News Release

AICHI STEEL

November 10, 2017
Aichi Steel Corporation

Automated Driving Demonstration Testing Starts for a Magnetic Marker System Using the Ultra-Sensitive MI sensor

—Demonstration testing promoted by the Ministry of Land, Infrastructure, Transport and Tourism at the Okueigenji Keiryunosato roadside station – the first instance of driving on a public road with the system in Japan—

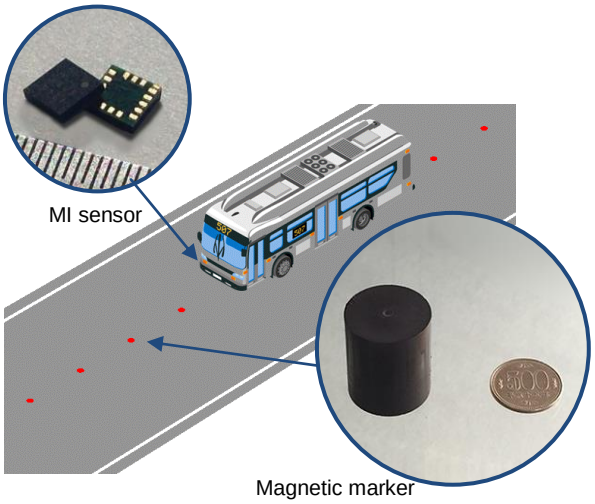
Aichi Steel Corporation (Headquarters: Tokai, Japan, President: Takahiro Fujioka) will provide a magnetic marker system, which is new technology for the highly sensitive detection of vehicle position utilizing the ultra-sensitive magnetic MI sensor for the automated driving service demonstration testing to be conducted by the Ministry of Land, Infrastructure, Transport and Tourism from November 11 (Sat) to 17 (Fri) at the Okueigenji Keiryunosato roadside station in Higashiomi-shi, Shiga Prefecture. The purpose of this testing is to verify social implementation.

For this demonstration testing, as part of the “automated driving service based at roadside stations etc. in mountainous areas” promoted by the Ministry of Land, Infrastructure, Transport and Tourism, an initiative aiming for the social implementation of an automated driving service based at roadside stations etc. by 2020 in order to ensure the flow of people and goods in mountainous, where populations are becoming increasingly elderly. A module using the MI sensor has been affixed to an automated driving bus by Advanced Smart Mobility Co., Ltd. and provided for the experiment. This is the first instance of demonstration testing in Japan for this marker system on a generally-used public road.

In the magnetic marker system using the MI sensor system, the MI sensor module that has been affixed to the base of the vehicle uses the weak magnetic force of the magnetic markers that have been laid down along the road to measure vehicle position with high precision in this automated driving support system. The vehicle is controlled by the equipment so as to pass over the magnetic markers. With this demonstration testing, a new MI sensor was developed with the aim of improving sensitivity by 100-fold over the conventional MI sensor used for mobile phones. The magnetic markers have been newly designed, using ferrite plastic magnets that are weakly magnetic, low cost and kind to the environment. In this system, although the installation cost of the magnetic markers to the road is an issue, efforts are being made to reduce costs and develop specialized construction equipment in collaboration with NIPPO CORPORATION.

Most vehicle position estimation technology that is currently being studied uses GPS or image processing technology. However, it is becoming apparent that GPS waves cannot be obtained in tunnels or under viaducts, and that the reliability of imaging processing is insufficient at night and during poor weather. The magnetic marker system is a powerful type of technology that can stably identify vehicle position even in conditions such as these, and could also increase reliability if used to complement other systems.

Going forward, we will aim to contribute to a next-generation public transport system in the form of a system to support safe automated driving by means of further demonstration testing. In addition, we will strategically proceed with the development of new applications for the MI sensor in order to contribute to a next-generation mobility smart society.



Magnetic marker
30φ×35 mm (image shows comparison with 500 yen coin)

[Reference] Outline of automated driving service demonstration testing kick-off ceremony
1. Date/time: From 12 p.m. on November 11 (Sat), 2017
(Demonstration testing: November 11 (Sat) to 17 (Fri))

2. Location: Okueigenji Keiryunosato roadside station
(510 Tatehata-cho, Higashiomi-shi, Shiga Prefecture)

3. Organizer: Automated Driving Service Regional Testing Council based at the Okueigenji Keiryunosato roadside station

(URL) Release by the Kinki Regional Development Bureau of the Ministry of Land, Infrastructure, Transport and Tourism
http://www.kkr.mlit.go.jp/road/sesaku/jidouunten/ol9a8v000000a24a-att/a1509589007486.pdf