

SPIDER

(Smart Physical Demonstration and Evaluation Robot)

The Smart Physical Demonstration and Evaluation Robot (SPIDER) is a **mobile hardware-in-the-loop (HiL) platform** allowing for reproducible testing of perception systems, vehicle software and control algorithms under real world conditions.

Verification and Validation – Example Applications

Perceptions Systems

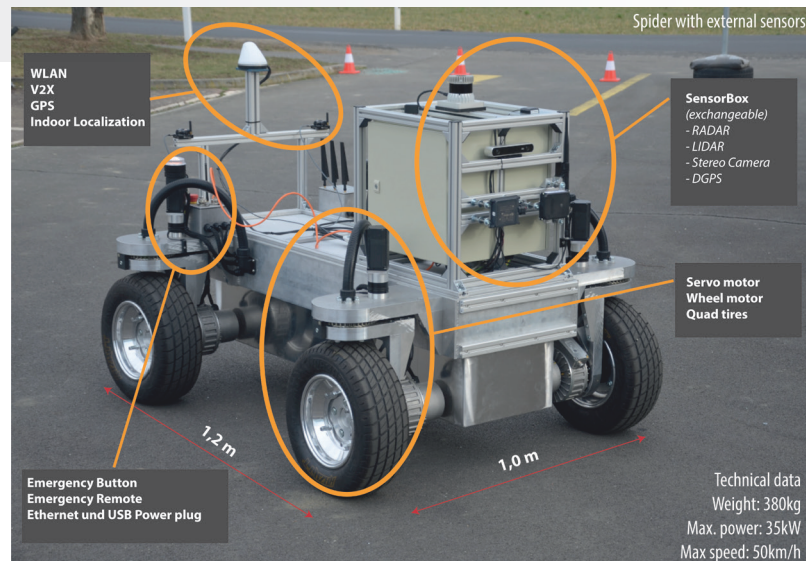
- Verification and validation of sensor setups
- Benchmarking of sensor configurations
- Variable mounting positions
- Impact of environment conditions (e.g. weather)

Decision Making

- Testing of beta or experimental software
- Verification and validation of sensor and software combinations
- Impact analysis of changes in sensor configurations and mounting positions
- Validation of simulation results under real life conditions

Movement control

- External control by extension possible
- Manual remote control
- Autonomous path tracking



Features

- Performing automated, reproducible test drives on proving grounds
- Highly dynamic omni-directional movement
- Robust and splash-water proof design
- Highly extensible (mechanical and electronic parts)
- Autonomous path tracking
- Provision of power and data interfaces (Ethernet, USB, WLAN, ...)
- Built-in safety features
- Testing of software and control units at all maturity levels

Technical data

- Weight: 380kg
- Acceleration: up to 0,5g (4,9m/s²)
- Speed: up to 50km/h
- Data connections: Ethernet, USB, WLAN
- Safety features: collision avoidance, speed limitation, remote emergency button

SPIDER is available for **commercial testing** (ALP.Lab GmbH) and **research projects** (Virtual Vehicle Research Center).

Contact

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