

Digital Developments using 3D Printing Use Cases

Involves using digital images or models to create physical objects. Without using a mold, 3D printing adds layers of material on top of one another to create an object.

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<p>Johnson & Johnson (3D Printing)</p> <p>Johnson & Johnson uses 3D printing to create personalized orthopedic implants to improve the health and well-being of patients.</p>	<p>Under Armour (3D Printing)</p> <p>Under Armour uses 3D printing to achieve more personalization in its products, creating limited-edition shoes that are perfectly fitted to a runner's feet.</p>	<p>Ford (3D Printing)</p> <p>Ford uses 3D printing to accelerate the rate at which they can design and test new engine molds. This shortens the prototype creation process and leads to higher-quality vehicles at a more affordable price.</p>	<p>Ford (3D Printing)</p> <p>Ford created a 3D-printing lab to rapidly create and test new parts for future vehicles. Using a 3D printer, Ford cut the time to produce a prototype part from up to five months to just a few hours. Now the company can quickly create multiple iterations of the same part and test them simultaneously to identify the most appropriate for production.</p>	<p>NASA (3D Printing)</p> <p>Aerospace engineers use Fused Deposition Modeling (FDM) Technology for prototyping, tooling and part manufacturing. To design rover, NASA engineers drew on ingenuity and advanced technology with 70 of the parts that make up the rover were built digitally, directly on a Stratasys 3D Printer.</p>	<p>GE Aviation (3D Printing)</p> <p>A fuel nozzle is part of any engine that runs liquid fuels. It is responsible for spraying fuel into the engine, and it needs to be strong and capable of withstanding high temperatures, not to mention precise so that it can release the right amount of fuel at the correct rate. It's a complex component, one that used to be made up of many parts – about 20, in fact, and those parts had to be separately manufactured and then welded together.</p> <p>By using 3D printing, GE Additive was able to produce the entire component, with all of its twisting geometry and interior chambers, in one single part. The complex components became something of a symbol for how 3D printing can change manufacturing, which it began producing in 2015. In Sept 2018, GE Aviation hit a milestone – it produced its 30,000th 3D printed fuel nozzle at its Auburn, Alabama plant..</p>
<p>Joseph Kohn Training Center (3D Printing)</p> <p>Joseph Kohn Training Center in New Brunswick, New Jersey, is 3D printing maps that have raised contours on it to indicate mountains, rivers and roads, as well as buildings and streets in ever-changing cities. The maps are used by the visually impaired and also provide a more detailed look at the geography of certain areas. Future maps used for surveying will likely incorporate this technology.</p>	<p>Surgeons in Mumbai India (3D Printing)</p> <p>Surgeons in Mumbai India are now 3D printing models of human body parts, like kidneys, to practice on before operating on the live patient. More and more surgeons will be relying on prototypes like these for teaching and preparation that will reduce mistakes and will likely save thousands of lives in the future.</p>	<p>Plastic Surgeons (3D Printing)</p> <p>After gaining approval from the FDA in 2014, plastic surgeons like Dr. Pablo Prichard in Phoenix are using 3D printed implants to help reconstruct the faces of injured patients. More 3D printed body parts will be coming soon, providing opportunities for both medical and engineering firms.</p>	<p>Candylicious (3D Printing)</p> <p>Candylicious, a store in Dubai Mall, is selling what could be the world's first on-demand 3D printed candy. The store's new "Magic Candy Factory", developed by Katjes, consists of two 3D printers which can create customized candies in under 5 minutes.</p>	<p>Rietveld Architects (3D Printing)</p> <p>Using an Objet Eden 3D Printer Rietveld Architects have been able to reduce the time to create models from two full months for two employees to just hours by a single employee.</p>	