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Mitsubishi Electric Develops World's First Real-time Crowd-congestion Estimation System

*Promises to enhance crowd safety and operational efficiency at large events*

TOKYO, August 18, 2016 – Mitsubishi Electric Corporation (TOKYO: 6503) announced today that it has jointly developed what is believed to be the world's first[*] system that analyzes data from surveillance cameras for high-accuracy real-time estimation and prediction of crowd congestion on pathways to and from event sites, working in collaboration with the Research Center for Advanced Science and Technology of Tokyo University (RCAST). As a solution for effectively managing crowd congestion based on highly accurate prediction, it is hoped that the technology will contribute to increased visitor safety and security at events. Mitsubishi Electric will conduct a field demonstration of its new system at the 38th Tamagawa Fireworks Festival in Tokyo, Japan on August 20.

*Based on Mitsubishi Electric research as of August 18, 2016
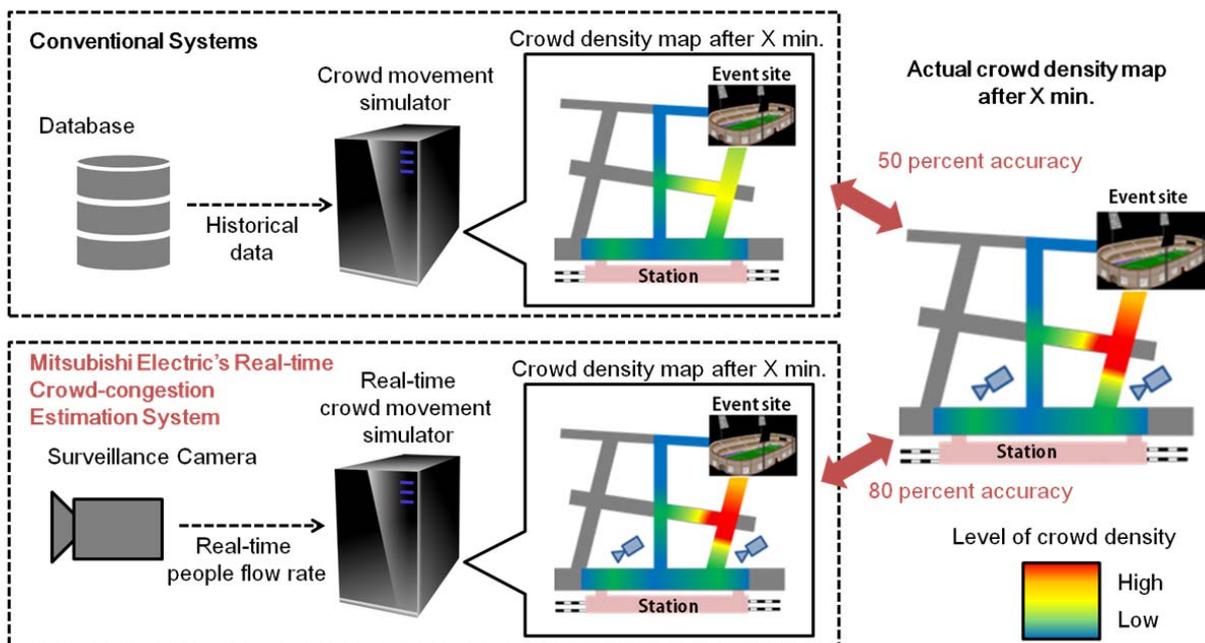
The system is the world's first simulator of real-time crowd movements. Its 80 percent accuracy rate is approximately 30 percent higher than that of conventional methods. Using data from surveillance cameras to estimate and predict crowd movements in real time, the system is a practical solution for relieving crowd congestion on pathways to and from event sites. Also, it greatly reduces computational complexity compared to conventional methods thanks to RCAST's high-speed human-behavior model for simulating crowd movements by focusing not on the complete crowd but nearby people.

Mitsubishi Electric's new system will provide event organizers with a practical means for reducing crowd congestion to maintain event pathways. Since areas in risk of excessive congestion can be estimated in real time, crowd-management countermeasures can be carried out in advance. The results are increased visitor safety, more secure event management and more efficient crowd-management operations.
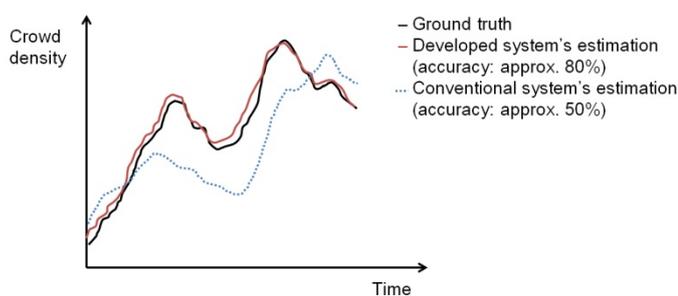
Improvement of crowd density estimation accuracy
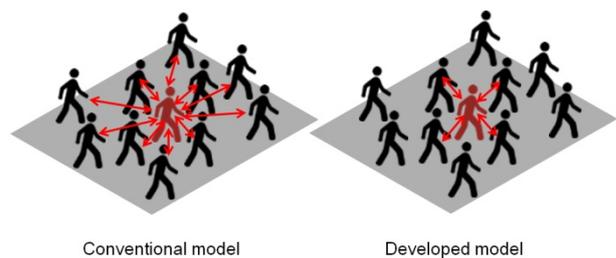
Optimization of human-behavior model

Background

Events that experience high influxes of people present significant concerns for crowd safety, often requiring event organizers to drastically increase personnel needed to ensure sufficient safety and cover wide areas around event sites. Conventional technologies for estimating crowd congestion use historical data on crowd flow rates, but this involves highly complex computations and is not sufficiently accurate.

Patents

Pending patents for the technology announced in this news release number 11 in Japan and nine 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 4,394.3 billion yen (US$ 38.8 billion*) in the fiscal year ended March 31, 2016. For more information visit:
www.MitsubishiElectric.com
*At an exchange rate of 113 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2016