

News Release

FOR IMMEDIATE RELEASE

Hitachi Automotive Systems develops technology for high-precision trajectory tracking for safe autonomous driving on public roads

Tokyo, October 11, 2019 --- Hitachi Automotive Systems, Ltd. today announced the development of vehicle control technology that can accurately track vehicle trajectory even in instances where a sharp steering angle is required such as in narrow streets and parking lots, or where a sharp turn is necessary in order to avoid collision with other vehicles, pedestrians, or objects that may suddenly appear. Utilizing data collected by stereo cameras and radars and processed by the AD/ADAS*1 ECU*2, this technology is a further step towards the realization of autonomous driving vehicles.

Unlike on expressways, autonomous vehicles driving on public roads must make sharp turns with a tight turning radius in places such as narrow, intricate roads or parking lots, while avoiding other vehicles, pedestrians, or objects in the path ahead. Previously however, there have been issues with the actual travel path of the autonomous vehicle deviating from the target trajectory when making a tight turn within a confined space or to avoid collision, despite the vehicle receiving driving commands based on sensory information from the driving environment in front of the vehicle. This has caused difficulties in developing safe autonomous driving.

This new technology does not simply rely on information of the driving environment from the front of the vehicle. Instead, by using information that is temporarily stored in the ECU, a trajectory is determined using past points to the present point, creating a line (trajectory). This enables a highly accurate tracking of the target trajectory.

Furthermore, until now accuracy and safety could be compromised due to a delayed response from the actuator or vehicle when the actuator moves to adjust to the target trajectory. However, with this new technology, the ECU calculates a simulation of vehicle movement, with predicted responses of the actuators and vehicle to correct delays, further improving the accuracy of the travel path and enhancing vehicle safety.

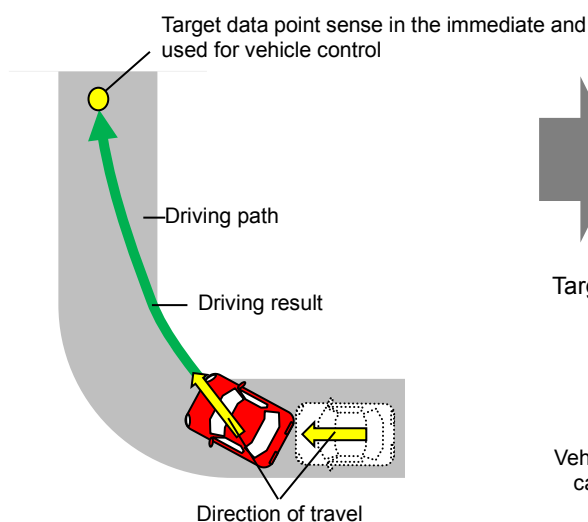
The Hitachi Group will continue to actively pursue the development and deployment of devices and solutions that contribute to the practical implementation of autonomous driving vehicles and connected cars.

*1 AD/ADAS: Autonomous Driving/Advanced Driver Assistance System

*2 ECU: Electronic Control Unit

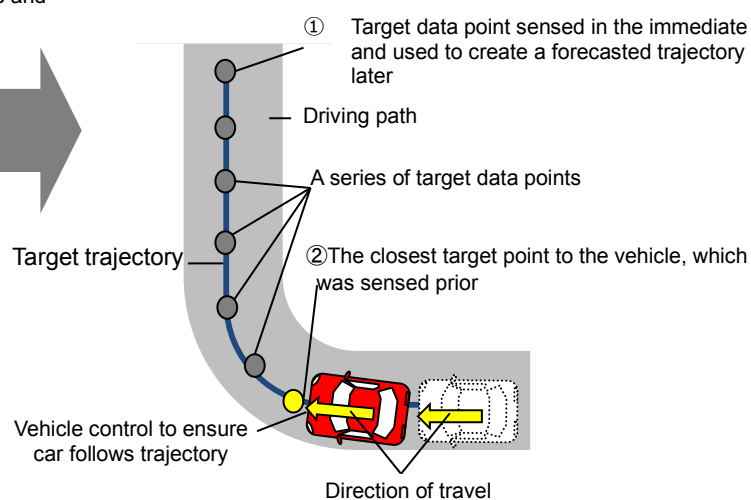
Conventional Technology

Data of the driving environment in front of the vehicle is used for vehicle control, which can result in the actual travel path deviating from the target trajectory, making safe driving difficult.



New Technology

By storing targeted data points identified in the present and immediately prior by sensors, a trajectory is forecast which the vehicle can follow accurately.



About Hitachi Automotive Systems, Ltd.

Hitachi Automotive Systems, Ltd. is a wholly owned subsidiary of Hitachi, Ltd., headquartered in Tokyo, Japan. The company is engaged in the development, manufacture, sales and services of automotive components, transportation related components, industrial machines and systems, and offers a wide range of automotive systems including Powertrain Systems, Chassis Systems and Advanced Driver Assistance Systems. For more information, please visit the company's website at <http://www.hitachi-automotive.co.jp/en/>.

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Information contained in this news release is current as of the date of the press announcement, but may be subject to change without prior notice.
