interACT

Designing cooperative interaction of automated vehicles with other road users in mixed traffic environments

interACT D5.2 Interaction function integration. Demonstrator final version

Work package	WP5: Integration, Testing and Demonstration
Task	**Task 5.1** Basic sensor fusion adaptation **Task 5.2** Application integration **Task 5.3** Set-up, testing and demonstration
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Executive Summary

A basic challenge that emerges when introducing Automated Vehicles (AVs) into a mixed traffic environment is the extension of the traditional two-way human-to-human cooperation (e.g. driver with road user) into a three-way cooperation (e.g. AV, on-board user, road user). To address this challenge, the interACT project develops solutions that aim to improve the following aspects:

- Communication between the AV, the on-board user and other road users, using appropriate HMI elements.
- Control of the AV's actions in an integrated, well-synchronized manner.
- Safety of AV's interactions, by means of self-verification.

To that end, the work that is done in WP5 focuses on the integration of all software and hardware components previously developed in Work Packages (WPs) 2, 3 and 4 into the demonstrator vehicles, together with the respective sensor fusion and adaptation of control algorithms.

This document sheds light upon the integration process, including the implantation of sensors, actuators, processing and Human-Machine interface (HMI) components, power supply and network units and how all the above are orchestrated and controlled in a timely synchronized manner, in order to achieve intuitive, expectation-conforming interactions.

In Chapter 2, the CRF demonstrator vehicle is presented, which includes a Perception platform developed in WP2, the Cooperation and Communication Platform Unit (WP3) and HMI elements of WP4. The procedures of simulation and integration testing are analyzed and preliminary results of the three integration meetings that have taken place in Orbassano, Turin are reported.

Similarly, the installation of HMI elements into the BMW demonstrator vehicle is described in Chapter 3, with a detailed overview of the installation process, functional testing and hardware evaluation, towards the completion that occurred during the integration meeting in Munich.

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