INFRAMIX paves the road for automated vehicles

INFRAMIX

Graz /Wien (Austria), 2.6.2017 – The European R&D project INFRAMIX will prepare road infrastructure to support the coexistence of conventional and automated vehicles.

The **INFRAMIX** project has just started: 11 European companies and institutions, leaders in innovation for the automotive and the road sector, gathered in Vienna, Austria, to share and discuss activities and expectations concerning the preparation of road infrastructure for the coexistence of conventional and automated vehicles, i.e. mixed traffic.

Currently, almost all initiatives on automated driving just focus on vehicles and the drivers, but neglect resulting traffic flow implications and the role of road infrastructure.

INFRAMIX main target is to design, upgrade, adapt and test (in simulation and in real-world) both physical and digital elements of the road infrastructure, to enable the coexistence of automated and conventional vehicles, in specific scenarios. This should lead to an uninterrupted, predictable, safe and efficient traffic. The key outcome will be a "hybrid" road infrastructure able to handle the transition period and become the basis for future automated transport systems. To meet this objective **INFRAMIX** will:

- Use mature simulation tools adapted to the peculiarities of automated vehicles (incl. intelligent driving behaviour models) and develop new methods for mixed traffic flow modelling, in order to study the effect of different levels of automated vehicles with different penetration rates
- Establish hybrid testing of real vehicle and digital infrastructure elements embedded into a virtual environment enabling detailed and realistic investigations in a complex but safe virtual traffic
- Develop and implement relevant traffic estimation and control algorithms
- Propose minimum, targeted and affordable adaptations on elements of the road infrastructure, either physical or digital or a combination of them
- Include ways of informing all types of vehicles about control commands issued by the road operator and propose new kinds of visual and electronic signals for mixed scenarios
- Provide a novel infrastructure classification scheme indicating the connectivity and automation capabilities of any specific road infrastructure as well as a guide of how to incrementally upgrade infrastructure to mixed traffic

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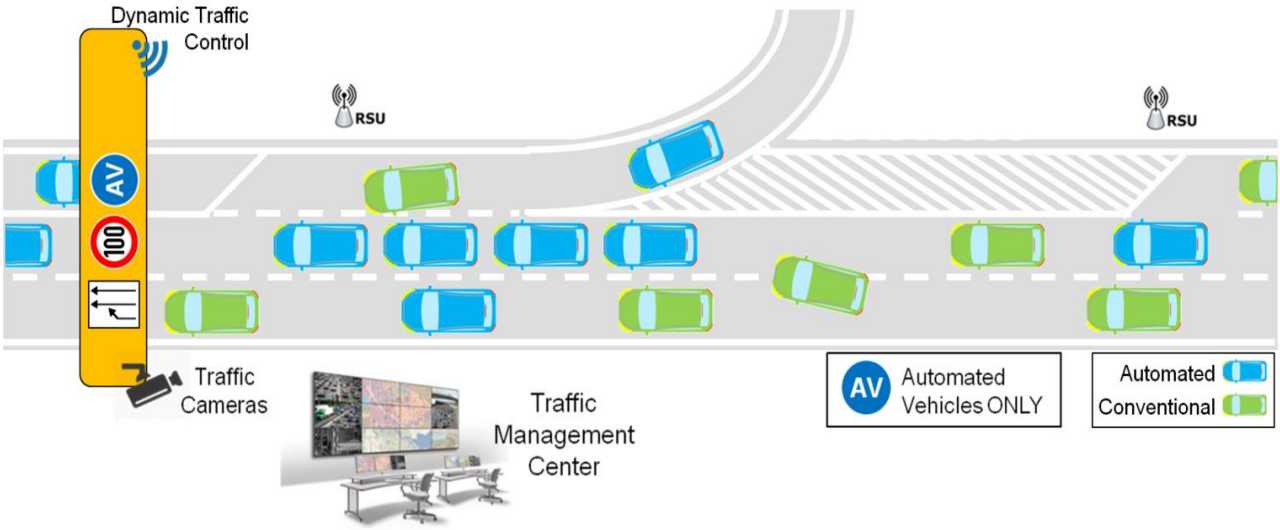
After an in-depth simulation phase, the outcomes will be assessed in real stretches of advanced highways in Austria and Spain.

To achieve its objectives **INFRAMIX** applies a use-case driven approach: it focusses on three crucial traffic scenarios in terms of importance for traffic efficiency and safety: "dynamic lane assignment", "roadworks zones", and "bottlenecks". This is accompanied by a user-oriented process throughout the project to achieve maximum user appreciation. Although **INFRAMIX** is addressing mainly highways, its key results may well be transferred to urban roads.



VIRTUAL VEHICLE pays special attention to the interaction of conventional and automated driven vehicles. For this purpose, a sub-microscopic simulation environment will be developed, which enables the detailed investigation of the driving behaviour in mixed traffic. In addition to the purely virtual development, the impact of infrastructure measures is investigated by **Hybrid Testing**.

Hybrid Testing means that a real vehicle is embedded in virtual mixed traffic scenarios. According to the traffic management strategies, driving strategies can be transferred and automatically implemented to the real vehicle. Beside the investigation of the vehicle-infrastructure interaction, hybrid testing gives the possibility of demonstrating the connected and automated driving in mixed traffic situation.

VIRTUAL VEHICLE also brings in the **GMHP** architecture (Graz Model Human Processor), a process architecture for human cognition, perception, and action and its adaptation to different driving tasks. The architecture is based on existing theories and models in cognitive psychology as well as compatible driving models. The **GMHP** will be embedded into the simulation environment for virtual testing of human-centred applications.

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Project Factsheet

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