Forschungspraxis

Automatic Generation of an Infotainment Data Access Layer for In-Vehicle Data Collector

Modern vehicles boast advanced infotainment systems, delivering a range of services encompassing entertainment, navigation, comfort, and connectivity. These applications require extensive real-time data, necessitating efficient and reliable data processing from vehicle sensors and control units. With every vehicle launch and OS release, new sensors and APIs are introduced, which serve as important data points for high-level analytics and applications. Currently, these changes must be monitored and integrated manually, which is a demanding task prone to errors. The objective of this internship is to develop tools that automatically generate a data collector access layer for the platform APIs in every major OS release. This is done by analyzing the available APIs, followed by the creation of a data dependency tree based on the JSON format. An appropriate graph reduction algorithm is then applied to generate a data structure with minimum edge dependencies while preserving analyzability of the data points. An appropriate lookup schema is then created based on the reduced data points, which calls the requested API based on the supplied configuration. Python and C++ are the languages used within the scope of this project.

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