



Data Harvesting Innovative and Intelligent Data collector for In Vehicle ADAS/AD systems

Accelerate. Automate. Innovate.

The huge amount of data generated every day by each Vehicle and ever-increasing fleet of Vehicles poses huge data management challenges to OEMs, so the smart self-learning ways of efficient data collation gains significance. The need for efficient data collation has become increasingly critical in this context, prompting the development of Wipro's Data Harvesting solution.

has been the motivation for Wipro's Data Harvesting solution. It is designed to address the complex data management challenges faced by OEMs. By leveraging smart, self-learning methodologies, the solution aims to streamline the process of collecting and organizing data from vehicles.

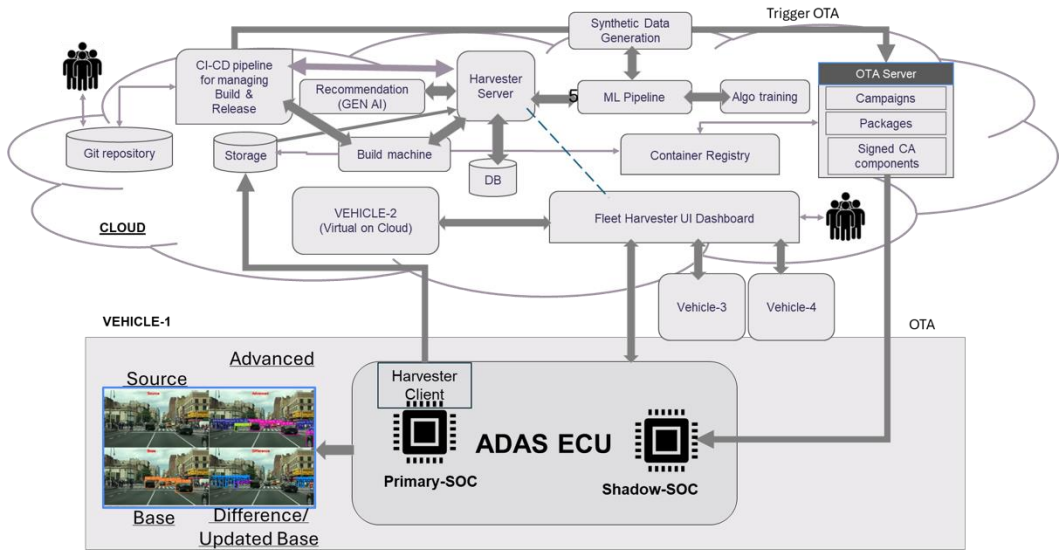
Wipro's Data Harvesting solution

Wipro's Data Harvester framework is the cutting-edge solution for intelligent data collection from vehicles. This innovative framework enables the extraction of selective in-vehicle data snapshots, which can be seamlessly sent to the cloud or on-premises.

By aggregating snapshot data from the entire fleet, the Data Harvester continuously enhances in-vehicle features. Leveraging Generative AI, it augments the training dataset and performs verification and validation (V&V), with improved features and algorithms deployed back to the fleet via over-the-air (OTA) updates.

Solution overview

The solution leverages shadow (redundant) SOC in the ADAS ECU, where the primary (i.e. In use) SOC will be running ADAS functionalities from sensing-perception-path planning-control, while the redundant SOC will be active during fail safe over. The redundant compute (CPU + GPU) can be leveraged to run bigger models with high accuracy to detect anomalies between primary and secondary sensing.



Key Workflow

Anomaly detection in shadow Mode:

An advanced perception algorithm running in shadow ECU identifies new objects or anomalies during vehicle operation, that could not be identified by Primary algorithm. The data snapshot is not limited to Camera, would support different type of data sources



Anomaly Collate and Upload to Cloud:

The Harvester Client notifies the server running in the Cloud and uploads anomaly snapshot (video, images, metadata) to cloud storage. The data is collected from entire fleet of Vehicles



OTA Deployment:

Improved models are packaged and deployed back to vehicles via OTA updates



Train primary ML model using Anomaly data & Validate

Collated data is split into training/test sets and fed into ML pipelines for model enhancement and synthetic data generation. Validate trained model using simulation scenarios

Business Benefits



Bandwidth Optimization

Eliminates need for raw sensor data transmission, reducing cloud costs



Reduces manual labelling

Auto labelling integrated in the MLOps saves huge effort of manual labelling



Scalable Intelligence

Aggregated fleet data enhances feature accuracy and responsiveness across all vehicles



Accelerated AI Model Improvement

Enables continuous learning through cyclic AI loops, improving perception and decision-making models with real-world data

Salient Features



Cloud Agnostics implementation (Implemented for AWS, NVIDIA AI Enterprise)



Policy-Based Configuration of anomaly data source



Supports standard ML pipelines



Synthetic Data Generation, Auto labelling



Simulation based validation of trained model

Contact automotive.solutions@wipro.com today for a Demo to learn how Wipro's Data Harvester can accelerate your AI-driven vehicle intelligence



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