Technology Overview

DENSO

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DENSO and Human Machine Interface R&D

--Medical Meets Automotive--

- DENSO International America (DIAM) created a team of people, located in Southfield, Michigan to research and develop Human Machine Interface (HMI) solutions that are safe and convenient for drivers.
- Called Elevate Lab, the R&D team is made up of engineers, designers and researchers who take a holistic system approach to solving some of the industry's biggest issues, like driver distraction and teen driver dangers.
- Elevate Lab is working to assess and develop an objective method to measure driver workload - the amount of physical and mental tasks a driver is handling at a given time.
- DENSO is doing a real-time check-up of a driver's physiology by looking at their eye movements, heart rate, and even their skin to understand how stressed they are behind the wheel
- A driver's "stress" is impacted by what's happening both inside and outside of the vehicle.
- DENSO believes we can use technology to help alleviate that stress and keep the driver safe

DENSO's HMI R&D Goal:
With this research, DENSO's goal is develop a HMI electronic control unit. This technology will manage and connect all the sensors and hardware in the vehicle, while "knowing" what impacts the driver INSIDE (technology, passengers, driver stress) and OUTSIDE (weather, traffic, pedestrians, etc.) the vehicle The ultimate goal of the HMI electronic control unit is **autonomous drive**.

AHEAD Consortium:
Last year, DENSO helped launch a new consortium called the Advanced Human Factors Evaluator for Automotive Distraction (AHEAD). AHEAD is made up of a team of automakers, academia and suppliers who are working together to develop a method for objectively measuring driver workload.

Honda R&D Americas, Inc., Subaru Research & Development and Jaguar Land Rover have joined the program as initial partners, and discussions with other global automakers and portable electronics suppliers are ongoing.

The goal of AHEAD is to create a quantifiable objective evaluation toolkit that will be useful across the industry for supporting new HMI development; and, one that will improve the effectiveness and reliability of data, helping manufactures and portable electronics suppliers offer intuitive, convenient and safe interfaces to the consumer while more effectively meeting industry and governmental guidelines.

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