

3 D Printing Industry

1) Introduction!

What is 3D printing? In few word 3D printing is type of manufacturing process in which is machine creates a 3 dimensional object by building up successive layer of materials. [1][2]

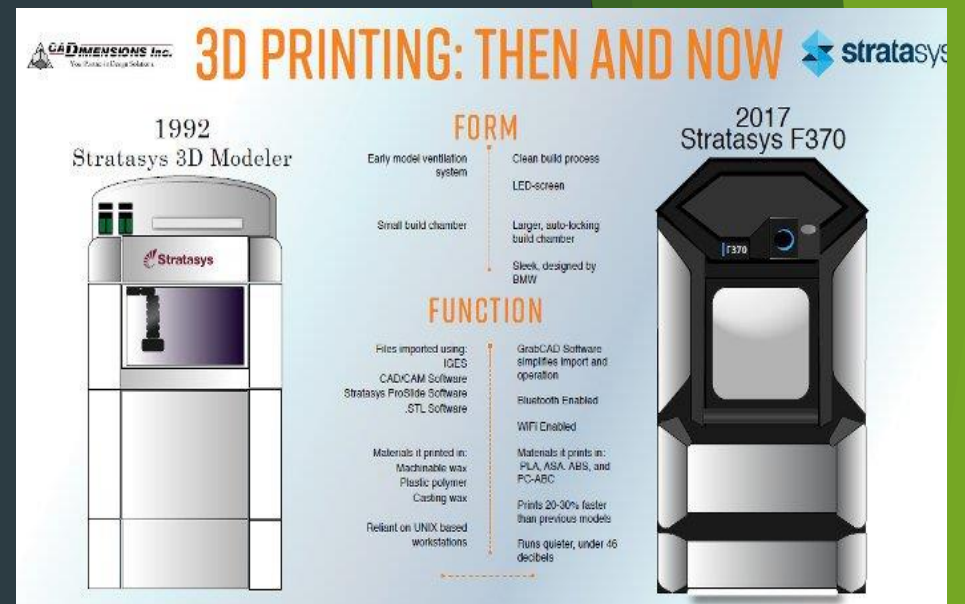
2) History of 3D Printing

In may 1981 DR. Hideo Kodama at the Nagaya Municipal Industry Research published piece of literature to describe layer by layer approach by intrinsic to 3D printing but never granted a pattern. Three years later 1984 three French engineers filed patent for manufacturing process of stereolithography. In 1986 Chuck Hull formed 3D systems and released first ever 3D printer, SLA-1. In 1987 firs 3D printer was born. In 1988 Clarc Deckard filled patent for Selective Laser Sintering (SLS) . From using UV light, SLS used laser. From 1999 – 2010 3D printing shows its potential and it was released multi coloured 3D printer [3][4]

5) 3D printing technologies.

There are 3 main technologies of printing technology:

- Extrusion (Plastic filament is melted and deposited on the build platform layer by layer)
- Photopolymerization (A laser or light projector cures liquid, photosensitive resin directly within the 3D printer tank)
- Powder (A laser sinters or melts powdered material layer by layer) [6][9].



3) 3D printing Industries.

3 D printing growing industry and many companies is interest in printing and might make it career of it. There are several industries where 3D printing is used:

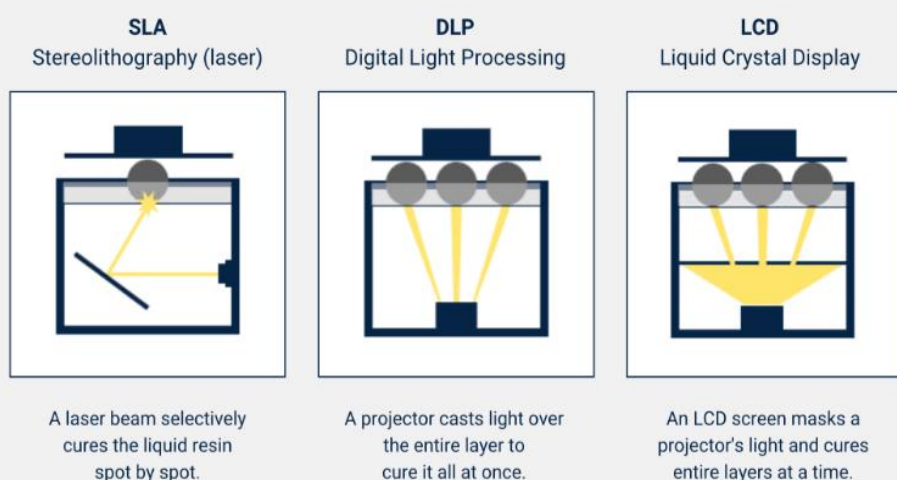
- Mechanical Engineering
- Dentistry
- Architecture
- Aerospace
- Automotive
- Robotics
- Education
- Jewellery
- Construction[5]

6) Modelling Software's

3D printing software is tool which converts a design in your computer into 3d model with depth and dimension. Best software uses G codes to replicate physically resizable models. There are free and paid 3D printing software's available in market that make easy for designer's to create complex designs. These are several 3D printing software's:

- Tinker CAD (Best free CAD software for 3D printing)
- Free CAD (Great free 3D printer design software)
- Blender (Most advanced 3D printing software)
- Fusion 360 (Best 3D printing software, but expensive)
- Rhino 6
- Thingiverse
- Cults [7],[8]

Main resin 3D printing technologies



6) Conclusion

As 3D printing is growing industry, it is great importunity to build career and grow and learn new skills. Printing is using everywhere , even in medicine to print an organs. It is also have advantage in timing because printing is much faster creating parts on another machines, and it is financially cheaper. Many company like NASA have great vision in future as printing facilities on Mars . It is also suitable not for only Digital skills , but also engineering , construction, art and other industries.

