AutoSM — Optimized Vehicle Assistance

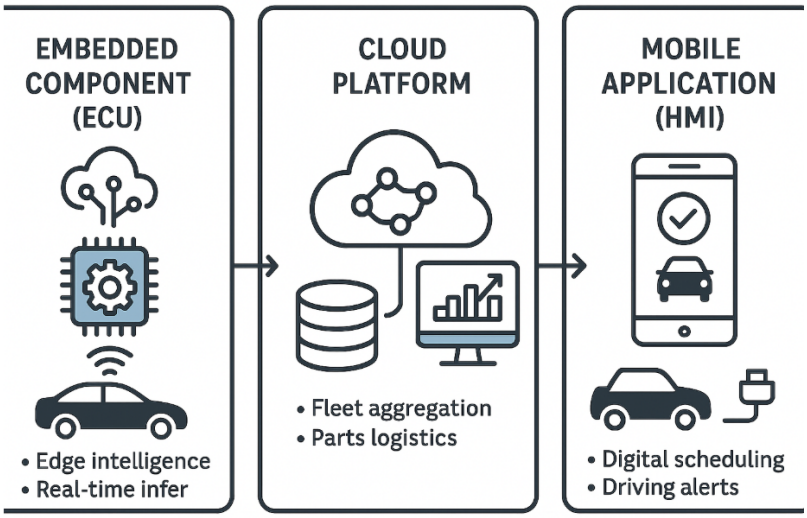
1. Overview

Optimized Vehicle Assistance (AutoSM) is an RD&I initiative of LISHA, Stellantis, Mobilis, IAV, Trackli, and Mobway, sponsored by Program MOVER. The project's main goal is to develop a set of software components around vehicle technical assistance, including advanced predictive maintenance, intelligent diagnostics, and HMIs for diagnostics (with gamification to improve vehicle's health) and workshop appointment scheduling.

1.1. AutoSM Architecture

The project's architecture is defined by two synergistic software components that will be developed as reusable subsystems for predictive maintenance:

- HMI & Gamification: An Android application for smartphones. It connects to the vehicle (via ECU or a legacy OBD-II adapter) to provide drivers with clear diagnostics, a gamified interface to encourage vehicle-health-conscious driving, and a direct link to the digital check-in and scheduling process.
- Intelligence Core (Edge/Cloud): This is the analysis backend.
  - The Edge (ECU) component runs lightweight AI models for real-time anomaly detection.
  - The Cloud component aggregates data from the entire fleet, runs complex, long-term prognosis models (e.g., Remaining Useful Life), and integrates with partner ERP systems to optimize parts logistics and service scheduling.



2. AutoSM Consortium

The Software/Hardware Integration Lab (LISHA) at UFSC is the proposing ICT, with over 30 years of experience in embedded systems and R&D with the industry. LISHA will lead the development in close collaboration with the partners.

Stellantis is a constellation of 14 iconic automotive brands. As an automaker partner, Stellantis will provide access to data, vehicles, and technical expertise for the validation of predictive maintenance use cases.

Mobilis Veículos Elétricos is the second automaker partner. Like Stellantis, Mobilis will provide access to data, vehicles, and

technical expertise to validate the project's use cases.

IAV do Brasil is the consortium's systems provider ('sistemista'). IAV will contribute its expertise in instrumentation and embedded systems development.

Trackli is a startup partner and connectivity specialist. Trackli will support the integration and standardization of data, ensuring the solution's industrial applicability.

[https://www.mobway.cloud/|Mobway] is a Brazilian startup that maintains a vehicle data platform connected to automakers. As a connectivity specialist, Mobway will support the integration and standardization of data for the project.

3. Related Projects

- Auto5G — Intelligent Vehicle Telemetry and Supervision System
- AutoDL — Secure and Privacy-Aware Data Lake
- AutoSF — Responsible and Intelligent Fleet Management
- SmartData on Wheels — a Safe and Secure Runtime Support System