INTEGRATED ADAS & CLOUD-BASED ANALYTICS

Is your ADAS really safe?

Today's ADAS sensing systems, be it radar, cameras, lidar, etc. are well designed to assist today's drivers. However, with limited development time and the need to function flawlessly in an ever-changing environment, how can an OEM or Tier 1 ensure that their safety system is working properly? Even with extensive validation testing, hardware ASIL certification, and Automotive SPICE processes in place, nobody can guarantee that today's system will mitigate an accident in the future. HARMAN has the solution and OTA architecture to monitor, discover, and address rare failures after SOP, and can help certify feature functions to the desired ASIL level A, B, C, or D.

The independent watchdog of ADAS

Connected ADAS is designed to detect those rare failures that are almost impossible to find during development due to limited time, resources, and miles driven. With Connected ADAS, HARMAN provides a tool to monitor production vehicles in the field, allowing our customers to monitor their ADAS system over billions of kilometers. With Connected ADAS, the automotive community can learn from each other as we all work toward finding a safe and secure way to enable autonomous driving.

For better sensing and understanding the activity and environment around cars and thus protecting the passengers in the vehicle as well as other road users, HARMAN is focusing on integrating various forms of camera-vision-based solutions. Lane departure warning, pedestrian detection, camera-based navigation and 360° surround view are all part of LIVS. For increased protection, HARMAN's Service Delivery Platform is utilized to store historical road information to warn drivers on varying road conditions.

HARMAN LIVS

HARMAN's Life-Enhancing Intelligent Vehicle Solutions (LIVS) use an end-to-end approach by integrating the in-car computing platform with the cloud platform.

SCALABLE | Compute Platforms
Tailor-made for the needs of automakers and vehicle segments

CONNECTED | Modular Connectivity
Ready for delivering connected services – enhancing efficiency, productivity, and entertainment

SAFE | ADAS & E-Horizon
Monitoring and assessing the surroundings of the entire vehicle and beyond line of sight

SECURE | 5+1 Security Architecture
Full protection for the driver and the vehicle, OTA (over-the-air) updateable

Key highlights

An end-to-end solution to measure and improve the efficacy of ADAS systems and get ready for autonomous driving

- Collect data of surprising events in vehicle
- Upload to HARMAN cloud
- Identify potentional problems
- Report to OEM and/or Tier 1's
- Provide software update or "band-aid"

WWW.HARMAN.COM

Features and benefits

Big Data:
Improved Development
- Maximize data utilization from production vehicles
- Enhanced learning beyond start of production
- Continuously adapting to changing environment

Early Failure Detection
- Monitor ADAS features real-time
- Upload CAN data and triggered video for event analysis
- Automated offline evaluation of ADAS events
- ADAS Aha report with failure, location, weather, etc.

Warranty Cost Reduction
- Discover issues early to minimize warranty claims
- Utilize event data to clearly understand failure and root cause

ASIL Proven in Use Data
- Builds toward proven-in-use claim toward autonomous driving
- Production data supports desired ASIL Level for ADAS features

Cost Saving
- Collect data over billions of kilometers driven in the field at a small fraction of the cost of data collected during development

Up-to-date
- Drivers always enjoy latest applications and services

Vision-based ADAS
- Integrates various forms of camera-vision-based solutions: lane departure warning, pedestrian detection, camera-based navigation and 360° surround view
- Utilize HARMAN's Service Delivery Platform to create dynamic map layers on top of standard based maps to warn drivers on varying road conditions

An industry expert as partner

HARMAN is the market leader in connected car solutions for the world's automakers. HARMAN's innovative and highly integrated infotainment technologies offer automakers the most extensive solutions for advanced navigation, intuitive user interfaces, integrated audio, device connectivity, cyber security, and connected safety, just to name a few. From Boston to Berlin to Bangalore, HARMAN is delivering a dynamic in-car experience for an increasingly connected world.

Visit our website at **www.harman.com**

HARMAN