New manufacturing process builds a nylon bike as strong as steel creative writing...

Business, Manufacturing

Abstract

Technology has revolutionized the manufacturing process in ways we would never have dreamed about. 3D printing made the idea of do-it-yourself possible and the manufacturing process cost effective, user-friendly and more customized. This leading edge technology was applied to manufacture a strong, classy and lightweight nylon bicycle that could easily replace the traditional metal bike. This amazing bike was designed using the laser sintering method that gave a final product in the form of printed layers of nylon. The 3D technology has the potential to change the manufacturing reality and make people’s craziest designs become true.

Technology reinvented the manufacturing industry in unseen and remarkable ways by making the design of the impossible possible. The famous scene of the movie Jurassic Park II portrays the design of one of the smartest things called the Velociraptor. The nearly impossible construction of the larynx was instantaneously achieved by creating the dinosaur as if the computer designed the apprehended and amazing object and printed it immediately. At that time, this type of design was merely linked to science fiction until recently. A new process was invented which makes the Jurassic Park dinosaur manufacturing imaginable and achievable. This new technology is similar to the one illustrated in the Jurassic Park movie and is amazingly similar. Several things that were imaginary and unreasonable in movies are becoming a reality. Space ships were illustrated in movies as a common means to go from one part of the universe to another. At one point in time, people would have never thought that this means of travel was achievable. Several of the remarkable things that were once filmed in Star

Trek are now possible. This is not a myth as one can see in a show called “ How Star Trek changed the world.” This show was once broadcasted in the History Channel and exhibited marvelous inventions that began as ideas in that show. One of these inventions was the cell phone which has become a reality for quite some time now. The new manufacturing process for producing complex objects is considered to be the ultimate concretization of science fiction.

This amazing breakthrough is revealed in the article “ New Manufacturing Process Builds a Nylon Bike as Strong as Steel” that was written by Rebecca Boyle. According to Boyle (2011), British engineers succeeded to “ Grow” a product that is made from material that is light and strong as steel. This 3D printed bike is manufactured using a modern growth process called “ Additive Layer Production”. Boyle’s article (2011) explains how this wonderful invention is guided by a computer that fuses a fine power using laser. The material being fused, either nylon or plastic, is melted by the laser and redesigned to a specific pattern and in a solid form. The powder is fused and melted and then solidified in several layers until the final product is formed. According to Boyle (2011), the computer can design any shape and any form. The end product made thanks to the Additive Layer Production technology is 65 percent lighter compared to products that are traditionally manufactured. Also, the Additive Layer Production uses only a tenth of the materials that are normally used in a traditional manufacturing process. The end result is an original bike that is lightweight and as robust as a steel bike. This process is convenient for airline companies that can manufacture lightweight aircraft with the same strength of a traditional airplane. This

would be for sure the deal of the century for aircraft manufacturers due to the extremely attractive advantages of weight and cost effectiveness. Aircraft manufactures have two major concerns that are strength and weight. The inventors made their point by proving that the Additive Layer Production technology pretty much allows for the design of anything and almost everything with less cost and material than the traditional manufacturing method. To show their case, the inventors manufactured a traditional bike referred to as “ airbike” using a six pieces that were printed separately. According to Boyle (2011), the six parts included the moving pieces in the wheels. This advanced technology illustrates the flexible nature of its manufacturing process. Boyle (2011) pointed out the science fiction aspect of the technology by stating a joking end to her article that states that people will be able to travel to a printed space station via a printed spacecraft.

The Additive Layer Production technology seems to offer a vast array of possibilities. Yet, there would be limits to what this technology can bring and produce. For sure, this technological breakthrough would still produce robust products like traditional machines would. This does not entail, however, that this technology would be the method of choice for manufacturers. This technology raises some questions though when it comes to producing 3D products for aircrafts. As much as this material might be flexible and robust, there might be some questioning when it comes to the amount of stress testing the production material has experienced. Questions also were raised regarding the durability of the production material such as the extent of blending among the composite layers. The technology is wonderful but it has

to yet to surpass the challenges of the manufacturing industry to prove itself worthy of investment. Companies are not going to invest in this technology before it proves its durability and success. It is usually the small details that are unthought-of that cause major disasters. This makes one think of the original commercial jets that experienced huge botches due to the stress fractures in the metal. A long time was needed to find out that the failures were due to the square shape of the jet windows. For this reason, all commercial jets have rounded widows.

The 3D technology offers an endless range of ideas and has the capability to revolutionize the industrial world. If this technology is properly marketed among manufacturing giants and makes its way through, it can make the big corporations change all their manufacturing processes to adapt the 3D manufacturing method. This technology can change the customers' expectations to being more demanding than ever. The manufacturing process will not start with an order placement to manufacturing, testing and then delivery. It would rather start right after the order is made. The manufacturing would theoretically take place immediately after the order is made so that the product can be delivered in merely a few days. This technological manufacturing process offers an endless range of possibilities knowing that a lot of testing needs to be done before this technology becomes official.

References

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