

Additive Manufacturing Process (3D Printing): “A Critical Review of Techniques, Applications & Future Scope”

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Abstract:- This research paper on 3D printing aims to create awareness in people to use 3d printing in everyday life by providing the current trend of how 3D printing techniques are used particularly in different fields of application. 3D printing has become a big deal in the last few years which can help reinforce some concepts of coding and help everyone learn the process which is fairly simple: design, slice, print. More recently, 3D printing technology has become available to more people at a lower cost to create objects on demand locally. 3D printers are great for household use and students as, a 3D printer is a one-time investment with lifelong uses. This paper provides a high-level overview of 3D printing techniques, applications & future scope. The advantages and disadvantages of each technique are evaluated along with summarised typical geometries and designs used by each technique. The potentials of 3D printing technology and the future outlooks of 3D printed items are also presented here.

Keywords- Additive Manufacturing, 3D printing, 3D printers

INTRODUCTION

3D printing uses computer-aided design (CAD) to create three-dimensional objects using additive processes in which an object is created by laying down successive layers of material until the object is created. Each of these layers can be seen as a thinly sliced cross-section of the object. 3D printing is the opposite of subtractive manufacturing which is cutting out / hollowing out a piece of metal or plastic with for instance a milling machine. The process is extremely accurate, faster and much more efficient than other manufacturing processes especially for very complicated objects. Production time is cut and material waste is minimal compared to traditional manufacturing methods. While it is currently too slow to be used in mass production, 3D printing technology is still evolving and has the potential to massively disrupt both the manufacturing logistics and inventory management industries. Companies have used 3D printers in their design process to create prototypes since the late seventies. Using 3D printers for these purposes is called rapid prototyping. A few examples of fields in which 3d printing is used-

● **Automotive** - Automotive enthusiasts all over the world are using 3D printed parts to restore old cars. One such example is when Australian engineers printed parts to bring a Delage Type-C back to life. In doing so, they had to print parts that were out of production for decades.

i. 3D printing for automotive brackets



ii. Porsche's 3D-printed custom seats



In the Rolls Royce' example, the team was able to incorporate some really cool features into parts, including the 3D-printed brand name and a QR code, along with numbers to identify the specific, unique, part.

Ford 3D prints parts for high-performance Mustang Shelby GT500

iii. 3D-printed lug nuts that save car wheels from thieves



The Mediaguide 1988 A Critical Review Of The Print Media

JA Banks



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