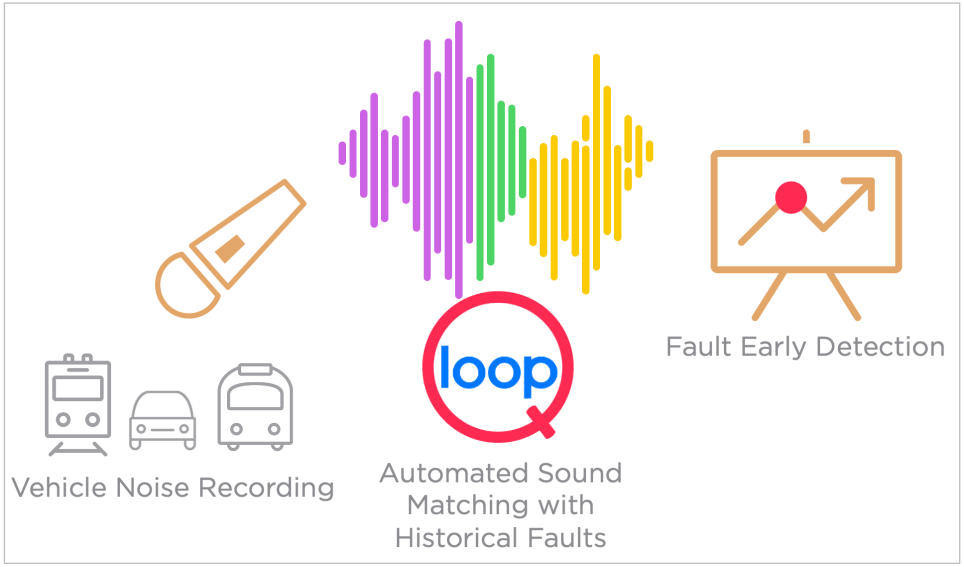
PREDICTIVE MAINTENANCE USING VEHICLE SOUND



BUSINESS CHALLENGE

The client successfully enhanced their Condition-Based Maintenance system by integrating sound sensors to detect anomalies from the vehicle. While the previous CBM approach, relying on common sensors, was limited to specific devices, the new sound sensor technology provided a more comprehensive data set when combined with structured sensor data. Internal research had shown that changes in vehicle sounds could signal underlying issues before they escalated into major problems. With the implementation of this cognitive application, the client achieved a more holistic approach that enabled earlier detection of defects, allowing proactive intervention before issues became critical.

COGNITIVE SOLUTION

The cognitive application uses the Loop Cognitive Platform to analyze subtle sound patterns and “sound fingerprints” from vehicles, including frequencies beyond human hearing, to detect early mechanical issues and enable proactive maintenance.

Dark data used for training:
Sound and sensor data gathered from vehicles with identified faults.

Dark data used for inference:
Sound and sensor data gathered from vehicles.

Industry: Automotive

LEADING AUTOMAKER

A leading automaker with a global network of dealers in 53 countries, producing and selling 5 million automobiles and commercial vehicles annually across multiple brands.

RESULTS

- Successfully detected a wide range of issues for each vehicle model at a significantly earlier stage than with other types of sensors.
- Reduced the time required to resolve root problems on the production line.
- Prevented customer disruptions.