



# From Blender model to physical 3D-print

*by  
Zhuli & Florian*

# Table of Contents

1. Preparation in Blender
2. Exporting from Blender
3. Preparation in Netfabb
4. Printing with Cura

# Is my 3D-model printable

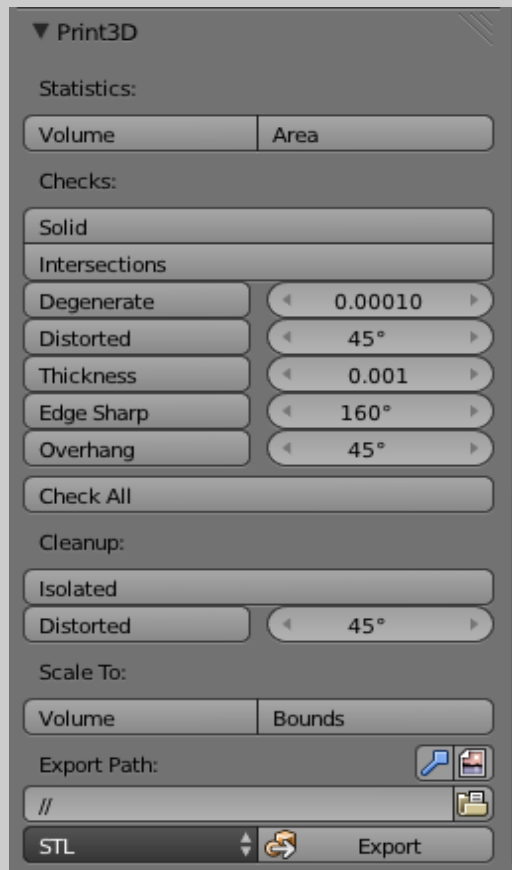
Common errors:

- Non-flat faces
- Double vertices
- Holes in the geometry

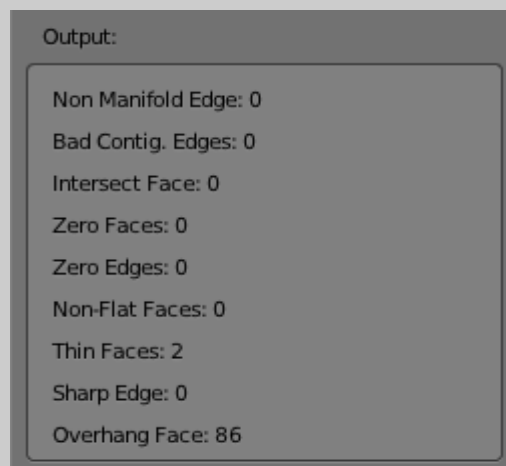
Fortunately - Blender has tools for that

“3D Print Tools” - in the settings-> addons tab

# Check your mesh for errors



1. Select “Check all” in the Print 3D-Panel
2. An Error report will be generated
3. If the report shows 0 for all points except “Overhang faces” you’re ready to export your mesh
4. else: Fix your mesh as shown on the next slide



# Fixing your mesh in Blender

Most problems can be fixed by:

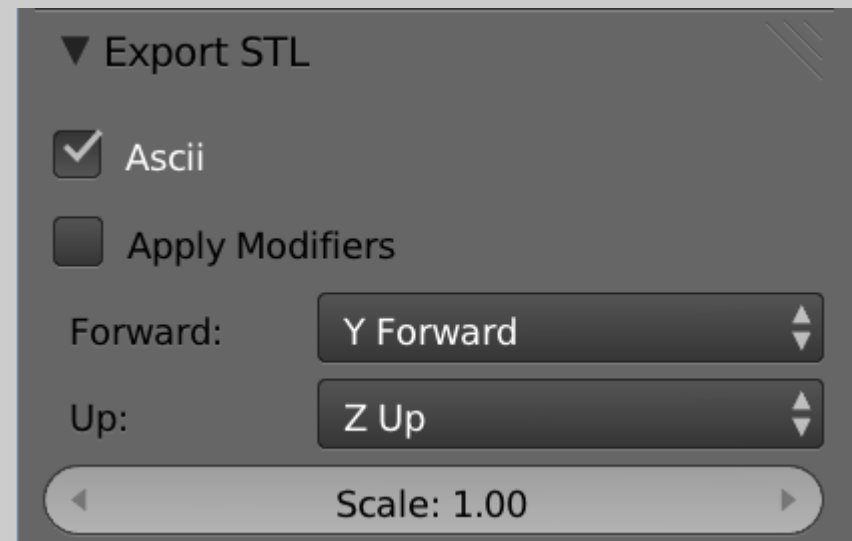
- Recalculating normals for all selected faces (*Ctrl-N*)
- Merging double vertices with “Remove Doubles” (*W -> Remove Doubles*)
- Closing holes in your Mesh with faces (*F*)
- Splitting up bent faces using “Triangulate Faces” (*Ctrl-T*)

# Measurement in Blender

- You can view the measurements of your objects in 3D view.
- Model in metric.

# Exporting as STL

- File -> Export -> STL
- Set Scale to 1000 in export settings (Blender 2.6)
- Check Apply Modifiers



# Repairing in Netfab

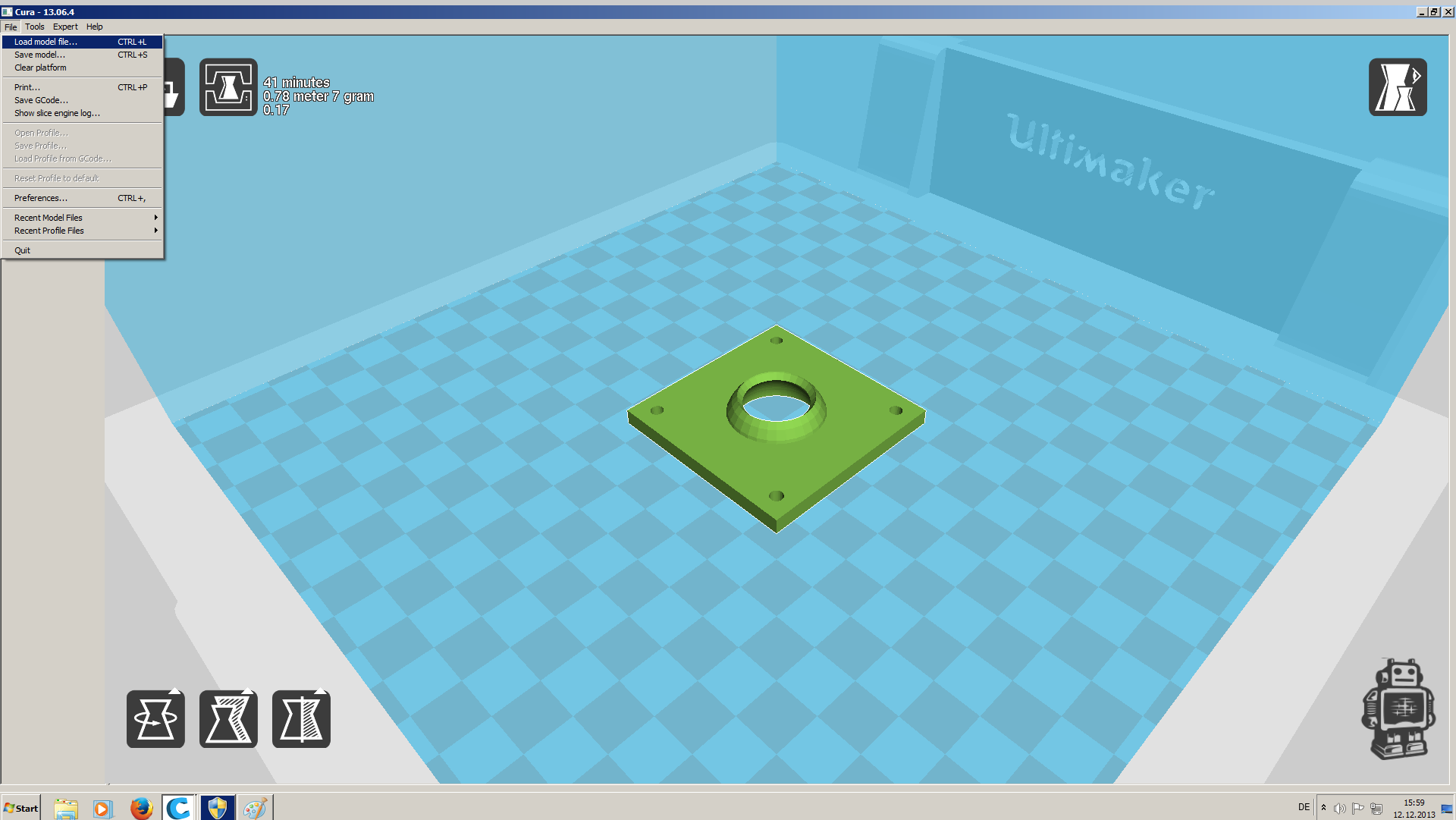
The screenshot shows the Netfab Basic 5.0 interface. The main 3D view displays a green, square-shaped button holder with a central square hole and four circular holes on the outer edges. The model is rendered in a perspective view. A red warning triangle with a white exclamation mark is visible in the bottom right corner of the 3D view area. The right sidebar contains a 'Bauteile' (Parts) panel with a 'Slices' sub-panel. Below this is a 'Schnitte' (Sections) panel with input fields for X, Y, and Z coordinates, all set to 0.00 mm. Below the section settings is an 'Informationen' (Information) panel with the following data:

Informationen			
Länge:	50.00 mm	Volumen:	--- cm <sup>3</sup>
Breite:	50.00 mm	Oberfläche:	85.32 cm <sup>2</sup>
Höhe:	10.00 mm	Dreiecke:	1612

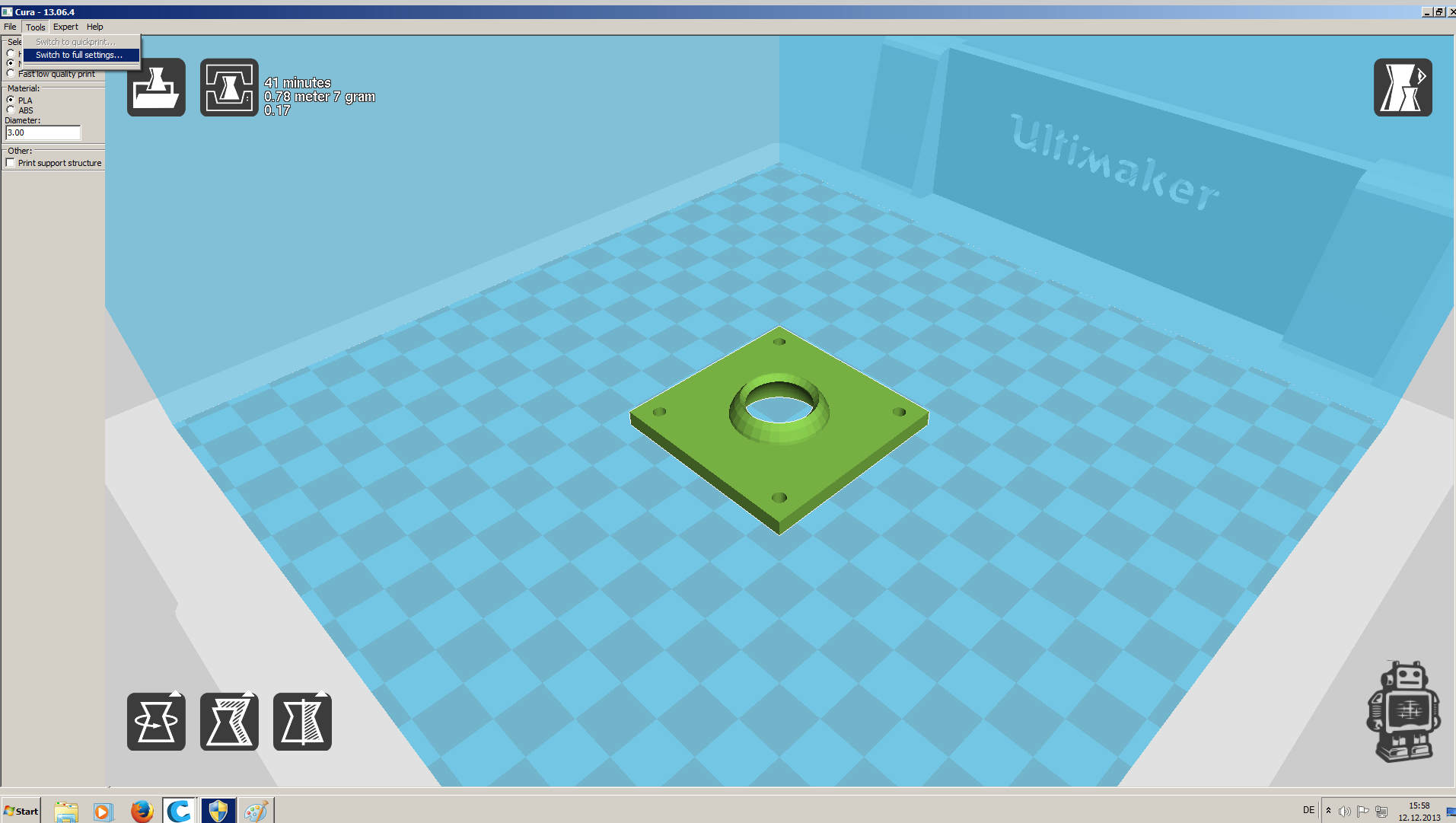
At the bottom of the sidebar, it states 'Es ist 1 von 1 Bauteil ausgewählt.' (1 of 1 parts selected). The bottom status bar shows the text 'Drehen/Verschieben' and 'Verschieben und Drehen Sie die ausgewählten Bauteile mit der Maus und den Cursortasten'. The Windows taskbar at the very bottom shows the Start button, several application icons, and the system tray with the date '12.12.2013' and time '16:03'.



# How to adjust the settings in Cura



# How to adjust the settings in Cura



# How to adjust the settings in Cura

Cura - 13.06.4

File Tools Expert Help

Basic | Advanced | Plugins | Start/End-GCode

**Quality**

Layer height (mm)

Shell thickness (mm)

Enable retraction

**Fill**

Bottom/Top thickness (mm)

Fill Density (%)

**Speed & Temperature**

Print speed (mm/s)

Printing temperature (C)

**Support**

Support type



Platform adhesion type

**Filament**


Diameter (mm)

Flow (%)

Load

  41 minutes  
0.78 meter 7 gram  
0.17

Ultimaker



# How to adjust the settings in Cura

Basic | **Advanced** | Plugins | Start/End-GCode

---

**Quality**

Layer height (mm)

Shell thickness (mm)

Enable retraction

---

**Fill**

Bottom/Top thickness (mm)

Fill Density (%)

---

**Speed and Temperature**

Print speed (mm/s)

Printing temperature (C)

---

**Support**

Support type  ▼

Platform adhesion type  ▼

---

**Filament**

Diameter (mm)

Flow (%)

# How to adjust the settings in Cura

Cura - 13.06.4

File Tools Expert Help

Basic | Advanced | Plugins | Start/End-GCode

**Quality**

Layer height (mm)

Shell thickness (mm)

Enable retraction

**Fill**

Bottom/Top thickness (mm)

Fill Density (%)

**Speed & Temperature**

Print speed (mm/s)

Printing temperature (C)

**Support**

Support type

Platform adhesion type

**Filament**

Diameter (mm)

Flow (%)

41 minutes  
0.78 meter 7 gram  
0.17

Ultimaker

Rotate

# How to adjust the settings in Cura

Cura - 13.06.4

File Tools Expert Help

Basic | Advanced | Plugins | Start/End-GCode

**Quality**

Layer height (mm)

Shell thickness (mm)

Enable retraction

**Fill**

Bottom/Top thickness (mm)

Fill Density (%)

**Speed & Temperature**

Print speed (mm/s)

Printing temperature (C)

**Support**

Support type

Platform adhesion type

**Filament**

Diameter (mm)

Flow (%)

41 minutes  
0.78 meter 7 gram  
0.17

Ultimaker

W, D, H: 50.0, 50.0, 8.4 mm

Scale X	1.0
Scale Y	1.0
Scale Z	1.0
Size X (mm)	50.0
Size Y (mm)	50.0
Size Z (mm)	8.44
Uniform scale	<input type="checkbox"/>

Scale

# How to adjust the settings in Cura

**Cura - 13.06.4**  
File Tools Expert Help

Basic | Advanced | Plugins | Start/End-GCode

**Quality**  
Layer height (mm) 0.1  
Shell thickness (mm) 0.8  
Enable retraction

**Fill**  
Bottom/Top thickness (mm) 0.6  
Fill Density (%) 100

**Speed & Temperature**  
Print speed (mm/s) 100  
Printing temperature (C) 220

**Support**  
Support type None  
Platform adhesion type Brim

**Filament**  
Diameter (mm) 3.00  
Flow (%) 100.0

41 minutes  
0.78 meter 7 gram  
0.17

Ultimaker

Mirror

# How to adjust the settings in Cura

Cura - 13.06.4

File Tools Expert Help

Basic | Advanced | Plugins | Start/End-GCode

**Quality**

Layer height (mm)

Shell thickness (mm)

Enable retraction

**Fill**

Bottom/Top thickness (mm)

Fill Density (%)

**Speed & Temperature**

Print speed (mm/s)

Printing temperature (C)

**Support**

Support type

Platform adhesion type

**Filament**

Diameter (mm)

Flow (%)

41 minutes  
0.78 meter 7 gram  
0.17

View mode

- Normal
- Overhang
- Transparent
- X-Ray
- Layers

Ultimaker

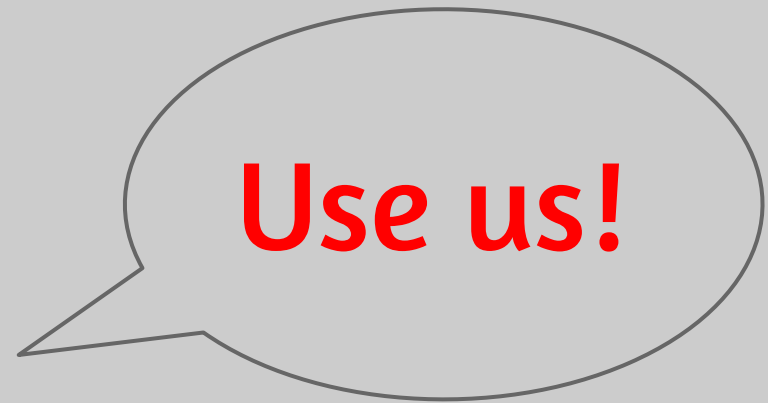
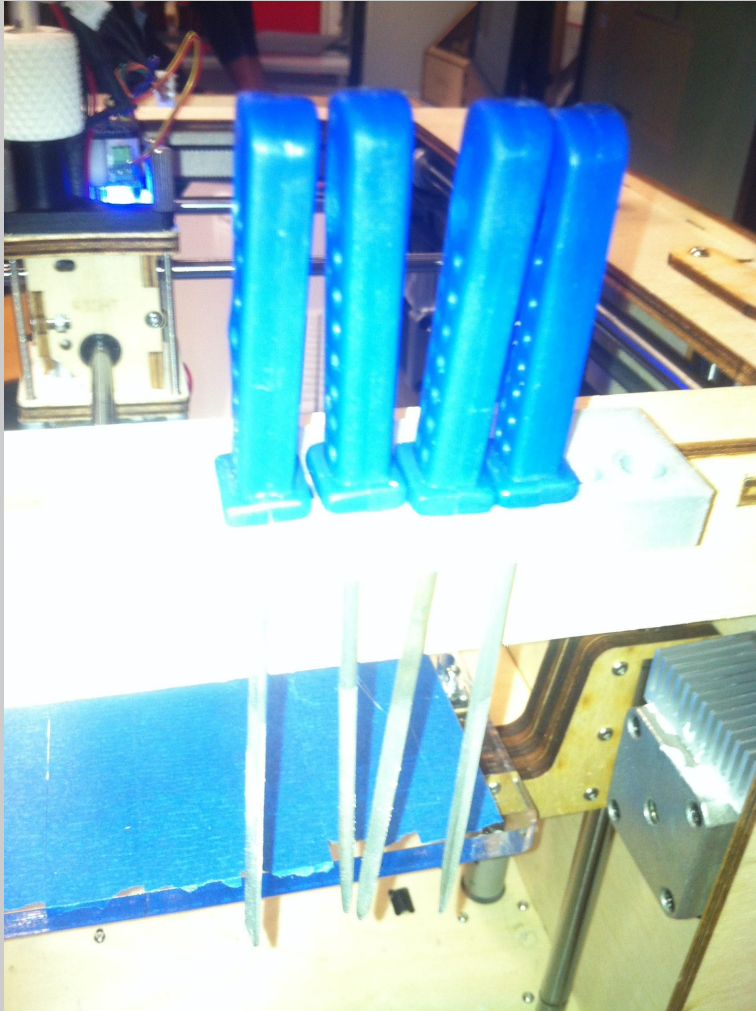


# What next?

Wait for a looooooooooong looooooooooong time...

Until it's ready!

# Not sufficient outcome?





**Thank you  
for your attention!**