HYB-MAN

16013

"Hybrid 3D Manufacturing of Smart Systems" exploits the combination of additive manufacturing (3D printing) and 3D integration of assembly and electronic parts.

Aim is to develop hybrid 3D manufacturing methods to enable flexible first time right production of smart systems resulting in substantial business benefit.

Goals / Objectives

Three specific objectives have been set to reach this goal:

- to develop and integrate essential technology for hybrid 3D manufacturing, meeting the real needs of industry
- to enable first time right production of systems with integrated mechanical and electrical functionality by creating design rules based on understanding of product-process relationships and by developing in-line testing and quality monitoring as integral part of the complete production chain
- to demonstrate the hybrid 3D manufacturing approach in two innovative product cases covering different applications and sectors (LED luminaires and automotive sensors)

Societal impact / Results

Additive manufacturing has the potential to enable flexible manufacturing which is achieved by absence of product specific tooling, no large stock of end products, local production and form freedom in production, and thereby lead to substantial business benefits:

- faster response to changes in the market, with localized production and reduced component and tooling lead times
- increased product diversity by adopting flexible manufacturing technologies
- cost effective manufacturing of small series and customer centric (semi-bespoke) solutions
- new product designs offering improved functionality and new form factors not previously possible

The market impact this will create, apart from the integrated electronic end-products, is in new materials, processes and equipment, software and simulation tools, and knowledge/design rules.

Looking ahead

The Hyb-Man consortium envisages a step-wise development and implementation roadmap of the developed process and enabled products. The first results applied in specific products are expected after finishing of the project (2020 time frame).

Product Cases

- Automotive Adaptive Sensors
- LED Luminaires

- Technology Development
- Design Rules
- Inline testing Quality Monitoring

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