

3d- Design & Printing

Γιάννης Λέτσος

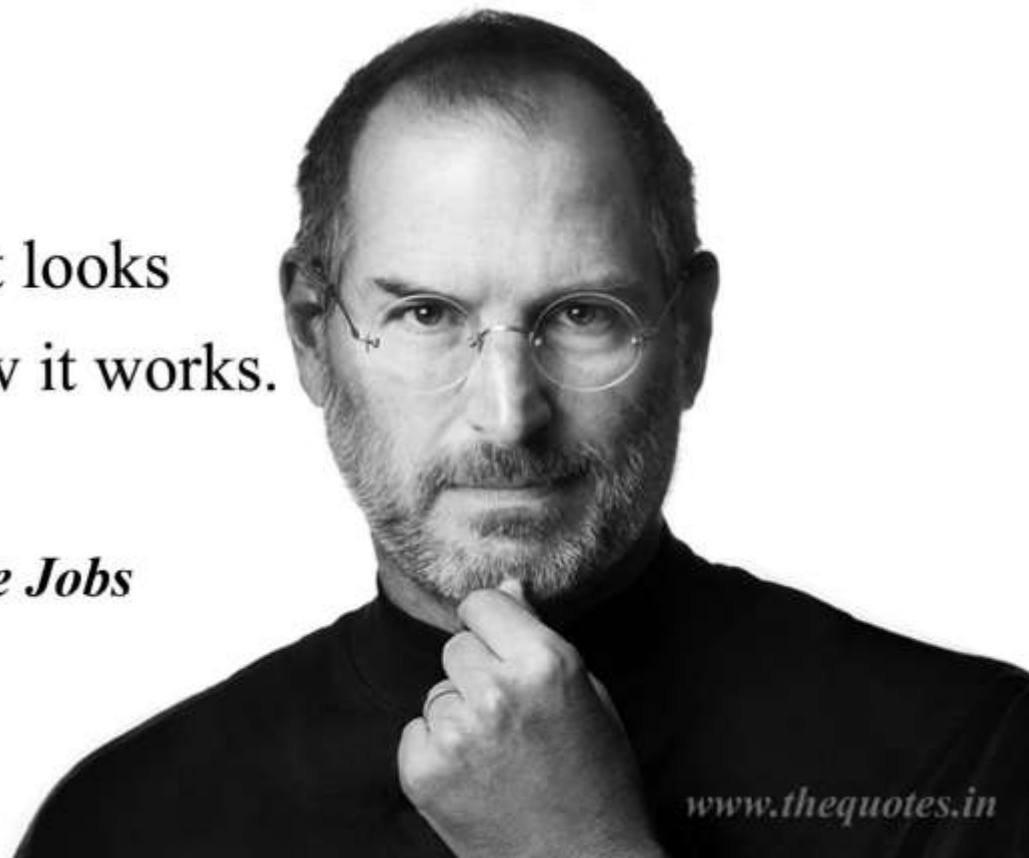
Λέσχη Ρομποτικής

20 Μαΐου 2016



Design is not just what it looks
and feels like. Design is how it works.

Steve Jobs



www.thequotes.in

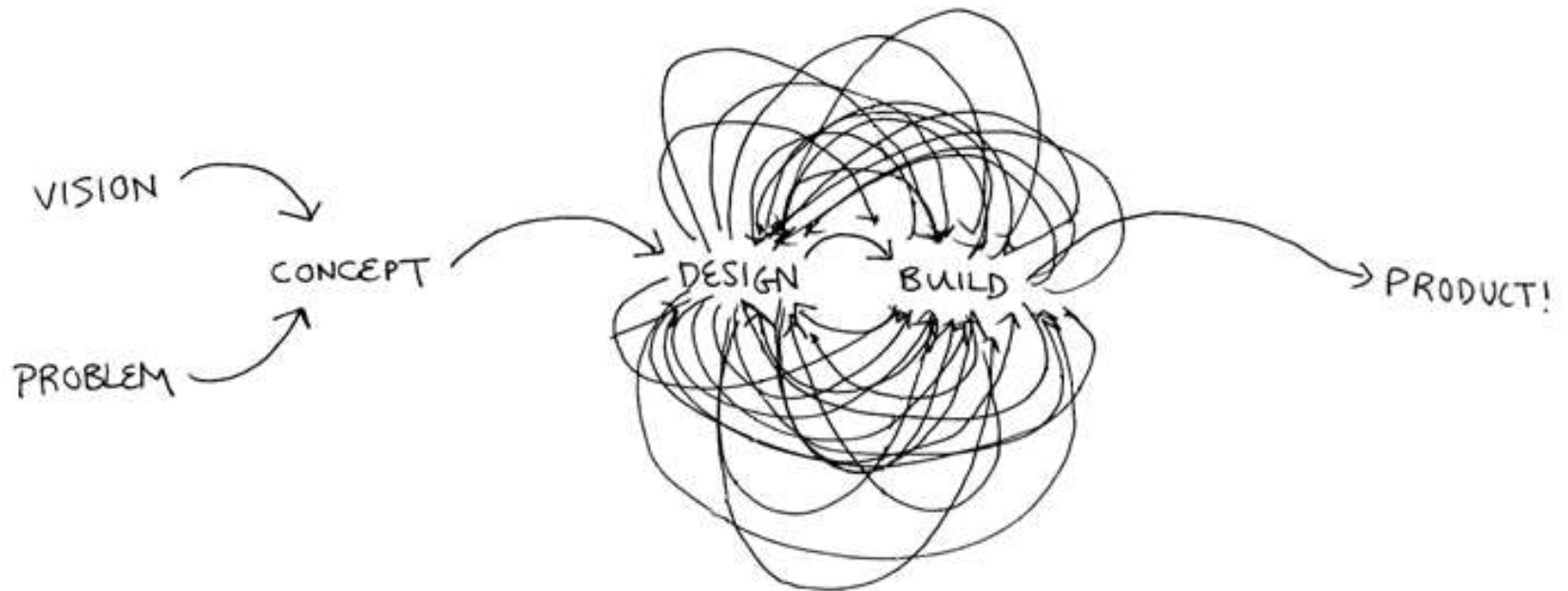
Design

Original design

Redesign



Actually...



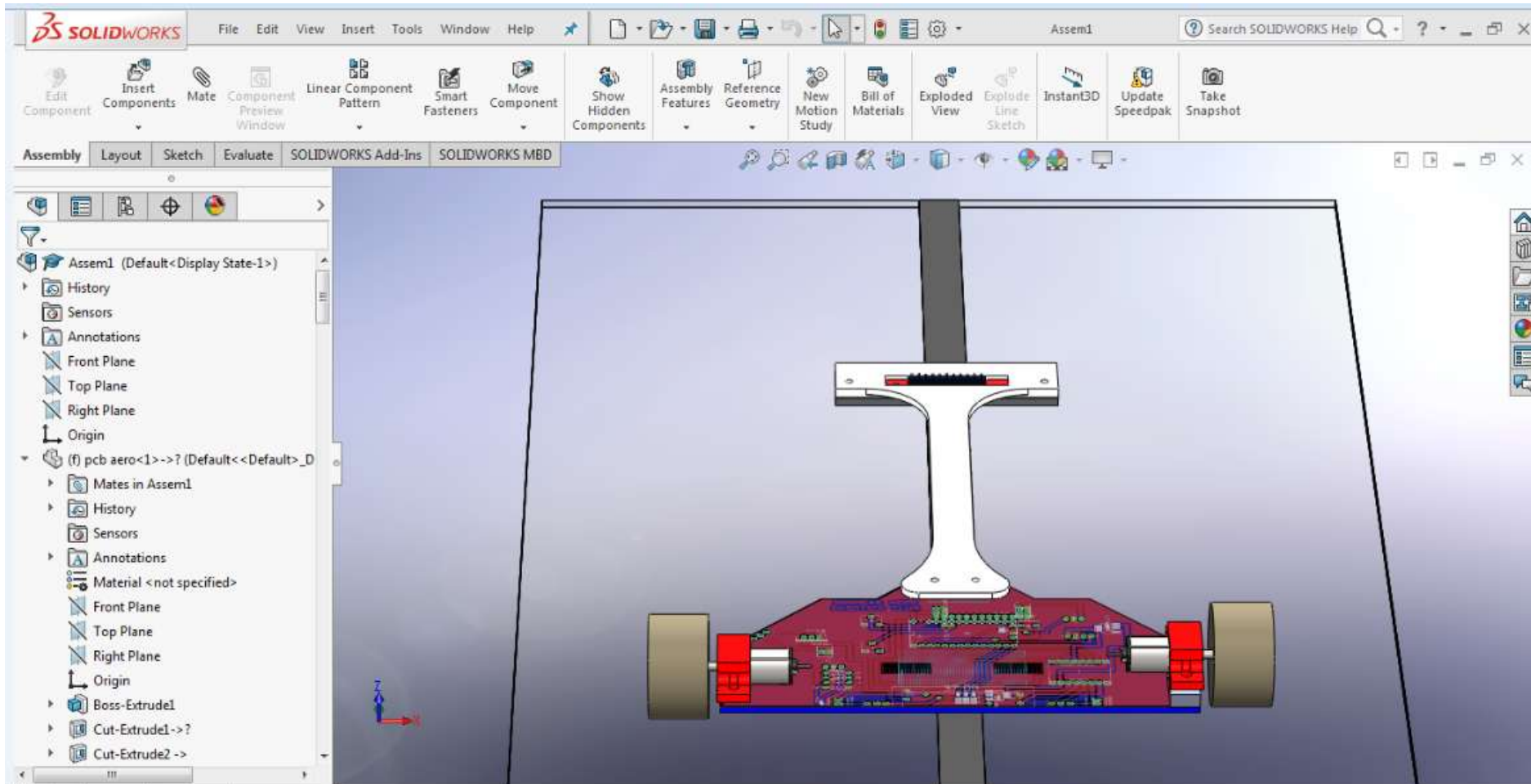
Software

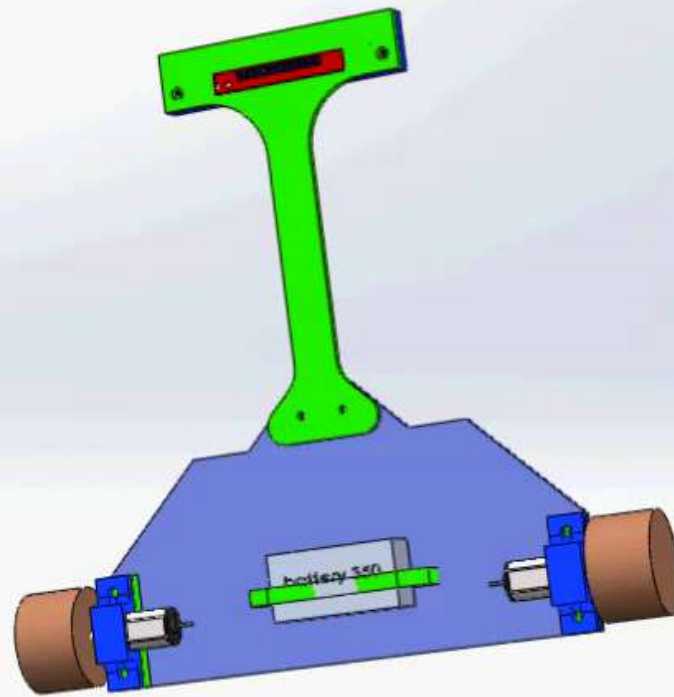
- CATIA
- DELMIA
- SOLIDWORKS

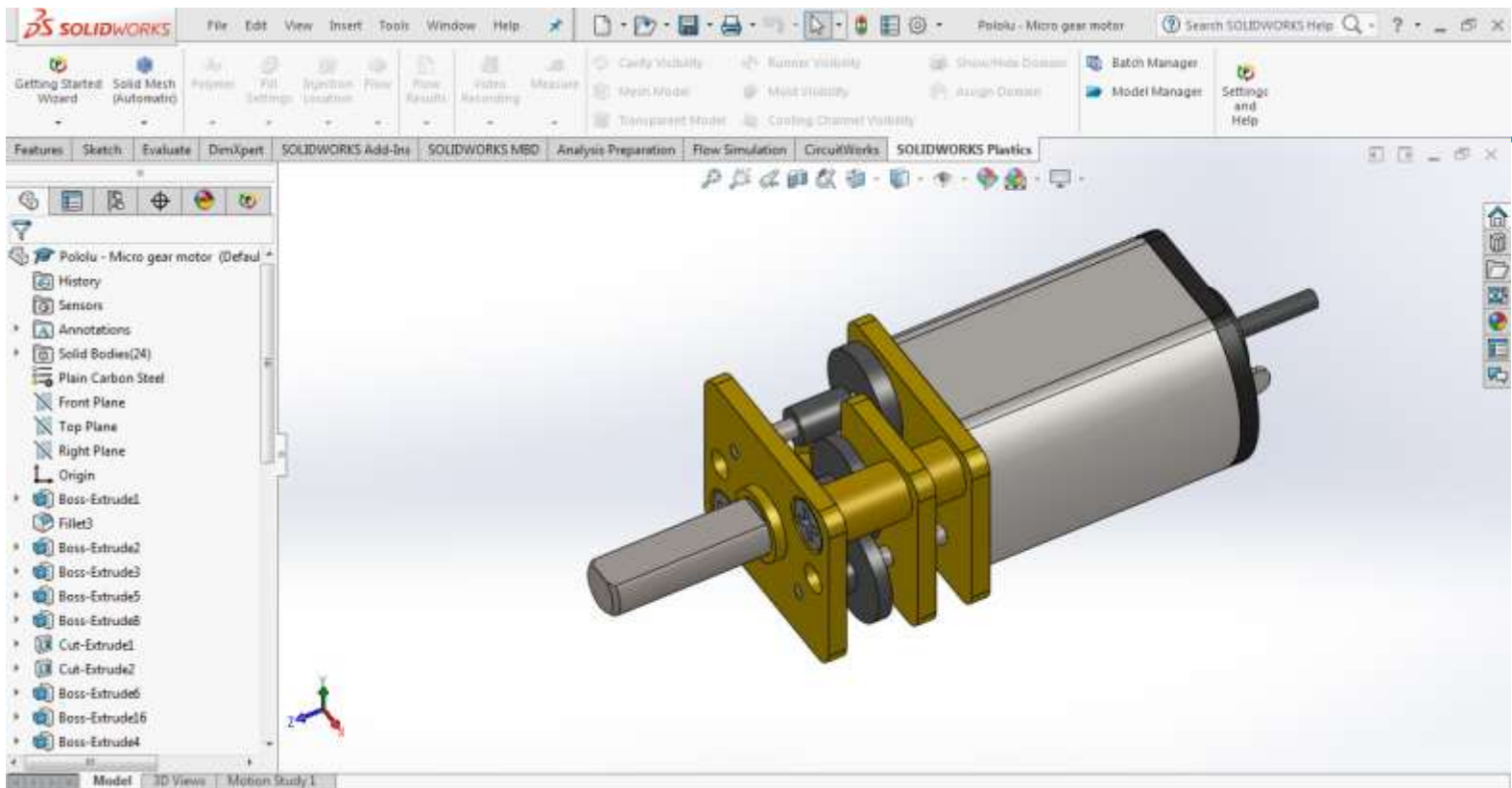
- AUTOCAD
- FREECAD



User interface







www.grabcad.com
www.thingiverse.com
www.sketchup.com
www.tinkercad.com



...

3D-Printing



- A factory on your desk



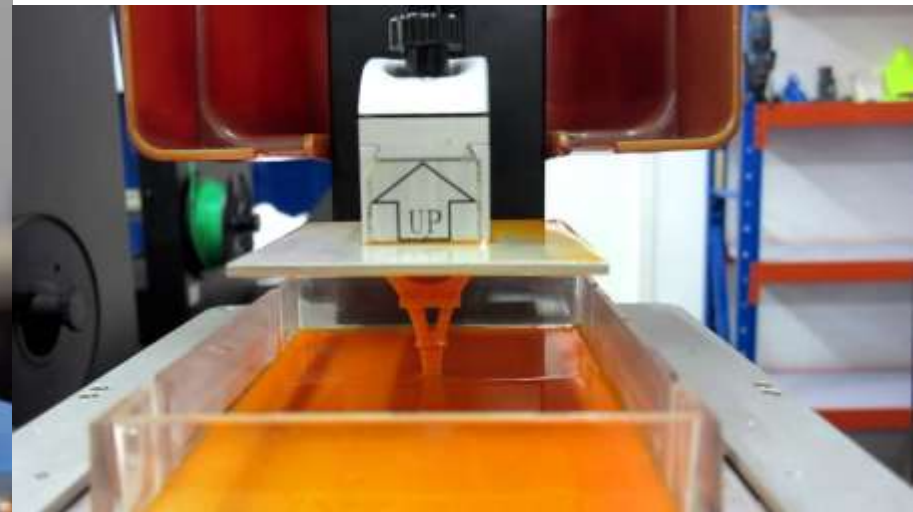
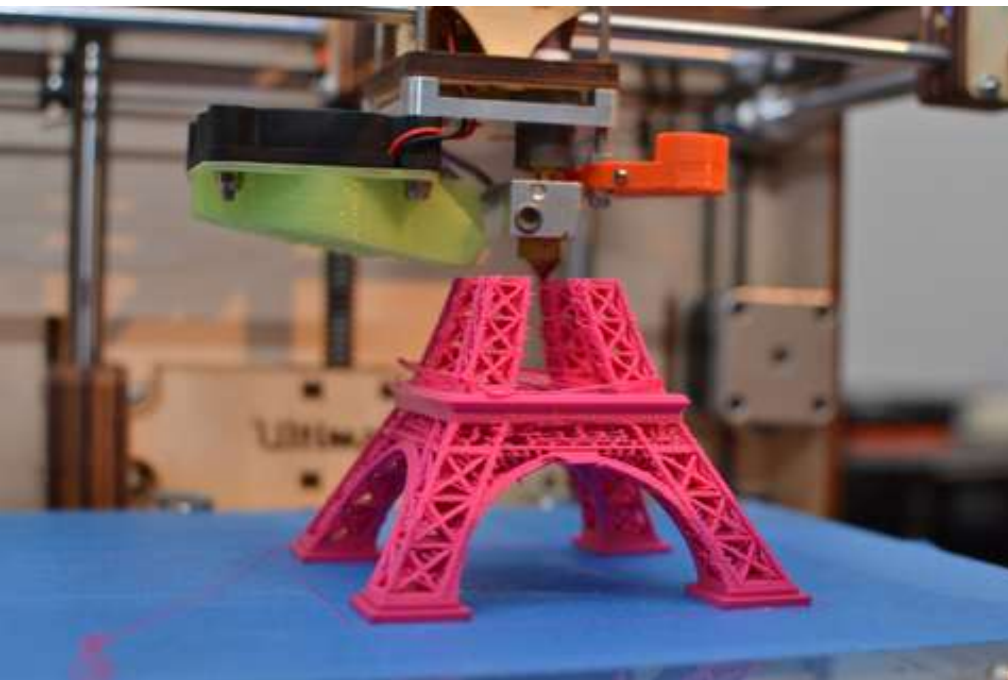




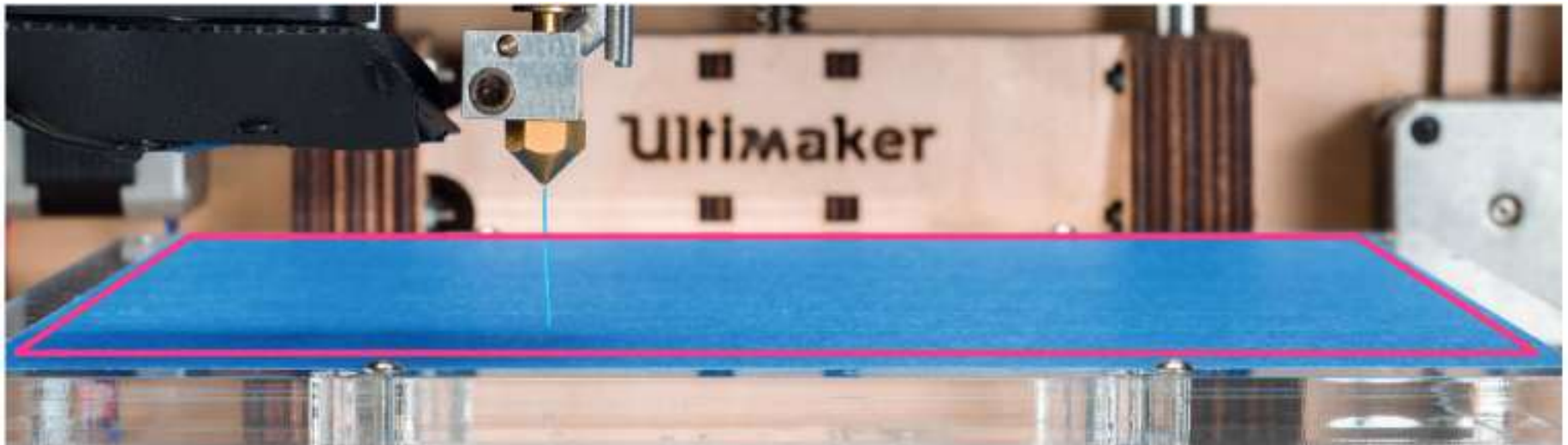
👉 1984

Charles (Chuck) Hull developed the first 3D printer and named the technique as **Stereo lithography**.

-
- Additive manufacturing
 - Layer by layer
 - Different methods (**FDM**, SLS, SLA,...)



FDM

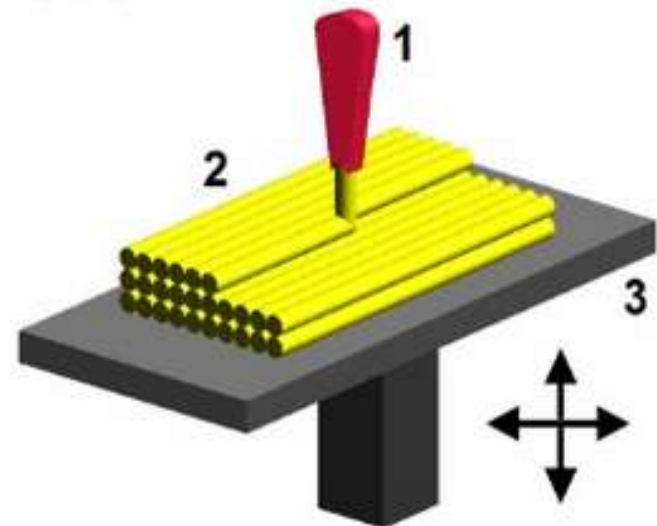


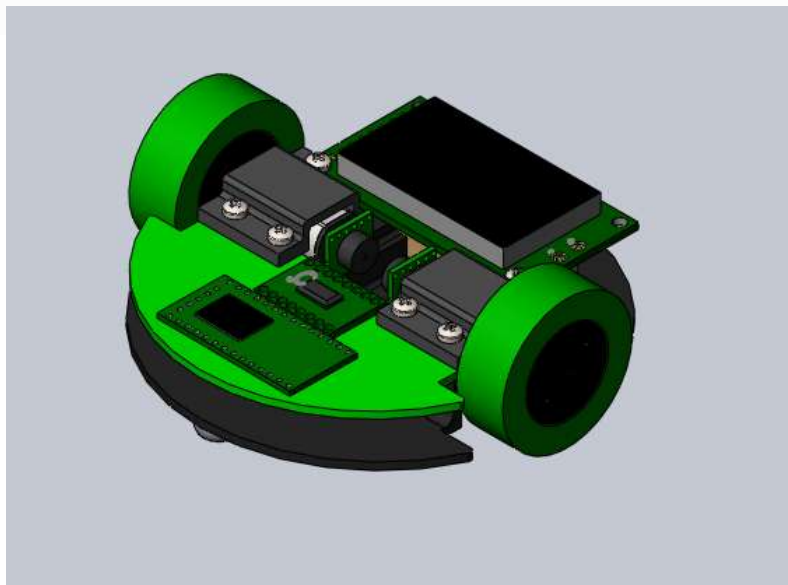
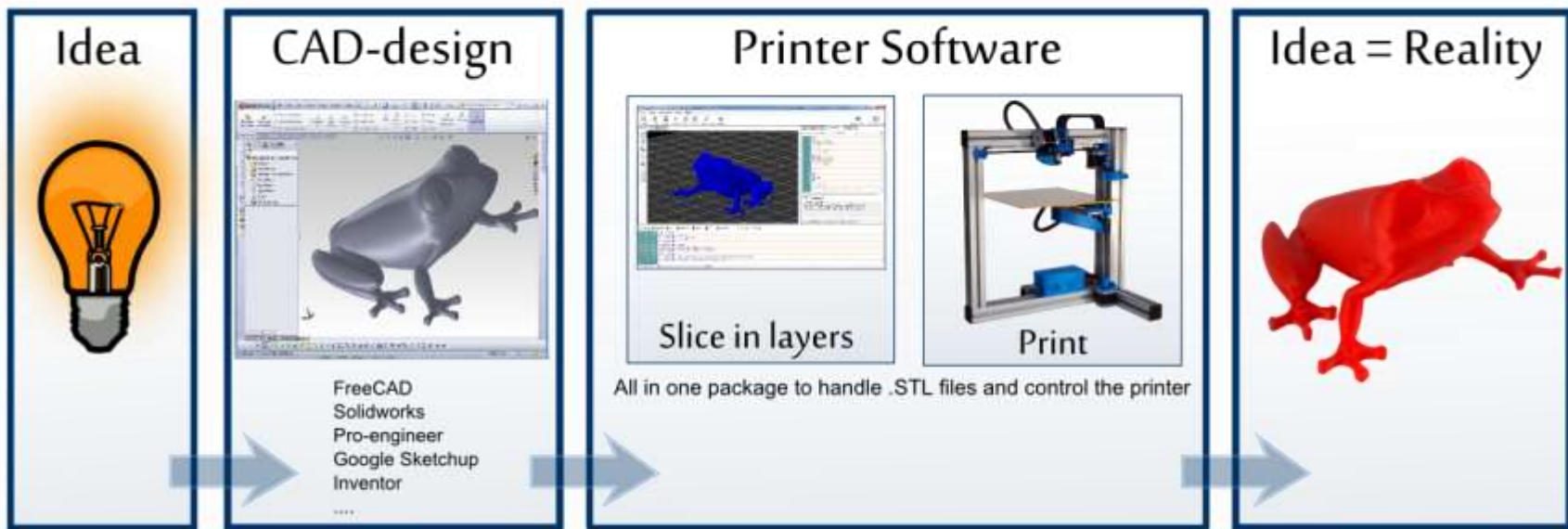
Extrusion

A thermoplastic filament moves through a heated deposition nozzle head and is deposited in layers to build a part.

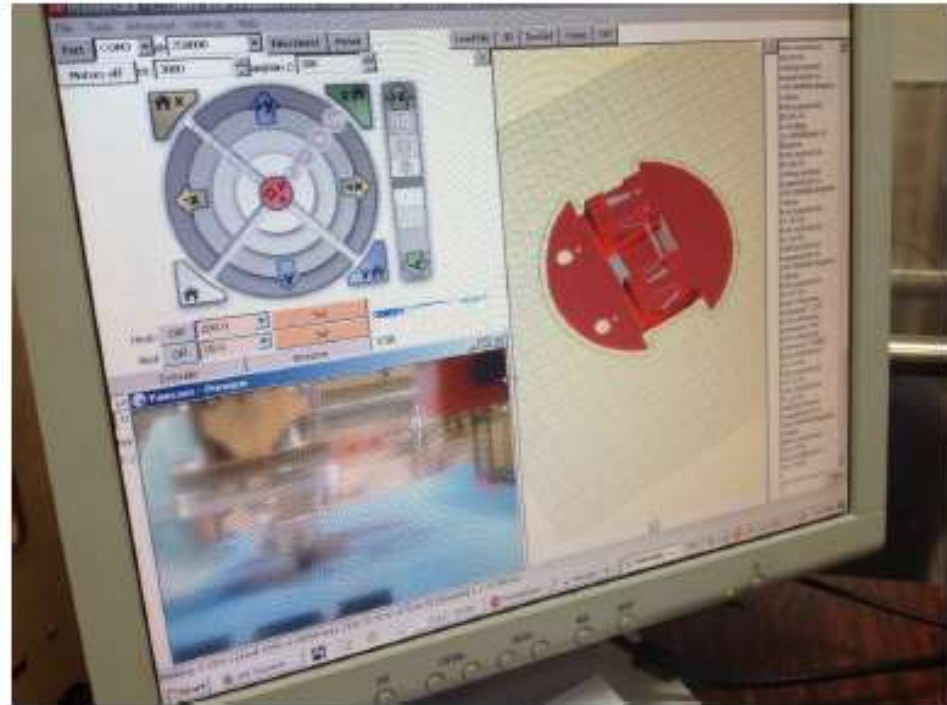
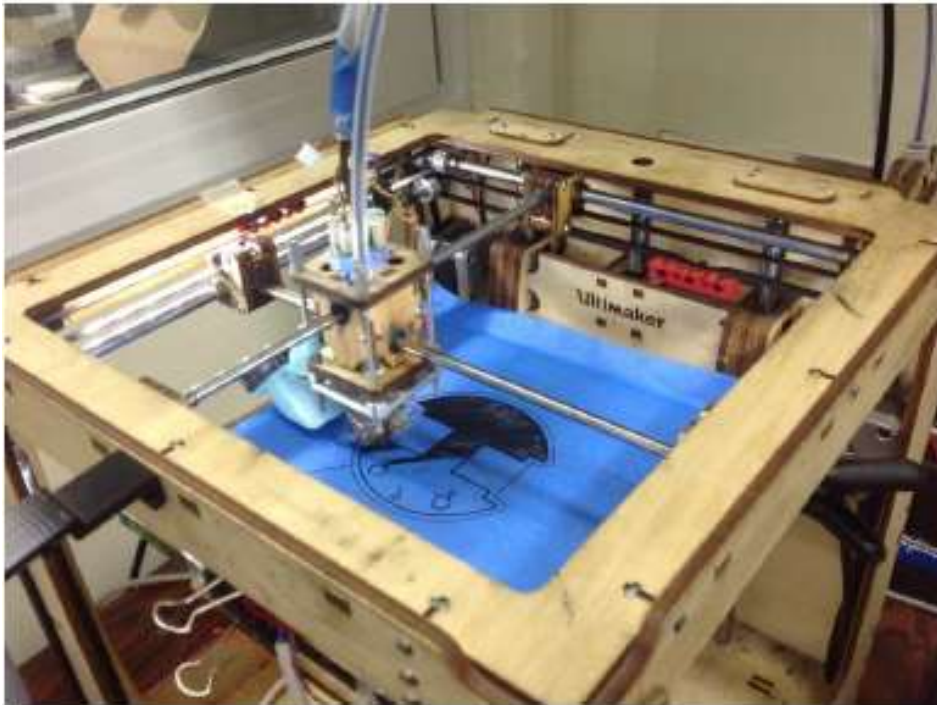
As material hardens, it binds to previous layers.

ABS, PLA, and others. Materials often the same as those used in injection molding.





Be patient...



Cad=> Slicer => G-code=> Printer software

Cura - 15.04.3

File Tools Machine Expert Help

Basic Advanced Plugins Start/End-GCode

Quality

Layer height (mm) 0.2

Shell thickness (mm) 0.8

Enable retraction ...

Fill

Bottom/Top thickness (mm) 0.6

Fill Density (%) 80 ...

Speed and Temperature

Print speed (mm/s) 80

Printing temperature (C) 215

Bed temperature (C) 65

Support

Support type None ...

Platform adhesion type None ...

Filament

Diameter (mm) 2.85

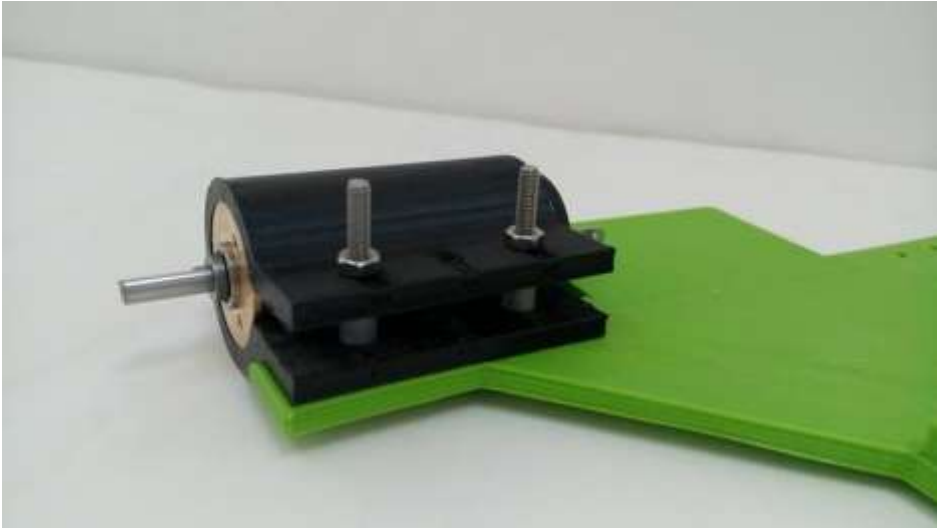
Flow (%) 100.0

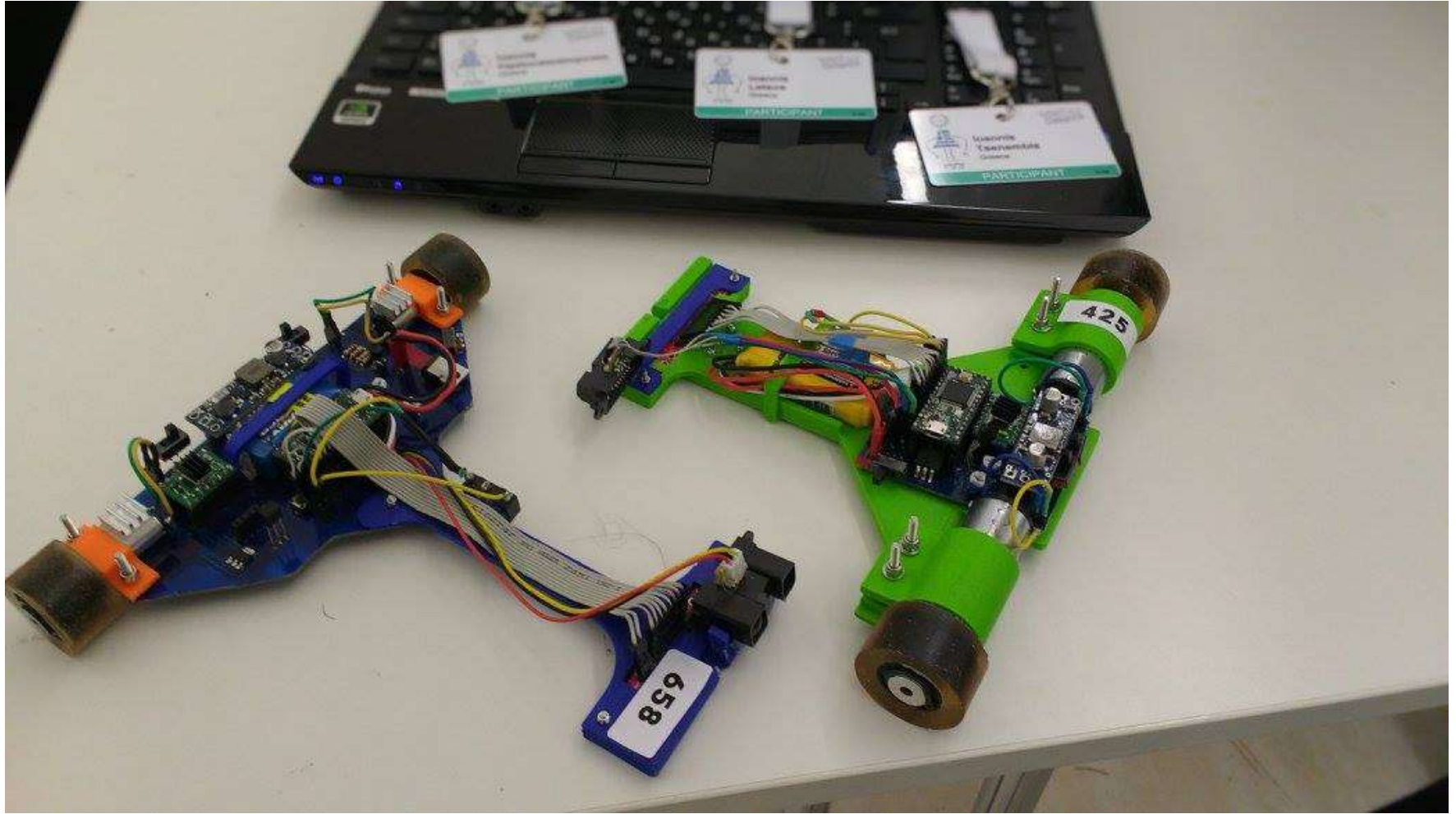
Machine

Nozzle size (mm) 0.4

57 minutes
1.67 meter 13 gram

Ultimaker

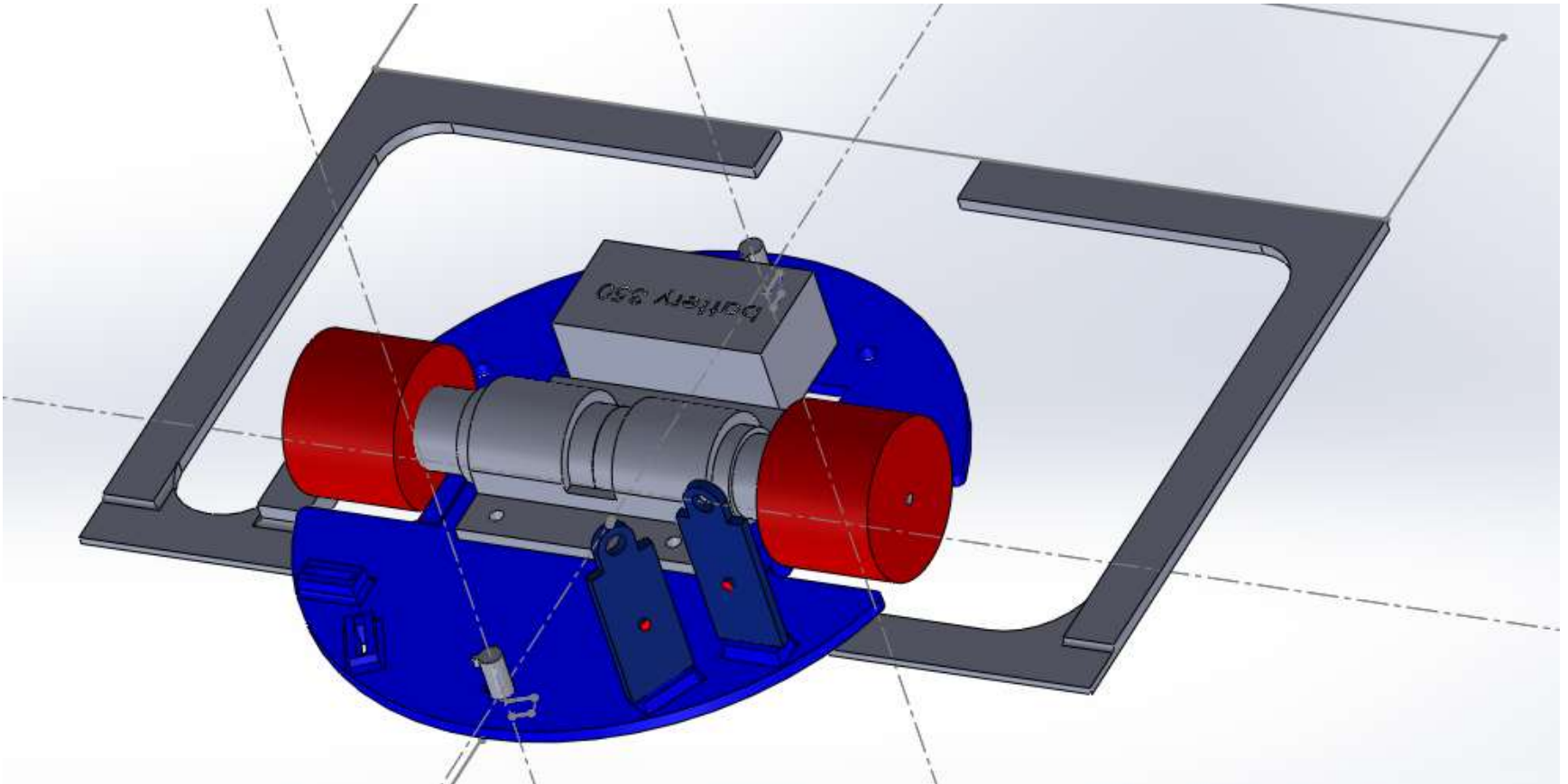




Alternative solutions



3d printer helps us with everything



Thank you

