Smart Trains: The Ticket to the Future

Safe4RAIL-2 project is underway and its results will push European train technology to new heights

Consortium members from five different European countries embarked on a project entitled Safe4RAIL-2 (*Safe architecture for Robust distributed Application Integration in roLling stock 2*). It falls under the European Horizon 2020 Shift2Rail Joint Undertaking and is set for a duration of 31 months.

This project piggybacks on recently completed projects such as Safe4RAIL (730830, www.safe4rail.eu), which laid the groundwork for a smarter train by consolidating on-board systems. In today's train systems, interconnections and appropriate interoperability are not efficiently optimized. Many times, the braking, climate, door and electrical systems are designed by different companies without concerted efforts towards interoperability. This is why Safe4RAIL-2 sees a huge potential to improve train systems and focuses on efficient interconnections, standardized interfaces and enhanced safety level of distributed train systems and applications.

For this reason, it is important to look at ways of building a robust communications backbone and implementing a Train Control and Monitoring System (TCMS). With a framework that adheres to a standard, which means manufacturers have a blueprint for interoperability success and that is the goal of this project.

The project will look at ways of utilizing wireless (5G), interoperable, on-board communication as well as universal integration of the TCMS. Another aspect of the project is to perform testing of the TCMS functions in a simulated environment. These test methods prevent field-testing which would be costly to undertake.

The results from Safe4RAIL-2 will define new train standards and pave the way for deterministic communications as well as secure and interoperable interconnections while increasing efficiency and safety of the TCMS.

Safe4RAIL-2 is **driven by a well-balanced, European consortium** composed of six industrial partners (including SMEs and large companies), one research institution and one academic partner providing their **expertise from the automotive, aerospace, and railway sector** in order to create synergies with existing and emerging concepts and technologies.

Consortium:

- IKERLAN S COOP (Spain)
- TECHNIKON FORSCHUNGS- UND PLANUNGSGESELLSCHAFT mbH (Austria)
- TTTECH COMPUTERTECHNIK AG (Austria)
- MOXA EUROPE GMBH (Germany)
- WESTERMO TELEINDUSTRI AB (Sweden)
- EURECOM (France)
- ETAS GMBH (Germany)
- LIEBHERR-TRANSPORTATION SYSTEMS GMBH & CO KG (Austria)

For more information, please visit the former Safe4RAIL project (730830): www.safe4rail.eu

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