

Buildings Systems

1 Building a Maintenance IoT Service Platform to Expand Recurring Business

The elevator and escalator maintenance business, which is a recurring revenue business, is supported by remote monitoring and various maintenance systems centered around a control system. First built 25 years ago, this aging control system was completely revamped with a configuration suited to new business models and business expansion.

The new control system adopts a hybrid cloud and promotes service quality improvements, operational efficiency, and other improvements and extensions through cloud-based applications. As a specific example, it automatically selects the engineer to dispatch when a failure occurs based on requirements such as skills and site distance to improve operational efficiency through the systematization of ancillary work including dispatching instructions for the purpose of shortening product downtime and improving the quality of customer service when a failure occurs. In addition, an artificial intelligence (AI) technical support system was developed to provide the dispatched engineer with optimal investigation and recovery procedures to shorten the failure recovery time. Moreover, the “BUILLINK” service was established, which allows users to check and control the equipment operating state as well as maintenance service

details such as inspections, repairs, and reports on a PC or smartphone. By connecting with customers and continuing to provide high-quality services, the company will contribute to the expansion of the elevator and escalator maintenance business.

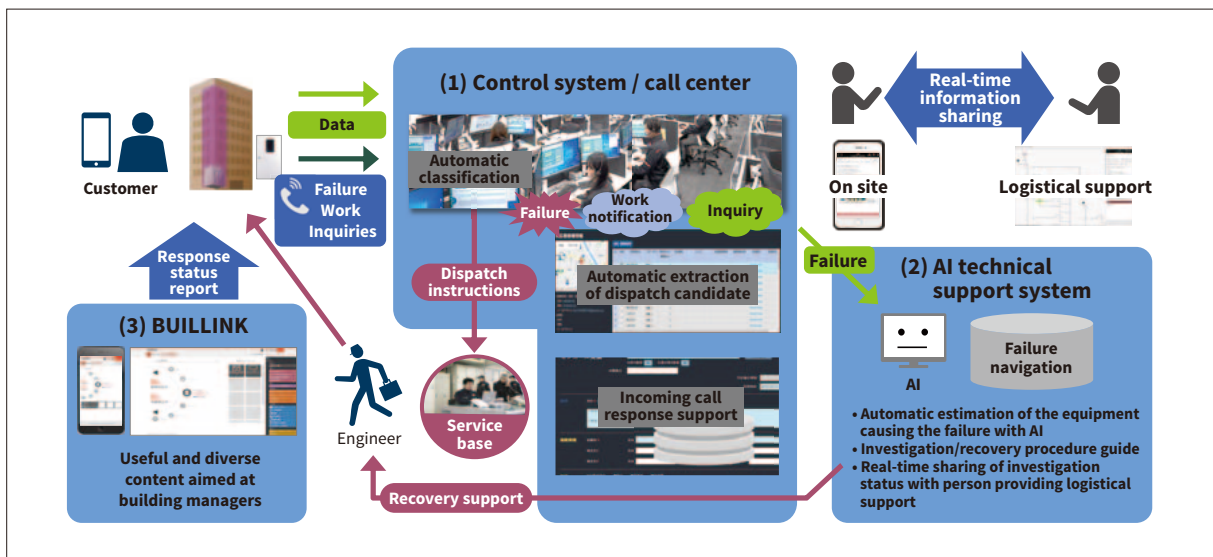
(Hitachi Building Systems Co., Ltd.)

2 V2X System Utilizing Hybrid PCS

A vehicle to X (V2X) system utilizing a hybrid power conditioning system (PCS), which enables continued use of an elevator even during a power outage using electric vehicles as a power source, was developed and is being demonstrated at the Kameari General Center of Hitachi Building Systems Co., Ltd.

When the company externally announced the system at the start of the demonstration ahead of productization for the purpose of verifying market needs, creating deals, and other forms of marketing research, it received many inquiries and mentions from major construction companies and architectural offices, leading to new business opportunities such as cooperative studies with partner companies, etc.

The hybrid PCS can be utilized as a charger for electric vehicles during normal operation, linked to photovoltaic



1 Overall view of maintenance Internet of Things (IoT) platform centered around a control system



2 V2X system utilizing a hybrid PCS introduced at the Kameari General Center

power generation, and can be expected to be adopted in charging facilities for electric vehicles, condominiums promoting the introduction of renewable energy sources, and nursing homes, etc. Moreover, it is also equipped with a feature that can interface with the new standard elevator to strengthen resilience during a power outage and provide high-value-added elevator features. (Hitachi Building Systems Co., Ltd.)

3 Touchless Operation Panel for Realizing a New Elevator Experience

Hitachi has developed a touchless operation panel that enables touchless elevator use as a replacement for physical destination floor buttons. This recently developed operation panel replaces the destination floor buttons found in conventional elevator cars and allows users to register their intended destination floor just by holding a finger over the display on the operation panel (liquid crystal display) to enable touchless elevator use.

The display on the operation panel consists of two screens to increase user convenience. One screen is a

direct registration screen that can display frequently used destination floors (for example, the lobby floor) and information for up to six floors. The other screen is a keypad registration screen, which shows a 10-key display that enables users to enter the number of any destination floor.

Moreover, when a card reader is installed in the elevator car and linked to the operation panel, users can wave a card* with their registered destination floor over the card reader to display only the specific floor that is registered on the card on the operation panel, which can be expected to increase user convenience. (Hitachi Building Systems Co., Ltd.)

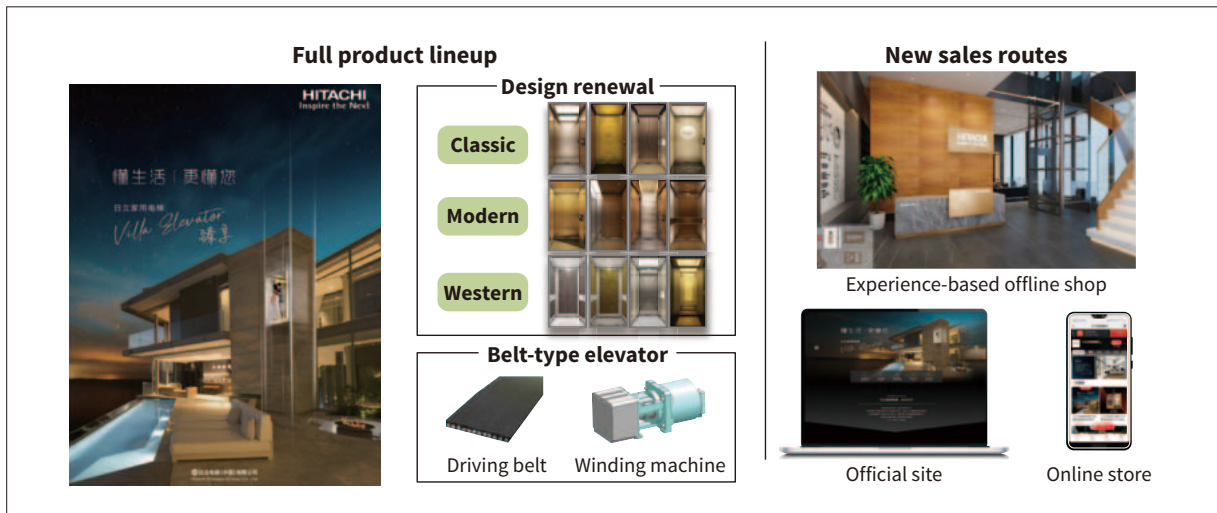
* Since the card automatically registers one destination floor, there is no need for the user to hold their finger over the operation panel.

4 Expansion of the Home Elevator B2C Business for the Chinese Market

With the continuous rise of the Chinese economy and people's living standards, the home elevator market is also actively developing. In particular, requests from individual customers to add home elevators to existing



3 Touchless operation panel (prototype) demo operation and display screen



4 Overview of home elevators for B2C

vacation homes and multi-family residential buildings, etc. are increasing, and development such as the individualization of product demand and the diversification of sales modes continues.

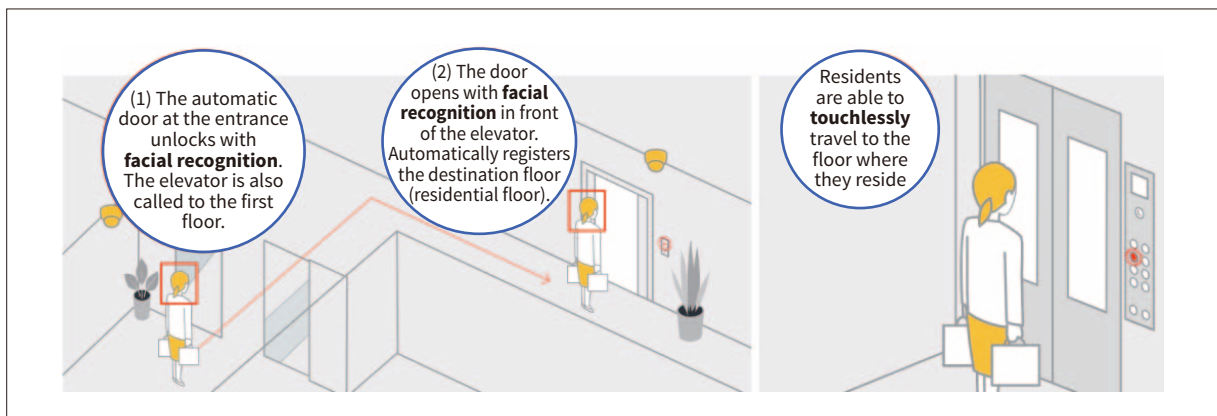
To increase the advantage of its VGE home elevators in this market environment, Hitachi has enhanced the features related to the creation of a sense of luxury, safety, security, and comfort with a revamped design and has optimized the elevators for the business-to-customer (B2C) market (released in March 2021). Moreover, the company has developed a new belt-type of home elevator to achieve a reduction in elevator dimensions and low noise and enhanced the product lineup (released in July 2021). In addition, it is working to contribute to the developing home elevator market in China by formulating a comprehensive B2C business strategy for home elevators by adopting new sales channels such as advertising and sales through its official website and online store, and providing product experiences through a hands-on offline store.

[Hitachi Elevator (China) Co., Ltd.]

5 Condominium Security that Provides Comfortable Movement with Touchless Features

Hitachi added facial recognition to the authentication methods of its “double security” system for condominiums, which controls security at two locations, at the automatic entrance door and the elevator landing door.

The previous double security system unlocked doors with authentication devices such as keys and cards with a built-in integrated circuit (IC) chip, but the adoption of facial recognition makes it possible to touchlessly travel from the entrance to the residential floor elevator without using an authentication device. This allows residents to smoothly travel to the floor where they reside even when their hands are full, such as when returning from a shopping trip, etc. Moreover, as a feature of this system, images from security cameras installed at the entrance and elevator landing can be used for recognition to provide new forms of value to condominium users as a new service for condominiums that combine convenience and security. (Hitachi Building Systems Co., Ltd.)



5 Touchless travel in condominium security