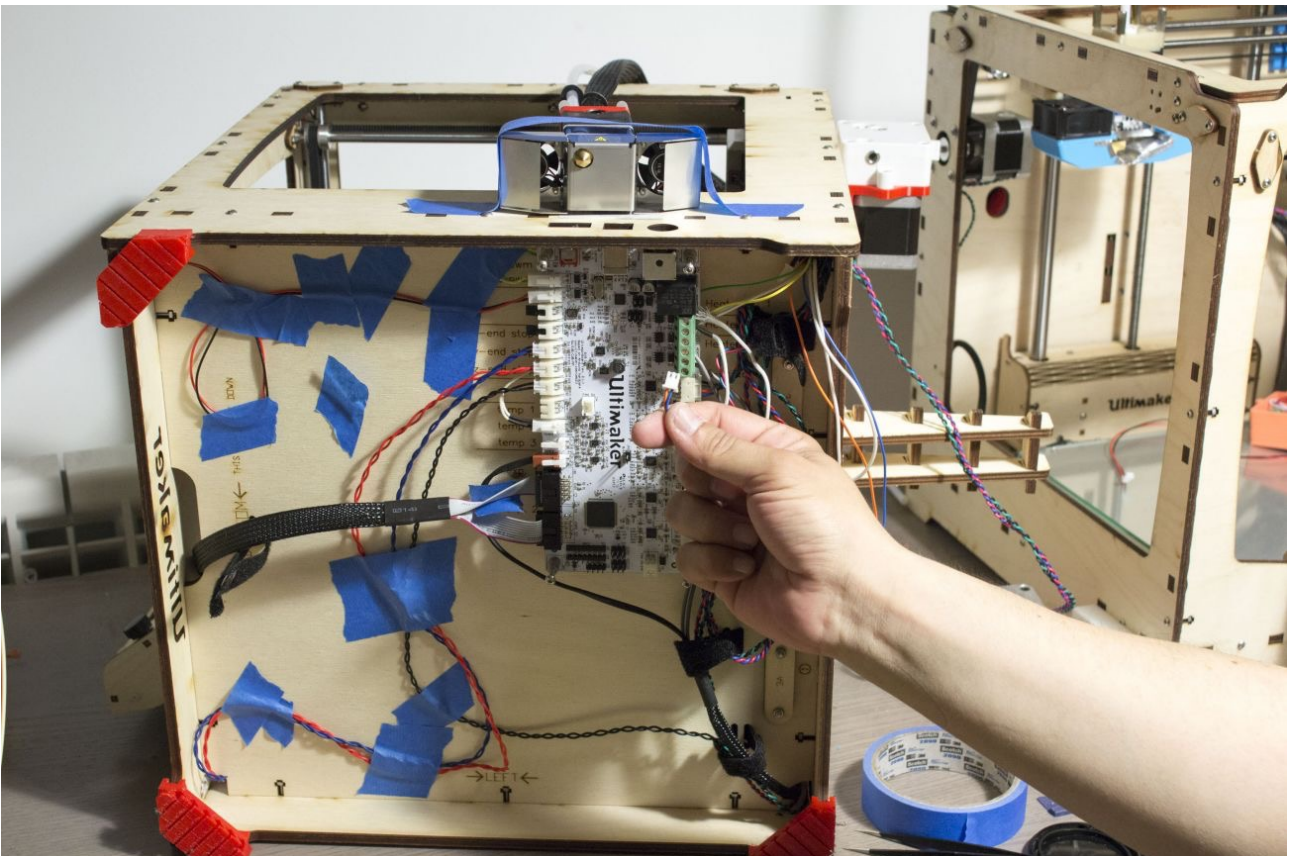


And now plug it Duh! :D

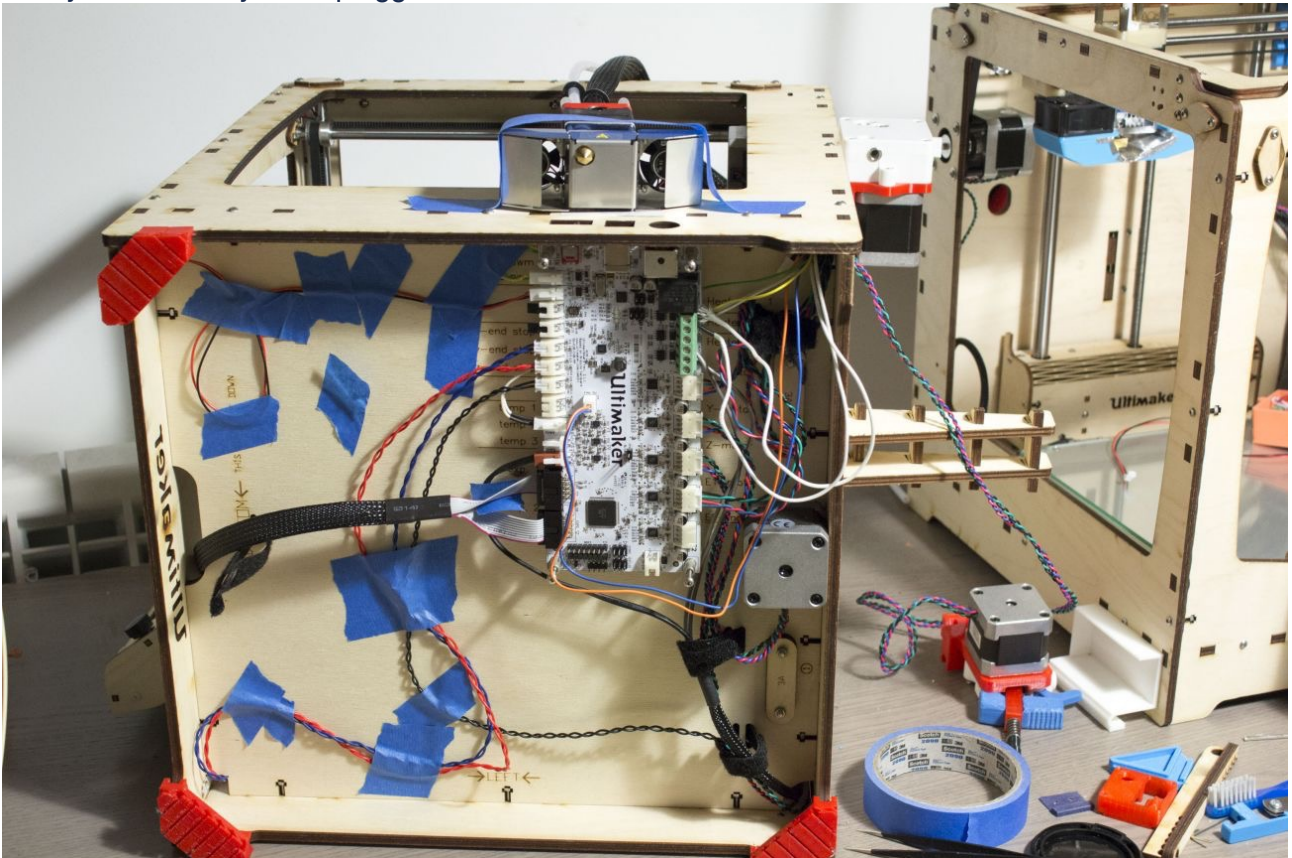


### IMPORTANT STEP

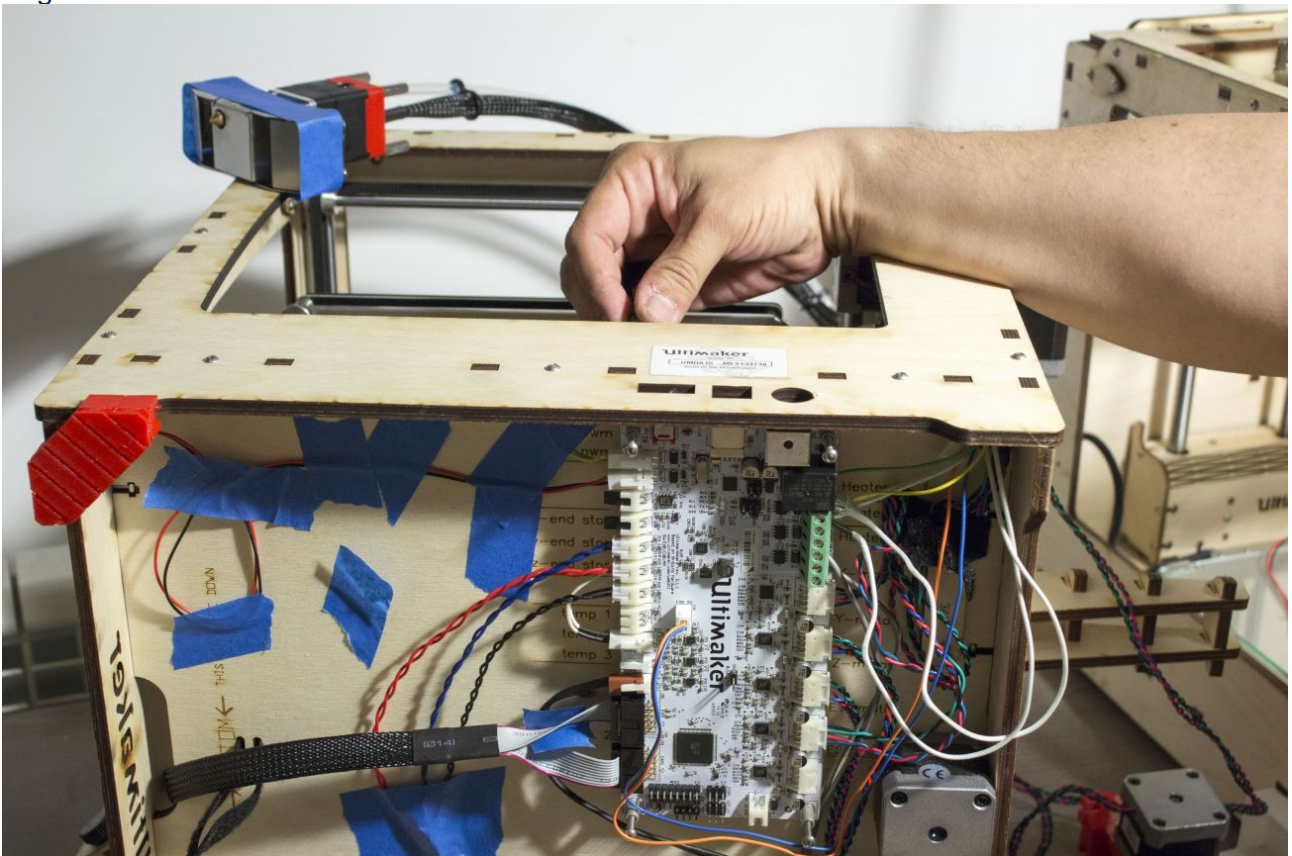
This might be a new connector for some of you, this one it's the 5v hotend fan. If you have a 2.1.1 this little fan (it's almost noise-less, for real) will stay on always. On 2.1.4 boards it won't start until the hotend reaches 40C.



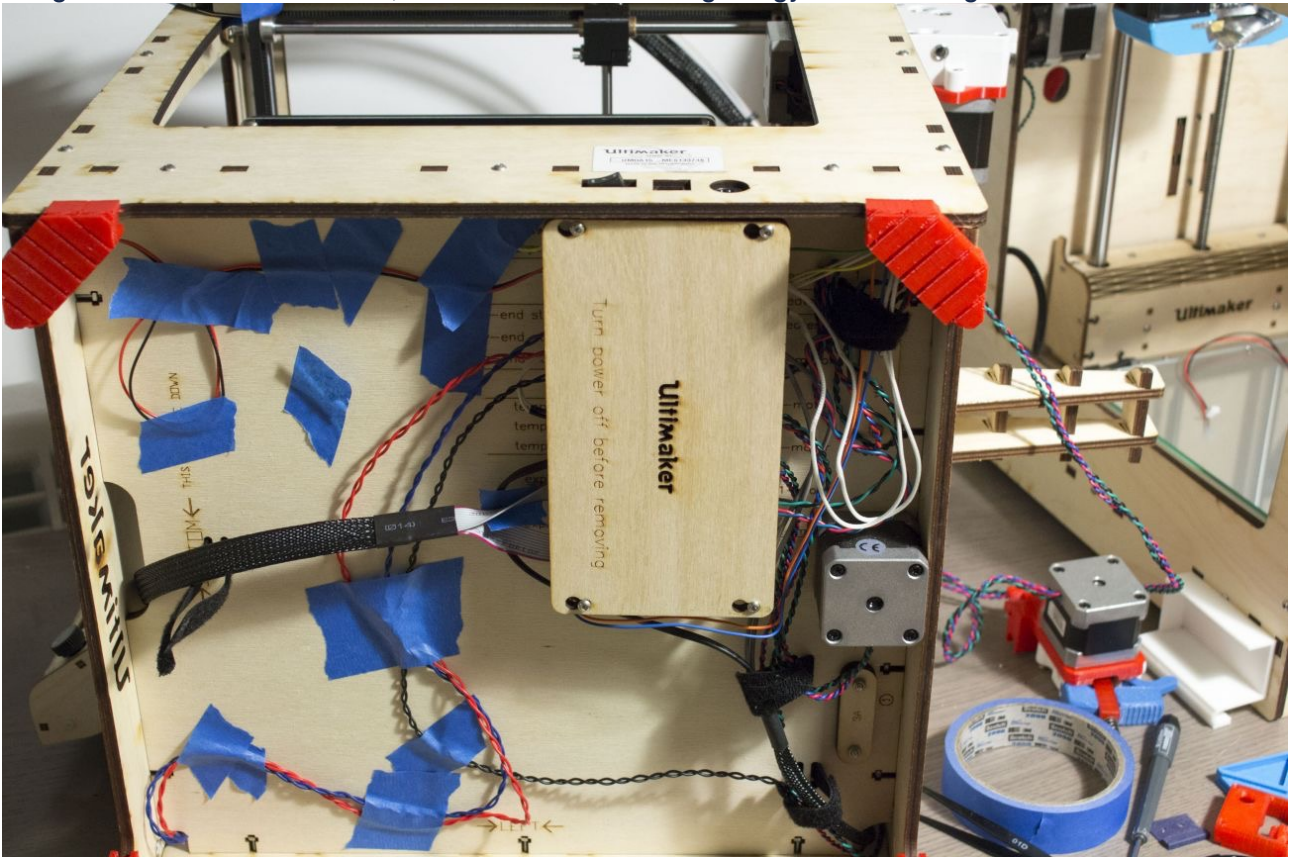
It only has one way to be plugged in



Now you can push up the board and tight the screws again. Remember to push the board up I did forgot and had to do it later...

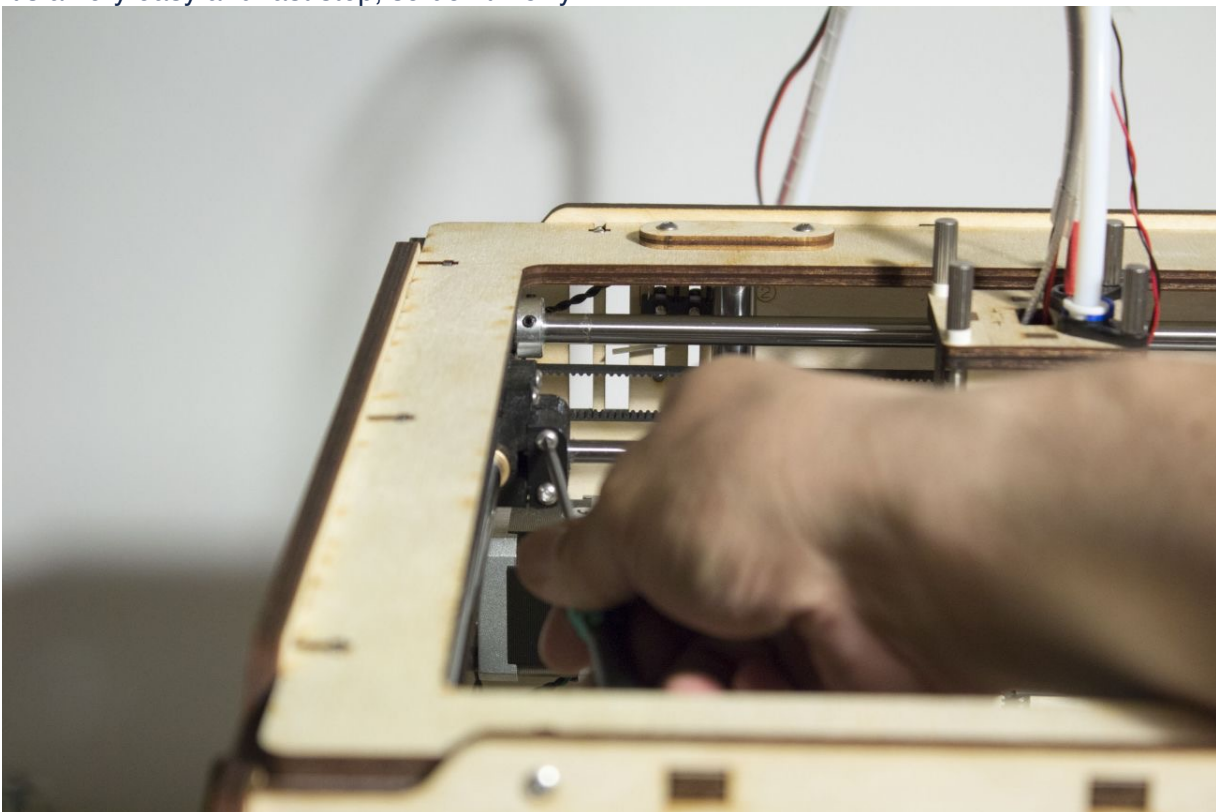


Allright!! Now short the cables, use the velcro fastening thingy and rearrange a bit the mess.

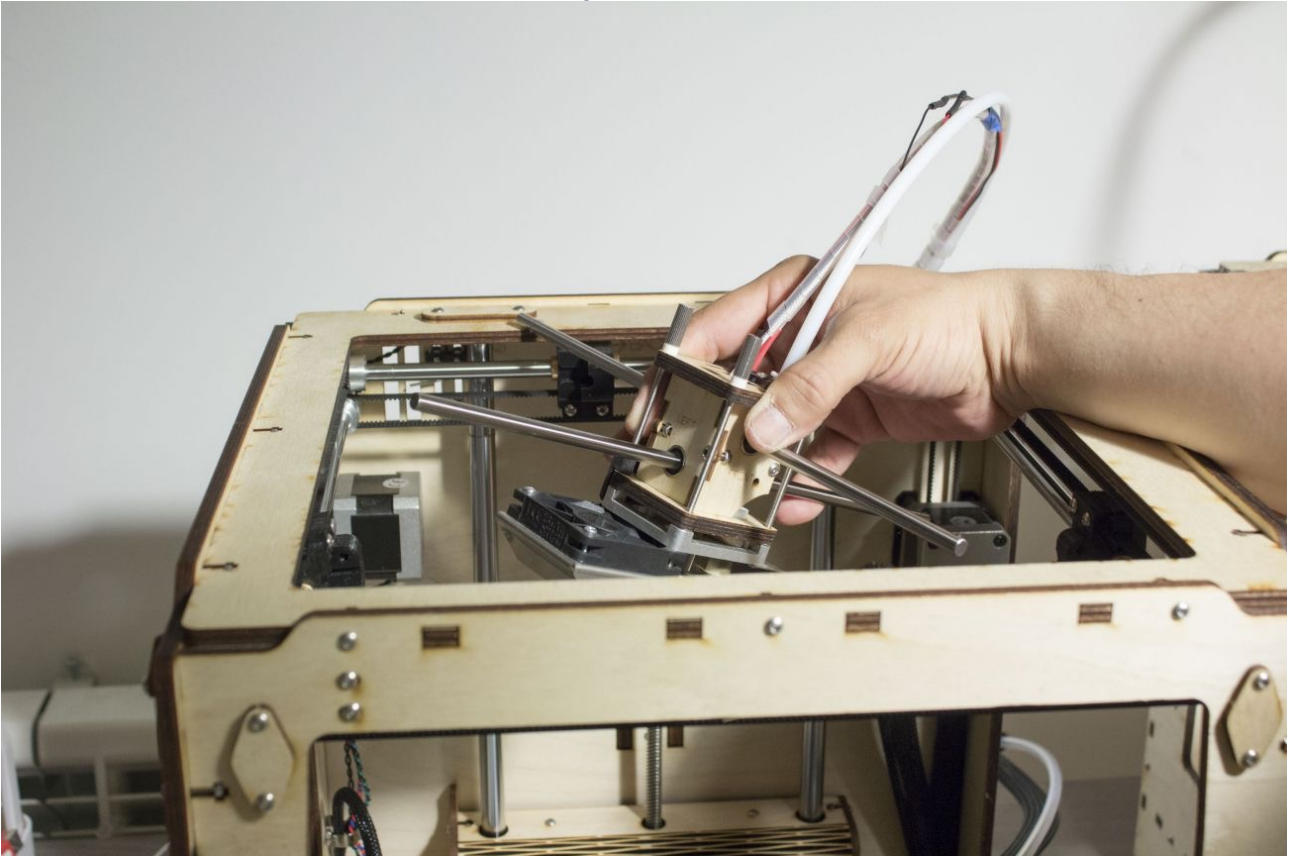


## Hotend Time!!

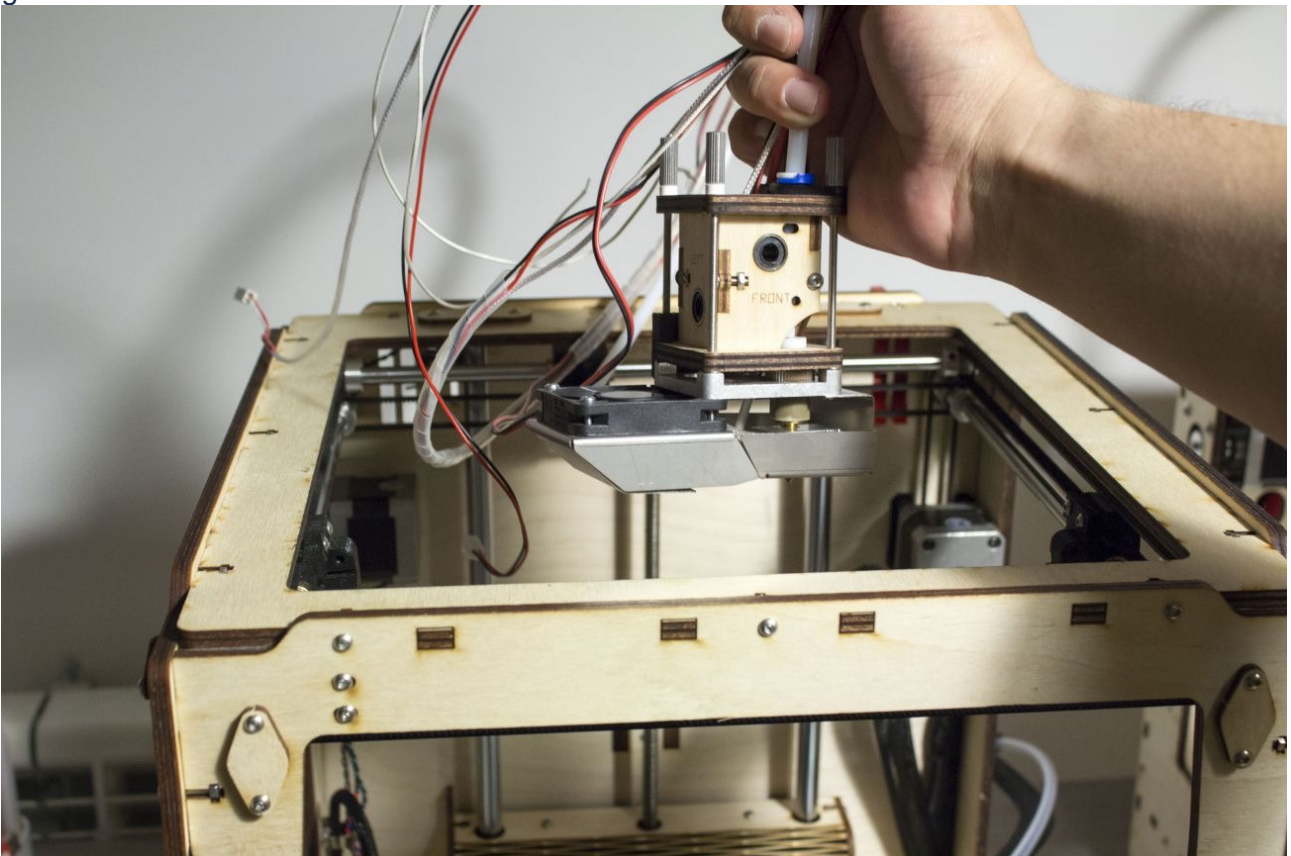
Since I use Twisterblocks this step it's very very fast. For users with standard wooden blocks, go to the [page 54](#) of the [Ultimaker Original Plus Assembly Manual](#). It's a very easy and fast step, so don't worry.



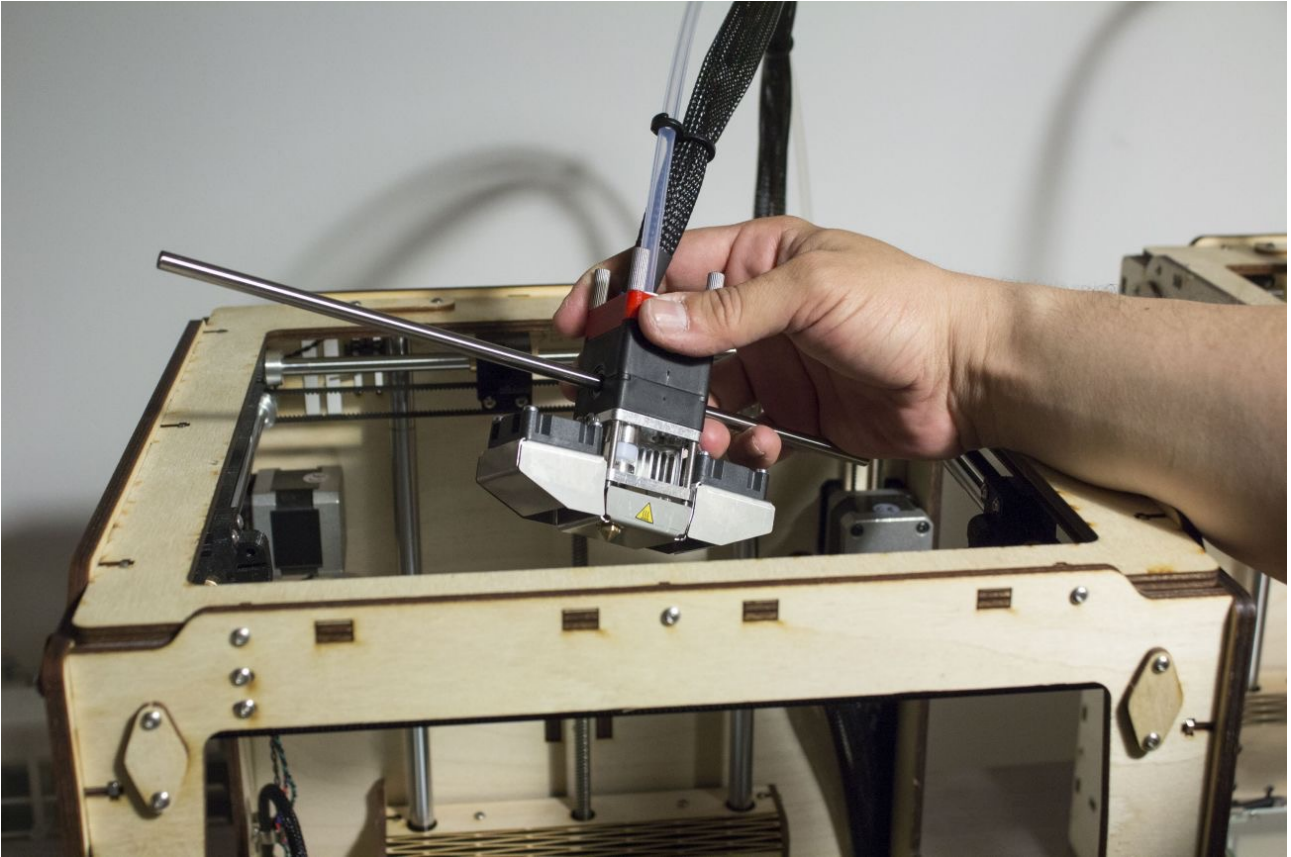
UMO+ hotend out! Take the x/y shafts. It's a good moment to clean them with a fiberless cloth.



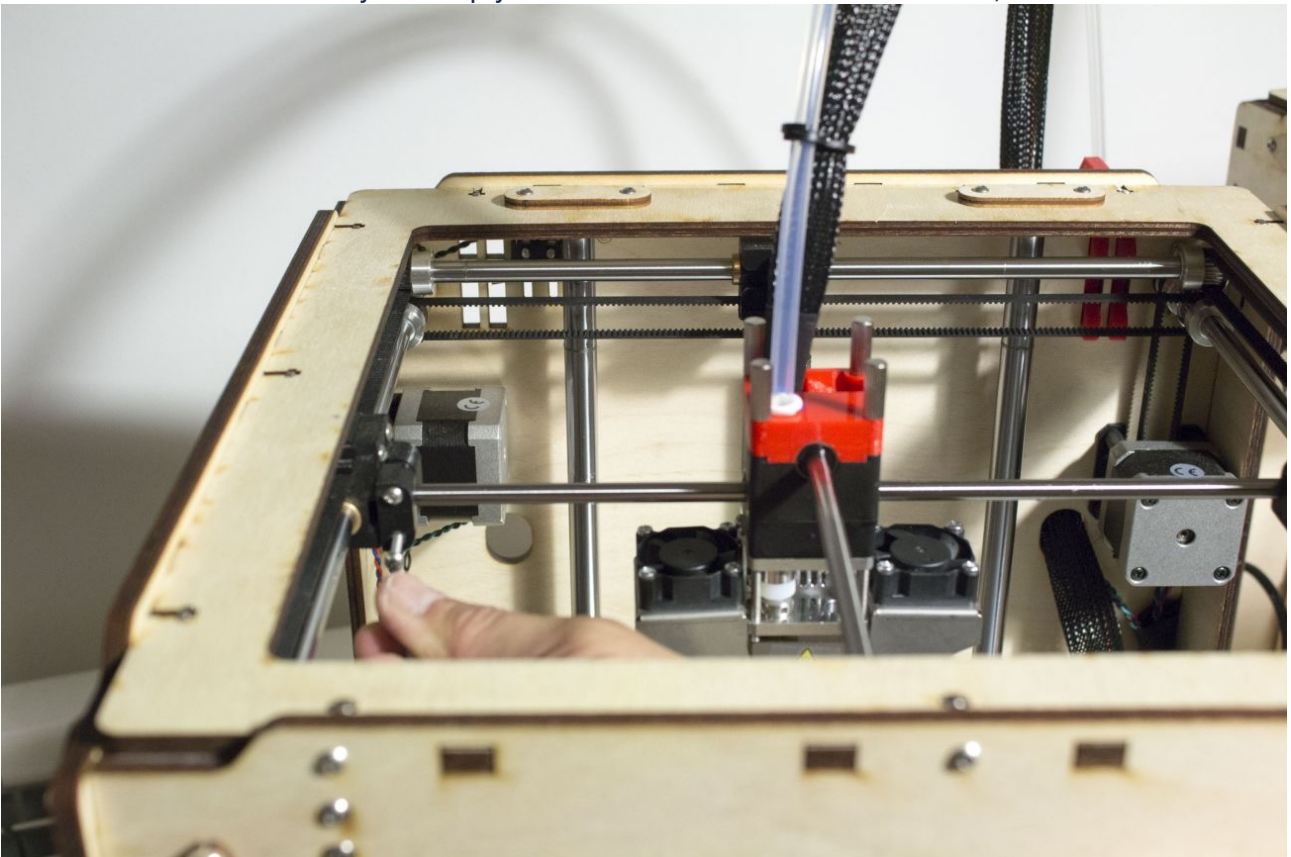
You should have the hotend and feeder ready to save them for a rainy day. Bag them so they don't get dust.



Time to install the new um2+ hotend!!

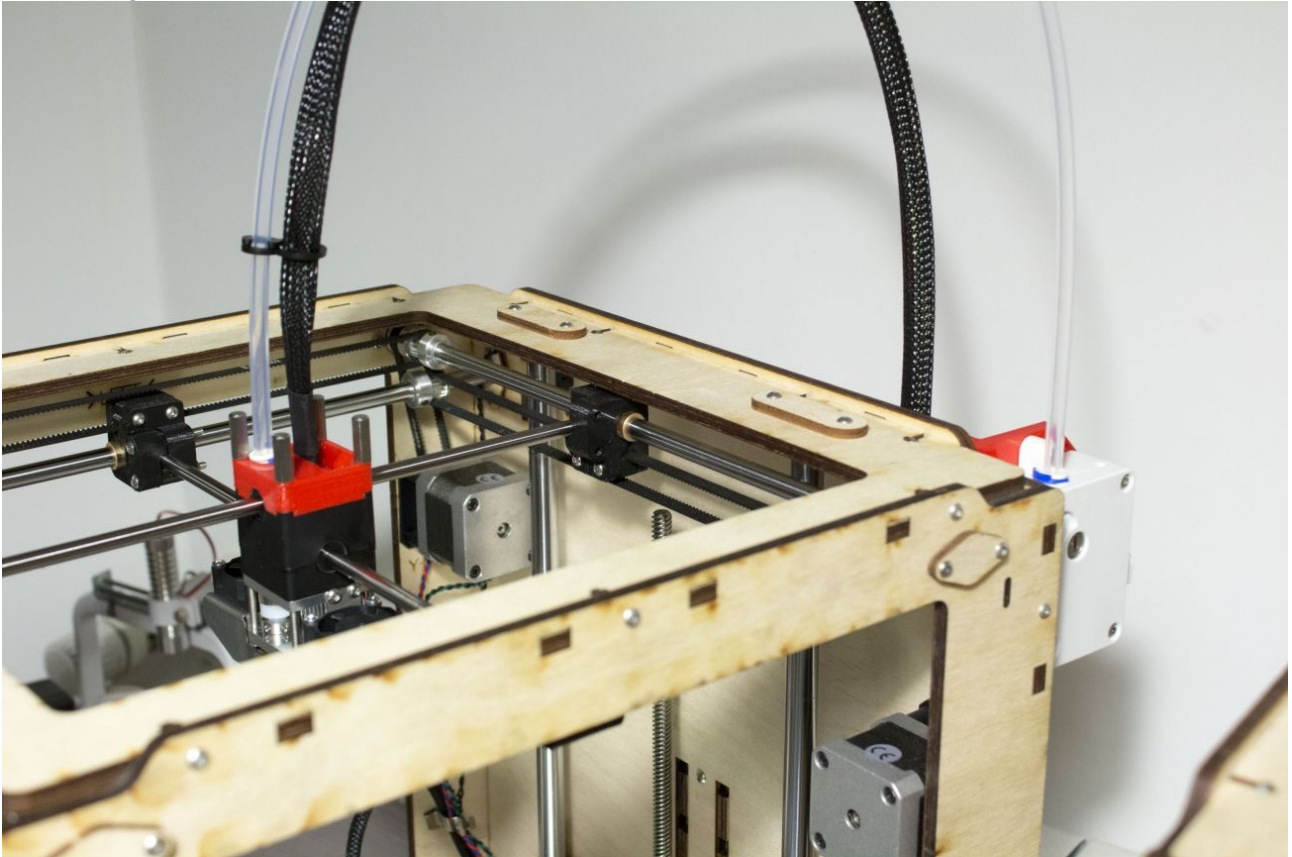


Secure the hotend. Basically the step you did to disassemble the slideblocks, but reverse it.

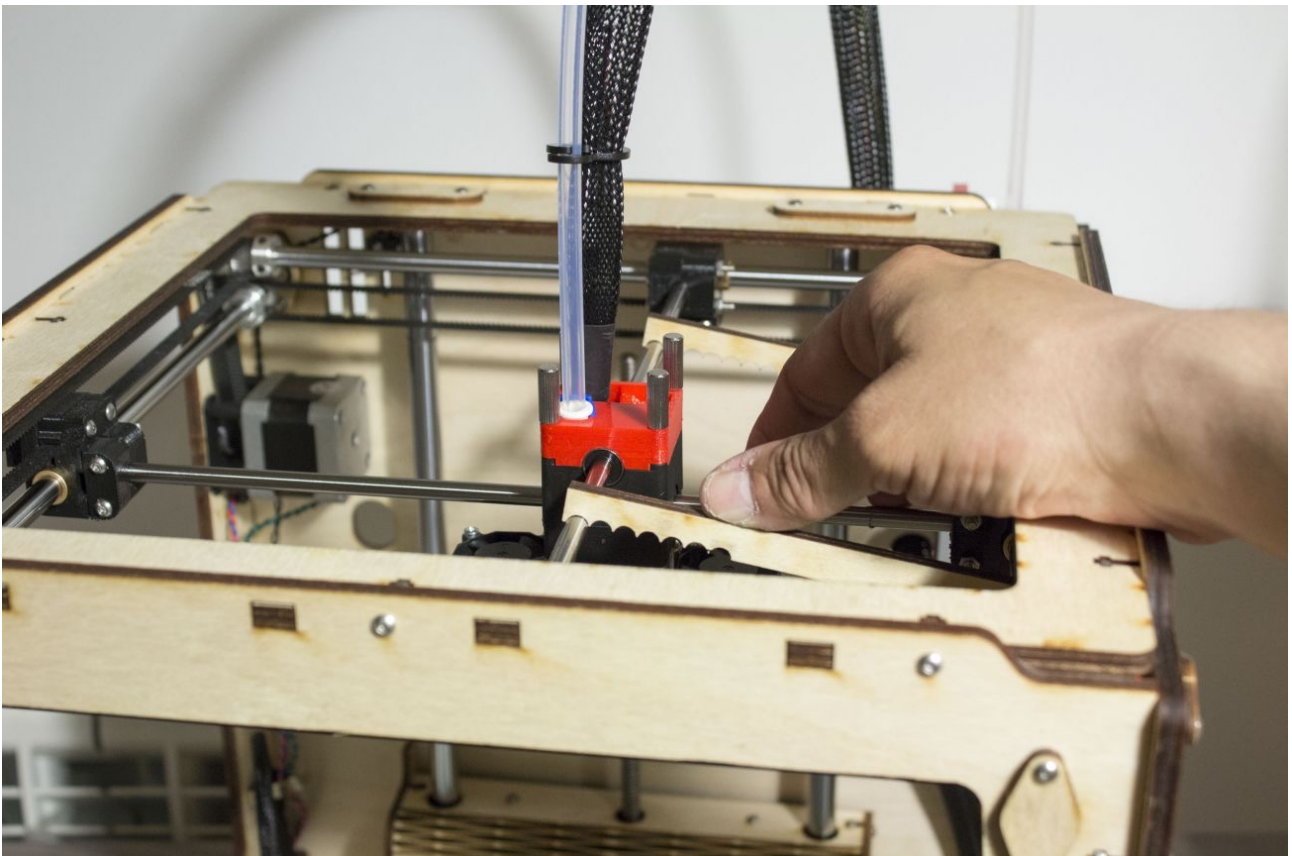




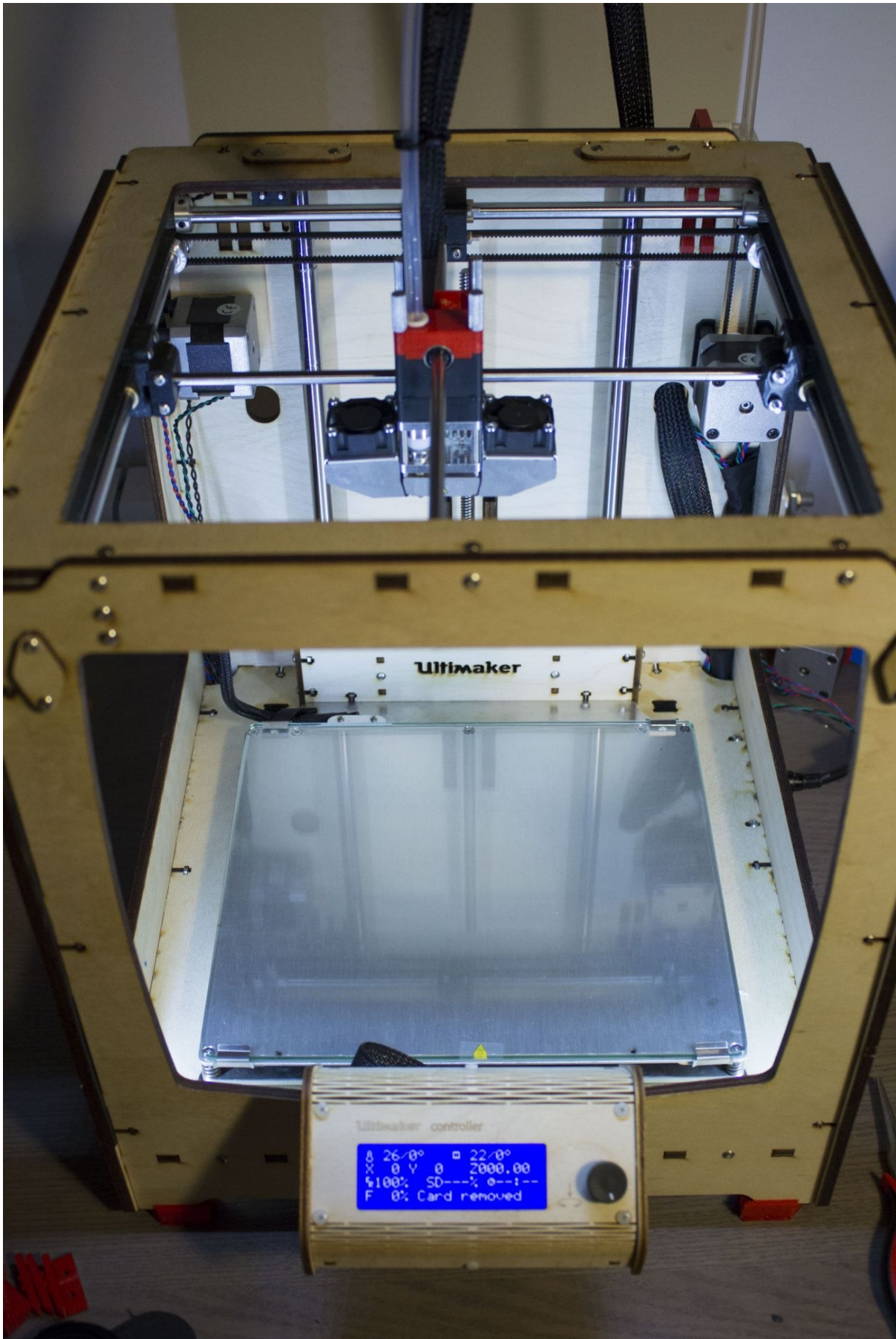
Everything almost ready!



Remember to recalibrate x/y. With my twisterblocks I didn't had to do it, but with the original wood blocks you will need to do this. [Check this tutorial video](#) if you forgot how to do it. It's a very good video!



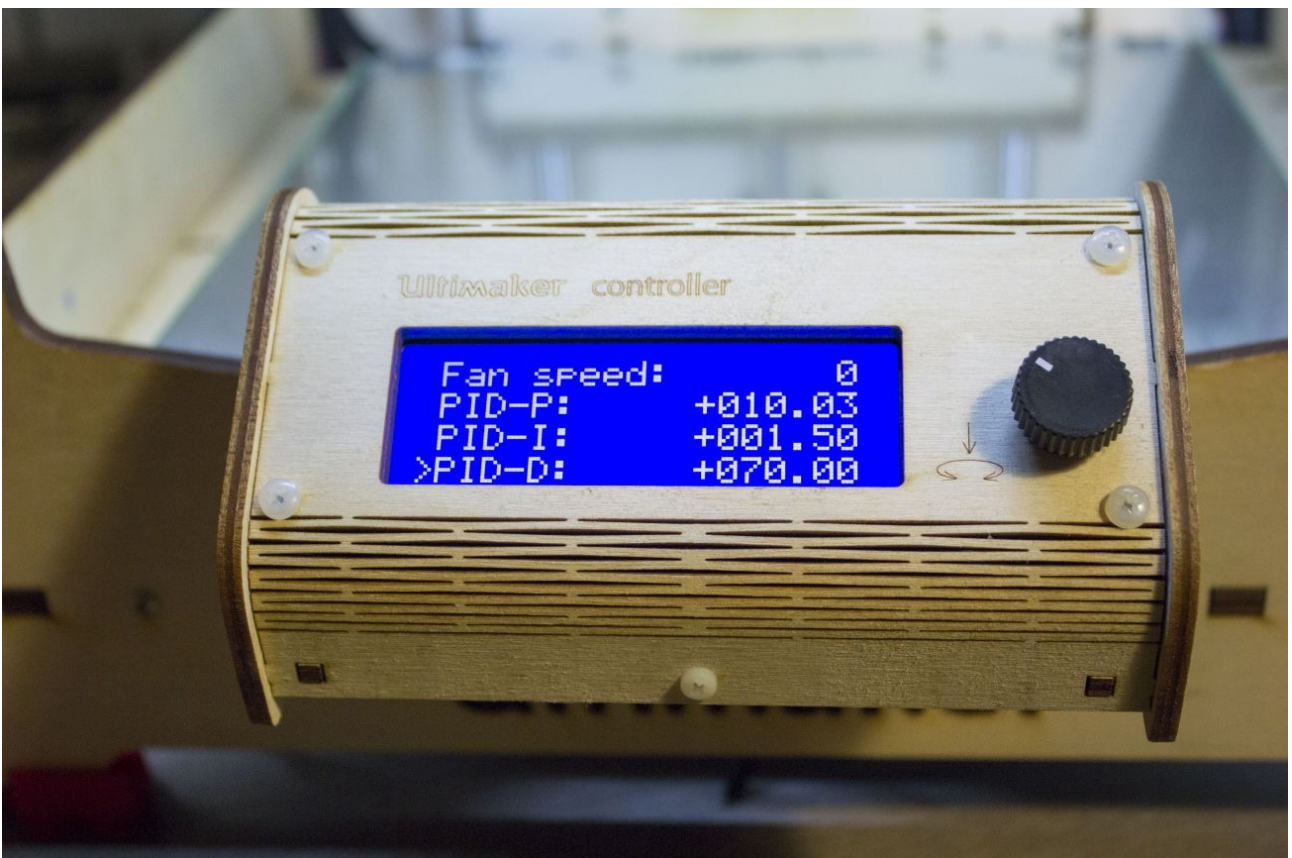
Time to adjust the firmware!



Set the Esteps on to 369.0 (Control / Motion & scroll down to find it ) Set the numbers like the img.



Now the PID of the hotend. (Control / Temperature / scroll down to find it ) Set the numbers like the img.



**Remember to save them!**



**Things that are different.**

UM2+ Fans don't start to move until they reach 100/255, so you will need to readjust your cooling settings. Ultimaker 2 Firmware has a KICKSTART at 200millisec (keep reading about this on the next point) and a minimum pwm of 20. So for UMO+ you need the Amedee custom firmware builder to make it work easier. The best custom umo+ firmware builder it's made by [amedee](#). Read the basic tutorial I made at [Ultimaker Original custom firmware builder](#).

**Remember to realign the Z!**

Also if you plan to use I2K to go higher than 260C you will need to install a custom firmware.

Enjoy!!!