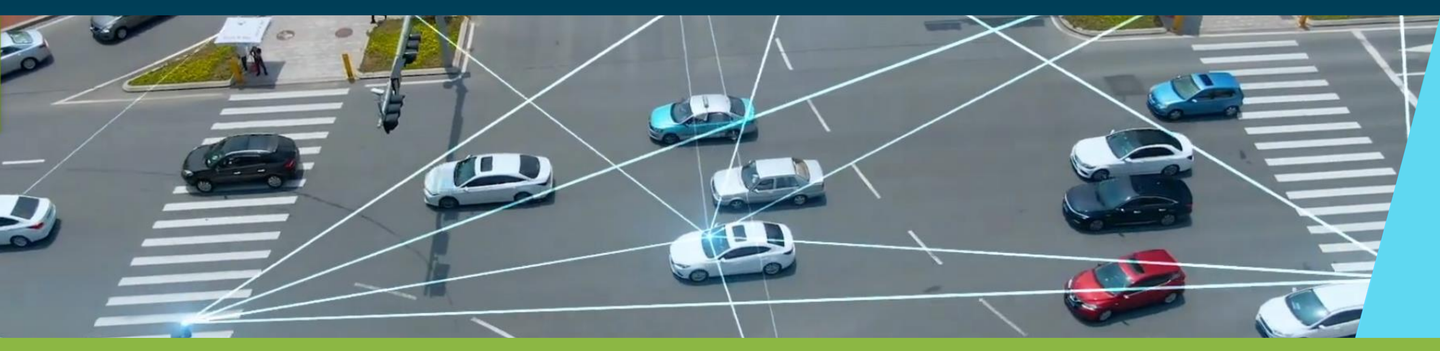


AI4CSM

Automotive Intelligence for Connected Shared Mobility

SC2:
EV 2030 by AI inside

Vision of SC2

- The development of an EV5.0 car with AI-based fault detection, analysis and mitigation in real-time operation.
- Demonstration of 5G and cloud capabilities.
- Integration of available sensor fusion/perception by utilizing the next generation AURIX platform based on multicore processors and PPUs/GPUs for cognitive and AI systems implementation.

Objectives

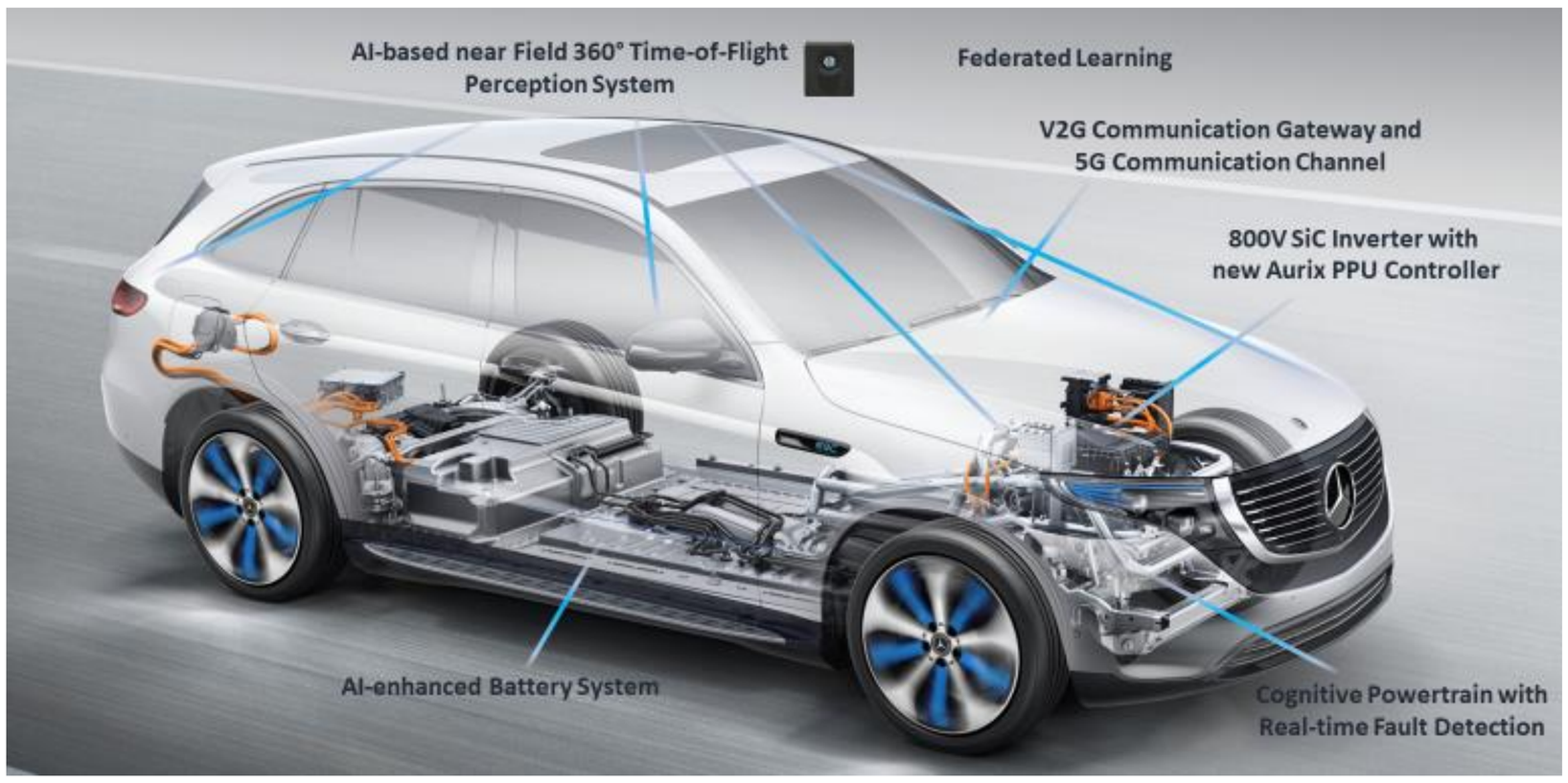
- **A highly efficient powertrain:** affordable due to new semiconductor materials, enabling energy efficiency in mobility and transport.
- **Higher reliability and availability of an electric powertrain** will increase consumer´s acceptance.
- **AI-enabled predictive diagnosis** will allow 24/7 operation and trustworthy green mobility.
- **AI enhanced battery management system** will reduce the stress on the battery and increase its durability.
- **AI-based vehicle energy consumption models**, improved by Federated Learning methods, enables the routing algorithm to optimize the driving range.

Demonstrator

SC2 will deliver an EV5.0 vehicle demonstrator by redesigning a Mercedes EQC.

An upcoming powertrain generation system using an 800 V SiC inverter will be implemented. Next generation AURIX platform will be integrated to enable real-time diagnostics on the edge, V2C communication gateways, and 5G connectivity for real world testing. AI modeling will be utilized to enhance the computations of the battery management and diagnostic systems to render them adaptive. Additionally, an AI-based near Field 360° Time of Flight sensing system will be integrated.

EV5.0 vehicle with real-time AI-based fault detection, analysis and mitigation



Partners

Type Output Enabler

TRL Start 2-3, End 4-5

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