PROJECT

SAFERIDER

Advanced telematics for enhancing the SAFEty and comfort of motorcycle RIDERs

Funding: European (7th RTD Framework Programme)

Duration: Jan 2008 - Dec 2010

Status: Complete with results

Total project cost: €5,370,015

EU contribution: €3,473,899

Call for proposal: FP7-ICT-2007-1

CORDIS RCN : 85335

Background & policy context:

Motorcycle and moped fatalities account for 17,8% of the total number of road accident fatalities in Europe and, compared to a passenger car occupant, a motorcycle rider is 26 times more likely to die in a crash, based on vehicle miles travelled, as riders are among the vulnerable road users.

Objectives:

SAFERIDER aimed to enhance PTW riders' safety by applying ADAS/IVIS on PTWs of all types for the most crucial functionalities and develop efficient and rider-friendly interfaces and interaction elements for riders' comfort and safety. Relevant applications prioritisation was based on in-depth accident studies, riders needs and wants, as well as benchmarking and ergonomic inspection of existing applications. The selected functionalities were developed according to a modular and multi-layer (perception-decision-action) architecture, allowing multi ADAS/IVIS applications setup and integration.

Four ADAS applications were preliminary planned to be developed, namely Speed Alert, Curve Speed Warning, Frontal Collision Warning and Intersection Support; as well as four IVIS applications, namely eCall, Telediagnostic Services, Navigation and Route Guidance, Weather, Traffic and Black Spot Warnings. They were supported holistically by optimal and concise warning concepts and strategies, supported by new haptic elements, an integrated smart helmet and context-related HMI adaptation; integrated upon three riding simulator and eight PTW demonstrators of three manufacturers (PIAGGIO, TRIUMPH and YAMAHA) and tested in six sites Europe-wide.

Methodology:

Within its tasks, SAFERIDER aimed:

1. To develop priority Use Cases for ARAS/OBIS implementation on PTWs.
2. To define the functionalities of the prioritised ARAS/OBIS for PTWs of different levels, based on accident analysis data and naturalistic driving studies.
3. To design and develop ARAS/OBIS prototypes for the selected functionalities.
4. To design an optimal HMI concept and develop warning/ information provision elements for the prototypes, as well as for potential combinations of their output.
5. To technically verify the developed ARAS/OBIS and integrate them to different motorcycles and motorcycle simulators.
6. To estimate the safety impact and user acceptance of the prototypes in a series of pilot applications.
7. To develop a Design Guidelines handbook for ARAS/OBIS integration and HMI design for motorcycles.
8. To develop riders training tools for optimal ARAS/OBIS usage.

Parent Programmes:

FP7-ICT - Information and Communication Technologies

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Lead Organisation:

Ethniko Kentro Erevnas Kai Technologikis Anaptyxis

Address:
Charilaou Thermi Road
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Greece

Organisation Website:
http://www.certh.gr

EU Contribution: €424,410

Partner Organisations:

Mira Limited

Address:
WATLING STREET
NUNEATON WARWICKSHIRE
CV10 0TU
United Kingdom

Organisation Website:
http://www.mira.co.uk

EU Contribution: €352,330

Piaggio & C S.p.a.

Address:
Viale Rinaldo Piaggio 25
56025 Pontedera
Italy

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

EU Contribution: €230,520

Fundacion Cidaut

Address:
PLAZA VICENTE ALEIXANDRE CAMPOS 2 PQ TECNOLOGICO DE BOECILLO 209
47151 VALLADOLID
Spain

Organisation Website:
http://www.cidaut.es

EU Contribution: €148,283

Sick Ag

Address:
Erwin Sick Strasse
79183 Waldkirch
Germany

Organisation Website:

http://www.sick.com

EU Contribution: €40,957

Fraunhofer Gesellschaft Zur Foerderung Der Angewandten Forschung E.v.

Address:
HANSASTRASSE 27C
80686 MUNCHEN
Germany

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

EU Contribution: €227,760

Nzi Technical Protection S.l.

Address:
Avenida De La Paz S/n
30510 Yecla
Spain

Organisation Website:
http://www.nzi.es

EU Contribution: €122,760

Universita Degli Studi Di Firenze

Address:
Piazza San Marco 4
50121 Florence
Italy

Organisation Website:
http://www.unifi.it

EU Contribution: €160,200

Universita Degli Studi Di Padova

Address:
Via 8 Febbraio 1848 2
35122 Padova
Italy

Organisation Website:
http://www.unipd.it

EU Contribution: €180,072

Avmap Srlu

Address:
Viale D Zaccagna
54033 Carrara
Italy

EU Contribution: €161,025

Scuola Superiore Di Studi Universitari E Di Perfezionamento S Anna

Address:
PIAZZA MARTIRI DELLA LIBERTA 33
56127 PISA
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Organisation Website:
http://www.sssup.it

EU Contribution: €167,100

Porsche Engineering Group Gmbh

Address:
Porschestrasse
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Germany

EU Contribution: €0

Meta System S.p.a

Address:
Via Majakovskij 10 Bcde
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EU Contribution: €160,000

Europe Recherche Transport

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69675 BRON
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Organisation Website:
http://www.ert-sas.fr

EU Contribution: €33,000

Ibeo Automobile Sensor Gmbh

Address:
Merkurring 20
22143 Hamburg
Germany

EU Contribution: €166,545

Universita Degli Studi Di Trento

Address:
Via Belenzani
38100 Trento
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EU Contribution: €49,376

Institut National De La Recherche Sur Les Transports Et Leur Securite

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94114 ARCUEIL

France

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

EU Contribution: €130,737

Federation Of European Motorcyclist' Associations

Address:
Rue Des Champs
1040 Bruxelles
Belgium

Organisation Website:
http://www.fema.ridersrights.org

EU Contribution: €86,268

Conncept Swiss Gmbh

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4056 Basel
Switzerland

EU Contribution: €0

Institut Francais Des Sciences Et Technologies Des Transports, De L'amenagement Et Des Reseaux

Address:
2, Avenue Du General Malleret-Joinville
94114 Arcueil
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EU Contribution: €110,614

Bundesanstalt Für Strassenwesen (Federal Highway Research Institute)

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

EU Contribution: €106,265

Universita Degli Studi Di Modena E Reggio Emilia

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Organisation Website:
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EU Contribution: €260,627

Yamaha Motor Europe N.v.

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Netherlands

EU Contribution: €155,050

Technologies:

Advanced driver assistance systems
ADAS learning and harm prevention platforms

Development phase: Validation

Key Results:

SAFERIDER project developed and demonstrated the full feasibility and effectiveness of five Advanced Rider Assistance Systems (ARAS) functions. Namely:

- The Speed Alert (SA) provides a warning to the rider if the legal speed limit is exceeded.
- The Curve Warning (CW) function is based on the concept of comparing the actual rider manoeuvre with a safe reference manoeuvre. The safe reference manoeuvre should be a feasible manoeuvre that complies with system dynamics, trajectory constraints and safety criteria in a 'human-like' riding style.
- The Frontal Collision Warning (FCW) evaluates the motorcycle state in order to check whether it is in a safe state. A state is safe if there is an emergency braking manoeuvre that avoids collision whatever the former vehicle(s) does.
- Intersection Support (IS)aims to efficiently warn the rider against possible collisions with fixed or moving obstacles at road intersections.
- Lane Change Support (LCS) is to warn the driver in case a potential lane change is critical in terms of a potential collision.

SAFERIDER developed On-Bike Information Systems (OBIS) that are based on four-wheel vehicles' IVIS and has demonstrated that the OBIS functions implemented and tested are reaching some riders needs. The following for OBIS functions are developed:

- The eCall system is based on the capacity of Powered-Two-Wheelers (PTW) to detect and remotely provide information as the location of a crash or fall.
- Telediagnostics services provide added value for the rider by monitoring constantly the use and functioning conditions of the vehicle.
- Navigation & Route Guidance (N&RG) provides a key function for novice riders and tourist by integrating On-BIKE System and positioning data.
- N&RG: Weather, traffic and Black spot info. This function will integrate the navigation system with weather, traffic and accident data, in order to warn the vehicle occupant about potential dangers along the route.

The pilot tests that were done made it possible to collect a large amount of information and feedbacks from test riders that will be very useful for the next steps.

Strategy targets

An efficient and integrated mobility system: Acting on transport safety: saving thousands of lives

Documents:
Project presentation (Project presentation)

STRIA Roadmaps:
Cooperative, connected and automated transport, Vehicle design and manufacturing

Transport mode: Road transport

Transport sectors: Passenger transport

Transport policies: Safety/Security

Geo-spatial type: Other