Our newsletter aims to provide you with regular updates on news, current topics and dates of interest relating to the SAFIR research partnership. We look forward to your feedback as well as constructive suggestions and requests for changes!

Further funding for SAFIR in FH-Impuls

Our research partnership SAFIR is funded for another four years by the Federal Ministry of Education and Research (BMBF) in the funding programme "Strong Universities of Applied Sciences - Impetus for the Region" (FH-Impuls). This is the result of a current interim evaluation after almost three and a half years. **We are very pleased with the positive decision of the BMBF and would like to take this opportunity to thank our partners for their support and trust: Only together with you was it possible to reach this important milestone.**

For the intensification phase from 2021 to 2024, the ministry is providing THI with additional funding of 4.7 million euros. In addition, the professors involved in SAFIR were able to raise around 1 million euros in third-party funding from the industrial partners.

The current lead topic of "Vehicle Safety 4.0" has been canonically expanded for the intensification phase to "Safe Mobility of the Future": *"The development and testing of functions to increase the safety of all road users, with special consideration of unprotected road users (VRUs), with a perspective expansion to the third dimension (Urban Air Mobility)".*

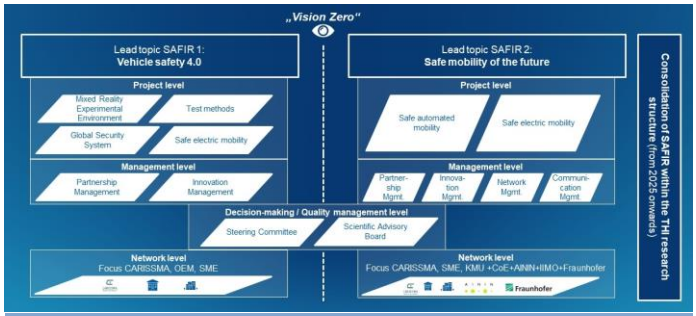

Fig. 1: Test setup with pedestrian and bicycle dummy

To focus on the group of VRUs in the already initiated work in SAFIR will be an essential part of the intensification phase, as VRUs have a particularly high leverage effect on future security projects.

Under the new guiding theme, various research and development projects will be implemented in the Mega-Clusters "Safe Automated Mobility" (Head: Prof. Dr. Andreas Riener) and "Safe Electric Mobility" (Head: Prof. Dr. Hans-Georg Schweiger) from January 2021 on.

With SAFIR, THI – embedded in the CARISSMA research and test centre – is supporting the “Vision Zero”, the EU's long-term goal of zero traffic fatalities. In the meantime, the network comprises 22 partners from industry and public institutions. The strategic cooperation with the actors in the region is to be further intensified in the future, as well as the cooperation with THI's own or THI-based institutes and centres that conduct research in the field of mobility.

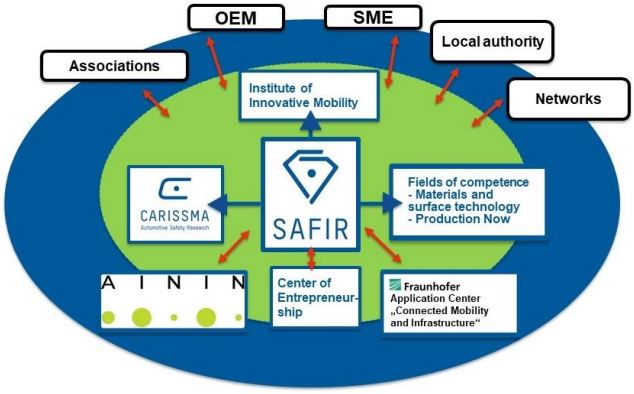

Fig. 2: Perspective cooperation of SAFIR with actors in the region

Save the Date: Networking event on October 22 nd, 2020

Similar to last year, we want to organize again a partner gathering in the form of a networking event. We are currently planning to organise the meeting, which will deal with the topic of "Safe mobility of the Future", as an on-site event at THI on October 22nd, 2020. It will again be combined with the annual meeting of the SAFIR Scientific Advisory Board.

Fig. 3: Announcement SAFIR Networking Event

SME project of GeneSys GmbH

The SME project "Optimization of a real-time reference system for ADAS and AD tests", is part of the Cluster 2 "Test methods for the global safety" within the SAFIR Impulse Partnership, and aims to provide a real-time reference for vehicle tests using inertial sensor technology. The project is managed by GeneSys Elektronik GmbH. GeneSys, based in Offenburg, has as core competence the development and production of intelligent, tailor-made sensor systems. The SME project was started in June 2019 and will run for a period of 2.5 years.

For a variety of tasks in automotive development and research, highly accurate information about the current position, speed, course, etc. of the vehicles is required. An example is the execution of tests for Advanced Driver Assistance Systems (ADAS) or Automated Driving (AD). Such information is currently collected by satellite-supported inertial systems, such as the Automotive Dynamic Motion Analyzer (ADMA) from GeneSys. This type of measuring system already works very well on test tracks, under ideal conditions for receiving the GPS signal (see Fig. 3).

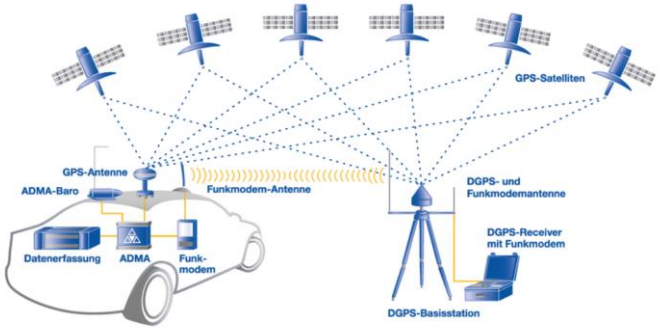

Fig. 4: Satellite-based condition monitoring

On public roads or in environments with poor or no GPS data reception, the data quality suffers because the inertial sensor technology relies on measurements of GPS coordinates. The reference measurements therefore become less accurate with increasing time without or with poor GPS information. In addition, in such cases it is unclear to what extent the reference data can be trusted. In the SME project, a highly accurate, real-time reference with quality criteria for operation on public roads is being implemented.

For this purpose, it is intended to develop a measuring device on which new methods for improving the robustness and accuracy of position detection for real-time applications can be realized. Furthermore, a reliable evaluation of the signal quality will be developed and launched.

At the THI, two methods for analyzing and predicting the confidence level of reference sensors that estimate the current state of the vehicle are currently being investigated in the Impulse Project.

In the SME project, the models and methods from Impulse Project 2 will be optimized and implemented for real-time calculations. For this purpose, new hardware will be developed that allows machine learning methods and nonlinear vehicle dynamics models to be computed in real time. This will make it possible to realize real tests for testing automated driving on public roads, even under bad conditions, such as poor GPS reception or GPS failure, using real-time capable inertial reference sensors.

Fig. 5: Use of the ADMA in road tests

The Federal Government's High-Tech Strategy 2025 emphasizes safe and networked mobility as an important field of action for the future and mentions autonomous driving as a new key technology. The scopes planned in the SME project address precisely these objectives. Thanks to the highly accurate reference and the reliable quality measurements provided, driver assistance systems and vehicle functions for automated driving can be better referenced and certified. This will advance the development of these systems, which in turn will improve the protection of the driver and his environment. This will accelerate the achievement of the Vision Zero goals that the SAFIR partnership is committed to.

Now we would like to wish you a wonderful summer time – and stay healthy!

Bundesministerium für Bildung und Forschung

FORSCHUNG AN FACHHOCHSCHULEN

July 2020

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You are also welcome to visit us on our website:: www.thi.de/go/safir

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