

SAFESPOT INTEGRATED PROJECT - IST-4-026963-IP**DELIVERABLE****SP1 – SAFEPROBE – In-Vehicle Sensing and Platform****System Analysis**

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Workpackage No.	WP2	Workpackage Title	Needs and Requirements
Task No.	T1.2.2	Task Title	System Analysis of Useful Data
Authors (per company, if more than one company provide it together)		Main authors: Christian Zott, Sheung Ying Yuen (Bosch), Nikolaos Floudas (ICCS)	
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EXECUTIVE SUMMARY

Today's vehicles are equipped with a multitude of sensors and information sources which contain an enormous amount of knowledge about the vehicle's ego-state (position, speed, course or hazard condition, etc.) and the local environment (road surface condition, lane occupancy, etc.) .

The approach of cooperative systems is to exchange as much data as useful with nearby vehicles and road-side equipment enhancing the awareness of equipped vehicles as well as cooperating infrastructure about emerging safety critical situations.

This deliverable reports about the results of a bottom-up analysis of data and information sources which are commonly available in today's vehicles and are therefore candidate inputs for the in-vehicle platform. The following is provided

- a list of useful data available in-vehicles today structured by 6 data source clusters
- available data *performance* figures and determining / limiting factors with a focus on environmental perception and positioning systems
- total system performance definition proposals
- *usefulness* and importance for expected applications, use cases and scenarios as identified by this SP1 and other SPs so far
- *critical conditions* under which the data performance is known to be degraded or its usefulness questionable (what can go wrong, what is needed e.g. by availability-trees)

These results are expected to

- support the up-coming detailed system design, specification, data selection and algorithm design to be performed in the WP3s of all SPs
- support the invention and specification of cooperative SafeSpot applications and use cases for all SPs
- constitute a kernel for an in-vehicle platform data dictionary or interface control document (ICD) possibly for SafeSpot and CVIS

The performance statements turned out to be often highly dependent on scenario and environmental conditions. Consequently, the detailed system specification needs further in-depth analysis, using simulations of driving scenarios (behaviour of participants and sensors in defined environment). One possibility is to 'quantify' the presented availability tree analysis, i.e. attach probabilities to the availability trees and combine them appropriately.

Of course, total SafeSpot system/application target performance requirements have to be defined at first by SP1-5. Some elements for this task have been already proposed in this report. The ultimate goal is to eventually match the top-down and bottom-up results.