

Abstract

Due to the rapid development of science and technology, we do not need to mold anymore. The low pollution of 3D printing machine industries bloom everywhere. It is also called the third industrial revolution. It's extremely significant to all the human beings. Since the most critical Fused Deposition Modeling (FDM) technology patents of 3D printing machine is expired, everyone could have a chance to develop various kinds of that machine. This is the biggest reason why we would like to do some research about the 3D printing machine. All of us are curious about this machine! In addition to assemble and adjust the parameters of the original 3D printing machine, we have found a variety of novelty 3D printing machines over the Internet. We also found a lot of 3D printing applications in different areas with various features. We realize that 3D printing technology plays a necessary and indispensable role in our life. Thus, we want to design an advanced type of 3D printing machine. The main aims of our 3D printing machine is not only convenient but also low-cost. We study how to design a functional head, and combine a magnet in the functional module so that the module can easily attach to the functional head and remove off quickly. Furthermore, we study the open source software of 3D printing machine, modify the program to fulfill the pen drawing and laser engraving functions. Eventually, we successfully develop a multifunctional 3D printing machine combining 3D printing, pen drawing and laser engraving in one machine.