
Multi component food products – the next evolutionary step in 3D food printing?

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Challenges in 3 D Food Printing for Professionals

- Too slow printing speed for catering or gastronomy
- Most food products are build up from multiple components
- Multi component 3D food print essential for personalization other than appearance



Development of a Multiple Head 3D Food Printer



First Functional Model

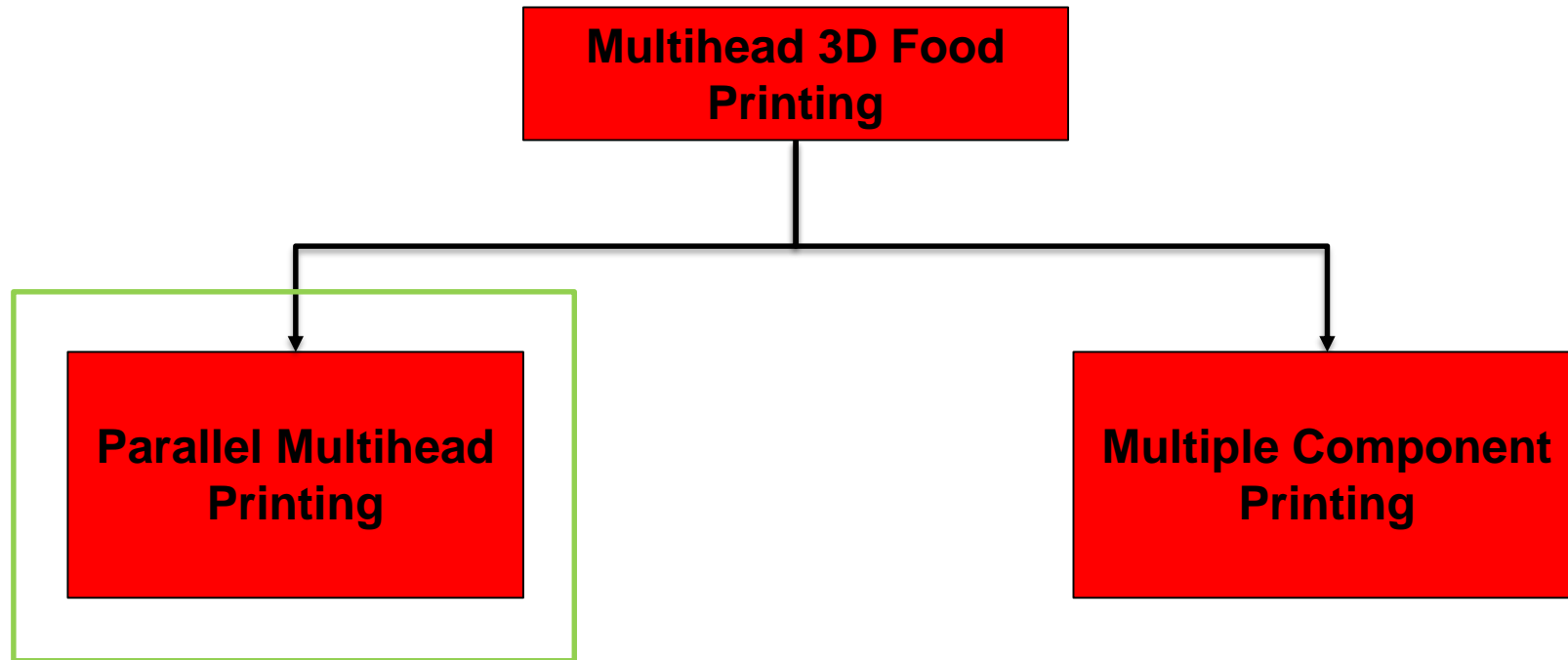


Second Functional Model



First Prototype

Multihead 3D Food Printing Technologies



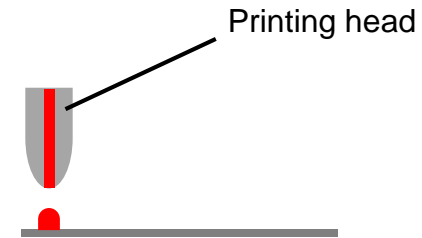
Parallel Multihead Printing

Number of
printing heads

Printing Speed

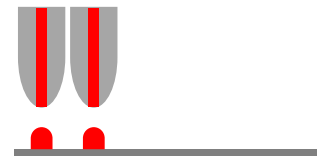
1

1 x



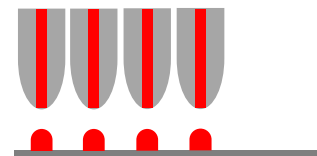
2

2 x



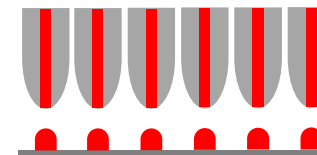
4

4 x

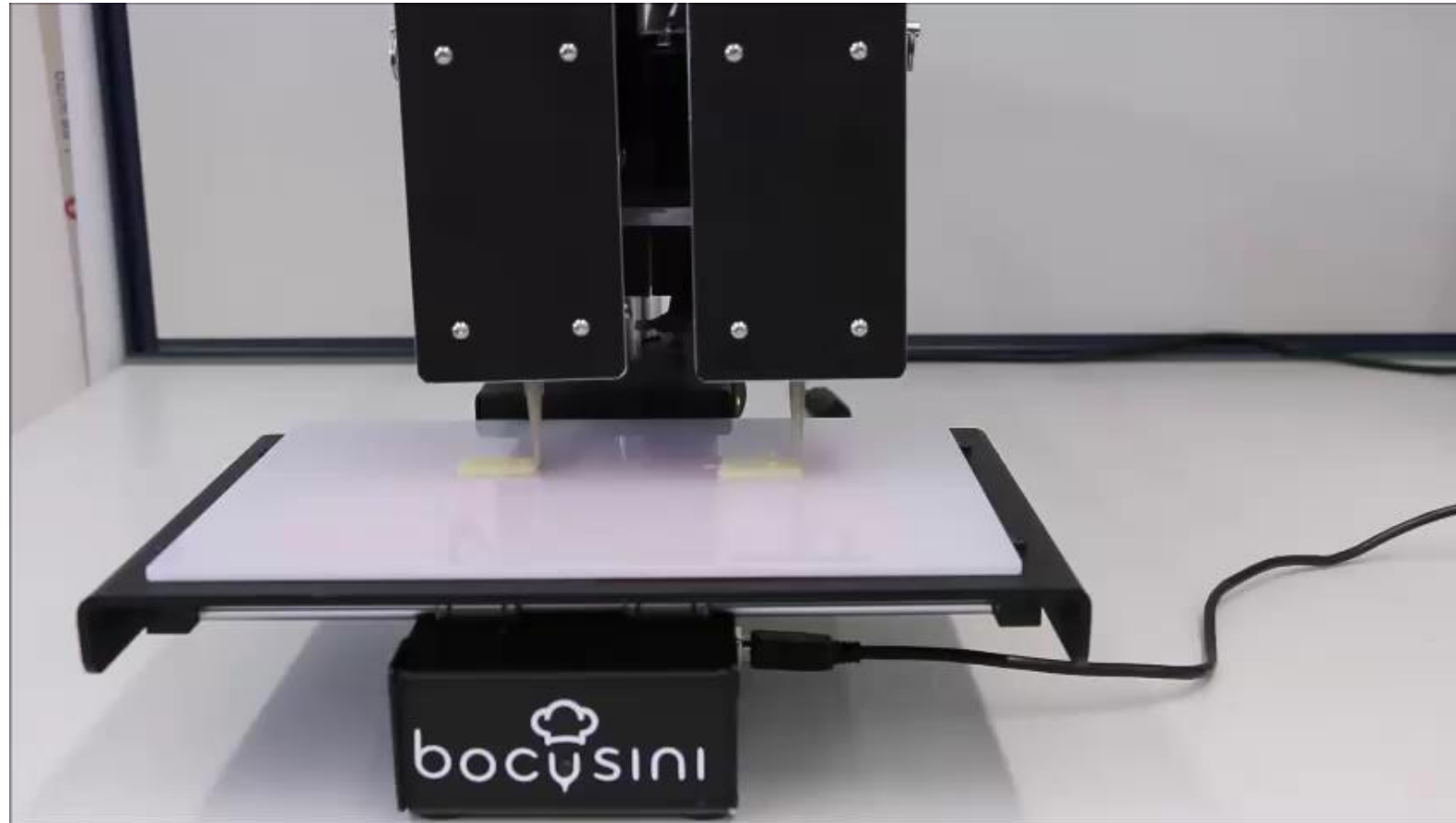


6

6 x

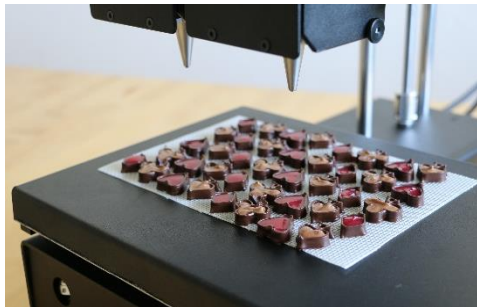
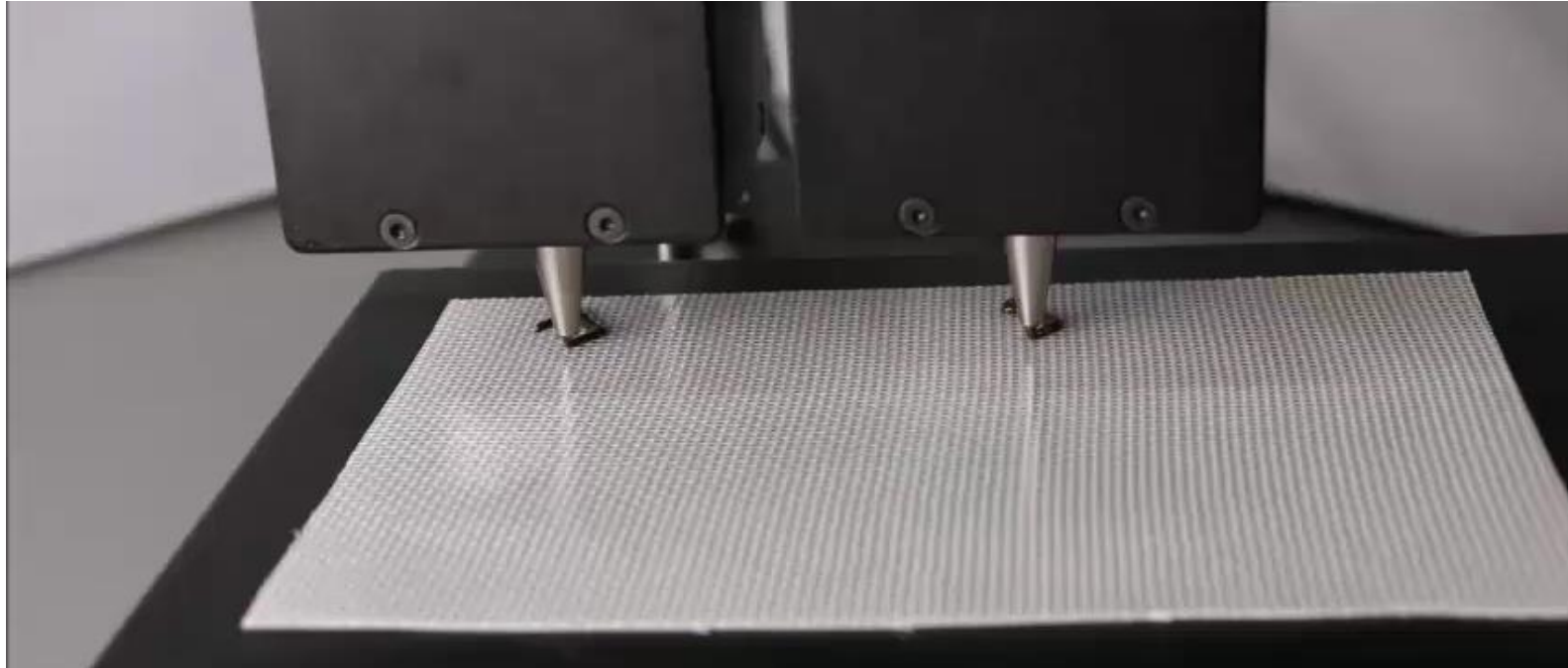


First Parallel Dual Extrusion of Marzipan



3D food print of 2 marzipan owls

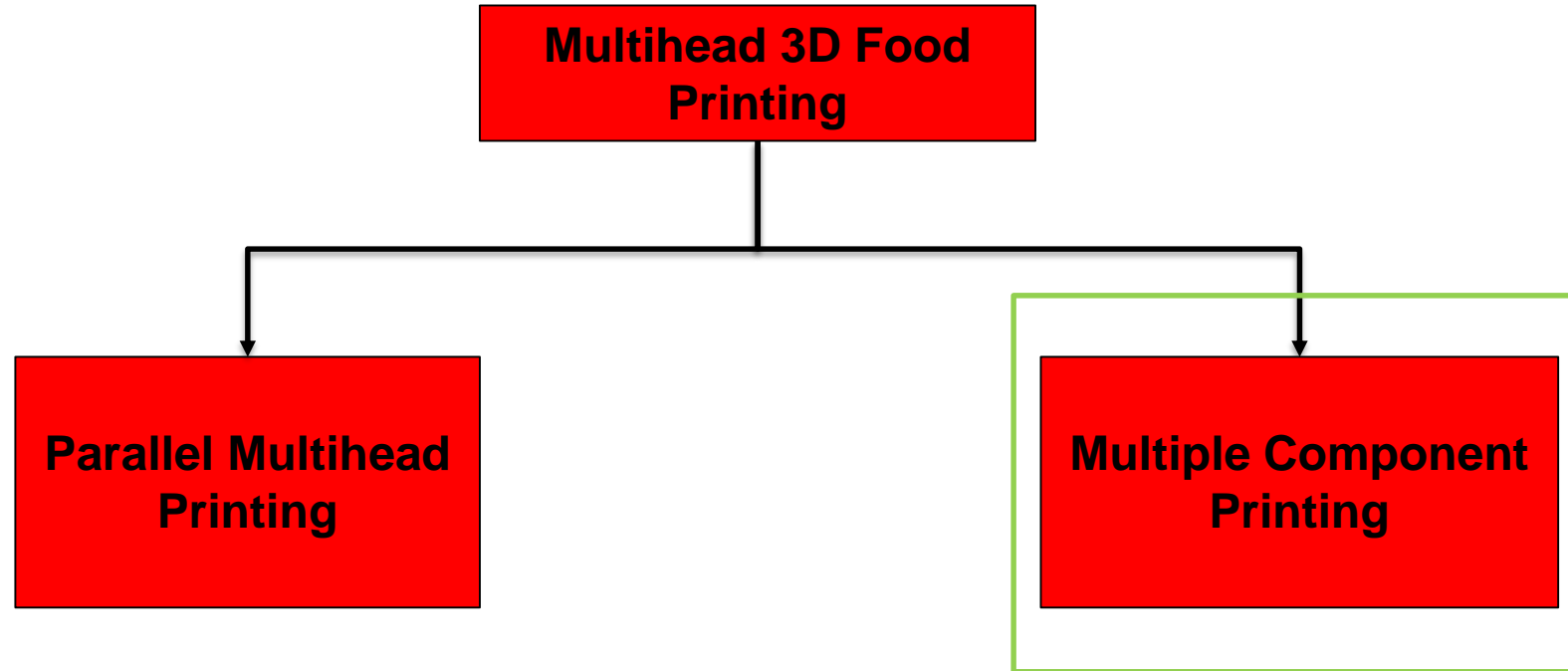
Personalized Small Series Printing



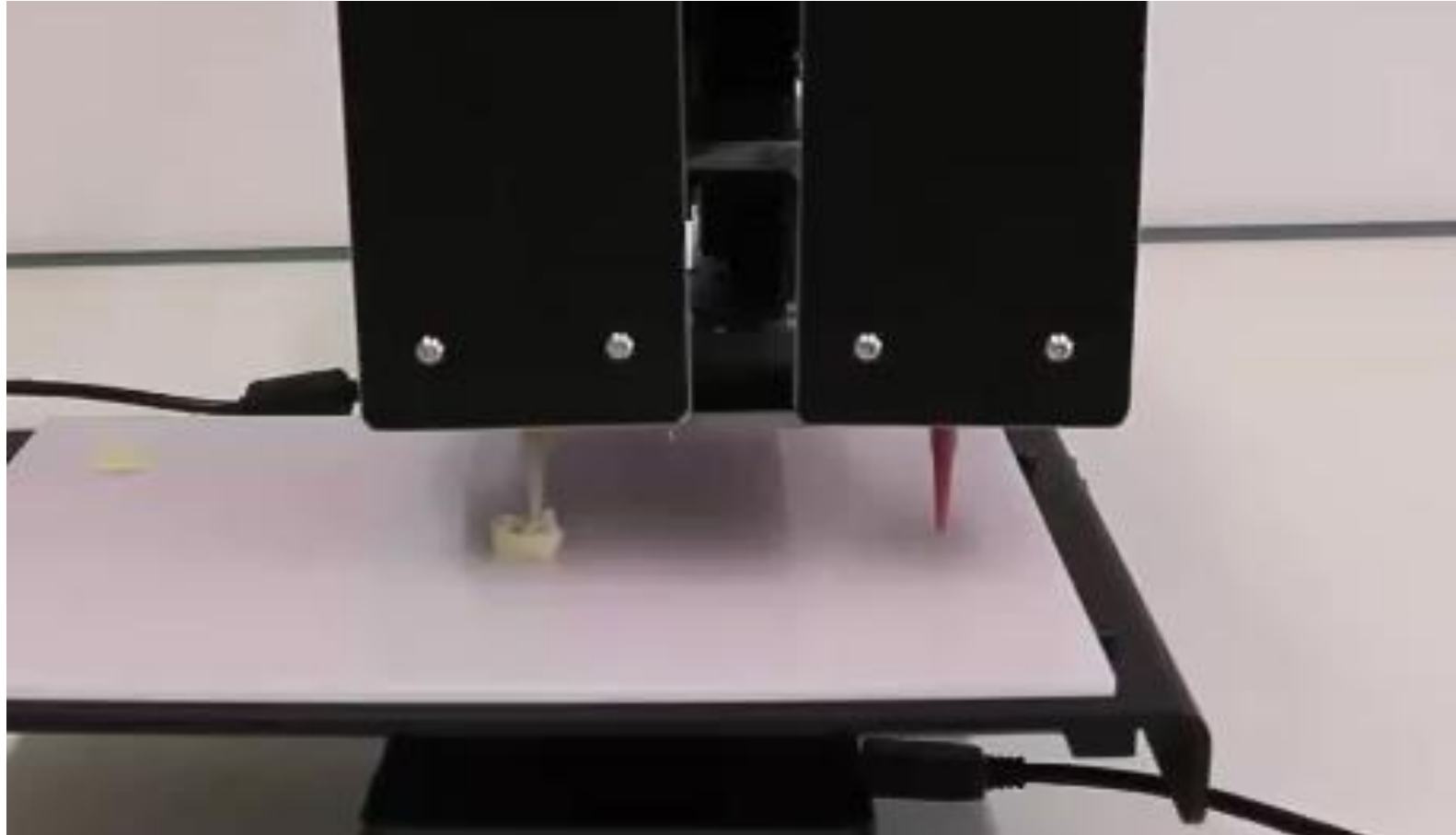
Parallel Multihead Printing

- Printing several objects within one print job
 - Multiplication of print speed by additional printing heads
 - Large printing area needed
- ⇒ Meanwhile up to 200 Choco objects have successfully been printed within 90 minutes (Dual Head 3D Food Printer)

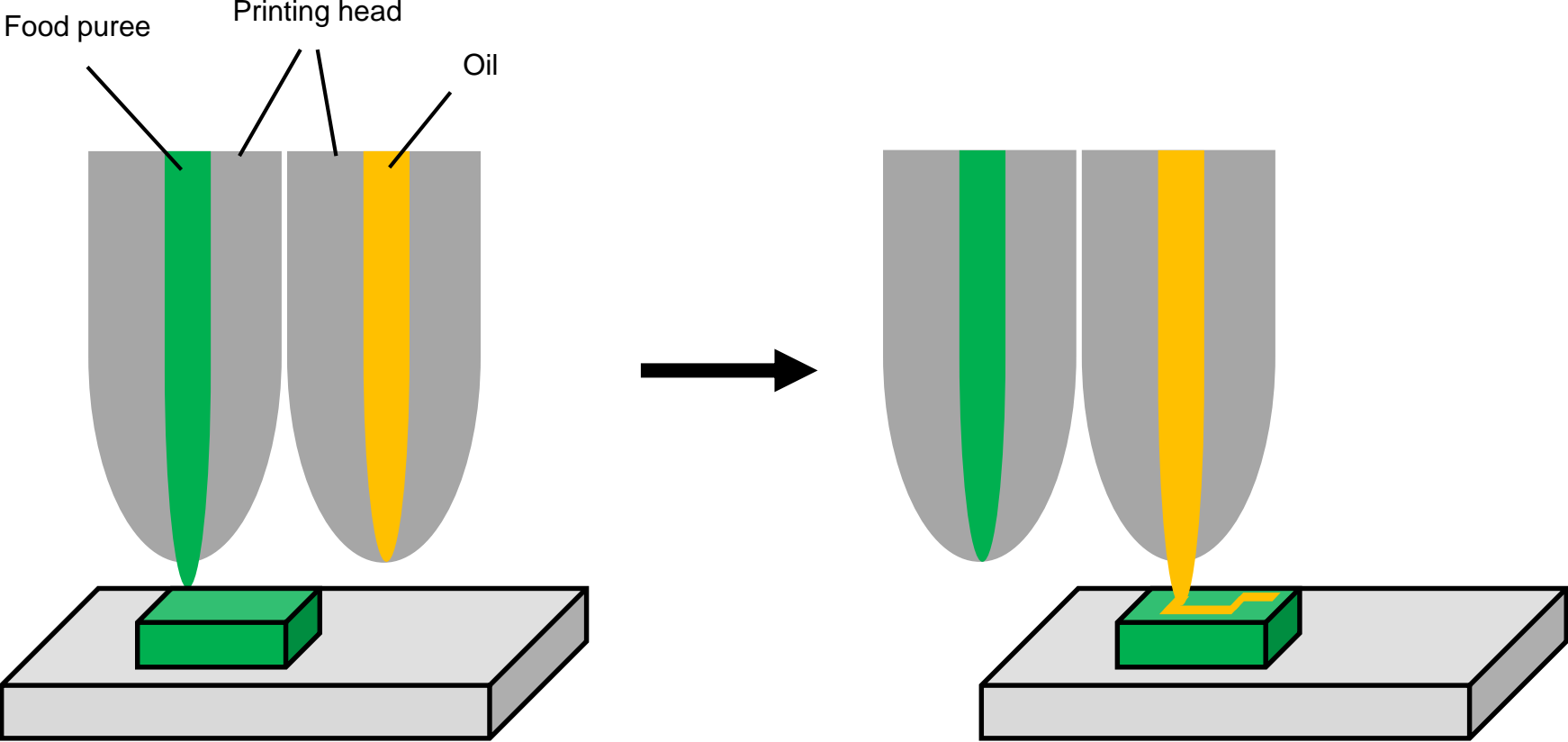
Multihead 3D Food Printing Technologies



Multicomponent Printing with different colors



Multicomponent Printing of different Food Compounds



Multicomponent Printing of different Food Compounds



3D food print of oil in carrot puree

Multicomponent 3D Food Printing

- Printing multicomponent objects within one print job
- Enabling the creation of innovative complex food products
- Personalized nutrient enrichment with oil, protein, vitamins or minerals



Summary

- Multihead 3D food printing may essentially speed up the printing process
- Multihead 3D food printing will enable the printing of multicomponent food objects
- Major challenges for the future will be the realization of easy to use applications for both use cases and the creation of stable food textures like emulsions, foams or micro suspensions

Acknowledgements

Supported by:



Federal Ministry
for Economic Affairs
and Energy

on the basis of a decision
by the German Bundestag

print2taste

food innovations gmbh
biozoon®

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The End

