

3D-PEN – MODERN WAY TO CREATE

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The present article deals with the 3D pen as modern technology that helps people to bring in life their ideas in bulk form.

3D pen is an instrument that can draw in the air using not an ordinary ink but a huge variety of plastics. With the help of this device, one can not only practice in drawing and experiment creating different pieces of art, but also solve many domestic problems.

There are pens of two types: cold and hot. Pens of the first type print with quick-setting hard resin that is called photopolymers. “Hot” pens use wide variety of photopolymers in the form of plastic threads, which are twisted in some kind of a coil. The principle of work of the hot 3D pen is quite simple. Unlike other devices for writing and drawing, which are filled with ink of different types, this pen is filled with those plastic threads. Built-in mechanism automatically brings plastic to the tip, where it melts and gives us an opportunity to draw shapes. Metallic tip of this pen can heat up to 240 °C so user should be very careful with it. [1]

On the other hand, “cold” pens are filled with soft photopolymer resin. The cold 3D pen doesn't have heating elements which means that it is safe even for children use. Photopolymer hardens immediately by the build-in source of ultraviolet light. Use of cold photopolymer allows applying drawings on the skin without any risk of being burned. Material has no smell and a huge selection of colors. There are transparent, biodegradable, elastic and even glow-in-the-dark resins. [1]

Of course, 3D printer can create complicated stuff from the programmed model on the computer. However, 3D pen have many of its own advantages. First is its weight. Modern pens weigh from 40 grams, which makes it is easy to hold it in hand. Small size and ergonomic design allows taking this device in a business trip or on the vacation. Some 3D pens have power banks that gives an opportunity to use

them far away from points of access to electricity. Also small size of pens allow drawing even in places that are hard to reach.

Many people have wrong idea that 3D pen is used only for entertaining. One can use this device in lots of different ways. Moreover, one of the most important arguments for 3D pens is its affordable price. With almost the same abilities as 3D printer, pens are much cheaper.

Nowadays, hand-made things become more and more valuable and interesting: either they are paintings on the vases or tiny souvenirs. With help of 3D pen it's easy to create lots of different stuff such as beautiful frame for photo, some imitation jewelry, to build unique box for accessorizes and lots of other things. Beautiful patterns, original figurines and accessories is only a small part of what is possible to create with 3D pen.

It's also very useful in various domestic use such as fixing damaged plastic details, because it's can easily "glue" together all kinds of plastic and at the same time fixed pieces save their flexibility.

Despite most pens are made for creative work and for making simple volumes drawings there many other purposes. Special 3D pens are also used by engineers and doctors. With their help, they can improve tiny and complicated details, elements, joints of structures, which 3D printers factory made. [3]

In medicine, surgeons use some kind of bio-pens – 3D pens that print with polymer material mixed with living cells. With help of such pen, they can fix broken bones or damaged body tissues. [3]

In conclusion, the 3D pen is a convenient thing. Its multifunctionality, small size and affordable price makes it not only an addition for 3D printer but also its alternative. It used not only in creative and designer sphere, but also in medicine, science and many other areas. 3D pen is very useful for objectification of different creative ideas in volume form, which helps to develop this idea in future. This device gives an opportunity to bring to life lots of creative ideas and solve tons of domestic breakages.

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