PROFILREGION
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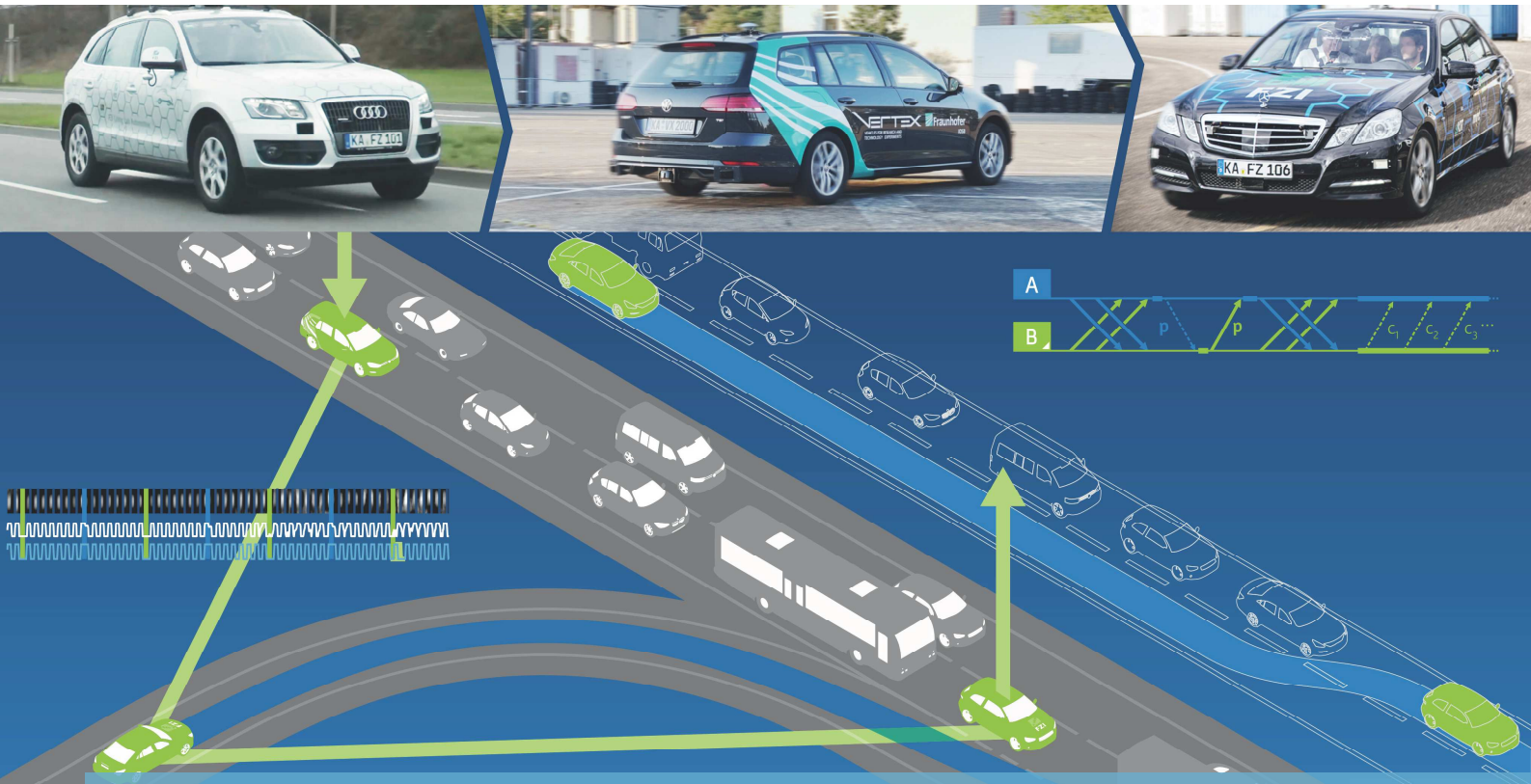

iFORESEE – INTRODUCTORY CONCEPTS FOR CONNECTED AND COOPERATIVE CARS

While "autonomous" automated cars are already part of a foreseeable future, the perspective for "connected" or "cooperative" cars is considerably less certain: Connected vehicles require a critical mass of available communication partners — and while clear benefits have been shown for densities of more than 50% connected cars, reaching such densities may take 10 years in Germany alone (from market introduction).

It is yet uncertain, how connected and cooperative features can provide market value for customers while densities still grow to this level, and therefore, how such systems can be introduced to the market.

Against this backdrop, the sub-project "iFORESEE" specifies and develops concrete cooperative driving functions which already add value at low densities of connected cars in traffic and low degrees of automation (SAE levels 1 through 3), and which support an evolutionary growth of the share of connected and cooperative vehicles in traffic.

The project aims both at the development of new technological solutions (maneuver planning, vehicle-to-vehicle communications, human-machine interaction) and at a detailed analysis of the effects of such systems on user acceptance, traffic flows, society and market.

Fraunhofer FZI

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The automated systems developed in this project explicitly aim at adding market value at low densities of connected vehicles in traffic (starting from around 10%) under realistic conditions and close-to-market technology. At the same time, the systems must provide upward-compatibility which allows them to co-exist symbiotically with later generations of vehicles and higher levels of automation and cooperation.

To demonstrate the market value of such technologies, a broad approach is necessary, that includes not only technological feasibility, but also privacy, safety/security, acceptance, the transportation system and, above all, standards and added value across manufacturers and suppliers.

For this reason, the project joins a widespread selection of research institutions in and around Karlsruhe, which focus on automated driving functions (FZI, KIT-MRT and Fraunhofer IOSB), communication technology (KIT-IHE), traffic research (KIT-IfV), as well as acceptance and market studies (KIT-IFAB and Fraunhofer ISI), and relies on a close cooperation with the industry and public bodies.

For connected driving functions, human-machine interaction and user acceptance is one of the key challenges requiring systematic studies.

For testing and validation of the developed driving functions, the project relies on the capabilities of the "Test Area Autonomous Driving Baden-Württemberg" for test drives in real urban and inter-urban traffic, as well as on the close cooperation with the "Virtual Test Area" project (also part of the "Profilregion Mobilitätssysteme Karlsruhe") for simulation studies and safety/security analyses.

Contact:

Dr.-Ing. Miriam Ruf
Fraunhofer Institute of Optronics, System Technologies and Image Exploitation IOSB
Fraunhoferstr. 1, 76131 Karlsruhe, Germany
phone +49 (0) 721 6091 632
miriam.ruf@iosb.fraunhofer.de