PROJECT

INTERSAFE-2

Cooperative Intersection Safety

Funding: European (7th RTD Framework Programme)

Duration: Jun 2008 - May 2011

Status: Complete with results

Total project cost: €6,502,283

EU contribution: €3,857,986

Call for proposal: FP7-ICT-2007-2

CORDIS RCN : 87267

Background & policy context:

Today, most so called 'black spots' have been eliminated from the road networks. However, intersections can still be regarded as black spots. Depending on the region and country, from 30 to 60% of all injury accidents and up to one third of the fatalities occur at intersections. This is due mainly to the fact that accident scenarios at intersections are among the most complex ones, since different categories of road user interact in these limited areas with crossing trajectories.

Objectives:

The INTERSAFE-2 project aims to develop and demonstrate a Cooperative Intersection Safety System (CISS) that is able to significantly reduce injury and fatal accidents at intersections.

Methodology:

The novel CISS combined warning and intervention functions demonstrated on three vehicles: two passenger cars and one heavy goods vehicle. Furthermore, a simulator is used for additional R&D. These functions are based on novel cooperative scenario interpretation and risk assessment algorithms.

The cooperative sensor data fusion is based on:

- state-of-the-art and advanced on-board sensors for object recognition and relative localisation;
- a standard navigation map

and information supplied over a communication link from:

- other road users via V2V if the other vehicle is so equipped;
- infrastructure sensors and traffic lights via V2I if the infrastructure is so equipped to observe the complex intersection environment.

As a result, the deployment of the INTERSAFE-2 system could provide a positive safety impact of 80% with respect to injuries and fatal accidents at intersections. Thus a total safety benefit of up to 40% of all injury accidents and up to 20% of all fatalities in Europe is possible.

The utilisation of V2X communication for CISS at a small number of equipped intersections would boost the overall market penetration of communication in vehicles, since the benefit for those who buy first could be experienced at every equipped intersection.

Related Projects:

Currently, August 2013, the INTERSAFE-2 website is off-line. Brief information about the CISS (Cooperative Intersection Safety System) can be found on the CVIS (Cooperative Vehicle Infrastructure Systems) website:

- http://www.cvisproject.org/en/links/intersafe2.htm for brief information regarding the INTERSAFE-2 project;
- http://www.cvisproject.org/en/about_cooperative_systems/introduction/ for general information

regarding CVIS;
- http://www.cvisproject.org/en/links/ for CVIS related projects.

Parent Programmes:

FP7-ICT - Information and Communication Technologies

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Lead Organisation:

Sick Ag

Address:
Erwin Sick Strasse
79183 Waldkirch
Germany

Organisation Website:
http://www.sick.com

EU Contribution: €284,001

Partner Organisations:

Institut National De Recherche En Informatique Et Automatique

Address:
Domaine de Voluceau- Rocquencourt
B.P. 105 LE CHESNAY
France

Organisation Website:
http://www.inria.fr/

EU Contribution: €316,750

Volvo Bus Corporation

Address:
Fästningsvägen 1
40508 Gothenburg
Sweden

Organisation Website:
http://www.volvo.com/bus/global/en-gb/home_new.htm

EU Contribution: €456,100

Rheinisch-Westfaelische Technische Hochschule Aachen

Address:
Templergraben
52062 Aachen
Germany

Organisation Website:
http://www.rwth-aachen.de

EU Contribution: €215,300

Swarco Traffic Systems Gmbh

Address:
Kelterstrasse
72669 Unterensingen
Germany

EU Contribution: €153,719

Universitatea Tehnica Cluj-Napoca

Address:
STR MEMORANDUMULUI 28
400114 CLUJ NAPOCA
Romania

Organisation Website:
http://users.utcluj.ro/~gorgan

EU Contribution: €212,698

Trw Limited

Address:
Stratford Road
Solihull
B90 4AX
United Kingdom

Organisation Website:
http://www.conekt.net

EU Contribution: €281,587

Universite Joseph Fourier Grenoble 1

Address:
Avenue Centrale, Domaine Universitaire 621
38041 GRENOBLE
France

Organisation Website:
http://www.ujf-grenoble.fr

EU Contribution: €0

Ibeo Automobile Sensor Gmbh

Address:
Merkurring 20
22143 Hamburg
Germany

EU Contribution: €468,496

Nec Europe Ltd

Address:
WEST END ROAD ATHENE ODYSSEY BUSINESS PARK SOUTH RUISLIP
LONDON
HA4 6QE
United Kingdom

Organisation Website:
http://www.neceurope.com

EU Contribution: €210,719

Volkswagen

Address:
Berliner Ring 2
1894 WOLFSBURG
Germany

Organisation Website:
http://www.volkswagen.de

EU Contribution: €413,216

Teknologian Tutkimuskeskus Vtt

Address:
TEKNIIKANTIE 21
02150 ESPOO
Finland

Organisation Website:
http://www.vtt.fi

EU Contribution: €491,375

Bayerische Motoren Werke Ag

Address:
Petuelring 130
80809 MUNICH
Germany

Organisation Website:
http://www.bmwgroup.de

EU Contribution: €354,025

Technologies:

Safety systems
Technologies to improve road safety

Development phase: Research/Invention

Key Results:

The Cooperative Intersection Safety System (CISS) developed is able to detect static and dynamic components of an intersection environment. The road geometry is estimated. Obstacles are detected, tracked and subsequently classified to discriminate their type (e.g. pedestrians, vehicles, lantern poles) and thus their importance in traffic.

In other words: the system is able to detect, track and recognise most of the components of the traffic environment. However, future work is needed in order to increase and improve detection robustness. Future work will include among others: estimation of multiple types of road structures, detection and tracking of more objects and obstables, and enhancing the classification accuracy.

Cooperation between various sensors and data sources, such as the active sensors or GPS and map information, is also planned for the future.

Innovation aspects

Development of a CISS, able to detect, track and classify static and dynamics components in an intersection environment.

Policy objectives

- Innovating for the future (technology and behaviour): A European Transport Research and Innovation Policy
- An efficient and integrated mobility system: Acting on transport safety (saving thousands of lives)

Readiness

Further development is required to enhance detection, tracking and classification of objects.

Documents:
presentation: onboard visual sensors [May 2010] (Project presentation)

STRIA Roadmaps: Cooperative, connected and automated transport, Infrastructure

Transport mode: Road transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Digitalisation, Safety/Security

Geo-spatial type: Other