General figures

Project type: Integrated Project (IP)
Co-funded by: the European Commission Information Society and Media in the 6th Framework Programme
Promoted by: EUCAR
IP coordinator: Roberto Brignolo Centro Ricerche FIAT (IT)
Consortium: 51 partners (from 12 European countries):
  - OEMs (cars, trucks, motorcycles)
  - ROAD OPERATORS
  - SUPPLIERS
  - RESEARCH INSTITUTES
  - UNIVERSITIES
Timeframe: Feb. 2006, Jan. 2010
Overall Cost Budget: 38 M€ (European Commission funding 20,5 M€)
The SAFESPOT concept 1/3

SAFESPOT is working to design cooperative systems for road safety based on vehicle to vehicle and vehicle to infrastructure communication. 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 Concept 2/3

...from autonomous intelligent vehicles to cooperative systems...
The node’s platforms generate, store and exchange standardized information such that the nodes can *individually* recognize and warn about safety critical events.

- Truck hard braking ahead!
- Slippery road ahead!
- Tilted motorbike on lane ahead!
- Red light runner crossing from the right!
- Red light runner crossing from the left!

**Environmental perception**
- wireless short range communication
- vehicle dynamics control
- wired or wireless infrastructure network
- vehicle equipped with SAFESPROBE platform
- non-equipped vehicle
The SAFESPOT Planning

- **2006** Requirements
  - Core Architecture requirements
  - Integration with the CVIS and Coopers architecture
- **2007** Specs&development
  - Specifications
- **2008** Development&test
  - Technological Prototypes
  - Applications
- **2009** Test&evaluation
  - Validation on Test sites
  - Results’ Analysis
The SAFESPOT enabling technologies

Reliable, fast, secure, potentially low cost protocols for local V2V and V2I communication

A reliable, very accurate, real-time relative positioning

A real time updateable Local Dynamic Map
CALM
Support of ITS and Internet Services based on continuous communication over 802.11, GSM, UMTS, IR, IPv6, etc.

Car2Car protocol
For V2V and V2I communication, based on geo-aware multi-hop routing
Candidate technology: IEEE 802.11p
Need for dedicated frequency band in the 5.9 GHz. range

V2V and V2I communication for road safety and traffic efficiency applications using Car2Car and CALM technologies
The SAFESPOT Enabling technologies: ad hoc communication network

SAFESPOT, C2C-CC Layer Diagram

Wireless LAN Modem Based on 802.11a or 802.11p

The C2C-CC and CALM harmonization is under discussion by the two working groups.
The SAFESPOT Enabling technologies: relative positioning

Reliable, very accurate, real-time relative positioning
- GNSS-based Positioning (GPS, Galileo)
- Communication-based Positioning (UWB, WLAN)
- Image-based Positioning (Landmarks recognition)
The SAFESPOT Enabling technologies:
Local Dynamic Maps

Representation of vehicle’s surroundings with all static and dynamic safety relevant elements

- Com. nodes, fusion result
- Temporary regional info
- Landmarks for referencing
- Map from provider
- Vehicles
- Road side unit
- Ego Vehicle
- Congestion
- Tree
- Fog
- Accident

The Fully Networked Car
Geneva, 5-7 March 2008
The SAFESPOT Architecture
## The SAFESPOT Applications

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<th>Vehicle based</th>
<th>Infrastructure based</th>
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<td>Co-operative Intersection Collision Prevention System</td>
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Lateral Collision Prevention

Road Intersection

Safe Overtaking

Lane change manoeuvre
Test Sites Activities

• Test sites are a set of activities aimed to demonstrate the applications and use cases developed in the different subprojects and to proof interoperability among different countries.

• Test sites will use existing infrastructures equipped with new SAFESPOT systems and equipped vehicles.

• As far as possible general public will be involved in the test activities in order to have a direct feedback.

• Five Test sites spread in six European countries were defined
  • IT – Italy
  • DE – Germany
  • WE - Western Europe (France & Spain)
  • NE – The Netherlands
  • SW – Sweden

• Four Test sites are shared with the CVIS IP

Demonstration Timeframe : 2009
THANK YOU

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