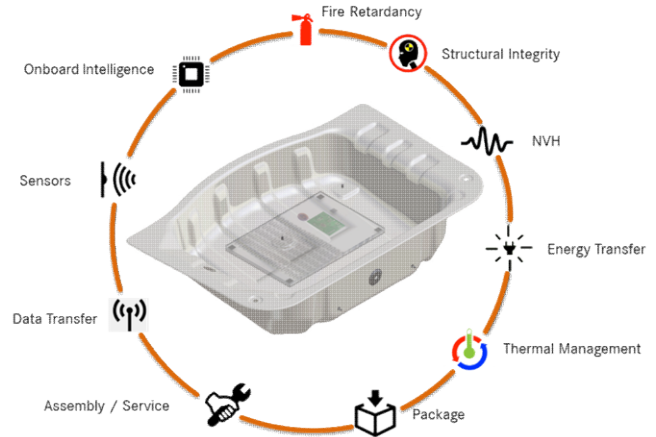




COMPOSITES 4.0: SMART STRUCTURES FOR AUTOMOTIVE

Integration of several functionalities in existing automotive parts and manufacturing processes



SUMMARY

A composite spare wheel pan is equipped with processor, sensors and wireless technologies to showcase a demonstrator for smart structures with integrated intelligence and connectivity. The demonstration takes place in the ARENA2036 testing factor.

INITIAL SITUATION

Sensors in automotive are used for quality control within the manufacturing process or they are mounted as separated parts during the assembly process to the car. Structural parts themselves have usually no integrated functionalities for sensing.

PROJECT DESCRIPTION

Integrated electronic equipment for sensing, processing and transferring data provides possibilities for:

- real time monitoring of composite production lines
- providing data for analysis from well to wheel
- new customer relevant functionalities offering higher safety and reliability
- predictive maintenance using smart components as an important prerequisite

INDUSTRIE 4.0 – FEATURES

Harmonization of heterogeneous interfaces (materials, sensors, processors, wireless technologies).

PARTNERS

ARENA2036

BOSCH

DAIMLER

Hochschule Ravensburg-Weingarten
Technik | Wirtschaft | Sozialwesen

SWINBURNE
UNIVERSITY OF
TECHNOLOGY

Universität Stuttgart

SOLUTION

Existing manufacturing process and part design are not harmed. They operate without any changes by using the foamed core of the part to embed all electronic components. Wireless technologies enable the seamless integration in a serial car.

CONTACT

Dr. Klaus Fürderer
Project Coordination
klaus.fuerderer@daimler.com