MITSUBISHI ELECTRIC CORPORATION
PUBLIC RELATIONS DIVISION
7-3, Marunouchi 2-chome, Chiyoda-ku, Tokyo, 100-8310 Japan

FOR IMMEDIATE RELEASE   **No. 2998**

Customer Inquiries   *Media Inquiries*

Information Technology R&D Center   Public Relations Division
Mitsubishi Electric Corporation   Mitsubishi Electric Corporation
www.MitsubishiElectric.com/ssl/contact/company/rd/form.html   prd.gnews@nk.MitsubishiElectric.co.jp
www.MitsubishiElectric.com/company/rd   www.MitsubishiElectric.com/news

Mitsubishi Electric Develops Compact AI

Embedded systems applications in vehicles, robots and more

**TOKYO, February 17, 2016** – Mitsubishi Electric Corporation (TOKYO: 6503) announced today it has developed a small-memory, compact AI that can be easily implemented on vehicle equipment, industrial robots and other machines by reducing the computational costs for inference, which is a process including identification, recognition and prediction to anticipate unknown facts based on known facts. This will enable a low-cost AI system that can perform high-level, high-speed inference in a highly-secured environment. The compact AI is expected to be implemented in products sold commercially from around 2017.

A machine-learning algorithm known as deep learning can perform high-level inference, but it requires significant computational costs and memory since it employs a deep neural network. Mitsubishi Electric has used more effective network structure and computational models to develop a novel algorithm that realizes a more compact AI with the same inference performance as a conventional AI. For example, Mitsubishi Electric estimates that the computational costs and memory requirements for image recognition can be reduced by 90 percent.

The compactness means the AI can perform high-level inference even on embedded systems. For example, on a vehicle system, it could provide features that detect when a driver is distracted[*]. Also, on an industrial machine, it could analyze the actions of factory workers. The new technology realizes AI systems at a much lower cost and with smaller server and network requirements compared to conventional systems, which require a server to gather enormous amounts of data. It also establishes a highly-secured computational environment that eliminates the need to upload classified information to servers. In addition, running the compact AI on an embedded system without a network connection means the inference process can be optimized for each system depending on the environment.

The market size of AI is expected to expand from US$ 31 billion in 2015 to US$ 200 billion in 2020, according to a study at Ernst & Young Institute Co., Ltd. and a compact AI that provides more security and speed at a lower cost will be well-positioned to meet that demand.

* "Mitsubishi Electric Develops Machine-learning Technology That Detects Cognitive Distractions in Drivers", Oct. 27, 2015
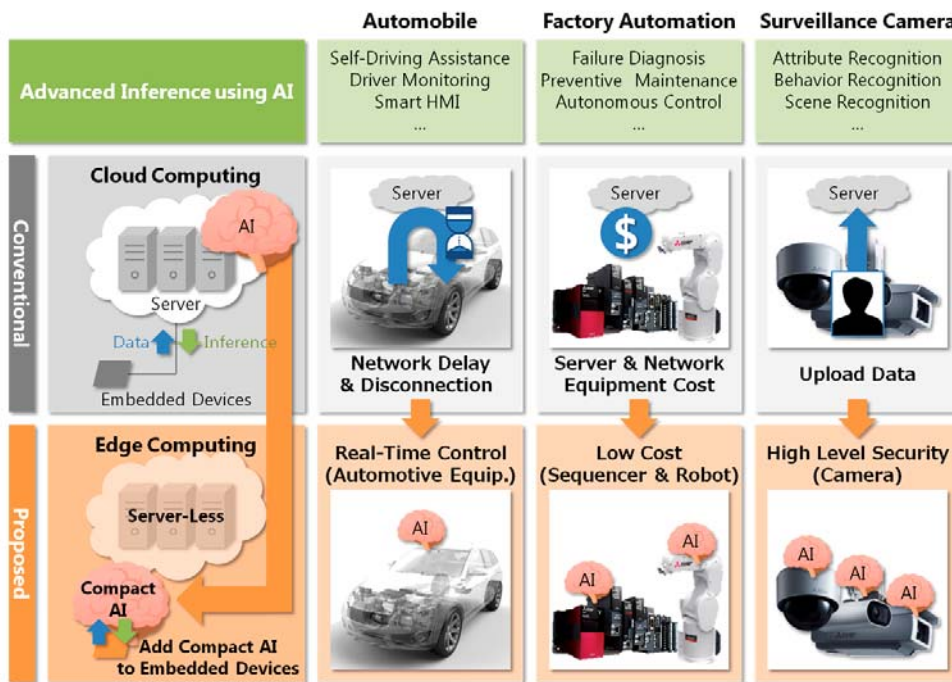
Patents
Pending patents for the technology announced in this news release number three in Japan and three abroad.

About Mitsubishi Electric Corporation
With over 90 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 4,323.0 billion yen (US$ 36.0 billion*) in the fiscal year ended March 31, 2015. For more information visit:
http://www.MitsubishiElectric.com
*At an exchange rate of 120 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2015