



TINKER Introduction DVN 4th LiDAR Conference

November 15, 2021

Project facts

- **Duration**
 - 10.2020 – 09.2023
- **Consortium:**
 - 10 key industrial partners
 - 3 research institutions
 - 2 consultancy and service associations
- **Online presence:**
 - Website: www.project-tinker.eu
 - LinkedIn: linkedin.com/in/tinker-eu
 - Twitter: twitter.com/project_tinker



This project has received funding from the European Union's Horizon 2020 research and innovation program under the Grant Agreement n°958472, project TINKER.

Motivation

▪ Market need

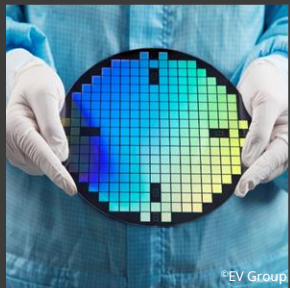
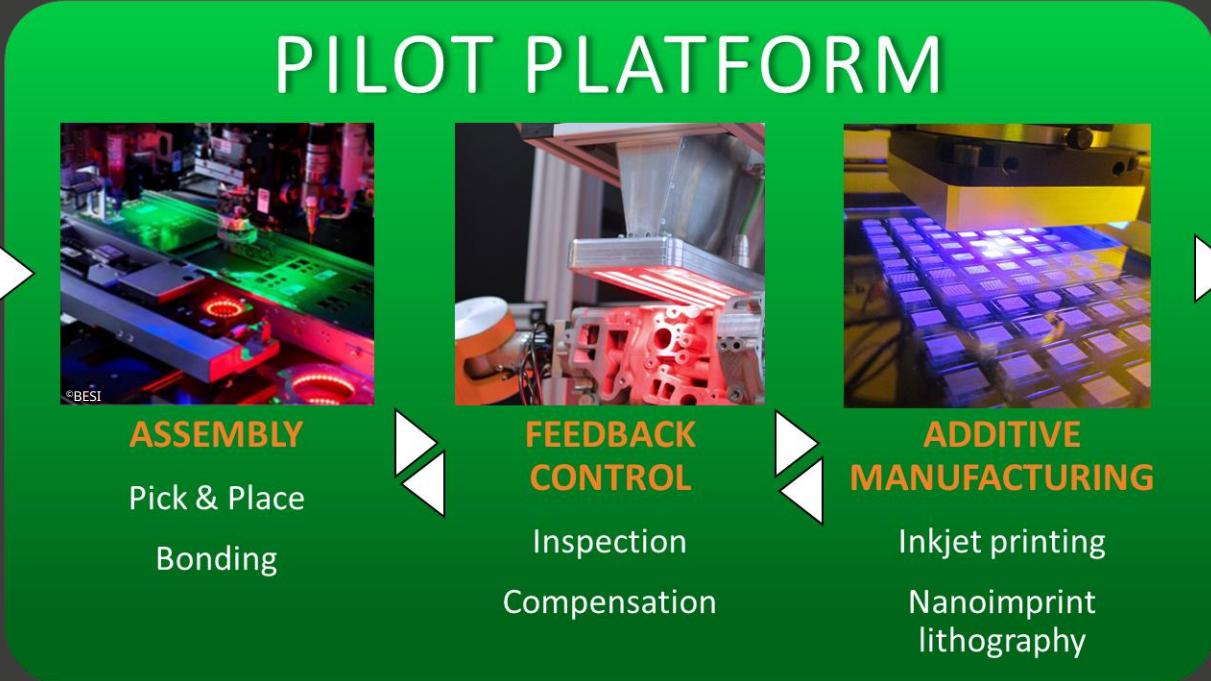
- Lowered weight
- Lowered power consumption
- Lowered sensor size and costs

- Improved performance and reliability
- Improved safety of ADAS systems

▪ Industrial pull

- Improved miniaturization level
- Use of Through-Silicon Via (TSV) for interconnections
- Expand use of Nanoimprint Lithography (NIL)

Concept



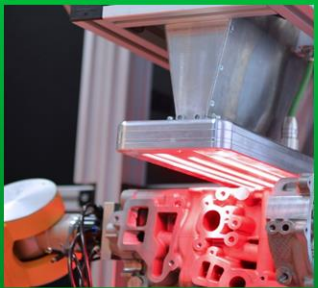
Bare die

- LIDAR
- RADAR



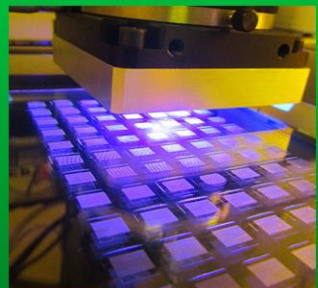
ASSEMBLY

- Pick & Place
- Bonding



FEEDBACK CONTROL

- Inspection
- Compensation



ADDITIVE MANUFACTURING

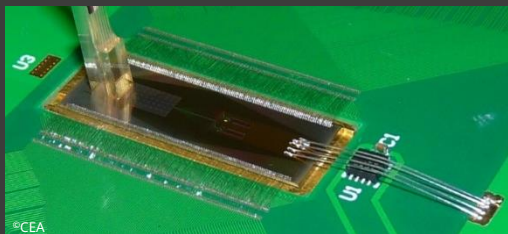
- Inkjet printing
- Nanoimprint lithography



Sensor package

- LIDAR
- RADAR

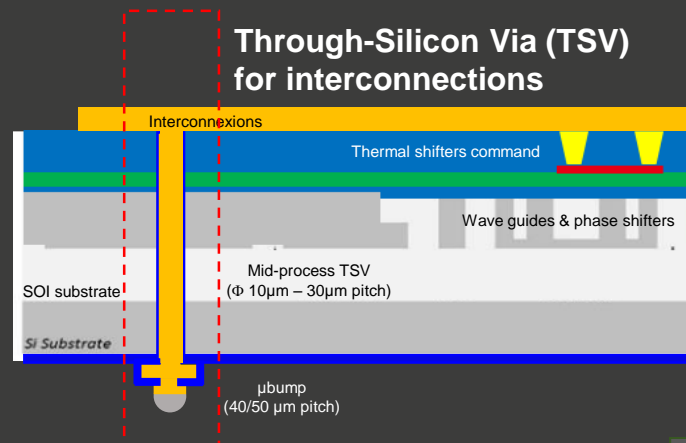
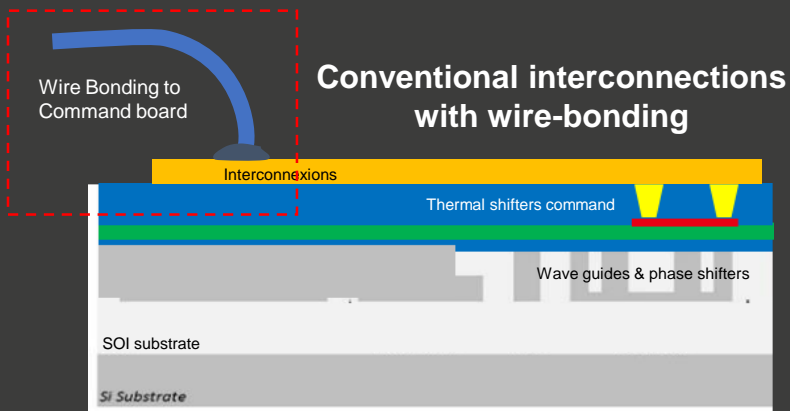
Silicon chip-scale LiDAR developed at CEA-Leti



OPA-based LiDAR demonstrator



OPA-based LiDAR demonstrator with NIL & TSV manufacturing → suited for higher IO density & faster production



Outlook

- 2021:
 - Definition of market requirements
 - Setup of dislocated pilot line and supporting tools
 - Process and material development
- 2022:
 - Fabrication of RADAR and LiDAR prototypes via pilot line
- 2023:
 - Demonstration and validation



Thanks!