

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

Yi-Tong Ma



The Mediaguide 1988 A Critical Review Of The Print Media:

MediaGuide ,1988 **The 1988 MediaGuide** ,1988 **The New York Times Book Review** ,1988 The 1989 Mediaguide Jude Wanniski,1989-03-15 *Spy* ,1988-09 Smart Funny Fearless It s pretty safe to say that *Spy* was the most influential magazine of the 1980s It might have remade New York s cultural landscape it definitely changed the whole tone of magazine journalism It was cruel brilliant beautifully written and perfectly designed and feared by all There s no magazine I know of that s so continually referenced held up as a benchmark and whose demise is so lamented Dave Eggers It s a piece of garbage Donald Trump *The 1989 Mediaguide* Jude Wanniski,1989-03-15 *Recent Publications on Governmental Problems* ,1988 *Electing a President* Bruce Buchanan,2014-07-03 The image of a prison with a revolving door helped George Bush win the presidency in 1988 but did negative advertising damage the electoral process itself Why did campaign 88 represent an all time low in the minds of many voters These are some of the questions that impel this thought provoking analysis of the 1988 presidential election sponsored by the John and Mary R Markle Foundation Using extensive empirical studies of the candidates the media and the voters Bruce Buchanan executive director of the Markle Commission on the Media and the Electorate traces the roots of popular dissatisfaction with the 1988 election Buchanan argues that the campaign drifted too far from popular ideals of how democratic processes ought to work that the substitution of negative advertising and quickie sound bites for reasoned debate on national problems and issues alienated much of the electorate causing the lowest voter turnout in sixty four years Negative campaigning however cannot bear the full blame for the 1988 election While the Markle Commission offers specific recommendations for improvements in candidate and media performance the great need says Buchanan is for voters to reclaim the electoral process to insist that candidates and the media give enough information about positions and programs for voters to make informed choices Voters need to be educated out of the idea that democratic elections and representative government can somehow occur without the participation of ordinary citizens At a time when the American democratic process is being used as a model by newly independent nations around the world it is particularly appropriate to ask how well it works at home *Electing a President* does just that *Paperbound Books in Print* ,1992 **Parapsychology Abstracts International** ,1988

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