UDK 72

Kamalova Fotima
National Institute of Art and Design
named after Kamoliddin Bekhzod.
Tashkent. Uzbekistan.

ADVANTAGES OF THE USE OF 3D PRINTER IN DIFFERENT AREAS AND ITS APPLICATION IN ARCHITECTURE

ANNOTATION. *The advantages of 3D printing printer in many areas and the methods of their use are described. The extensive and effective use of 3D printing printers in the field of architecture and design education is also discussed.*

KEYWORDS: *3D printer, architecture, design, technology, copy, ideas, print.*

3D printing is an intelligent construction method that promotes a general style change in the field of architectural art and design, i.e. natural aesthetics, personal aesthetics, restoration of historical style and other fields. Printing on a 3D printer leads to a comprehensive and profound change in the field of architectural art design. To expand more areas, it is possible to compare the impact of 3D printing on architectural art and design education, i.e. this “powerful shaping” is great for architecture industrial design and many other arts and design education fields affects. The basic manufacturing idea of 3D printer printing technology originated in the United States in the late 19th century. By the late 1980s, 3D printing technology had matured and become widely used. 3D printer is printing technology is one of the newest “dimensions” in the fusion model.

American scientists have invented a printer that prints three-dimensional effects and successfully brought it to market. Normal printers can print some plain paper data, such as reports.

3D printing, most of them create an object by building up many successive thin layers of material. Typically desktop 3D printers use plastic filaments (1), which are fed into the printer by a feeder (2). The filament melts in the print head (3), which pushes the material onto the bed (4), creating an object layer by layer. Once the printer starts printing, all you have to do is wait - it's easy.

Its advantage is that with the help of the necessary materials and software it is possible to build a house, make prostheses and implants, produce valuable souvenirs, jewelry. For example, China, the United States, the United Kingdom and the Netherlands have achieved practical results in this area. In other words, 3D printers "print" dwellings and their parts - structures, interior walls, various types of protective barriers - without any patterns. In particular, China has created a 3D printer with a length of 150 meters and a width of 10 meters. The device can "build" a six-meter-high building in a matter of hours. It uses reinforced fiberglass cement instead of "ink". However, large-scale construction is currently being piloted in this way. The potential of 3D printers is increasingly being used in the preparation of small architectural forms for landscape design and beautification of settlements.

For the art of modern architecture, teachers need to use phenomenological methods - models for deep thinking, such as the emergence of a person's unique architectural space. If a detailed model of 3D scanning and printing is used, the external environment and the internal users of the building can be presented more accurately, which helps to increase the level of research.

The 3D printing model can make the shape, decoration, structure and structural features of traditional buildings an object of intuitive research.

When students use architectural design skills to serve the community, traditional paintings cannot see any angle and cannot open the roof to see the interior. The 3D printing model can cover these shortcomings, which is convenient and inexpensive. For example, students can use the same scheme model in many ways: it can be divided into each room, separated by area and description, equipped with flexible walls and furniture, and so on. The 3D printing model clearly demonstrates the flexibility of students 'design thinking can actively motivate students to serve the community.

3D printing oleos not only brings a practical level of effectiveness for the teaching of architectural art design, but also requires a mode of change of ideas, skills and tools in this field.

A 3D printer can generate a variety of printing ideas.

1. Real statues are copies of people. A promising and less competitive place. To do it, you will need an expensive 3D printer and a 3D scanner (depending on the full height of the person).

2. Accessories (covers for smartphones, key rings, boxes).

3. Souvenirs, people made from copies of buildings and photos (you will need a 3d scanner).

4. Jewelry (buttons, nails, rings).

5. Shoes.

6. Toys, including designers.

7. Different numbers for board games.

8. Containers.

9. Furniture accessories, decor elements (frames), furniture for children.

10. For parts (gears, bends), including the printer.

11. Training stands and tools for laboratory work, models for students of architectural universities.

12. Various prostheses and other orthopedic products.

13. Outdoor advertising elements.

An example of a popular architectural building done using a 3D printing printer.

Starting a 3D printing operation (printing) should be a blueprint of the project and be three-dimensional. This is done of using Auto CAD (special software called “automated design systems”).

1. Laser stereolithography. This model is made of liquid polymers, which are mounted using a laser. The process takes a very long time because after each layer dries, the model is again immersed in the polymer and exposed to the laser.

2. Selected laser sintering. Powder materials and plastic are used to create the workpiece. The powder is placed on a special platform, where it is heated by a laser. The process is carried out under special conditions. This is necessary to protect the production vessel against the ingress of oxygen.

3. Melting of electron beam. This is very similar to the selected laser sintering. The only difference is that they do not use a laser with this volume printing format. Its function is performed using electron beam and the production process of the model is carried out under vacuum conditions.

4. Drowning. Plastic, wax or metal is preheated to its melting point. After that, the material is applied to the layers through a special extrusion head. Before applying another layer to the workpiece, the platform is lowered to a distance corresponding to the thickness of the layer.

5.Lamination The workpiece is obtained by bonding several layers of thin film in series. To perform the operation, the working material is preheated, after which several layers of film are placed under pressure.

In short, in the educational process in our country, 3D printers are available only in some higher education institutions, and they are used in a narrow range. However, experts say that the training of 3D modeling staff should be stopped today. This is due to the fact that the demand in this area is growing worldwide. Naturally, in the near future our country will need it. We will take measures to accelerate the use of this device in promising areas in the future.

LITERATURE:

1. Abdalimovich A. B. APPLICATION OF PLASTIC PRODUCTS IN CONSTRUCTION AND DESIGN //Web of Scientist: International Scientific Research Journal. – 2021. – Т. 2. – №. 07. – С. 126-130.

2. Akhunova N. K. K. Possibilities of using virtual reality technologies in education //Asian Journal of Multidimensional Research (AJMR). – 2021. – Т. 10. – №. 3. – С. 549-555.

3. Badirovna I. M. The specificities of creating and developing modern campuses. – 2021.

4. Mannopova N., Mannapov A. Influence of “Thematic Parks” to the development of tourism in Uzbekistan //ASIAN JOURNAL OF MULTIDIMENSIONAL RESEARCH. – 2021. – Т. 10. – №. 4. – С. 696-704.

5. Mannopova N. R., Kamolkhodjaeva M. B. Features of designing interiors of restaurant establishments //ASIAN JOURNAL OF MULTIDIMENSIONAL RESEARCH. – 2021. – Т. 10. – №. 4. – С. 711-715.

6. Marufovich M. Y. Some Features Of The Connection Between The Interior And The Environment //International Journal of Progressive Sciences and Technologies. – 2021. – Т. 26. – №. 1. – С. 97-101.

7. Makhmudova M. T. Features of a country house in hot countries //ACADEMICIA: An International Multidisciplinary Research Journal. – 2021. – Т. 11. – №. 3. – С. 2167-2173.

8. Makhmudova M. T. A masterpiece of the avant-garde era in Russia-melnikov's house //ASIAN JOURNAL OF MULTIDIMENSIONAL RESEARCH. – 2021. – Т. 10. – №. 4. – С. 642-647.

9. Takhirovna M. M. ART NOUVEAU MASTERPIECE-RYABUSHINSKY MANSION //ResearchJet Journal of Analysis and Inventions. – 2021. – Т. 2. – №. 05. – С. 133-139.

10. Sh, Saipova D. "Modern museums cultural heritage for future youth." ASIAN JOURNAL OF MULTIDIMENSIONAL RESEARCH 10.4 (2021): 733-737.

11. Tursunova S. F. Light in the modern world //ASIAN JOURNAL OF MULTIDIMENSIONAL RESEARCH. – 2021. – Т. 10. – №. 4. – С. 750-756.

12. Roziqberdiev M. I. The time has come to move from stereotypes to creativity: In the example of mosques //Asian Journal of Multidimensional Research (AJMR). – 2021. – Т. 10. – №. 3. – С. 564-571.

13. Latifovich T. A. Large-span structures and architectural form //ACADEMICIA: AN INTERNATIONAL MULTIDISCIPLINARY RESEARCH JOURNAL. – 2021. – Т. 11. – №. 1. – С. 397-401.

14. Tursunova, Sh F. "HISTORY OF ADVERTISING IN UZBEKISTAN." International Engineering Journal For Research & Development 5.9 (2020): 10-10.

15. Sultanova, Muhayyo. "Use of Cultural Plants in Desert Cities in Creating the Landscape of Recreation Zones in Uzbekistan." International Journal on Orange Technologies, vol. 2, no. 10, 20 Oct. 2020, pp. 102-104, doi: 10.31149 / ijot.v2i10.738.

16. Qizi, A. N. X., & Nazokatkhon, A. (2020). Factors influencing the creation of a comfortable microclimate and environmental control of zone by landscape design. ACADEMICIA: An International Multidisciplinary Research Journal, 10(5), 2040-2049.

17. Razikberdiev, M. I. (2020). Southern mesopotamia in the first half of the 3rd millennium bc. Asian Journal of Multidimensional Research (AJMR), 9(5), 211-216.

18. MANNAPOVA N. R. et al. Organization And Basic Requirements For Restaurant Design Interior //International Journal of Innovations in Engineering Research and Technology. – 2020. – Т. 7. – №. 05. – С. 5-12.

19. Mukaddas Isakova.(2020).Influence Of Colors On Children's Mentality In Children's Institutions, Research And Analysis Of Psychologists And Designers. International Journal of Scientific & Technology Research, 9(2), 5549-5551.

20. Nazokatkhon A. INNOVATIVE TECHNOLOGIES TO REDUCE CLIMATIC EFFECTS IN HOT AND DRY CLIMATIC TERRITORIES //Архитектурада инновациялар журнали. – 2020. – Т. 1. – №. 1.

21. КАСЫМОВ О. С. МОСТ ДВУХ БЕРЕГОВ //Поколение будущего: взгляд молодых ученых. – 2016. – С. 34-37.

22. 27. Kasimov O. S. Formation of Landscape Design in Japan //European Journal of Business and Social Sciences. – 2018. – Т. 6. – №. 12. – С. 30-35.

23. Saipova D. S. et al. Problems and Solutions in Studying the Modern Design of Museum Interiors //JournalNX. – С. 241-245.

24. Isakova M. B., Olimova F. J. Principles of formation of children's rehabilitation centers in Uzbekistan //ASIAN JOURNAL OF MULTIDIMENSIONAL RESEARCH. – 2021. – Т. 10. – №. 5. – С. 620-626.