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

interACT D3.2 Cooperation and Communication Planning Unit prototype and accompanying report

Work package	WP3: Cooperation and Communication Planning Unit
Task(s)	Task 3.1: Situation Matching Module Task 3.2: Software module for human-vehicle interaction planning Task 3.3: Software module for execution of human-vehicle interaction Task 3.4: Safety layer for the CCP Unit
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Dissemination level	Confidential (CO)
Status	Final, approved by EC
Due date	30/06/2019
Document date	28/06/2019
Version number	1.0
	*This work is part of the interACT project. interACT has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no 723395. Content reflects only the authors' view. The Innovation and Networks Executive Agency (INEA) is not responsible for any use that may be made of the information it contains.*

Executive Summary

As Automated Vehicles (AVs) will be deployed in mixed traffic, they need to interact safely and efficiently with other traffic participants (TPs). The interACT project is working towards the safe integration of AVs into mixed traffic environments.

In its Work Package (WP) 3, the interACT project aims to develop a novel Cooperation and Communication Planning Unit (CCPU) to enable the integrated planning and control of AV's behaviour, and the provision of time-synchronised Human Machine Interfaces (HMI) for both the on-board user and the other TPs. The goal is to make the behaviour of the AV more comprehensible for other TPs, accelerating communication and traffic flow in the process.

To achieve this goal, WP3 developed the four modules of the CCPU. The *Situation Matching* module identifies the overall situation, in particular other TPs the AV has to interact with. Based on that information, the *Interaction Planning* module develops a plan to comprehensible interact with these TPs. The *Trajectory Planning* module executes that plan and a *Safety Layer* ensures that no dangerous situations occur during the interaction.

The overall system architecture, the components of the CCPU, their implementations and their functionalities are described in this deliverable. First tests on recorded data show promising results.

This report is part of interACT project that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no 723395.

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