![TeamViewer]

Remote servicing and maintenance of autonomous robots — Cutting man-hours required for initial response by approximately 80%

Costs have been greatly reduced, support quality improved, and productivity boosted by reducing the number of urgent call-outs.

NEC Networks & System Integration Corporation (hereafter, "NEC Networks") provides autonomous guide robots and delivery robots domestically, which are mainly manufactured by China Beijing Yunji Technology Co., Ltd.. When maintaining and servicing robots in rural areas they felt it was difficult to identify problem events via telephone interviews and sharing videos. Using "TeamViewer" as a means of accurately recording problems remotely not only made it possible to accurately identify the factors contributing to system failures, but also cut man-hours by around 80% within six months by enabling remote support. Overall, the number of urgent call-outs has been reduced, costs have greatly decreased, support quality has improved, and productivity has been boosted. In the future, the plan is to develop an integrated system for managing and operating the entry/exit system for elevator doors and all types of robots, and expand the field of TeamViewer's activities to also cover this area.

NEC Networks & System Integration

https://www.nesic.co.jp/

NEC Networks & System Integration Corporation, as a communication system integrator, provides a wide range of information and telecommunications systems to a variety of customers, such as enterprises, telecommunications carriers, government agencies, and social infrastructure providers, including system integration, installation, and services. By refining its strengths in business creation, nationwide responsiveness, technological ability and reliability, it serves as a communication service orchestrator that continues to go beyond its customers' expectations to provide added value in collaboration with its partners. It aims to achieve a more prosperous society with a comfortable and convenient means of communication, whilst also contributing to sustainable global development and resolving a variety of social issues.

NEC Networks & System Integration Corporation
Support Service Platform Division
Smart Solution Service Department
Mr. Ryo Iikubo

Issues before deployment

- ❌ Gathering accurate information about the robot through phone calls and video sharing was difficult

- ❌ If the problem could not be identified, engineers had to be called out to sites urgently

- ❌ Maintenance was costly and time-consuming, including call-out time, labor, and travel expenses

Benefits after implementation

- ✅ Remote inspection of the log makes it possible to perform initial screening of system failures and accurately identify suspicious areas.

- ✅ Initial man-hours have been reduced by approximately 80% within a six-month period.

- ✅ The number of urgent call-outs has also been reduced, greatly reducing costs as well as improving the support quality and efficiency.

- ✅ We perform high-quality integration work through direct configuration using specialist engineers.

Problem cases are difficult to identify on the phone and very draining in terms of travel time and expenses required for the visit

NEC Networks & System Integration Corporation is a systems integrator that provides a comprehensive range of services, including O&M, maintenance, and outsourcing, in addition to building a wide range of optimized communications-related systems and services for users. A unique service among these is the provision of the "robot utilization solution" business model covering deployment and support for autonomous robots as a one-stop service. NEC Networks & System Integration Corporation (hereinafter "NEC Networks"), Beijing Yunji Technology They rent and sell the autonomous guide robot "YUNJI SAIL" (SAIL) and autonomous delivery robot "YUNJI DELI" (DELI) as domestic agents and also carry out after-sales maintenance services. SAIL and DELI have been introduced in hotels and restaurants in the Kushiro and Goshi regions of Hokkaido, as well as restaurants at golf courses in Oita Prefecture, and it's said that they are helping to improve the hospitality industry by reducing staff workloads and bringing efficiency benefits at the operational level.

Here, the issue was how to improve the efficiency of robot maintenance and servicing operations. "Robots, unlike standard hardware and software like servers and communications devices, are parts of a new architecture with many constituent parts, and this can lead to unexpected problems. In these cases, we would inquire about the situation on the phone, but it is often difficult for the customer to identify the problem, and an engineer would have to be dispatched to the site from our company. Our aim is to only visit the site after thorough preparation based on the suspected cause, but if the problem is still not resolved, it may be necessary for us to visit several times, which is not only exhausting for the engineer, but also very draining in terms of travel time and travel

expenses", explains Ryo Iikubo, from the Support Service Platform Division, Smart Solution Service Department, Headquarters of NEC Networks.

There are no complex settings and remote access of suspect locations can be carried out from any OS.

He notes that when they were looking for a solution that would allow them to pinpoint the problem remotely without inconveniencing the customer, they considered a video sharing tool, but did not use it because it would not provide the detailed information about the condition of the robots that they needed. Therefore, the focus shifted to TeamViewer, which had already proven itself in another department. "TeamViewer does not require complex configuration, and because it can be used regardless of model and OS, we saw the benefits of smooth communication between devices and the ability to operate the robot directly and remotely without inconveniencing the customer", says Iikubo. Although SAIL and DELI have an Android OS control panel, the autonomous running of the robots is controlled by software that is run on a separately prepared Linux PC. Work instructions issued on the robot's control panel are transmitted to the Linux PC, which then executes the startup command. Since TeamViewer is compatible with both Android and Linux, not only can the workspace map information, usage history and error log files stored on the Linux side be viewed and controlled, but the status of the robot's laser sensors and cameras can also be checked directly from the Android terminal. "Problem areas can be accurately identified with the engineers in Tokyo carrying out an initial screening of system errors. That way, we can determine in advance whether the situation can be managed remotely and whether or not an on-site visit is necessary, who should go, and what preparations are required. This enables us to deliver smooth and accurate maintenance support without wasting resources", Iikubo continues.
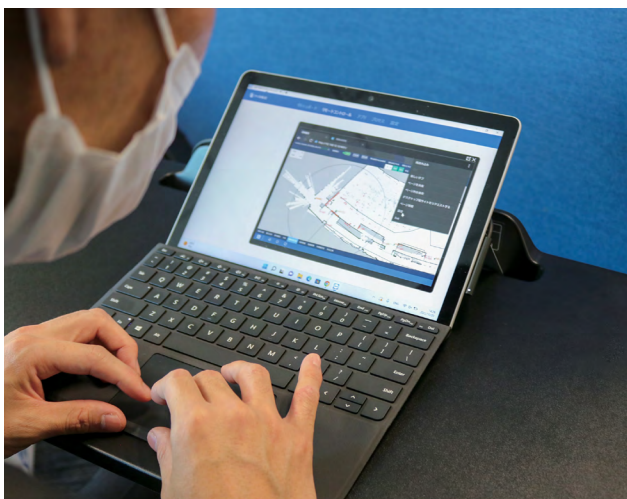
With remote troubleshooting enabled, we have reduced man-hours by approximately 80% within a six-month period.

TeamViewer is in full-scale operation as a servicing and maintenance tool. New robots manufactured by Pudu Robotics of China have also been added to the line-up, and TeamViewer is being used for their maintenance and servicing as well. According to Iikubo, "The introduction of TeamViewer has made it possible for engineers to directly confirm the state of the robots remotely. There are more issues that can be dealt with remotely, and this has allowed us to reduce man-hours required for initial response by approximately 80% within six months." He adds that TeamViewer is also used for detailed integration work (work involved in the robot mapping out the field environment on initial deployment). The expert engineer located at the headquarters can use TeamViewer to log in remotely to a stack PC used by a staff member while visiting the customer, and perform high-quality integration work. Iikubo points out, "Logistics companies will not be able to avoid carrying out maintenance work in the future, and, in that regard, the use of TeamViewer is invaluable. "NEC Networks" robot solutions were also deployed in a verification test for "next-generation urban development using robots" conducted by Mitsubishi Estate Company Limited in collaboration with the Ministry of Economy, Trade and Industry, and in the continuous operation of a system for integrated control of building facilities, service robots, and automated vehicles implemented by Shimizu Corporation, and TeamViewer contributed greatly to this. In the future, they plan to develop an integrated system for managing and operating the entry/exit system for elevator doors and all types of robots. If this is realized, the robots can be made available to customers as part of a solution where they not only move horizontally on one floor, but also vertically across several floors. TeamViewer will no doubt become even more of an essential tool as robots are used in more fields.

"We are extremely satisfied and feel we definitely made the right choice in introducing TeamViewer, as that has led to not only an increase in customer satisfaction, but also to a significant reduction in the number of man-hours required. We will improve the quality of customer support by continuing to use TeamViewer for robot services, which will be further expanded in the future."

Support Service Platform Division, Smart Solution Service Department – Mr. Ryo Iikubo

TeamViewer

About TeamViewer

As a leading global technology company, TeamViewer offers a secure remote connectivity platform to access, control, manage, monitor, and support any device — across platforms — from anywhere. With more than 600,000 customers, TeamViewer is free for private, non-commercial use and has been installed on more than 2.5 billion devices. TeamViewer continuously innovates in the fields of Remote Connectivity, Augmented Reality, Internet of Things, and Digital Customer Engagement, enabling companies from all industries to digitally transform their business-critical processes through seamless connectivity.

Founded in 2005, and headquartered in Göppingen, Germany, TeamViewer is a publicly held company with approximately 1,400 global employees. TeamViewer AG (TMV) is listed at Frankfurt Stock Exchange and belongs to the MDAX.

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