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Database for data collection: evaluation format and common data set for future research (Abstract)

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Document information

Authors

Francesco Bellotti – Università degli Studi di Genova
Riccardo Berta – Università degli Studi di Genova
Alessandro De Gloria – Università degli Studi di Genova
Ahmad Kobeissi – Università degli Studi di Genova
Nisrine Osman – Università degli Studi di Genova
Eduardo Henrique Arnold – University of Warwick
Sajjad Mozaffari – University of Warwick
Mehrddad Dianati – University of Warwick

Coordinator

Aria Etemad
Volkswagen Group Innovation
Hermann-Münch-Str. 1
38440 Wolfsburg
Germany

Phone: +49-5361-9-13654

Email: aria.etemad@volkswagen.de

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Summary

The Consolidated database (CDB) aims at sharing data from all the pilot sites, in order to answer the project-level research questions, especially, but not exclusively, those concerning the high-level impact, and traffic and technical assessment. Data provided to the CDB by the vehicle owners/selected partners are pseudonymized, filtered and aggregated, in order to extract performance indicators useful for the analysis by L3Pilot sub-project SP7 partners. This realized an important trade-off between the conflicting needs for confidentiality of proprietary data and for sharing data within the consortium, to allow an overall assessment of the impact of L3 automatic driving functions.

We implemented a set of Matlab scripts that extract the CDB performance indicators by processing the vehicle signal time series that were preliminarily translated in the Common Data Format from the original proprietary format. For the data storage, we designed a custom installation of Measurify (formerly, Atmosphere), an open-source RESTful application programming interface (API) dedicated to the management of Internet of Things measurements. Measurify is implemented in NodeJS and relies, as the underlying database management system, on MongoDB, a state-of-the-art nonrelational database, with excellent flexibility and scalability.

CDB data upload and download is optimized through a dedicated tool aimed at minimizing bulk data transfer. Analyst users can also make more specific queries to the CDB through a simple interface available through Internet browsers.