

Virtual Test Benches to Validate Off-Road Applications

Testing highly automated and autonomous agricultural vehicles is costly and labor-intensive. Configurations and scenarios must be verified to evaluate and release new technical systems for agriculture. Real test drives on this scale are impractical, making virtual test benches essential. FERAL leverages digital twins and simulations, applying continuous engineering principles to enable cost-efficient validation and optimization for seamless integration.

Retrofitting of existing farm equipment

Upgrading and integrating existing agricultural equipment with modern technology transforms agricultural off-road vehicles into smart farming devices. By incorporating various sensors such as LIDAR and RADAR, cameras, and communication devices this upgrade improves safety, precision, and operational efficiency. Thorough virtual validation of these upgraded systems ensures compatibility and reliable performance, supporting the integration of digitized and data-driven agricultural practices.

Deploy to realistic virtual test platforms

Testing is performed in a fully virtual environment, replacing costly HiL (Hardware in the Loop) testing with virtual validation scenarios by integrating simulation models and tools. Our FERAL toolbox combines multiple components, including E/E platforms, networks, driver and operator models, and cameras. This approach allows your test team to validate digital farming features remotely, eliminating the need for expensive and resource-intensive HiL testbeds and field tests.

Early validation of safety-related features at design time

Automated safety systems – like collision detection for people and animals – ensure reliable operation in challenging conditions, such as dust or poor visibility. FERAL ensures continuous monitoring and assessment of operational processes with digital twins at the design level. This addresses dynamic hazards in autonomous operations and enhances safety compliance with standards like ISO 25119 and ISO 18497 (Safety of highly automated agricultural machines).

Enabling CI/CD for smart farming equipment

Integrate virtual test benches into your development and testing workflows for seamless, continuous engineering of digital farming features. FERAL's versatile interface integrates virtual test benches into your CI/CD tool pipeline, accelerating development processes and reducing time to market.

Contact

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