PROJECT PRESENTATION

Contract no.: 027293
Project acronym: CVIS
Project name: “Co-operative Vehicle-Infrastructure Systems”
PRIORITY 2 “Information Society Technologies”
IST-2004-2.4.12 - eSafety-Cooperative Systems for Road Transport

Total cost €41.155.204  EC Funding €21.905.793

PROJECT ABSTRACT

The CVIS (Cooperative Vehicle-Infrastructure Systems) FP6 Integrated Project aims to develop and test new technologies to allow road vehicles to communicate with any nearby roadside infrastructure. Based on such real-time road and traffic information, many novel applications can be produced. The consequence will be increased road safety and efficiency, and reduced environmental impact.

The project’s ambition is to start a revolution in mobility for travellers and goods, completely re-engineering how drivers, their vehicles, the goods they carry and the transport infrastructure interact and cooperate.

This can only work if different makes of vehicle and different types of roadside system all use the same communication standards. CVIS will therefore develop a world “first”: a mobile router to link vehicles continuously with roadside equipment and servers. The project will apply and validate the ISO “CALM” standards for continuous mobile communication, and will provide input to standards development in European and global standardisation bodies.

Other key innovations include high-precision positioning and local dynamic maps, a secure and open application framework for access to online services and a system for gathering and integrating monitoring data from moving vehicles and from roadside detectors and sensors.

These technologies will be developed for selected urban, interurban and freight/fleet applications, and tested at test sites in France, Germany, Italy, Netherlands/Belgium, Sweden and the UK.

Lastly, the CVIS project is creating guidelines and tools to address key technical and non-technical issues for deployment.
OBJECTIVES
The CVIS objectives are:

- to create a unified technical solution allowing all vehicles and infrastructure elements to communicate with each other in a continuous and transparent way using a variety of media and with enhanced localisation;
- to enable a wide range of potential cooperative services to run on an open application framework in the vehicle and roadside equipment;
- to define and validate an open architecture and system concept for a number of cooperative system applications, and develop common core components to support cooperation models in real-life applications and services for drivers, operators, industry and other key stakeholders;
- to address issues such as user acceptance, data privacy and security, system openness and interoperability, risk and liability, public policy needs, cost/benefit and business models, and roll-out plans for implementation.

KEY PROJECT RESULTS
Within the main blocks of Core Technologies, Cooperative Applications, Test Sites and Deployment Enablers, the CVIS sub-projects will produce the following key results:

- a multi-channel terminal capable of maintaining a continuous Internet connection over a wide range of carriers, including cellular, mobile Wi-Fi networks, infra-red or short-range microwave channels, ensuring full interoperability in the communication between different makes of vehicle and of traffic management systems;
- an open architecture connecting in-vehicle and traffic management systems and telematics services at the roadside, that can be easily updated and scaled up to allow implementation for various client and back-end server technologies;
- techniques for enhanced vehicle positioning and the creation of local dynamic maps, using satellite positioning, radio triangulation and the latest methods for location referencing;
- extended protocols for vehicle, road and environment monitoring to allow vehicles to share and verify their data with other vehicles or infrastructure nearby, and with a roadside service centre;
- application design and core software development for:
  - cooperative urban network management, cooperative area destination-based control, cooperative acceleration/deceleration and dynamic bus lanes;
  - enhanced driver awareness and cooperative traveller assistance on inter-urban highways;
  - commercial vehicle parking and loading zones booking and management, monitoring and guidance of hazardous goods and vehicle access control to sensitive areas.
- deployment enabling toolkit in the form of models, guidelines and recommendations in the areas of openness and interoperability; safe, secure and fault-tolerant design; utility, usability and user acceptance; costs, benefits and business models; risks and liability; cooperative systems as policy tool; and deployment road-maps.
CONSORTIUM

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