SYNCHRONE MOBILITÄT 2023

SYNCAR

Innovative solutions for forward-looking automated driving matching other road users and traffic lights

SYNCAR AUTOMATISIERTES URBANES FAHREN

Project description

The SYNCAR project focuses on automated vehicles in urban environments and investigates how a forward-looking driving strategy can be achieved involving all road users and the infrastructure in order to increase driver safety and comfort and optimize energy consumption. Not only the individual vehicle, but the entirety of all road users should be taken into account. This presupposes that all vehicles and infrastructure are networked with each other and that the data preparation of environmental information is optimized. The aim of the project is to generate and transfer concrete driving recommendations for individual vehicles or vehicle groups to optimize traffic flow.

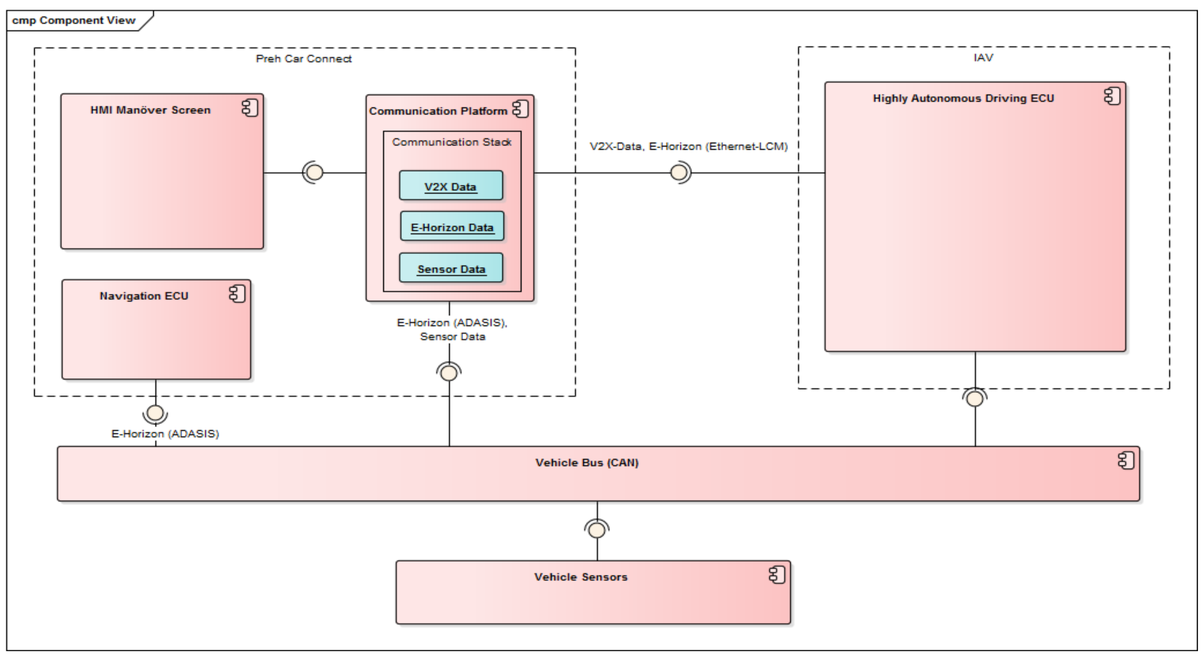

figure 1: Architecture

Contribution Preh Car Connect

Preh Car Connect is developing a powerful application-stack for the processing and creation of V2X messages. These messages are serving for cooperative coordination processes, especially for the use cases “cooperative turning” and “cooperative lane changing”. In these, standardized ETSI message formats are used to negotiate cooperation between the vehicles, which contributes to an energy-optimized and safe driving style and allows both vehicles to carry out the desired driving maneuver. A further use case is an “optimized approach to traffic light with driving recommendation from infrastructure”. The vehicle gets recommendation about the lane and speed to be selected, with which the intersection can be passed with green and without stopping.

Preh Car Connect is developing an Android-based HMI for the transfer of information to the driver of the automated vehicle. It provides information on the current status of the vehicle, future maneuvers and current environmental information. This HMI is coordinated in cooperation with the Chair of General & Industrial Psychology at the TU Chemnitz and evaluated in user studies.

Project partner

- IAV GmbH Ingenieurgesellschaft Auto und Verkehr
- Fraunhofer-Institut für Verkehrs- und Infrastruktursysteme IVI
- FusionSystems GmbH
- FSD Fahrzeugsystemdaten GmbH
- dresden elektronik verkehrstechnik gmbh
- Technische Universität Chemnitz
  Professur für Allg. & Arbeitspsychologie
- Technische Universität Chemnitz
  Professur für Nachrichtentechnik
- Technische Universität Chemnitz Professur für Arbeitswissenschaft und Innovationsmanagement
- Technische Universität Dresden
  Lehrstuhl Fahrzeugmechatronik
- Technische Universität Dresden Lehrstuhl für Verkehrsleitsysteme und -prozessautomatisierung

Project lead

IAV GmbH Ingenieurgesellschaft Auto und Verkehr

Project coordination

Fraunhofer-Institut für Verkehrs- und Infrastruktursysteme (IVI)

Lead partner

Sächsische Aufbaubank – Förderbank (SAB)

Duration

15.09.2016 – 14.09.2019 (36 months)

Funding

Europäische Union

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EFRE
Europäischer Fonds für regionale Entwicklung

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