

PROVING GROUND & FIELD TESTS – Booth No. 25

# LOCALIZATION & COLLISION AVOIDANCE ON THE PROVING GROUND



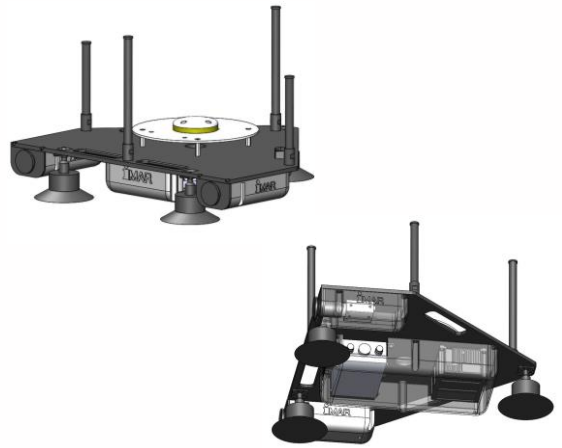
## Project task:

Demonstration of a cost-effective backup position measuring system, which brings the vehicle into a safe state (standstill) after a short time on a reliable trajectory in case of GNSS failure. This backup position measuring system should be applicable on proving grounds as well as in field tests.

### → Challenges:

Monitoring (real life) test runs on proving grounds using a cost-effective multi-sensor system implemented on the roof of all vehicles associated with the test run.

Fast and reliable detection of ego pose deviations with scene interpretation.



### → Multi-Sensor Head:

Incorporating of RTK INS/ GNSS, binocular vision and high performance dynamic mesh communication module.



### → Algorithms:

- Visual Odometry for pose estimation, based on stereo image sequence analysis.
- Machine Learning (DNN) for semantic interpretation of vehicle surrounding.
- Scene reconstruction combined with Machine Learning for estimation of infrastructure on proving grounds in order to estimate ego pose based on a priori generated maps.



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# Video



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