Fraunhofer IESE

Virtual Test Benches

Virtually Validate Off-Road Applications

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Validating new technical systems for off-road automation – such as in agriculture – is costly and labor-intensive. Configurations and scenarios must be rigorously tested to ensure safety and performance across various sectors.

FERAL integrates digital twins and simulations with continuous engineering principles to enable cost-efficient validation and optimization. It streamlines the technical integration of simulators and software components via virtual communication buses, spanning multiple abstraction levels. This creates executable virtual test scenarios that seamlessly integrate into CI/CD pipelines. FERAL integrates numerous aspects for testing autonomous agricultural vehicles: E/E platforms, networks, driving functions, as well as operator, camera, and environment models.

This offers you the following advantages:

1. **Retrofitting** – Upgrade off-road equipment for automation, e.g., modernizing tractors and harvesters.
2. **Early Safety Validation** – Assess critical safety functions in the design phase to ensure the safe operation of autonomous machinery.
3. **Deploy test scenarios to realistic virtual platforms** – simulate diverse real-world conditions, reducing dependency on physical prototypes.
4. **CI/CD for off-road** – Accelerate smart off-road equipment development with continuous validation and rapid iteration.

Contact

Dr.-Ing. Pablo Oliveira Antonino
Department Head "Virtual Engineering"
Phone +49 631 6800-2213
pablo.antonino@iese.fraunhofer.de

Fraunhofer Institute for
Experimental Software Engineering IESE
Fraunhofer-Platz 1
67663 Kaiserslautern, Germany
www.iese.fraunhofer.de

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