FUTURE-PROOFING CONNECTED VEHICLES

WE ADDRESS ALL FOUR STAGES OF VEHICLE SOFTWARE HEALTH

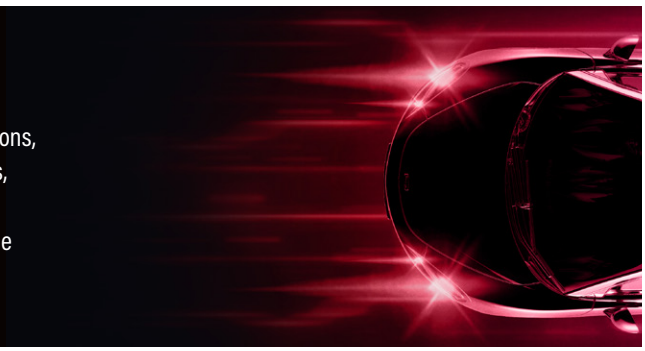
Continuous user-centric development processes create a plethora of opportunities and risks for vehicle manufacturers that never existed before. Our revolutionary In-Vehicle Software Management solution detects line-of-code faults to predict downtime events, fixes errors on-the-go to provide a safety-net for new software releases, enables reliable and cost-effective rollouts of new automotive features to all ECUs in the vehicle without any downtime for the user and validates changes to the software to facilitate homologation.

Aurora Labs' Line-Of-Code Maintenance™ technology is the foundation of its In-Vehicle Software Management solution. Using machine learning algorithms to uniquely address all four stages - detect, fix, update and validate - of a software health solution, Aurora Labs future-proofs the next generation of software-driven automotive features.

Aurora Labs is paving the way for the age of the self-healing car.

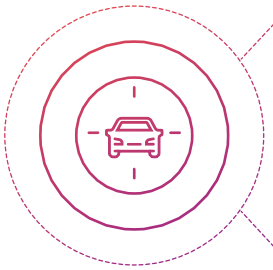
LINE-OF-CODE MAINTENANCE™ TECHNOLOGY

In an era where software platforms are driving growth and line-of-code malfunctions, either malicious or incidental, are causing major recalls and downtime to vehicles, Aurora Labs' researchers have developed a machine learning based technology for embedded software. Aurora Labs' Line-of-Code Maintenance™ technology is the foundation of our In-Vehicle Software Management solution:



AUTO DETECT

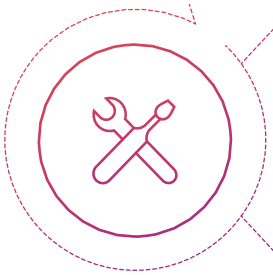
Auto Detect proactively analyses the health and performance of lines-of-code deployed on Automotive ECUs. Auto Detect runs in the background of the operational ECU, analyzing the code behavior and health to identify faults at the code level and predict the probability for a downtime event - enabling the OEM to be proactive.



- Machine learning based
- SW ECU drifting catcher
- SW ECU deviation catcher
- SW ECU downtime probability alert
- Supports AutoSAR, Linux, Android and RTOS
- Less than 3% ECU overhead
- Cloud based management and reporting

AUTO FIX

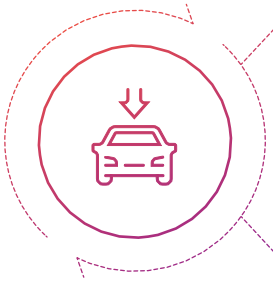
Auto Fix rolls back software to the last known secure, functional and certified line-of-code safe point without requiring dual memory or connectivity. When a downtime event is recognized, Auto Fix recovers the software in real time ensuring the car continues to run smoothly.



- Instant rollback
- Zero downtime
- No reprogramming required - Clientless
- Doesn't require dual banking
- Doesn't require additional OTA update campaign
- Doesn't require network connectivity

AUTO UPDATE

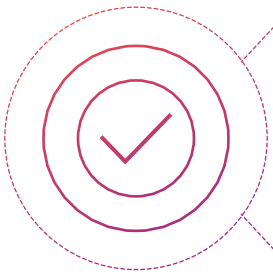
OTA Update software to close the loop with a clientless hot update solution for zero downtime. Auto Update uses a revolutionary DIFF OTA Update – providing a clientless solution for updating any and all ECUs using standard protocols with zero-downtime and without dual memory. Our 3D-Diff™ algorithm creates the industry's smallest update files and the clientless solution uses standard programming protocols to remove the need for integration on the target ECU.



- Clientless - no changes to bootloader
- Diff files are standard bin, Intel-Hex or S-record
- No changes to current software distribution channel
- Significantly smaller than bsdiff and other Diff technologies
- Delta update without memory reprogramming, or dual memory
- Supports AutoSAR, Linux and RTOS on all ECUs – 8bit and up
- Less than 3% ECU cycles and less than 1% memory footprint

AUTO VALIDATE

Auto Validate creates a HASH signature of functionality relationships to prove which code has been affected by the update for Type Approval in accordance to UNECE WP29. Auto Validate provides evidence that bug-fixes\cyber-security patches have not added additional functionality - proving that new Type Approval is not required; and clear evidence of which software functions have been affected by new functionality, and which have not – enabling a continuous dynamic Type Approval process.



- Dynamic code coverage
- Runtime software mapping
- Maps dependencies in-ECU and between ECUs
- Supports Android, Linux, AutoSAR and RTOS
- Less than 3% ECU cycles and less than 1% memory footprint

AURORALABS

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