

PROJECT

RoadCon

Reference value assessment for road condition in real transport

Referenzwertermittlung für Straßenzustand im Realverkehr

Funding: National (Austria)

Duration: Sep 2016 - Feb 2018

Status: Complete



Background & policy context:

In all driving situations, it is the driver's responsibility to adapt the driving style to weather and road conditions. For autonomous driving vehicles and for highly automated driving functions, this responsibility is transferred to the system, which has to be able to estimate the current road condition in order to plan required interventions for steering, driving or braking. Information on the current road condition must therefore be available in time and with sufficient accuracy within the system to fulfil the required trajectory planning and stabilisation tasks for the automated driving functions. Due to the high importance of the road condition on vehicle safety, research on identifying the maximum tyre-road friction coefficient during driving has been conducted for several decades so far. However, reproducibility and accuracy of results, as well as costs of the proposed methods have still been a limiting factor. Thus, none of the methods proposed in literature have been able to overcome an early prototype status.

Objectives:

As part of the proposed project, a reference value of the current road condition will be determined to develop, optimize and validate methods for maximum tire-road friction estimation which can be used for real-time applications in automated driving functions. In addition, realistic driving data will be gathered which will be obtained in real traffic situations (no test track manoeuvres) and under realistic weather and road conditions. This data shall serve as a database for the development of the aforementioned real-time applications.

The proposed feasibility study will determine the accuracy and robustness of a reference value of the road conditions determined with the proposed method. To obtain an accurate reference value, on one hand knowledge of vehicle and tire properties is required. On the other hand, the observation of parameters which affect the tyre-road interaction in a crucial way is required. These parameters may vary during several operations of the vehicle (e.g. payload) or during one drive (e.g. road slope, longitudinal velocity). With the results of the proposed project, it will be possible to conduct further research projects. The scope of these potential projects strongly depends on the outcome of this research project and may vary from projects with small companies and niche applications to projects with automobile manufacturers (OEM).

Parent Programmes:

[MOTF - Mobility of the Future](#)

Institute type: Public institution

Institute name: FFG - Die Österreichische Forschungsförderungsgesellschaft

Funding type: Public (national/regional/local)

Other programmes: MdZ - 6. Ausschreibung 2015

Lead Organisation:

Technische Universität Graz Institut Für Elektrische Sensorsysteme

Address:

Rechbauerstraße 12

8010 Graz

Austria

Technologies:

Road and traffic management systems

Road conditions data analysis

Development phase: Research/Invention

STRIA Roadmaps: Infrastructure

Transport mode: Road transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Safety/Security

Geo-spatial type: Other