

SAFESPOT INTEGRATED PROJECT - IST-4-026963-IP

DELIVERABLE



SP3 – SINTECH – Innovative Technologies

Mapping Report of known Technologies for Positioning, Local Dynamic Maps and Vehicular Ad Hoc Networks

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EXECUTIVE SUMMARY

The role of SINTECH is to examine the technological requirements of the SAFESPOT project and where necessary develop new enabling technologies to meet these goals.

Previous work by the SINTECH partners presented a number of technical scenarios used to identify the key technical challenges in the development of the SAFESPOT architecture. These scenarios were used to define a set of needs and requirements for the system.

The objective of WP3 is to specify the SINTECH innovative technologies. The final step before doing so is to map the needs and requirements to known (state-of-the-art) technologies. In many cases the final specification will be a composition of several technologies, and where necessary additional development work is identified

This deliverable considers the three main technical tasks of SINTECH separately:

Positioning: Highly accurate and reliable relative positioning is needed to enable the advanced co-operative behaviours required by SAFESPOT. Techniques considered include GNSS-based Positioning (GPS, Galileo), Communication-based positioning (UWB, WLAN, GSM), Image-based positioning (Laserscanner, Landmarks), and the co-operative use of 2 or more technologies.

Local Dynamic Maps: Focuses on extending digital maps to incorporate real-time environmental conditions. Static and dynamic data handling and access functions and location referencing for data exchange are considered the most relevant technologies

Ad Hoc Networks: SAFESPOT requires reliable communications on a vehicle-to-vehicle, and vehicle-to-infrastructure basis. The problem domain is highly dynamic, which demands a very flexible ad hoc routing protocol with minimal overhead. It has been agreed that SAFESPOT will follow the guidelines of the Car-2-Car Communication Consortium but there are several areas that require further development. Channel usage, routing and geo-broadcast protocols in particular are considered here.

Many of the SAFESPOT needs and requirements can be met by one or more state-of-the-art technology. However, several areas have been identified where new technology, or improvements to existing technology, is required. For the remainder of this work package (WP3.3) these areas will be addressed in more detail and a full specification for the SINTECH technologies will be produced.