

interactIVe

Accident avoidance by active intervention for Intelligent Vehicles

interactIVe develops technologies for *next-generation safety systems for Intelligent Vehicles*. *Advanced sensor networks will continuously support the driver and intervene if the driver is unable to react sufficiently in emergency situations*. interactIVe delivers reliable solutions for *accident avoidance and mitigation*.

At a Glance

Project acronym:

interactIVe

Project type:

Integrated Project (IP)

Programme:

7th EU Framework Programme

Project coordinator:

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Project partners:

Carmakers: Ford, BMW, Fiat, Daimler, Volkswagen, Volvo Technology, Volvo Car

Suppliers: Autoliv, Continental, Delphi, Navteq, TRW,

Research Institutes: BAST, CTAG, DLR, ICCS, ika, VTT, Lund University, Université Joseph Fourier, Chalmers, Czech Technical University, University of Trento,

SMEs: Alcor, Allround Team, EICT

Duration:

42 Months (01/01/2010 – 30/06/2013)

Total cost:

30 M€

EU funding:

17 M€

Project website:

www.interactIVe-ip.eu

Objectives

interactIVe develops next-generation safety systems for Intelligent Vehicles fusing and processing data of existing sensors to achieve novel results.

Based on a shared-architecture approach and modern sensor-fusion techniques, interactIVe will deliver affordable Advanced Driver Assistance Systems (ADAS) for all vehicle classes.

The project will:

- develop new ADAS functionalities by integrating multiple sensors,
- create an innovative platform for enhancing perception of the driving situation,
- improve decision strategies for active safety and driver-vehicle-interaction,
- provide continuous support systems with flexible hand-over,
- enable integrated collision avoidance with vehicle path control for cars and trucks,
- develop solutions for collision mitigation that are also suitable for low-cost vehicles,
- show the new functions in seven demonstrator vehicles,
- evaluate the ADAS with a common methodology.

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Description of Work

The project consists of six technical areas of work:

1. The **Perception Platform**
2. **IWI** Information and Warning Strategies
3. **SECONDS** Safety Enhancement through Continuous Support
4. **INCA** Integrated Collision Avoidance and Vehicle Path Control
5. **EMIC** Cost-efficient Emergency Intervention for Collision Mitigation
6. **EVAL** Evaluation and Legal Aspects

Target scenarios are selected by analysing actual accident data, use cases are defined and requirements are derived. Previously independent sensors are integrated to develop new concepts for sensor fusion to advance object refinement and to create a unified perception horizon. Information overload of the driver must be avoided. Information filtering, timely warnings and integrating human feedback are necessary to keep the driver in the loop.

interactIVe's three main activities are:

1. Analysis:

Once the interactIVe use cases and requirements are derived, specifications and system architecture are designed.

2. Development:

Strategies for warning and intervention are assessed and integrated with ADAS information. This results in an overall driver support function for the human-machine-interface (HMI). The generic perception platform is designed, adapted to specific applications and tested with real

driving data. Demonstrator vehicles are equipped and the complex communication between sensors-perception-actuators is assembled. The result is a complete and concise concept for Intelligent Vehicles.

3. Evaluation:

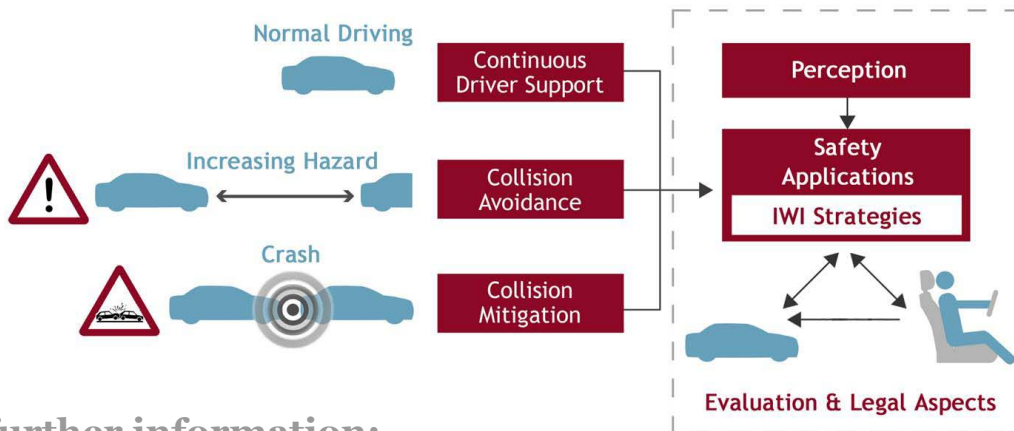
The interactIVe demonstrator vehicles are tested by driving realistic manoeuvre situations on closed test-tracks. Information, warning and intervention strategies are evaluated in driving simulators. Legal aspects are considered extensively and the results will be fed back to developers to assure that appropriate structures will be in place once the systems come to market.

Expected results

- Common perception platform.
- Enhancement of continuous support functions and integrated active interventions for collision avoidance.
- Cost-efficient emergency intervention for collision mitigation.
- Improved IWI strategies.
- Revised tools and methods for the evaluation of active safety applications.
- Documentation on the status of legislation regarding active interventions and driver response.

interactIVe paves the way for a broad deployment of ADAS, which will be continuously available while driving. Hence, the individual safety and the quality of driving will greatly increase.

The project will contribute to reducing the human and economic costs caused by traffic accidents and congestion.



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