

SAFESPOT INTEGRATED PROJECT - IST-4-026963-IP

DELIVERABLE



SP3 – SINTECH– Innovative Technologies

*Technical Scenarios Description for
Positioning, Local Dynamic Maps and Vehicular Ad Hoc Networks*

| | | | |
|---|-------|--|-------------------------|
| Deliverable No. (use the number indicated on technical annex) | | D3.2.1 | |
| SubProject No. | SP3 | SubProject Title | SINTECH |
| Workpackage No. | WP2 | Workpackage Title | Needs and Requirements |
| Task No. | 3.2.1 | Task Title | Definition of Scenarios |
| Authors (per company, if more than one company provide it together) | | Achim Brakemeier, DC; Z. Papp, TNO; R. Azaro, CREATE-NET; M. Shawky, CNRS; H. Cramer, TUC; M. Schlingelhof, DLR; M. Provera, G. Carobene, M. Bombaci, CRF; T. Kosilo, IRE_PW; K. Fürstenberg, M. Koehler, IBEO; L. Picerno, MMSE; C. Bartels, TA; C. Zott, Bosch; T. Schendzielorz, TUM; K. Weevers, NAVTEQ; D. Topham, D. Ward, MIRA; | |
| Status (F: final; D: draft; RD: revised draft): | | F | |
| Version No: | | 1.07 | |
| File Name: | | SF_D3.2.1_TechnicalScenarios_v1.07.doc | |
| Issue Date: | | 12/20/2006 | |
| Project start date and duration | | 01 February 2006, 48 Months | |

EXECUTIVE SUMMARY

The definition of technical scenarios is the starting point for the development of positioning, communication and local dynamic map technologies. These innovative technologies will improve the standard technologies with the goal to be

- more precise (e.g. in *Positioning*)
- better informed (with *Local Dynamic Maps*)
- better connected (via the *Vehicular Ad Hoc Network*)

These developments enable the co-operative applications as considered in SAFESPOT. The innovative technologies have a particular impact on SAFESPOT's *Architecture* and **General Topics** (chap. 2) like *Security* and *Dependability* become evident.

For the ***Positioning*** Task (chap. **Fehler! Verweisquelle konnte nicht gefunden werden.**) the focus is on improving *Relative Positions* because cooperative manoeuvres depend on the distances between the vehicles more than on the exact absolute positions. Nevertheless the *absolute positions* are important when locating the positions on a digital map.

Positioning technologies include GNSS-based Positioning (GPS, Galileo), Communication-based Positioning (UWB, WLAN) and Image-based Positioning (Landmarks, Laserscanner). The goal is to find the right balance between the precision of the extracted position and the complexity (and costs) of the required system.

The objective of the ***Local Dynamic Map*** (chap. 4) approach is to extend the state of the art of digital maps to support technologies that detect, capture and analyse the current environmental conditions.

Therefore the Sintech subproject proposes a clear concept of how to deal with the dynamic data that is linked to the static digital maps that are available today. SAFESPOT will enrich map content with safety environmental features and landmarks to support object detection, reflect the map update data delivery chain for the corresponding areas, provide location referencing and data fusion solutions and deliver a data model for dynamic object handling.

The provided results will give a high level of confidence that all actors have the same virtual reality which is tested and verified in SAFESPOT.

The cooperative approach in SAFESPOT overcomes the limitations of autonomous systems by exchanging surrounding data. The ***Vehicular Ad Hoc Network*** (chap. 5) is the medium for exchanging this information. Currently several projects and consortia are co-operating to find a harmonized solution of how to build a VANET.

SAFESPOT will follow the guidelines of the Car-2-Car Communication Consortium, but there are several technical issues which are still unsolved or not decided, including channel and traffic models, channel usage, routing algorithms and geo-cast protocols. Therefore the focus of the *Vehicular Ad Hoc Network* task is particularly on these topics.

