

CLAIMS:

1. A system for fabrication of a three-dimensional edible product having two or more edible components, comprising:
 - (d) a processor configured to receive an edible product design having pattern coordinates, and to provide pattern address signals;
 - (e) a printing mechanism comprising a printing head having two or more sets of a plurality of discrete applicators, each one of the two or more sets is configured to receive and dispense a different edible component, each discrete applicator of the plurality of discrete applicators being configured to receive and selectively dispense, in a continuous or intermittent manner, its corresponding edible component onto a printing support bed in accordance with the pattern address signals received from the processor; and
 - (f) a driving mechanism configurable to receive said pattern address signals and to control the position of said printing head with respect to a printing support bed.
2. The system of Claim 1, wherein the system further comprising a feeder mechanism configured to receive two or more edible components from different sources and to separately manipulate each edible component towards a respective printing head.
3. The system of Claim 2, wherein the feeder mechanism is configured to separately manipulate each edible component towards a different set of the two or more sets of discrete applicators.
4. The system of Claim 2, wherein at least one of the sources comprises a readily available edible component contained within a container, wherein the feeder mechanism is configured to induce pressure within the container to manipulate the edible component contained therein outwards therefrom and towards its respective printing head.
5. The system of Claim 2, wherein the two or more sources of a different edible component are constituted by at least one pre-fabrication module associated

with the feeder mechanism and configured to receive ingredients and process said ingredients into the two or more edible components.

6. The system of Claim 2, wherein the feeder mechanism comprises at least one pressurizing device.
7. The system of Claim 2, wherein at least one of the different sources is a flexible container.
8. The system of Claim 1, further comprising at least one splitter module having a splitter inlet configured to receive edible component, and a plurality of splitter outlets configured to provide edible component to each one of the discrete applicators of one of the two or more sets of a plurality of discrete applicators.
9. The system of Claim 8, wherein the splitter module is configured to provide a substantially equal flow or pressure from each one of its splitter outlets.
10. The system of Claim 9, wherein the splitter module comprises a plurality of edible material flow paths extending between said splitter inlet and each one of the splitter outlets, wherein the diameter of each flow path increases along the flow path.
11. The system of Claim 8, wherein the splitter module is configured with a compensation mechanism configured to detect pressure or flow parameters at the splitter outlets.
12. The system of Claim 1, wherein each of the two or more sets of discrete applicators can be maneuvered independently from the other sets.
13. The system of Claim 1, wherein each of the sets of discrete applicators are arranged next to each other along the print axis.
14. The system of Claim 1, wherein each of the sets of the plurality of discrete applicators are positioned on the printing head in an identical formation and in parallel to each other along the print axis.

15. The system of Claim 1, wherein the printing head comprises two or more printing heads corresponding to the number of the sets of the discrete applicators, wherein each set is positioned on a different printing head.
16. The system of Claim 1, wherein the printing head further comprises at least one printing plate, each printing plate is configured with an inlet surface and an outlet surface and a plurality of apertures transversing the plate from the inlet surface to the outlet surface, wherein each one of the apertures is in flow communication, via the inlet surface, to one of the plurality of the discrete applicators, so as to enable manipulation of edible component therefrom.
17. The system of Claim 16, wherein the distance between central axes of each pair of the plurality of apertures on the printing plate along the cross-print axis is smaller than the distance between the central axes of each respective pair of the discrete applicators fluidly connected thereto along the cross-print axis.
18. The system of Claim 16, wherein each one of the plurality of apertures is associated with an inlet port, configured to receive a supply line connectable to a respective discrete applicator.
19. The system of Claim 1, wherein each one of the discrete applicators comprises a hollow elongated applicator body having an edible component inlet, an applicator outlet and a propelling mechanism disposed therein configured to propel edible component through the applicator outlet.
20. The system of Claim 19, wherein said propelling mechanism comprising a propelling element formed as an auger snugly fitted within said applicator body.
21. The system of Claim 19, wherein said propelling mechanism comprising a propelling element formed as a progressive cavity pump fitted within said applicator body.

22. The system of Claim 1, wherein each one of the discrete applicators is configured to be separately controlled by the processor.
23. The system of Claim 1, wherein the printing head is further configured with a plurality of elevating motors, each associated with one of the plurality of discrete applicators and configured to elevate or lower the position of each one of the discrete applicators with respect to the printing support bed independently of one another.
24. The system of Claim 16, wherein each of the at least one printing plate is further configured with an elevating motor associated with one of the sets of the plurality of discrete applicators and configured to elevate or lower the position of the printing plate with respect to the printing support bed.
25. The system of Claim 1, wherein the driving mechanism is configured to maneuver the printing support bed in accordance with the pattern address signals received from the processor, so as to control the position thereof with respect to the printing head.
26. The system of Claim 25, wherein the driving mechanism is configured with a railing module comprising two rails extending in parallel to each other and extending from at least the printing head towards opposite lateral ends of the system beyond the printing head.
27. The system of Claim 1, wherein the printing support bed is configured with a three-dimensional surface area.
28. The system of Claim 8, wherein the processor is configured with a drool prevention algorithm, wherein the drool prevention component is configured to adjust the pattern address signals in accordance to the distance of each of the discrete applicators from the splitter module.

29. A method for fabricating a three-dimensional edible product comprising two or more edible components in accordance with pattern address signals, comprising:
- (a) providing a printing support bed by which said edible product is supported while being fabricated;
 - (b) providing a printing mechanism comprising a printing head having two or more sets of a plurality of discrete applicators where each one of the two or more sets is configured to receive and dispense a different edible component;
 - (c) dispensing, in a continuous or intermittent manner, a plurality of strands of two or more different edible compositions provided to said printing mechanism onto said printing support bed, each strand being dispensed by a different set of the two or more sets in accordance with the pattern address signals, so as to form a product layer; and
 - (c) operating a driving mechanism in accordance with said pattern address signals for controlling the position of said printing head with respect to said printing support bed so as to fabricate said product by depositing successive product layers on top of each other.
30. A system for fabrication of a three-dimensional edible product having two or more edible components, comprising:
- (a) a processor configured to receive an edible product design having pattern coordinates, and to provide pattern address signals;
 - (b) a printing support bed;
 - (c) a printing mechanism comprising a printing head having at least one set of a plurality of discrete applicators, each discrete applicator of the plurality of discrete applicators being configured to receive and selectively dispense, in a continuous or intermittent manner, one of the two or more edible components in a distinct manner onto the printing support bed in accordance with the pattern address signals received from the processor; and
 - (d) a driving mechanism configurable to receive said pattern address signals from and to control the position of said printing head with respect to the printing support bed.

31. The system of any one of Claims 1-28 or 30, wherein the system further comprises at least one subsystem for operating a post-fabrication operation on said three-dimensional edible product.
32. The system of any one of Claims 31, wherein the at least one subsystem is configured to operate the post-fabrication operation either during the fabrication process or after the fabrication process.
33. The system of Claim 31 or 32, wherein the at least one subsystem comprises a dispensing subsystem configured to dispense fluid and/or grounded solids containing coloring agents, spices or moisturizing components onto the fabricated three-dimensional edible product.
34. The system of any one of Claims 31 to 33, wherein the at least one subsystem comprises an image sensing unit.
35. The system of any one of Claims 31 to 33, wherein the at least one subsystem comprises an weighing system integrated with the printing support bed.
36. The system of any one of Claims 31 to 33, wherein the at least one subsystem comprises a heating and/or cooling subsystem for cooling and/or heating the fabricated three-dimensional edible during or after fabrication thereof.