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Mitsubishi Electric's New Technology Controls In-Building Mobilities and Facilities, Supported with Building Dynamic Maps

For labor-saving building management and smart buildings where people and robots coexist safely

TOKYO, February 4, 2020 – [Mitsubishi Electric Corporation](http://www.MitsubishiElectric.com) (TOKYO: 6503) announced today that it has developed a technology for controlling in-building mobile robots used for cleaning, security, delivery and guidance, as well as next-generation electric wheelchairs, using building dynamic maps* to achieve cooperative interaction between the robots, etc. and building facilities, such as elevators and access control systems. By supporting the safe, efficient movement of people and In-Building Mobilities in buildings, the new technology is expected to reduce the workloads of building-management personnel and help realize smart buildings** in which people and robots coexist safely. Going forward, Mitsubishi Electric will continue developing the technology in collaboration with developers and mobility manufacturers, aiming to introduce a commercial service after March 2021.

* Mitsubishi Electric's new three-dimensional map for buildings that shows the status of building facilities (e.g. elevators and access control systems), location of mobility devices and passable routes

** Buildings in which advanced IoT is deployed to energy-saving and labor-saving work environments through the building



Animated lighting indicates movements of In-Building Mobility

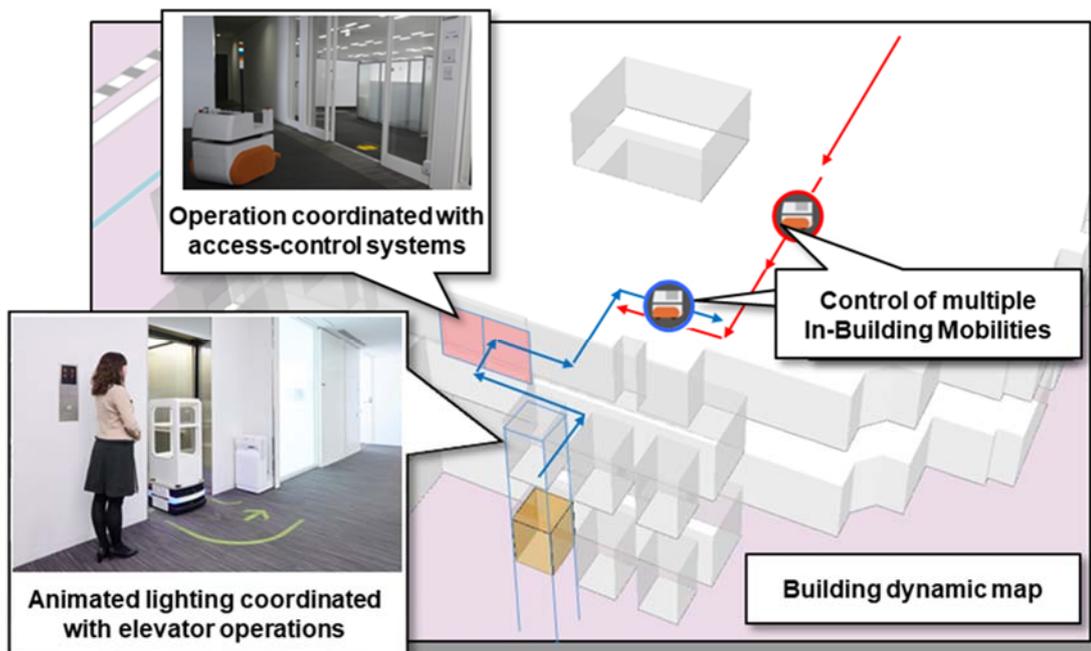
Key Features

1) *In-Building Mobilities move efficiently according to a building dynamic map*

Mitsubishi Electric's newly developed building dynamic map is utilized to control the movements of multiple In-Building Mobilities within a building. When the In-Building Mobilities use elevators or pass by each other in narrow aisles, the system automatically guides them along the best routes to avoid hitting other In-Building Mobilities, entering prohibited areas or boarding crowded elevators. When passing through an access-control gate, the system uses the map to prioritize the movements of people as well as to prevent collisions.

In addition, elevators and access-control systems are linked to coordinate the efficient and safe movement of In-Building Mobilities among people throughout the building, including when moving between floors.

The system also identifies the locations of In-Building Mobilities, including when they break down, by recording the operations of elevators as well as the In-Building Mobilities to visualize the each unit's location on the building dynamic map, to further reduce building-management workloads.



Control of In-Building Mobilities using a building dynamic map

2) *Animated lighting indicates movements of In-Building Mobilities for safety*

Animated lighting is displayed on the floors in front of elevators to help people anticipate the movements of In-Building Mobilities that are getting on and off the elevators, allowing people to smoothly and safely enter and exit elevators together with the In-Building Mobility. Animated lighting is also displayed as In-Building Mobilities move in other areas, allowing people to pass safely even in narrow passageways or in poor visibility.

Background

Service robots are being used increasingly in buildings for cleaning, security, delivery and guidance purposes to reduce the workloads of building-management personnel. Technologies are also being enhanced for the safe movement of personal-mobility devices, such as next-generation electric wheelchairs, in buildings. Tests in real buildings are helping to verify the automated movements of In-Building Mobilities in elevators and throughout structures. In order for service robots and other In-Building Mobilities to operate actively in buildings, further efforts will be carried out to ensure the safety of people and the efficient movement of In-Building Mobilities, including between floors. Ultimately such technologies will play indispensable roles in realizing the smart buildings envisioned by Mitsubishi Electric.

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About Mitsubishi Electric Corporation

With nearly 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. 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 a revenue of 4,519.9 billion yen (US\$ 40.7 billion*) in the fiscal year ended March 31, 2019. For more information visit:

www.MitsubishiElectric.com

*At an exchange rate of 111 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2019