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DESIGN AND FABRICATION OF LOW COST 3D PRINTING MACHINE

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ABSTRACT

3D printing technology is one form of additive manufacturing processing where in three dimensional stable objects may be created with the aid of using consecutive layers. It is regularly referred as fast prototyping. In this process, 3D models are effortlessly generated on a highly sized device connected to a tool containing object blueprints in which this concept of custom manufacturing is an exciting one. To create on universal shape in its personal manner this technology is regularly preferred. The essential element used to increase a sample may be utilized in maximum programs which includes architecture domain, Health care and Engineering. Most required layout is created with the assist of 3D scanner in which the cost of a 3D printer is simply high; so a cost-effective low-cost 3D printer with appropriate additives is fabricated.

Keywords: Additive manufacturing, 3D models, 3D Scanner.

INTRODUCTION

3D printing refers to as additive manufacturing technique essentially used for making three dimensional objects. The object can be of any form. The technique of creating this object is referred to as additive manufacturing. In this additive manufacturing, an object is constructed from its base via way of means of including a couple of layers of substance to it.

3D printing technology is utilized by producers like automobile, aerospace, medical corporations because of the correct and green manufacturing of object. The 3D printing object could be light weight and speedy prototyping of the object may be done. A new open design approach capable of driving self-directed environment growth has been made possible by the technical evolution of 3D printer, universal internet connectivity, and cheap computing. For research, education, and environment growth, low cost 3D printing was used. While still its infancy, low cost, three dimensional desktop printing is increasing maturing with seeming's potential. A transparent solid acrylic plastic which is watertight, rigid, and sufficiently durable to survive numerous assembly and scanning procedures is the final print material with a high production price, the latest 3D printing process is very time consuming. 3D printing technology is an additive processing technology in which a three dimensional model is produced. This technology for fast prototyping.

LITERATURE REVIEW

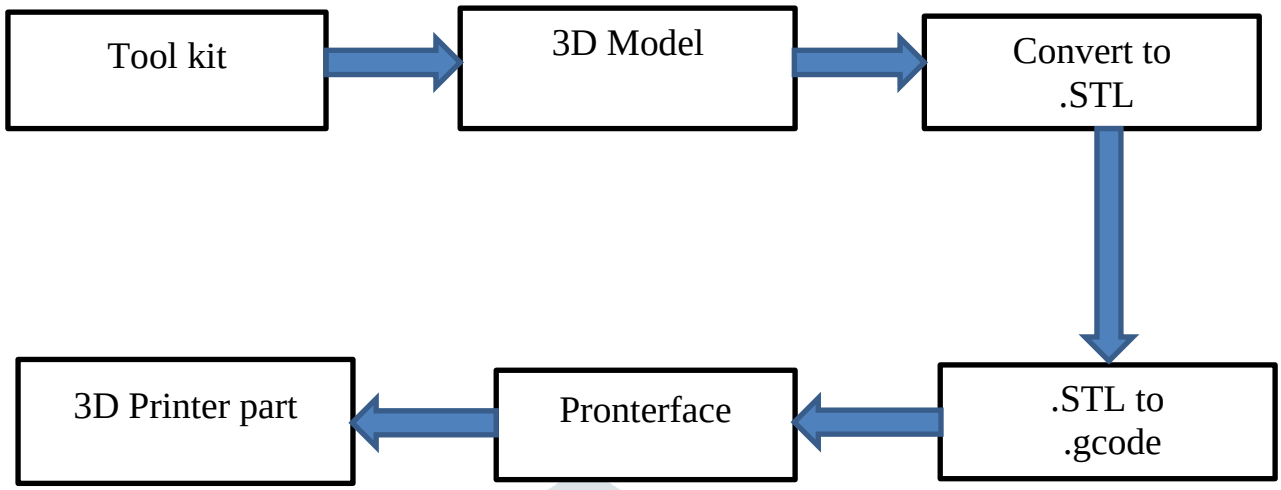
Mechanical Properties of FDM and SLA low cost 3D Prints

Ksawery Szykiedansa et al 2015, a recent development of the 3D printer, has made them readily available to the public low costs. In order to make 3D printed parts to be more useful for engineering application the mechanical properties of printed parts must be known. This paper quantifies the basics tensile strength and elastic modules of printed components of proceed with application of SLA printers.

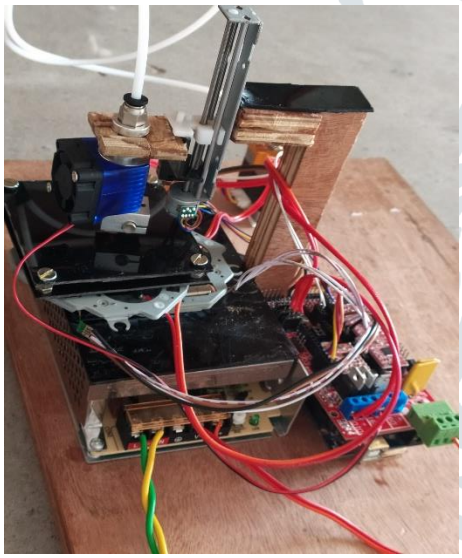
Design and Development of FDM Based Portable 3D Printer

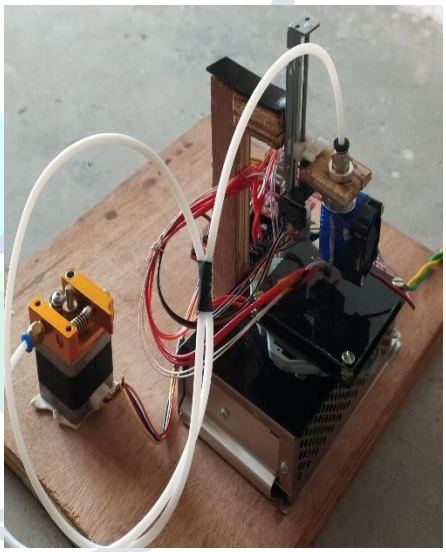
Ashish Patil et al, Additive manufacturing process or 3D printing process is now becoming more popular because of its advantages over conventional process.3D printer is now a day available are not so portable and also they are very costly. The cost of the printer is very less compared to other 3D-printers.

METHODOLOGY



WORKING MODEL





CONCLUSION

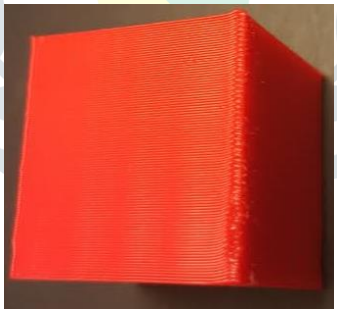
Low cost 3D printer is developed using tool kit. The design using Tinker cad. This printer is developed based on the model of CNC wood router. The design and analysis of 3D printer nozzle is done. Documenting technology, very much a work-in-progress must therefore admit that not all scholars agree on possibility of greater diffusion of 3D printing into individual's homes. 3D printing is still not without its obstacles, such as slow printing rates, as a largely new technique. However, as costs are diminishing, the number of 3D printers sold world-wide has been solely rising.

FUTURE SCOPE

NASA engineers are designing 3D printing parts, which are structurally stronger and more reliable than conventionally crafted parts, for its space launch system. The mars rover comprises some 70 3D printed custom pats. Scientists are also exploring use of 3D printers at the international space station to make spare parts on the spot. What once was the province of science fiction has now become a reality. For its space launch system, NASA engineers are developing 3D printing components that are structurally stronger and more durable than conventionally designed components. The use of 3D printers to build replacement organs for the use of 3D printers at the potential future use. This is referred as bio printing, which is a rapid growth field.

RESULT & DISCUSSION

In our design and fabrication of 3D printing machine x axis and z axis to print the 5cm to 6cm because of machine size and bed length. If we increase the length of bed and slider length it will print large size of product. We use slider x axis, y axis and z axis. We using PLA+ filament for printing purpose and DVD slider is act as x and z axis for printing bed. And finally the product will be printed successfully and we show the output image of the product.



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