



AUTOMOTIVE SWS

Endpoint Al-enabled Solution

The passive sound field provides information about the environment around a vehicle that can be invisible to traditional ADAS line-of-sight sensing solutions. Renesas Automotive Seeing with Sound (SWS) finds and locates these targets even at a distance or around corners.

The AI technology for Automotive SWS provides early warning of emergency sirens, oncoming vehicles and other sound sources to augment existing autonomous driving and ADAS systems. This endpoint AI-enabled solution combines machine learning and edge processing in the Renesas RH850 family of MCUs and R-Car SoCs, utilizing acoustic sensors to allow a vehicle to drive more safely.



Features/Benefits

Block Diagram

- Augments existing ADAS/AV systems with an additional sense modality
- Signal detection, classification, and tracking
 - Capable out to 1 kilometer
- Compile for Renesas MCU of choice
- Utilizes lowest processing footprint and memory in the industry

Target Applications

As vehicle systems advance, they bring with them the need for AI-enabled solutions to help bridge the gap from how we drive today to a totally autonomous environment.

- Automotive use cases
- Emergency vehicle detection
- Blind spot detection
- Autonomous emergency braking
- Pedestrian / cyclist avoidance
- Cyclist dooring prevention
- Pavement conditions / terrain detection

Hardware Reference Design		Firmware	
Sensor Components & Mounting Locations		Data Acquisition	
Processor & Supporting Electronics		Signal Processing	
Communications & Interfaces		Output & Communications	
	Machine Lear	ning	
Sound Detection	Sound Classification		Sound Localization
Data Collection,	Model Construction a	and Validation	Process Support

For more details, please visit: renesas.com/sws

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