Safe and Comfortable Driving based upon inter-vehicle communication

Fact Sheet

Project information

CARTALK 2000

Grant agreement ID: IST-2000-28185

Project website

Start date: 1 August 2001
End date: 31 July 2004

Objective

The growing mobility on European roads generates a growing need for safety, efficiency and comfort to be provided by the traffic system. Improvement of traffic safety is gained by increasingly advanced driver assistance functions. CarTALK 2000 aims at improving safety through assistance systems based on inter-vehicle communication. Maximum traffic safety can only be reached with a real-time dynamic network that supports co-operative driving. As co-operative driving is becoming one of the key issues discussed in ADASE, the realisation of interactive driver assistance systems represents a significant step towards the ultimate vision of an accident-free traffic. The objectives of CarTALK 2000 are to design, develop, test and demonstrate co-operative driver assistance systems, to build up the technology for the required safety related ad hoc radio networks, as well as to evaluate the socio-economic and legal issues raised by this field.

Objectives:
- Development of co-operative driver assistance systems based on inter-vehicle communication.
- Specification of today's and future applications for co-operative driver assistance systems.
- Develop software structures and algorithms, i.e. new fusion techniques
- Test and demonstrate assistance functions in probe vehicles in real traffic scenarios.
- Development of a self-organising radio system for inter-vehicle and vehicle.
- Infrastructure communication
- Algorithms for radio ad-hoc networks with extremely high dynamic network topologies.
- Integrate the communication system into test vehicles to test and demonstrate both, info-mobility applications (existing applications) and safety applications in the same system architecture.

Apart from technological goals, CarTALK 2000 actively addresses market introduction strategies including cost/benefit analyses and legal aspects, and aims at the standardisation to bring these systems to the European market.

Work description:
To achieve the project goals the project will go through six phases: Analysis of system requirements, functional specifications, system architecture, communication protocol and application development, integration into test vehicles, validation of the applications in real conditions, standardisation and exploitation planning.

These project phases in are mapped onto five technical work packages (WP) and will be supported by an organisational work package (WP01) covering the operational project management.
WP02, Enabling research and Specification, investigates all technical areas, specifies the communication-based assistance systems, decides upon scenarios for the verification phase, and identifies requirements for the communication system and the technological solutions to be used.
WP03, System architecture, combines both, co-operative assistance systems and ad-hoc communication networks in a common architecture. Building the framework for the project work, this work package also ensures functional safety of the applications and protocols.
WP04, Communication system, designs the radio communication system. A prototype is realised for testing in the selected scenarios. The design phase will develop a system, which is open to other applications as well. Specific recommendations will be defined for the phase after the technological prototype development, the pre-industrialisation, and protocols are brought to appropriate standards.
WP05, Applications, will develop extended driver assistance systems based upon communication. A set of test vehicles will be built up for test and demonstration.
WP06, Standardisation and market introduction, defines and analyses introduction scenarios for system deployment and technology implementation. Supporting work on standardisation, legal and liability issues and the socio-economic impact of CarTALK 2000 systems is carried out partly in close co-operation with other projects.

Milestones:
Month 9: end of WP02; initial research is done; application scenarios are defined and operational requirements are specified; initial analyses on socio-economic benefits and legal requirements are finished, work on system architecture and application design can start.
Month 15: end of design and development and end of safety analyses for communication system; demonstration and field trials can start, as the system will be available on demonstrator vehicles.
Month 36: technological implementation plan is ready.
Programme(s)

FP5-IST - Programme for research, technological development and demonstration on a "User-friendly information society, 1998-2002"

Topic(s)

2000-1.5.2 - Intelligent Vehicle Systems

Funding Scheme

CSC - Cost-sharing contracts

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