

## ***Yazaki Corporation and NEC use AI to automatically develop operation plans for multiple robots***

*- Motion plan generation reduced from 40 days to just 1 -*

**Tokyo, November 9, 2023** – [Yazaki Corporation](#) (Yazaki) and [NEC Corporation](#) (NEC; TSE: 6701) have conducted a demonstration experiment using the "NEC Digital Robot Motion Planning Solution" to automatically generate motion plans for multiple robots using AI in the manufacture of wire harnesses (\*1) for automobiles.

In this demonstration experiment, the need for a teaching process (work to create a motion plan for an industrial robot), which used to take engineers 40 days, was eliminated, and motion plans were automatically generated by AI in just one day. In addition, the AI reduced the time required for the manufacturing process by approximately 10% by using trial and error to create motion plans that increased production speed.

Based on these results, the companies will begin testing for mass production of wire harnesses in October of this year, with the aim of commercializing a system in July 2025. This will be the first full-scale use in Japan (\*2) of a solution that uses AI to automatically generate motion plans for multiple robots to support the manufacture of multiple types of wire harnesses.



Multiple robots used in manufacturing

This system was realized by combining the NEC Digital Robot Motion Planning Solution with a robot system and simulator for wire harness assembly at Yazaki Corporation.

Specifically, product data, such as product design and work content, are input into the AI. After this, the AI and a simulator are linked. This automatically generates a motion plan that minimizes manufacturing time while at the same time ensuring that multiple robots and surrounding equipment do not interfere with each other. If there is interference after operation, the AI is notified and recalculates a motion plan to avoid interference. Furthermore, when new products are introduced or product specifications are changed, motion plans can be quickly calculated by inputting product data into the AI, eliminating the need for complex teaching processes.

Yazaki will utilize multiple robots to promote flexible and rapid responses to the needs of variable-type, variable-volume production. By linking AI, which automatically generates motion plans, with production planning and performance data, energy consumption can be predicted and measured, contributing to the realization of carbon neutrality.

NEC aims to commercialize this solution in 2024 and contribute to stable production and quality improvement through the realization of digital twins in the manufacturing field. Furthermore, NEC plans to globally deploy this solution to solve issues related to labor shortages and technology transfer.

**Notes:**

(\*1) Products that connect electrical and electronic devices in automobiles to supply power and transmit information within the vehicle.

<https://www.yazaki-group.com/en/automobile/wireharness/index.html>

(\*2) Based on NEC research as of the date of this announcement.

**About Yazaki Corporation**

We are the Yazaki Group of trust, which supports society everywhere. In your car, home, and city, the Yazaki Group's products support your safety and comfort. We have developed a wide variety of products, from automotive wire harnesses to electric wires, gas appliances, air conditioners and solar thermal appliances. In addition, we are taking on new businesses centered on nursing care and eco-businesses. The common concept of the Yazaki Group's products is

"connecting." By connecting vehicle devices, people's lives, and society, we will realize a prosperous future. The Yazaki Group will continue its challenge to be "a corporation in step with the world" and "a corporation needed by society."  
<https://www.yazaki-group.com/global/>.

### **About NEC Corporation**

NEC Corporation has established itself as a leader in the integration of IT and network technologies while promoting the brand statement of "Orchestrating a brighter world." NEC enables businesses and communities to adapt to rapid changes taking place in both society and the market as it provides for the social values of safety, security, fairness and efficiency to promote a more sustainable world where everyone has the chance to reach their full potential. For more information, visit NEC at <http://www.nec.com>.