SAFESPOT INTEGRATED PROJECT - IST-4-026963-IP

DELIVERABLE

SP3 – SINTECH – Innovative Technologies

Validation Report for Positioning

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EXECUTIVE SUMMARY

In this report, the results of the evaluation and validation process for the technical task *Positioning* are presented. This task aims to provide an accurate and reliable estimation of a vehicle's position by using all available information, e. g. satellite data, digital maps, and vehicle sensors.

For evaluating the positioning algorithms developed in SINTECH, extensive field tests have been performed in different environments (highway, rural, urban) and different scenarios. The results of the SINTECH approaches are compared to highly accurate reference sensors, which allows a detailed and sound analysis of the results.

The results show that all positioning technologies developed in SAFESPOT provide a significant improvement compared to the state-of-the-art, whereas each of them shows particular appropriateness in certain scenarios. In particular, the results once more show that Global Navigation Satellite Systems (GNSS) alone are not able to comply with the requirements of automotive safety applications – even if they are enhanced by inertial measurements. However, it is shown in this report that especially landmark-based navigation technologies provide a significant improvement in terms of positioning accuracy. Furthermore, it is shown how infrastructure based approaches contribute to the overall performance of the system.

In addition to the quantitative analysis of the positioning results, a comparison to the requirements of the SAFESPOT system is performed. This qualitative assessment shows that many of the requirements can be met by the SINTECH positioning system – even if due to the research character of the developed algorithms, there is indeed room for further improvement.