

Before I could even start the assembly of the 3d-printer, the CFO declared that it was ugly looking and could not go where I wanted it. Therefore we had to purchase a new cabinet, that was at least 55x55 cm and could handle 23kg of weight. Of course it came in a kit with four pages of pictures and minimal text. Unlike the wonderful instructions from IKEA, I think these came from Mars. This was a full day project.

In comparison, the 3d-printer has a 220 page printed assembly manual and an online version. The online version allows you to zoom in on any pictures and more important has client and prusa comments for each step. Each chapter is rated from easy (average techie) to very difficult (PHD in physics/electronics/robotics). In theory, it would take two days to assemble, test and calibrate. Then I opened up all the boxes and found 13 “dime bags (6x10cm)” of screws/bolts/washers/nuts, 15 parts bags (15x24cm), two boxes of electronics boards, one box with five motors (one for left/right, one for forward/backward, two for up/down and one for the extruder), one box with metal struts and rods, a bag with 50 tie warps and a tool box with a screwdriver, pinch nose pliers and five allen keys. Fortunately there was a cheat sheet that had pictures and descriptions of the 28 different size bolts, 3 different nuts and 3 different washers. They also suggest you have nitrile gloves, safety glasses and magnifying glasses.

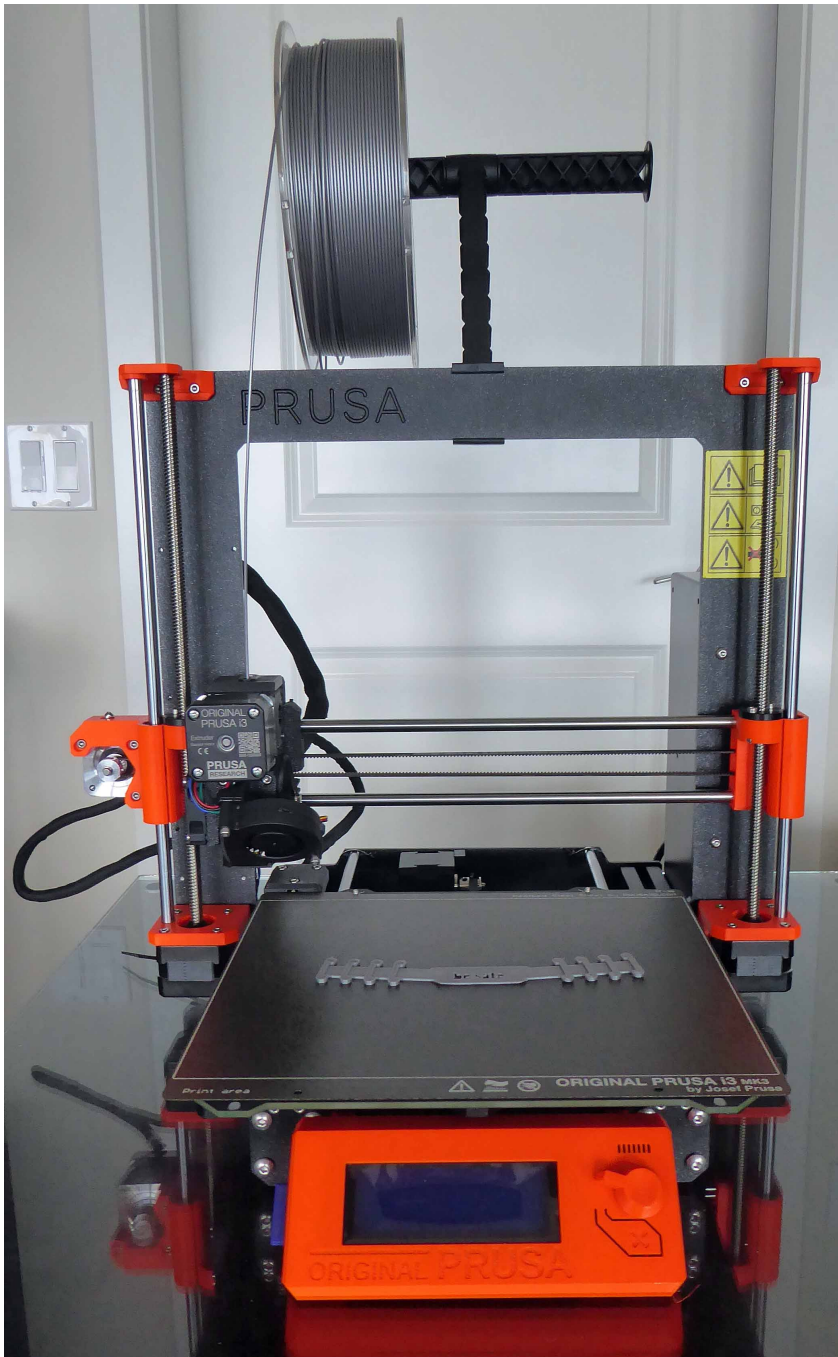
On day three, I thought “maybe I have bitten off more than I can chew”. On day four, “why did I buy a Do It Yourself (DIY) version?” On day five, I noticed that the very difficult chapter is chapter 5 and there are still 4 more chapters to go. On day seven, I finished the assembly and the final paragraph of the manual gave a link to a website which listed the standard assembly problems.

Included in one bag was a hard plastic container, about the size of a postage stamp. Inside were two magnets, one was 5x5x1mm and the other was 5x10x1mm. (there are 25.4 mm in one inch) The instructions indicated to keep the two magnets away from each other. It was impossible to pull the magnets apart from each other. However you could slide them off each other. The idea was to place the magnets in the slots of a lever so that they would oppose each other. The small magnet went into its slot very easy. When I tried to place the second magnet in, it popped from between my fingers, flew 30cm and attached to the keyboard. I had to use non magnetic tweezers to complete the task.

Another step indicated to hold the extruder with one hand, hold the X part with the other, while keeping a finger on a nut slot to ensure the nut did not fall out, and then bolt the two items together with the screwdriver. Use my foot, third hand or purchase a desk vise.

A separate 78 page handbook describes the steps for testing, calibration, firmware upgrades and cleaning procedures BEFORE you actually do any user printing. I decided to take a one day break before I start this and that would be a pizza night. Another day for the above steps.

One of the last calibrations that you do is to set the height of the nozzle above the bed. This height is different for each type of filament. You start a test which prints lines and then adjust the height so that the resultant melted/cooled filament on the bed is oval shaped. You use the dial on the front of the printer and adjust by 1 micron (1/25400 of an inch).



I would like to introduce you to Petro. This is the anglicized name of our CFO's father. He was the person whom people would phone when something needed to be repaired or replaced.

The item on the printer bed is a surgical mask clip. Our provincial health officer, Dr. Bonnie Henry, ends every report by saying "be kind, be calm, be safe". Therefore I designed this one with "be safe".

I can use the same design software that I was using for the library 3d printer, but the slicer software is different. This is the software that takes your 3d design and slices it into 0.4mm layers and provides those directions to the printer.

So much more to learn!!!!

NOW BEFORE you start sending me "can you print this?" emails, think about the work required to design a replacement part for your X. It would be easier with a 3d scanner, but that is another \$1-3K investment. The \$1K version is another DIY kit. Are you @\$!# crazy?

I have introduced Petro to the robots and they have already supplied a list of parts that they want: HOBIE wants longer arms, BRIE wants a new hairdo, ALLIE wants a pony, etc.