

A Bite of the Future: 3D Food Printing

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Introduction

Learning and applying 3D printing studies the development of bodies and forms difficult to perform conventionally. This technique can be used in a wide range of works, such as designing and testing prototype, also finished products in a shorter time. Earlier it was not possible to get a desired geometric food piece, but now with the help of 3D printing technology we are able to make different types of structure and design easily and in a shorter time.



There is an increasing market of eating customized food products which are made by specially trained person with experience of many years. They charge high to perform their art, which is not affordable by so many people. In that case 3D food printing technology plays a very important role in fulfill the requirement of people to eat customized food product in affordable prices.

Now-a-days requirement of food products are raising high, so all the food manufacturer need to follow a latest trend to meet the requirements of food, they require a best practices and modern tools to works effectively. All the food manufacturer working for meet the requirement of population and also to deliver the food to the population. 3D food printing is also a alternative to prepare and deliver the food fast, to fulfill the requirement of population. The implementation of 3D printing technology for food materials depends on material, technology, design and assessment of printing parameters and printed object quality.

What is 3D food printing?

Charles Hull is the founder of 3D printer, he develops a 3D printer in 1984, which is based on the stereo-lithography technique. After so many research and developments, 3D food printer developed. It provides 3D shape to food materials. It works to make the required design in reality with food materials, which is edible. Food printed by the machine is made in least time, well-shaped and well designed.

In 2006, Cornell university, Fab Home, a project led by a group of students, was the first multi-material 3D printer to print food materials such as chocolate, cookie dough and cheese.

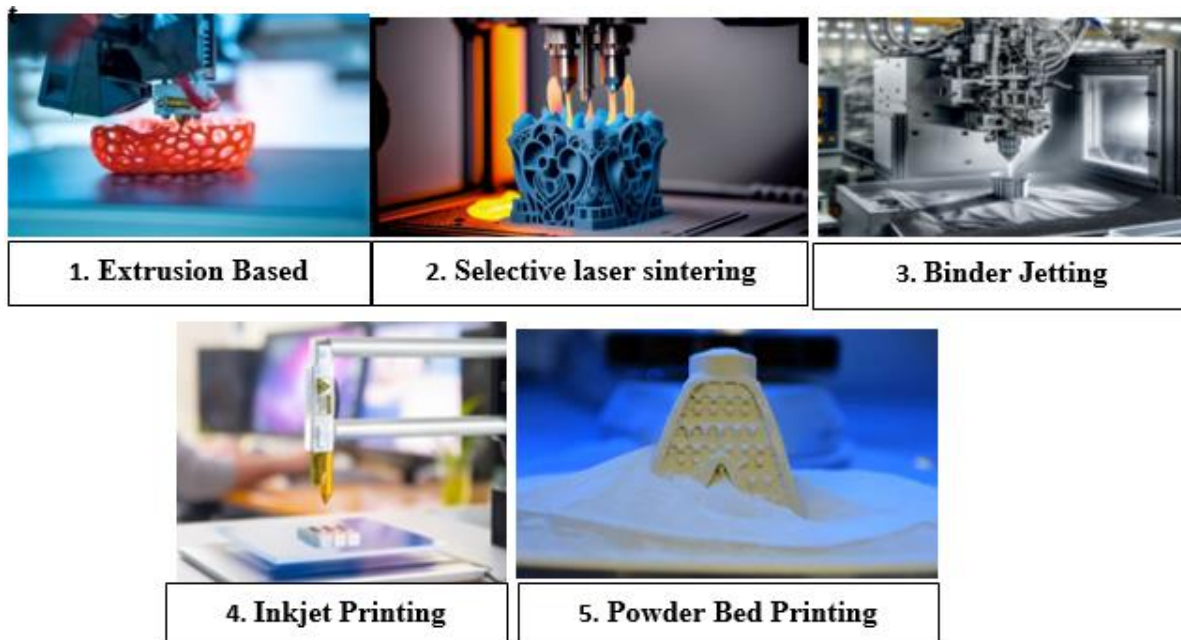
Three-dimensional (3D) food printing, it is also known as culinary printing, is a process of creating food products using additive manufacturing techniques. This innovative technology combines food science, culinary arts and 3D printing to produce customized food products with specific shape, texture, flavor and nutritional content.

How it works?

It works like a common printer. In this edible ink (food paste) is extruded in a platform layer-by-layer to make 3D print.

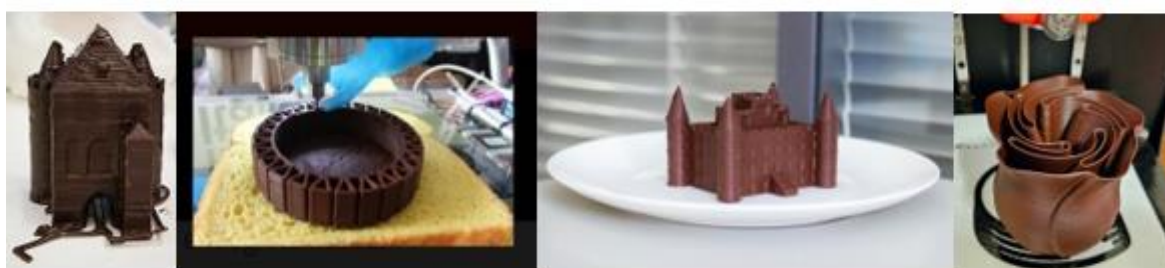
- 1. Design:** There are different types of software according to machine to design the print of food which we want to print, as per our requirement we print it. It is a primary step taken for printing of food.
- 2. Ingredients:** These are the material of printed food; it differs as per the requirement of food like chocolate or other material of which print done. After the selection of material or ingredients mix it well and make sure it is suitable for the machine so that machine can run smoothly.
- 3. Feed:** Feed the well mix ingredients in the machine as per the suitability of machine which differ from machine to machine.
- 4. Printing:** Operate the machine, give command of printing so that printing will starts.
- 5. Finishing:** After completion of printing desirable printed food is ready may be finishing is required or not.

Types of 3D Printing Technology



3D Food printing - Develops Business in India

- + **3D Food printing machine manufacturer:** Today in foreign countries 3D food printing machines are made but in India no such type of manufacturer or industry is there, by giving proper attention to this field, India can made such type of machine which promote to 3D food printing technology. Also, this type of industry provides a large number of employment and it give boost to many sectors like software companies, chips manufacturer, etc.
- + **3D Food printing cafe:** Today in India there is a no such type of cafe and most of the people are not know about such type of food printing system. These types of cafes sell their products to the customers and earns a lot of money in out of India. Here people order the food according to their wish like their name, face, fingers, any alphabets, any models like ship, robot, etc.



Advantages and Disadvantages of 3D Printing Technology

Advantages	Disadvantage
Foods are customizable and semi-automated.	Machine is developed for less ingredients.
Food made for specific nutrition.	It requires expensive machine & technology.
Food wastage can be reduced.	It is good for business purpose.
It can be used as business purpose.	Its quality is different from traditional food.

Benefits of 3d food printing:

1. It prints Nutritional food.
2. It prints a food of desired shape, size and design.
3. Easy to print.
4. Prints food quickly.
5. Modern food designed.
6. Printed food is used in space.
7. Printed food also used for conveying messages.

Conclusion

In whole world at-least one-third portion of food is getting waste. Producer, wholesaler and government organization are continuously working for reducing the food waste. In this context 3D printing plays a very important role in reducing food waste, it can convert the food into a desirable food, so that wastage can be reduce.

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