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**FOR IMMEDIATE RELEASE**

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## **Mitsubishi Electric Unveils "EMIRAI xS Drive" Concept Car** *Driver-monitoring and headlight-control technologies contribute to safer driving*

**TOKYO, ~~December 20, 2021~~ December 29, 2021** – [Mitsubishi Electric Corporation](https://www.mitsubishi-electric.com) (TOKYO: 6503) announced today that it has developed a new concept car, the EMIRAI xS Drive, equipped with near-infrared cameras and radio-wave sensors to monitor the driver and passengers and an Advanced Driver Assistance System (ADAS) to provide adaptive control of the headlights, both of which help to avoid traffic accidents. The new concept car will be exhibited at CES 2022 from this coming January 5 to 8 at the Las Vegas Convention Center in the USA. **The company will discontinue the real exhibition due to the expansion of the novel coronavirus (COVID-19).**

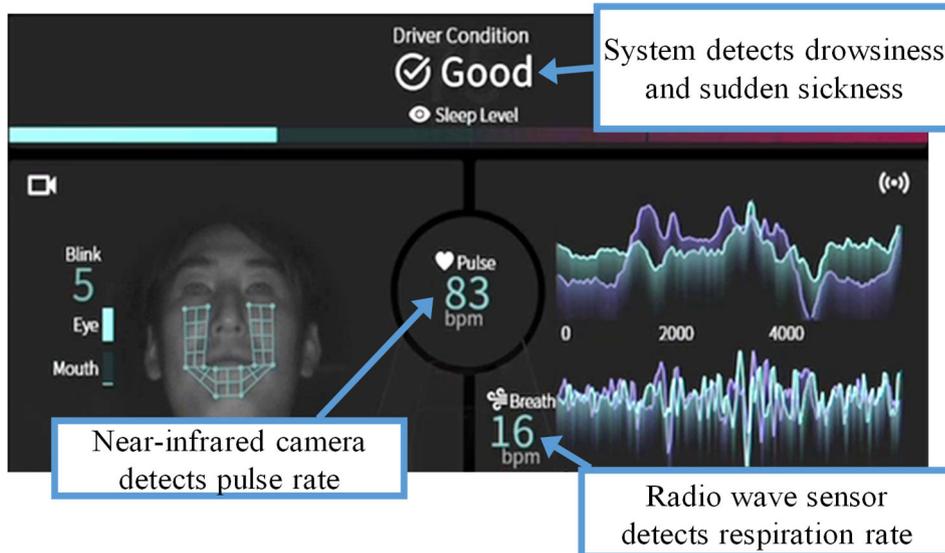


Rendition of EMIRAI xS Drive

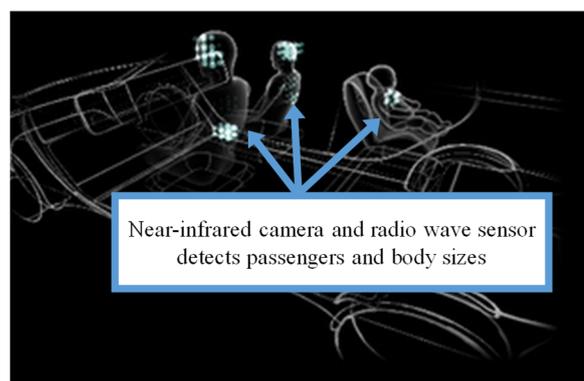
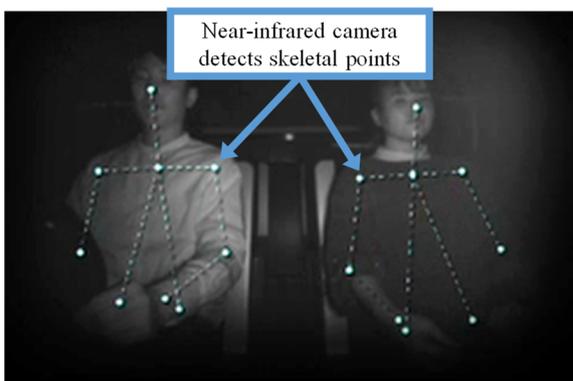
### **Features**

- 1) *Monitors drivers and others with near-infrared camera and radio-wave sensor to prevent accidents. etc.***
  - The system uses an onboard near-infrared camera to detect driver drowsiness or sudden sickness based on facial expressions (closed eyes, open mouth, etc.) and other body information (e.g. pulse and respiration rates). Face-tracking and image-processing technology detect slight variations in skin tone

due to changes in heartbeat, even in the presence of vehicle vibrations and/or changes in ambient light. If abnormal physical conditions are detected, the system is capable of suggesting that the driver stop to rest or can even activate an automated emergency-parking function to prevent possible accidents.



- The system also uses the near-infrared camera to detect the presence of occupants and uses the position of a passenger's face and the skeletal points of their upper body to accurately determine body size. Radio waves from a sensor are processed using the signals' reflective and transmissive properties to detect the presence of children in the near-infrared camera's blind spots, such as wrapped in a blanket or down in the footwell. Using this combined information, the system detects with high accuracy if a child is left behind in the vehicle, in which case the system notifies the driver and others nearby.



2) **Supports safer driving at night by controlling headlights adaptively with internal/external sensors**

- Mitsubishi Electric's High-Definition Locator (HDL) and Driver Monitoring System (DMS) enable headlight control\* to adapt the curve and slope of the road ahead and the driver's direction of view. Areas where the driver is looking, and also potentially dangerous hazards, are brightly illuminated to support safer driving at night.

\* Joint development with Stanley Electric Co., Ltd.

- Further support for intuitive risk-recognition is achieved using the vehicle's external cameras and millimeter-wave radar to issue warnings via 3D sound and road projection, which enables the driver to recognize potential hazards ahead as well as approaching vehicles from behind without having to look.



## **Overview**

Mitsubishi Electric's EMIRAI series of concept cars is designed to realize a society of highly safe next-generation vehicles. The newly developed EMIRAI xS Drive embodies an extended ("x") version the Shared, Service and Safety ("S") concept that was first embodied in the EMIRAI S\*\* vehicle, which was announced in 2019. The driver/passenger monitoring and headlights-control systems incorporated in the EMIRAI xS Drive are proprietary Mitsubishi Electric technologies.

\*\* Please see <https://www.MitsubishiElectric.com/sites/news/2019/pdf/1008.pdf>

## **Patents**

The technologies presented in this release cover 185 patents in Japan and other countries.

*EMIRAI is a registered trademark of Mitsubishi Electric Corporation.*

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## **About Mitsubishi Electric Corporation**

With 100 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. Mitsubishi Electric enriches society with technology in the spirit of its "Changes for the Better." The company recorded a revenue of 4,191.4 billion yen (U.S.\$ 37.8 billion\*) in the fiscal year ended March 31, 2021. For more information, please visit [www.MitsubishiElectric.com](http://www.MitsubishiElectric.com)

\*U.S. dollar amounts are translated from yen at the rate of ¥111=U.S.\$1, the approximate rate on the Tokyo Foreign Exchange Market on March 31, 2021