

The is used for 3d
printing. 3d printing

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The main aim of paper is to analyse and design the low cost 3D printer which will print the three dimensional objects. The machine produces different products with different material. A 3D printer can make anything from ceramic cups to plastic objects, metal machine parts, stone vases, and even human body parts. 3D printing is a type of additive manufacturing process where a three dimensional object is made by layering down successive layers of material to form the final object. Additive process or subtractive process is used for 3D printing. 3D printing is therefore different from traditional machining techniques which mostly rely on extraction of materials such as cutting or drilling.

The ability to print parts or components which are made from distinct materials from various mechanical and physical properties in a single build process is offered. This is the most basic function of it, but there are many technical glitches in the designing of the current generation low cost printer. The printed object can be fragile, delaminated due to low quality resolution of printing, this paper will highlight and gives methodology/techniques to overcome issue.

It will help in overall increase in capacity of it with increase in the resolution. The appearance and utility of the final product is provided by current models which are closely emulated by the advanced 3D printing technologies.

Keywords: 3D Printer, Masking, Ceramic, AdaptiveINTRODUCTION3D printers have enjoyed a significant price decrease over the last several years. A handful of companies and organizations have led the charge, developing finely tuned “ desktop” versions of the previously industrial-sized machines. These companies have largely made 3D printers affordable and practical for <https://assignbuster.com/the-is-used-for-3d-printing-3d-printing/>

consumers – consumers who continue to find creative & valuable uses for 3D printing today, even as this emerging technology continues to evolve. Why is 3D printing important? Simply put, it has the ability to transform consumerism. By empowering people to build their goods, Unprecedented customization and a significant shift in manufacturing power is possible.

The technology is here to stay, and will only become more commonplace as it continues to be refined. **METHODOLOGY** 3D Printers use a laser or extruder (the material output part of the printer), that move along an X, Y and Z axis to build an object in three dimensions, wherein successive layers of material are laid down in different shapes. These layers can be only a few microns thick at a time. This is an advantage over traditional method which uses subtractive method where materials are cut or drilled from mould. The layers of materials in liquid, solid or material form are fused together using additive process. 3D printers thus use additive manufacturing or direct digital manufacturing technology to produce proto type of a product. Computer Aided Designing (CAD) software is used. The object is then built layer by layer.

Using this new technology, a manufacturer can develop a working prototype in just a few hours compared to traditional prototyping. Ultimately, this results in saving time and cost. Especially since the additive manufacturing process also minimizes waste. There are mainly four distinct types of technologies used in 3D printers: Material extrusion based 3D printers, Photo polymer, Selective Deposition Lamination and Binding 3D printers. There are several types of 3D printers. Same basic approach is used even though they may use different material for “ printing” an object i. <https://assignbuster.com/the-is-used-for-3d-printing-3d-printing/>

e. spraying or otherwise transferring a substance in multiple layers onto a building surface, beginning with the bottom layer. Before the printing process, first create a 3D image of the product which is to be printed using a computer-assisted design (CAD) software program. That object is sliced in hundred and thousands of pieces until each piece is placed on top of the other for the object to be completed. One type, called selective laser sintering, involves heating and solidifying granular material with a laser in a specific pattern for each slice before repeating over and over again with new layers; this technique could be used in creating figurines, for example. Another uses UV light to cure layers of resin. Others deposit material much like an automated glue gun. CD-ROM is used instead of Stepper motor here, Because due to increase in the torque of Stepper motor, speed decreases.

With the CD-ROM, we will try to overcome that problem. The CD-ROM will provide the axial motion which will eventually deposit the material through additive. FIG 3.

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Fig. 3. 2 FLOW DIAGRAMStereo

lithography (STL) is one of the most common file types that is used for 3D Printing. Thus, unlike material removed from a stock in the conventional machining process, 3D printing or AM builds a three-dimensional object from computer-aided design (CAD) model or AMF file, usually by successively adding material layer by layer. Generally STLs that have been produced from a model obtained through 3D scanning often have more of these errors.

This is due to how 3D scanning works-as it is often by point to point acquisition, reconstruction will include errors in most cases. fig. 3. 3 Block

diagram FIG 3. 4 FLOW CHART FIG 3. 5 EXTRUDER Extrusion is a process used to create objects of a fixed cross-sectional profile. A material is pushed through a die of the desired cross-section.

The two main advantages of this process over other manufacturing processes are its ability to create very complex cross-sections, and to work materials that are brittle, because the material only encounters compressive and shear stresses. It also forms parts with an excellent surface finish. +RESULTS & DISCUSSION A laser is used, which can be move along X, Y and Z axis to build an object in 3D (three dimensions), wherein successive layers of material are placed in different shapes. To use the minimal component and to make the project best out of waste, we are using CD-ROM instead of Stepper motor. Because due to increase in the torque of Stepper motor, speed decreases. With the CD-ROM, we will try to overcome that problem. The object is then built layer by layer. Especially since the additive manufacturing process also minimizes waste.

V. CONCLUSION 3D Printing technology is something that could transform and remould the world. Advances in 3D printing technology can significantly commute and amend the way we manufacture products worldwide. If the industrial revolution brought us mass production and the arrival of economies of scale – the digital 3D printing revolution could bring mass manufacturing back a full circle. Acknowledgement This report on “ LOW TASK HANDLING 3D-PRINTER” has been possible only because of kind co-operation lent by my teacher and project guide Mr. Hemant Kasturiwale without which this would not have been possible.

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