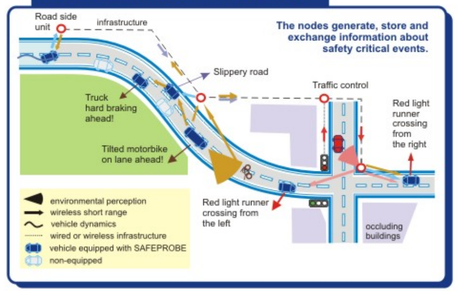
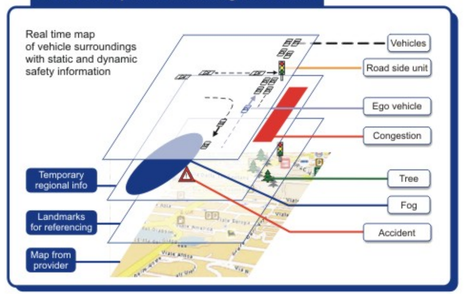
SAFESPOT Enabling Technologies

Vehicles & Infrastructures are sensors of traffic and environment conditions



Local Dynamic Maps: real time update of driving situations



Ad-hoc Dynamic Communication Network for information exchange

The selected communication channel should enable the cooperation among the vehicles and the road infrastructure.
Major requirements:

- reliability, security, low cost
- need for a dedicated frequency band to avoid interference with existing consumer links
- routing protocols with multihop forwarding and geo-cast functionalities
- geographical addressing
- accessibility with highest priority to exchange time critical safety messages

The selected radio technology is IEEE 802. 11p.
SAFESPOT generated a complete set of messages as an extension of existing C2C messages.
SAFESPOT is part of the task force led by COMeSafety that drafted the common European architecture for cooperative systems. SAFESPOT cooperates with the C2C Consortium and contributes to future standardisation.

Relative Positioning among vehicles

A high accuracy is required for the exchange of safety time critical messages. SAFESPOT integrates data from different sources: raw data from GPS, road landmark recognition and dead reckoning.

SAFESPOT Information

SAFESPOT Integrated Project Coordinator
Roberto Brignolo
E-mail: roberto.brignolo@crf.it
Tel. +39 011 90 80534
Centro Ricerche FIAT (IT)

SAFESPOT Sub-Project Leaders
SAFESPROBE Christian Zott (BOSCH, DE)
INFRASENS Angela Spence (MIZAR, IT)
SINTECH Achim Brakemeier (DAIMLER, DE)
SCOVA Giulio Vivo (CRF, IT)
COSSIB Fahim Belarbi (COFIROUTE, FR)
BLADE Han Zwijnenberg (TNO, NL)
SCORE Abdel Kader Mokaddem (RENAULT, FR)
HOLA Luisa Andreone (CRF, IT)
Dissemination Angelos Amditis (ICCS, EL)

SAFESPOT Test Site Leaders
Italian Test Site:
Silvia Zangherati (CRF, IT)
West European Test Site:
François Peyret (LCPC, FR)
German Test Site:
Thomas Heinrich (TRANSVER, DE)
Dutch Test Site:
Bastiaan Krosse (TNO, NL)
Swedish Test Site:
David Rylander (VOLVO, SE)

SAFESPOT timeframe: 2006, 2010
SAFESPOT cost budget: 38 M€
European Commission funding 20,5 M€

Project Officers
Irmgard Heiber
Francisco de Lacerda Melo Ferreira
European Commission, DG Information Society and Media
European Commission www.cordis.lu
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European Commission
Information Society and Media

SAFESPOT
COOPERATIVE SYSTEMS FOR ROAD SAFETY

EUCAR

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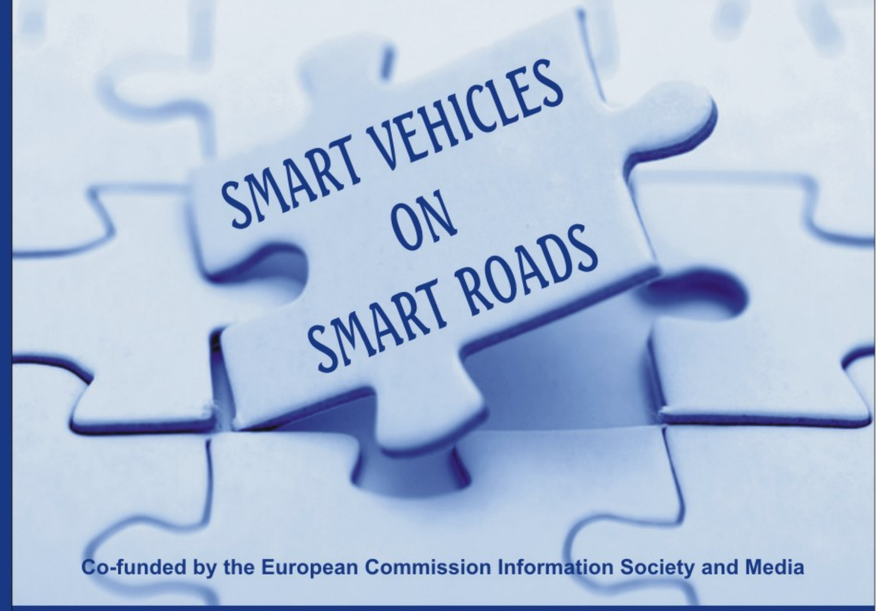
SAFESPOT Integrated Project
Cooperative Systems for Road Safety



Co-funded by the European Commission Information Society and Media

SAFESPOT Concept

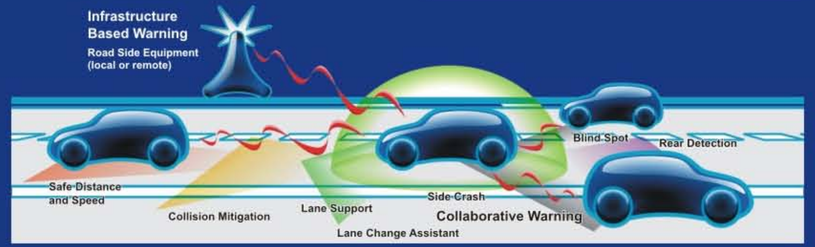
COOPERATIVE SYSTEMS FOR ROAD SAFETY

"Smart Vehicles on Smart Roads"

SAFESPOT is working to design cooperative systems based on vehicle to vehicle and vehicle to infrastructure communication to improve road safety.

SAFESPOT will prevent road accidents developing a SAFETY MARGIN ASSISTANT to detect in advance potentially dangerous situations and extend, in space and time, drivers' awareness of the surroundings.

The SAFESPOT Integrated Project is co-funded by the European Commission Information Society and Media in the 6th Framework Programme and is supported by EUCAR.



SAFESPOT Structure

TECHNOLOGIES and PLATFORMS

- SAFEPROBE — In vehicle sensing & platform
- INFRASENS — Infrastructure sensing & platform
- SINTECH — Innovative technologies

APPLICATIONS

- SCOVA — Vehicles based application
- COSSIB — Infrastructure based application

TRANSVERSAL ACTIVITIES

- BLADE — Deployment, legal aspect, business model
- SCORE — Core architecture
- HOLA — Management, dissemination, exploitation

SAFESPOT Applications
Based on Vehicle to Vehicle and on Vehicle to Infrastructure Communication

- Safety distance and speed advice
- Hazard warning: ghost driver detection
- Hazard warning: obstacle detection and frontal collision prevention
- Rear end collision prevention
- Safe overtaking assistance
- Lane change manoeuvre assistance
- Road departure prevention
- Dangerous curve warning
- Vulnerable road user detection
- Incident detection and warning
- Warning of sudden reduced visibility
- Safety margin for assistance and emergency vehicle
- Intersection collision prevention
- Road condition status
- Signalling of deviation for road works
- Vehicle counting & direction detection

SAFESPOT examples of technical demonstrations







SAFESPOT Test Sites

The SAFESPOT project demonstrates and tests the applications and use cases developed in different project activities through the scheduled tests that are done in Italy, France, Spain, Germany, Sweden, The Netherlands.

The test sites involving six European countries use existing infrastructures equipped with new SAFESPOT systems and test interoperability among different countries.

Four Test sites are commonly shared with the CVIS Integrated Project.

Test Site locations:

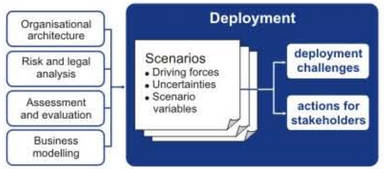
SAFESPOT Deployment

The goal is to prove the architecture feasibility from a business point of view. To ensure a European roll out an affordable deployment strategy has to be designed involving the relevant stakeholders from the early technological development stage.

The outline of this deployment plan is based on:

- risk and legal analysis
- analysis of roles and responsibilities (the organizational architecture)
- impacts and costs-benefit assessment
- business models and market assessment

Context for the deployment program



The assessment of the SAFESPOT system architecture has provided insight in the roles and responsibilities that are required to generate the safety services. This model is the input for the stakeholders that need to decide which role will be performed by whom.
The legal and risk analysis provide options for contractual arrangements and/or a regulatory frame work, addressing liability and privacy concerns.
Also the risk assessment has proved that there are many options and deployment issues to decide upon.

SAFESPOT Consortium

- Centro Ricerche Fiat (IT)
- Daimler AG (DE)
- Renault FRANCE (FR)
- Volvo Technology (SE)
- Robert BOSCH (DE)
- Magneti Marelli Electronic Systems Italy (IT)
- ANAS SpA (IT)
- COFIROUTE (FR)
- TNO (NL)
- MIZAR Automazione (IT)
- Piaggio (IT)
- Continental Teves (DE)
- IBEO Automobile Sensor (DE)
- Kapsch TrafficCom (SE)
- Lacroix Trafic (FR)
- NAVTEQ Europe (NL)
- Planung Transport Verkehr (DE)
- Q-Free (NW)
- Continental Automotive (DE)
- Tele Atlas (NL)
- CG Côtes d'Armor (FR)
- VTT Technical Research Centre of Finland (SF)
- Autostrada Brescia Verona Vicenza Padova (IT)
- Swedish Road Administration (SE)
- CIDAUT (ES)
- Centro Studi sui Sistemi di Trasporto (IT)
- MIRA Limited (UK)
- LCPC (FR)
- Università degli Studi di Genova DIBE (IT)
- Centre for Research and Technology Hellas (EL)
- Institute of Communication and Computer Systems (EL)
- Istituto Superiore Mario Boella (IT)
- Société pour le Développement de l'Innovation dans les Transports (FR)
- Ministerie van Verkeer en Waterstaat (NL)
- Technische Universität Chemnitz (DE)
- Technische Universität München (DE)
- Universität Stuttgart (DE)
- DLR (DE)
- ERTICO (BE)
- CREATE-NET (IT)
- Politechnika Warszawska (PL)
- Budapest University of Technology and Economics (HU)
- Centre National de la Recherche Scientifique (FR)
- BASt (DE)
- Provincie Noord-Brabant (NL)
- RENAULT España (ES)
- Universidad Politécnica de Madrid (ES)
- Telefonica (ES)
- AT4wireless (FR)
- PEEK Traffic (NL)
- TRANSVER (DE)