

4activeSystems

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Automation in safety testing

A platform for AD tech testing offers open interfaces and extensive connectivity, precise control and device monitoring, certified test system platforms and standardized targets

Over the past few years, ADAS has become commonplace in the vehicle fleet. Functionality is mostly driven by the desire to reduce KSIs based on accidentology data. Specific scenarios for testing the systems on proving grounds and test tracks are reflecting this new approach to safety. On the transition from assisted driving to fully automated driving, demands for real-world testing are increasing significantly.

The testing toolchain nowadays includes different methods from simulation to real-world field tests to proving ground analyses. Although simulation tools have significantly improved over the last few years, validation and correlation of critical scenarios must be done on proving grounds as a final confirmation of their performance.

4activeSystems has supplied test tools to proving grounds since the first active safety systems were established to help improve their performance to cope with future demands. The company's comprehensive open technology platform offers futureproof vehicle safety testing.

Open standards (OpenDrive, OpenScenario, etc) are among the main pillars of the platform and are used as input for creating test scenarios from external resources such as simulation tools, real road testing, soft/hardware-in-the-loop tests



The free-moving platforms from 4activeSystems can be supplied with various dummy objects such as pedestrians or cyclists

or existing databases from, for example, accidentology and standards regulation. An open control center according to the upcoming ISO WD 22133-1 is used to control and monitor all devices and infrastructure present at the proving ground. All of the tools communicate via a dedicated wi-fi mesh system, so complete coverage of every part of the existing test track is guaranteed. Automated reporting tools significantly reduce test data post-processing time.

Extremely high-precision robotic tests systems such as

the belt-driven 4activeSB/XB or free-moving robotic platforms such as the Freeboard 4activeFB-large (carrier for larger objects such as car dummies) and the 4activeFB-small (used for VRU testing) are used as target carriers.

The company's latest development addresses the increasing complexity of testing fully automated vehicles. The 4activeFB-eco is said to be the world's flattest robotic carrier for VRUs such as pedestrians or bicyclists, with the lowest radar cross-section of all existing carriers today. Swarm testing (up to 10 platforms working in parallel) was one main focus during its development. Therefore, a lot of effort was put in to make the 4activeFB-eco a very

cost-efficient, easy-to-use platform with extremely fast build-up times. Furthermore, very fast automated recharging capability (no user interaction needs) enables continuous testing.

A wide range of already established and certified dummy objects (such as a car, pedestrian or motorcyclist, etc) can be provided, and infrastructure (lighting and obstructions, etc) as well as future and customized targets (animals, roadside infrastructure, etc) complete the technology platform.

This novel closed toolchain enables seamless testing and addresses the latest demands of future autonomous vehicle and automated driving analysis on proving grounds. ◀

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