Provide Safety, Security, and Comfort

Towards the solution of traffic issues via autonomous driving technologies – bringing together core Mitsubishi Electric technologies

Traffic accidents and traffic congestion are responsible for enormous economic and social losses. In Japan, where a declining birthrate and an aging population are seeing accidents caused by elderly drivers becoming a social problem, these are urgent issues. The Mitsubishi Electric Group is working to realize high-precision autonomous driving systems through the fusion of two technologies: self-sensing driving technologies and network-based driving technologies.

Autonomous driving mechanisms and the Mitsubishi Electric Group technologies that support them

Self-sensing driving technologies

Onboard sensors and vehicle control technologies

Network-based driving technologies

High-precision 3D maps

High-precision positioning data

Road status data

VOICE

In seeking to realize autonomous driving systems, in addition to considering the safety, security and comfort of passengers, I believe that it will also be important to realize vehicle control that is able to reproduce natural driving, operating the vehicle as an experienced driver might. This would further boost the sense of security and the comfort of the passengers. Given this, Mitsubishi Electric is advancing development that will enable us to integrate self-sensing driving and network-based driving with a high degree of sophistication. We are engaging in a process of trial and error in order to ensure reliability in actual road environments by means of tests on public roads using our experimental vehicles.

Changes in the environment of the domestic and overseas automotive industry are accelerating, and one of the demands on us is to further advance and distinguish driver assist and autonomous driving technologies. Against this background, it is my goal to make our automotive society an even more appealing one through the advanced technologies that only Mitsubishi Electric is able to realize.

Mitsubishi Electric Group CIR Report 2016

Fumiaki Kadoya

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Technological synergy × open innovation: blazing a path to the future

In October 2017, we formed a partnership with Holland’s HERE Technologies. By bringing together HERE’s global high-precision maps and cloud-based position data services and Mitsubishi Electric’s high-precision positioning technologies, our aim is to provide user-friendly position data services.

The Japanese government is seeking to realize fully-autonomous driving with no human input on expressways by 2025. By means of these initiatives, the Mitsubishi Electric Group is contributing to the realization of a society that allows safer, more secure and more comfortable lifestyles.

Three satellites of the Quasi-Zenith Satellite System were launched in 2017. Mitsubishi Electric was responsible for the design and manufacture of this satellite system, which provides high-precision position data services. The use of these services will make it possible to realize autonomous driving in a range of road environments and conditions in which visibility is poor, such as heavy fog or snow. Mitsubishi Electric commenced proving trials of autonomous driving on Japanese expressways from September 2017, and we have demonstrated that the use of high-precision positioning terminals that receive position data signals from the Quasi-Zenith Satellite System makes it possible to identify the position of the subject vehicle at the level of centimeters.

High-precision 3D maps

Dynamic maps are essential to accurately identifying the position of the subject vehicle on a map. In addition to static data on lanes and road edges, these digital maps include dynamic data that changes moment to moment, such as data on congestion and traffic signals. The Mitsubishi Electric Group is continuing research and testing in this area, and has been commissioned by a government agency to conduct and manage large-scale proving trials towards the creation of digital maps. In addition, in June 2017, Mitsubishi Electric joined together with an industrial innovation network, mapping companies, surveying companies, and Japanese automotive manufacturers to launch Dynamic Map Platform Co., Ltd., which is moving ahead with the formulation of data to create a dynamic map platform covering approximately 30,000km of Japanese expressways and vehicle roads.

Anticipatory data provision

Anticipatory data provision is a system that assists in making advance lane changes, etc. by providing the driver and the vehicle with information that cannot be obtained from the vehicle itself, including data on accidents ahead, data on traffic congestion, and data on traffic regulations (anticipatory data).

Mitsubishi Electric is working towards the practical realization of anticipatory data provision, conducting test course trials in the provision of support for lane changes by providing autonomously operating vehicles with anticipatory data for each lane using road-to-vehicle communication.