

GESTAMP INNOVATION

Communion Project

ComMUnion aims to develop a novel solution for manufacturing productive and cost effective 3D metal/CFRTs multi-material components by addressing all the relevant value chain.

Automatic tape placement of CFRTs with controlled laser-assisted heating, high-speed laser texturing and cleaning, on-line monitoring and inspection, and computational multi-scale modelling will be combined in a multi-stage robot solution for joining to provide the greatest performance joints.

Tools for quality diagnosis and decision support will be also implemented under a cognitive approach to ensure interoperability and usability.



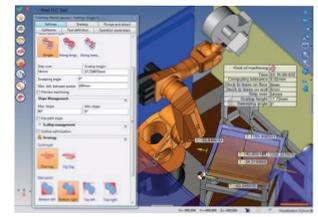
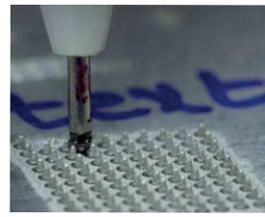
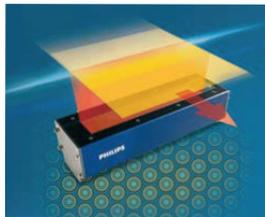
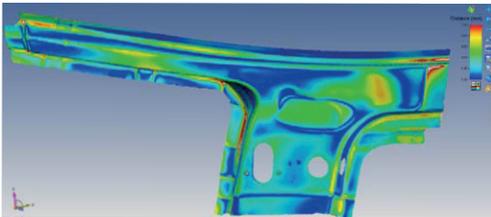
Project duration:
3.5 years
Starting project date:
December 1st, 2015
www.communionproject.eu



TECHNICAL GOALS

With this aim, ComMUnion pursues the following technical goals:

- Developing a new multi-stage joining robotic solution
- High efficient and flexible surface condition solution
- Developing a multi-scale modelling system
- Implementing an embedded flexible control of the laser-assisted heating profile
- Developing QDS in a multi-stage manufacturing approach based on active imaging techniques
- Self-adjustment of process parameters
- Demonstration of recycling/reuse of the components
- Demonstration of a fully automated 3D joining multi-material technology applied to automotive and aeronautics

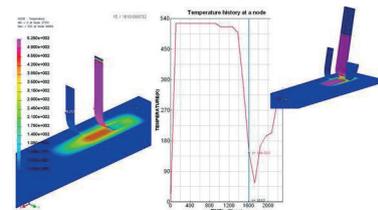


At the end of the project, a fully automated and flexible tape-placement system to be applied in the manufacturing of 3D multi-material structures will be obtained.

ADVANTAGES OF COMMUNION PROJECT

The main advantages of this system, with application in sectors as automotive and aeronautics, are:

- Fully automated and flexible tape placement joining system
- Laser-assisted controllable heating profile
- Flexible surface condition for high strength joints
- Detection of joining defects online by means of active imaging techniques
- Cognitive approach for automatic self-adjustment of process parameters
- Disassembly capabilities of the joint



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