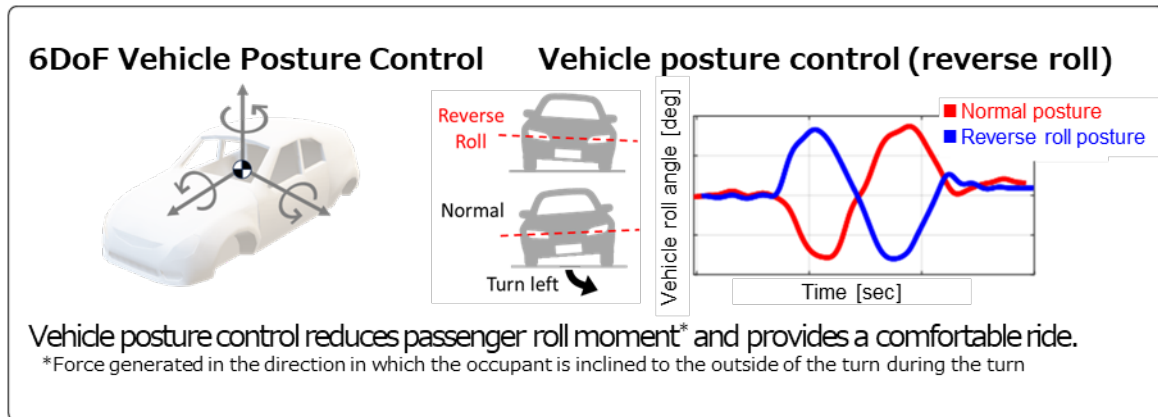


News Release

FOR IMMEDIATE RELEASE

6-degrees-of-freedom vehicle posture control technology under development enables comfortable ride for autonomous vehicles



6-degrees-of-freedom vehicle posture control technology

Tokyo, October 24, 2023 – Hitachi Astemo, Ltd. (“Hitachi Astemo”) has developed a prototype technology enabling six-degree-of-freedom (DOF)^{*1} vehicle posture control, which overcomes ride comfort issues unique to autonomous vehicles while providing a comfortable ride.

^{*1} Rotational and acceleration motion in the front-back, left-right, up-down directions during vehicle travel

Autonomous vehicles are increasingly needed to address societal issues, such as easing traffic congestion, and assisting the mobility of disadvantaged drivers including the elderly. For Level 4+ autonomous vehicles, which are expected to see widespread adoption in the future, the needs will become more sophisticated, such as consumers expecting vehicles to be as comfortable as their own living room. When people operate vehicles, they can drive to minimize passenger discomfort during acceleration, or swaying from road bends, while also factoring the number of occupants. However, with current autonomous driving technology, the highest priority is placed on avoiding contact with other vehicles, leading to abrupt steering and speed reduction. This in turn leads to uncomfortable shaking and momentum shifts for occupants, resulting in motion sickness and other ride comfort issues.

Hitachi Astemo develops Dynamics planning^{*2}, a high-precision trajectory planning technology to minimize uncomfortable shaking and acceleration from autonomous driving and advanced driver assistance technologies. The company has also developed a 6-DOF vehicle posture control technology that suppresses uncomfortable swaying during vehicle turning and acceleration/deceleration.

^{*2} Hitachi Astemo develops "Dynamics Planning"

A high-precision vehicle trajectory planning technology that improves cabin comfort in autonomous driving

<https://www.hitachi.com/New/cnews/month/2021/05/210525a.html>

For example, when a vehicle turns right, an acceleration force is applied to the left side of the vehicle, causing that side to sink and tilt, called a roll. To prevent passengers from feeling discomfort, the technology rolls the vehicle in the opposite direction to compensate, reducing the acceleration force on the passengers while achieving a comfortable ride—and approaching the comfort of your own living room.

Hitachi Astemo is committed to technological innovation and business development for sustainable growth through strategic business operations comprised of the Electrification Business Management Division, the Chassis & ICE Management Division and the Motorcycle Business Division. Hitachi Astemo will contribute to a better global environment with electric

powertrain systems and highly efficient internal combustion engine management systems that reduce emissions, and improve safety and comfort with autonomous driving, advanced driver assistance systems and advanced chassis systems. Hitachi Astemo will contribute to a sustainable society and improved quality of life by providing world-leading advanced mobility solutions that satisfy our customers.

Company Profile

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Business: Development, manufacture, sales and service of machinery and equipment and systems for automotive parts and transportation and industrial use

For more information, please visit the Hitachi Astemo website:

[\(https://www.hitachiastemo.com/en/\)](https://www.hitachiastemo.com/en/).