

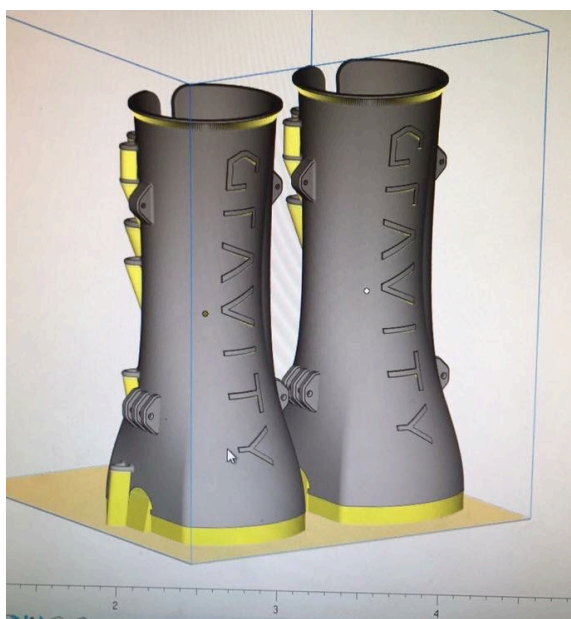
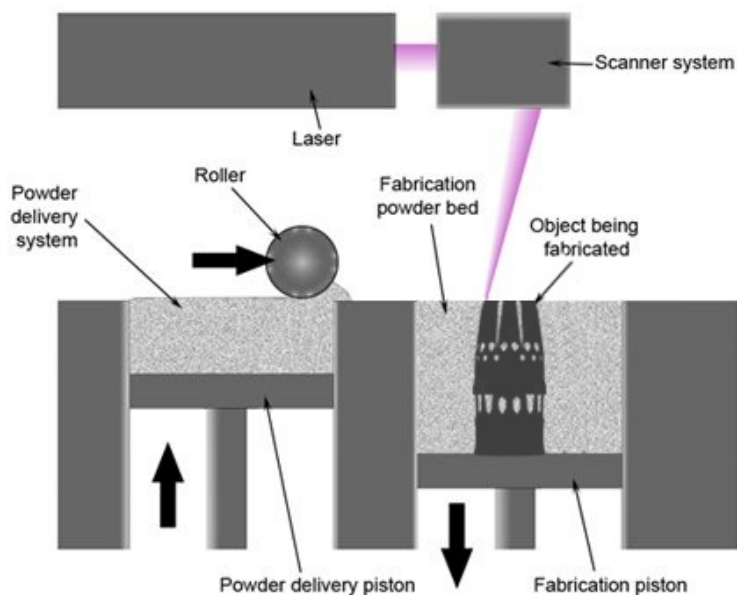


3D PRINTING

STEM

Three dimensional (3D) printing, or **additive manufacturing**, is a process in which a mechanical device can make a three-dimensional object out of digital information. The process involves depositing materials **layer by layer** in accordance with the digital model on a computer. 3D printing is often cheaper, faster and more customizable than traditional manufacturing processes.

For the Gravity Jet Suit parts, a process called **Selective Laser Sintering (SLS)** was used. This method of 3D printing uses a laser to melt or 'sinter' metal powder. A precision laser moves across a bed of atomised aluminum powder to melt it into hard metal; the bed is lowered a tiny distance; a roller pushes more metal powder into the bed and then the laser melts the next layer of the object. The new layer fuses to the previous layer with the heat from the laser. This continues until every layer is complete and the object is built.



Just like a document printer needs a digital document (a PDF, a Word file or a JPEG) to print, 3D printers require a **digital design file** containing the three-dimensional geometry of the object.

These digital files are designed using **CAD (Computer Aided Design)** software.

The digital design file is then put through **3D slicer software**. This specialist software prepares the design for 3D printing by 'slicing' it into individual layers of data which correspond to each individual layer of the physical object.

