Test Bench for Camera-Based ADAS with DYNAanimation 3

Berner & Mattner operates several test benches for camera-based advanced driver assistance systems (ADAS) for an OEM to validate ECU functions such as lane departure warning and collision avoidance systems. The latest versions place high demands on representation performance and extended representation contents in order to reliably simulate even the very latest algorithms. For that reason, TESIS DYNAware’s DYNAanimation 3 is being used for the first time.

Tasks and Objectives

- Further development of the existing camera-based test benches with the aim of testing new functions with enhanced testing possibilities
- Validation of camera hardware and ECU connection in a hardware-in-the-loop environment
- Function validation of Forward Collision Warning, Traffic Sign Recognition and Lane Assist systems

Benefits and Results

Model-based testing of new functions
The test bench with DYNAanimation 3 and 3D moving objects such as pedestrians expands the test spectrum to include new driver assistance functions.

Automated tests
The objects represented in DYNAanimation 3 can be directly controlled by the test automation system, thus enabling many kinds of automated tests and regression tests to be performed.

Flexible adaptation
The integration of individually extended simulation algorithms and complete customer models fulfills specific customer requirements.

Optimized workflow
Faster HiL configuration through automated calibration of the camera surroundings.

Tailor-Made Work Environment

Simulation environment
- Support for VxWorks simulation hardware
- Change in parameterization at runtime
- Direct export and management possibilities for scenarios
- Full automation of test procedures by the Messina test automation system.

Driver Assistance Environment
- Free, GUI-supported road generation
- User-defined positioning and movement of traffic objects in any way desired
- Simulated sensors deliver reference values for synchronization with the measured, real sensor data

Animation with DYNAanimation 3
- Open connection with possibilities for extending the signal and modifying the animation project
- Representation of light and shade effects
- Different surroundings and times of day
- Moving pedestrians and surrounding objects as well as flexible integration of traffic signs
- High representation performance
- High animation speed (120 Hz frame rate) to prevent interference with the camera

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