SAFESPOT INTEGRATED PROJECT - IST-4-026963-IP

DELIVERABLE

SP2 – INFRASENSE – SP Infrastructure Platform

Interim Report: Specifications for infrastructure-based components

Deliverable No. (use the number indicated on technical annex)		D2.3.1	
SubProject No.	SP2	**SubProject Title**	**Infrastructure Platform**
Workpackage No.	WP2.3	**Workpackage Title**	**Specifications**
Task No.	2.3.1- 2.3.4	**Task Title**	
Main authors/editors		**Matti Kutila, Maria Jokela, Seppo Rantala (VTT) Tamas Lovas, Arpad Barsi (BME)**	
Status (F: final; D: draft; RD: revised draft):		**D**	
Version No:		**4.5**	
File Name:		SF_D2.3.1_Interim Report Specifications for infrastructure-based components_v4.5	
Issue Date:		12/03/2007	
Project start date and duration		01 February 2006, 48 Months	

EXECUTIVE SUMMARY

Although future vehicles will be equipped with a multitude of sensors and information sources, they have perception limits. It is impossible to see behind a curve, to perceive a vehicle hidden by a building or other vehicles, or know that there has been an accident ahead if it is out of visibility range. Therefore extended accident prevention systems require “cooperation” (data exchange) between vehicles and infrastructure. The focus of the INFRASENS subproject is to explore how data can be acquired from the infrastructure, combined with data from vehicles, processed and made available to road users.

The aim of this Interim Report is to present the preliminary work carried out in preparation for full specification of the Infrastructure Platform. It clarifies many technical details and hence offers an initial assessment of the kind of roadside sensors and actuation equipment required and what kind of signal processing algorithms for detection and data fusion will be implemented.

This Report will be circulated among the other subprojects to make available the information and obtain feedback which will be incorporated in the Final Report D2.3.2. Since there are many common interfaces in SAFESPOT, this harmonization process is considered extremely important. The Final Report, to be delivered in July 2007, will form the design plan for the next stage of *Implementation and prototypes*.

In the present report, the following items are presented:

- Roadside sensing. A first assessment of the technical features of the sensing technologies which it is planned to develop.
- Detection algorithms. A state-of-the-art review of the detection algorithms available and an analysis of the development required to permit the integration of vehicle data in order to meet the requirements of the SAFESPOT applications.
- Data fusion. An initial review of the most appropriate approaches for dealing with the data input and ‘feeding’ the detection algorithms.
- Roadside warning systems. An assessment of the characteristics of the devices and the factors which need to be taken into consideration.
- Harmonisation. A common high level functional architecture has been drawn up in order to clarify the main interfaces between INFRASENS and the parallel development work in other technical subprojects.

The report concludes with a list of the next steps to be carried out in order to complete the specification work and thereby permit the definition of the detailed system design and development.

Detailed information on sensor specifications, updated technology capabilities, a Use Case analysis and review of incident detection algorithms are provided in the four Annexes to this report.