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Mitsubishi Electric Develops Ultra-simple HMI for In-car Device Operation
Intuitively minimizes device operation to max. two commands in less than 15 seconds

TOKYO, February 10, 2014 – [Mitsubishi Electric Corporation](http://www.MitsubishiElectric.com) (TOKYO: 6503) announced today its “Ultra-simple HMI” that predicts a car driver’s needs for the safe and easy operation of vehicle equipment in one or two steps and no more than 15 seconds. Mitsubishi Electric’s highly intelligent human-machine interface (HMI) technology bases its predictions on operational history and current conditions to minimize the steps and time required to operate the vehicle’s four primary on-board devices, namely, navigation system, phone, air conditioner and audio-visual equipment.



Prototype with “Ultra-easy HMI”



Options displayed on HUD

Most likely operations (3)

Button for each device (4)

Operational history covers past destinations and routes, searches and in-car device usage. Current conditions include car location, speed, fuel level and other driving conditions and current traffic, school zones and other road conditions.

A prediction agent precisely estimates the driver's three most likely operations for the four primary devices and displays them on a head-up display (HUD) positioned above the dashboard and directly in front of the driver. If any choice is not what the driver wants, separate feature buttons provide direct access to each of the four devices. Operations can be completed with no more than two button pushes within 15 seconds, compared to 15 operations and 50 seconds with conventional systems.

Voice operation is possible with a "Touch & Voice HMI," which is supported with voice-recognition technology. The system is activated by long-pushing any of the four feature buttons, and requires the driver to simply issue one voice command following audio guidance. Touch & Voice HMI enables operations to be completed within two operations and 15 seconds, compared to 10 operations requiring up to 90 seconds in conventional systems.

The voice-recognition technology uses locally stored navigation data and cloud-stored destination data covering some 10 million up-to-date locations for accurate recognition of voice commands.

Mitsubishi Electric's newly developed HUD appears to be further from the driver than most displays, which helps to minimize eye movements and refocusing as the driver looks alternately at the road and the display. The HUD incorporates a large 17.2-inch display with brightness of up to 13,000 cd/m² for safe, easy operation of in-car devices.

Patents

Pending patents for the technology announced in this news release number 25 in Japan and 42 abroad.

Pending design patent applications number five in Japan.

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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 3,567.1 billion yen (US\$ 37.9 billion*) in the fiscal year ended March 31, 2013. For more information visit <http://www.MitsubishiElectric.com>

*At an exchange rate of 94 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2013