

Aug 6, 2021

## Panasonic Supporting the Olympic and Paralympic Games Tokyo 2020 with People-Friendly Robots

- Robot vacuum cleaners and Power Assist Suits contribute to the innovative Games -

**Osaka, Japan** - Panasonic Corporation has provided the Olympic and Paralympic Games Tokyo 2020 (Tokyo 2020) with its robots that automate tasks otherwise performed manually or assist people in carrying out their tasks. While aspiring to realize a society where human-friendly robots can help support a safe, comfortable lifestyle, the company strives to bring to life Tokyo 2020's vision of "holding the most innovative Games in history and bringing positive reform to the world."

As announced on March 15, 2019, the Power Assist Suits "ATOOUN MODEL Y" have been provided to Tokyo 2020 to help lighten strain posed on the wearers' lower back while loading and unloading athletes' luggage and equipment. In addition, there are three other types of Panasonic's robots in action behind the scene. The robot vacuum cleaner development model automatically cleans the floors in one of the Tokyo 2020 venues, the Power Assist Suits "ATOOUN HIMICO" help volunteers and staff walk for long hours during the Games, and the "ATOOUN MODEL Y + kote" with an arm assist function added to the "ATOOUN MODEL Y" supports transportation of athletic equipment.

Firstly, the robot vacuum cleaners intended for future research and development, have been cleaning the floors of the Main Press Centre's (MPC) common area since July 19 and will carry out the task through September 5, 2021. Equipped with cameras and LiDAR<sup>※1</sup>, the robots automatically recognize their surroundings such as people, walls, and obstacles with high accuracy, to safely clean the floors from corner to corner without the need to prepare the area beforehand. They help alleviate the burden of the cleaning staff during Tokyo 2020. Further, Panasonic's nanoe<sup>TM</sup>X<sup>※2</sup> technology used in the dust box inhibits bacteria<sup>※3</sup>, creating a clean and comfortable environment for people in the MPC.

Secondly, the Power Assist Suits "ATOOUN HIMICO" help lighten the fatigue of the competition staff by detecting walking motion with sensors and helping them lift and lower their legs while walking, with wires connecting the motor at the waist and supporters of both knees. This helps reduce fatigue of the staff who move around on foot for long hours.

Thirdly, the "ATOOUN MOEDL Y + kote" is a Power Assist Suit that provides both support of the "ATOOUN MODEL Y" for the lower back and the "+ kote," for the arms. The "ATOOUN MODEL Y" is already being put to use helping carry heavy things at airports, factories, and onsite at logistic centers, construction sites, and farms. They will also help staff who will support the para powerlifting competition at the Tokyo 2020 Paralympic Games. By attaching the "+ kote" to the "ATOOUN MODEL Y," the staff will not only get lower back support, but also additional support in the arms. The extension and retraction of the wire connecting the shoulder motor and hands will support the arms when pulling, lifting and carrying objects, thereby improving efficiency and reducing fatigue while working. The Power Assist Suit is a Paralympic limited category, excluding the United States for marketing rights. For the robot vacuum cleaners, Panasonic has marketing rights worldwide except the Americas and Australia.

Panasonic is taking part in the "Tokyo 2020 Robot Project," which is being spearheaded by the Tokyo Organizing Committee of the Olympic and Paralympic Games in collaboration with robot experts, the national government (Cabinet Secretariat, Ministry of Education, Culture, Sports, Science and Technology, Ministry of Economy, Trade and Industry), the Tokyo Metropolitan Government, and partners of the Games. Panasonic will help stage an Olympic and Paralympic Games by providing leading-edge, people-friendly robots.

※1: LiDAR (Light Detection and Ranging) A sensor that measures distance by irradiating a pulsed laser beam onto objects and measuring the time it takes for the reflected scattered light to return.

※2: nanoe™, and the nanoe™ mark are trademarks of Panasonic Corporation.

※3: The sterilization effect may differ depending on the condition of the dust in the dust collection box.

[Testing organization] TECHNO SCIENCE CO.,LTD.

[Testing method] Measured the number of bacteria adhered to a cloth placed in the dust collection box in the test room (about 10 square meters)

[Inhibition method] nanoe™ released

[Test Substance] Adhered bacteria

[Test result] 99% or more suppression in 2.5 hours (No. 20070646-001)

Test report publication date: March 5, 2021 (Test was conducted with two types of bacteria). Efficacy depends on the bacteria.

## ● Description of the robots

### (1) Robot vacuum cleaner development model



- This robot vacuum cleaner development model cleans the floors in the common area of the Main Press Centre (MPC) to be located at the Tokyo Big Sight, from July 19 to September 5, 2021, helping to lighten the burden of the cleaning staff during Tokyo 2020.
- Equipped with cameras and LiDAR, the robot recognizes environment of the MPC and automatically clean the common area from corner to corner.
- The robot detects people and objects with high precision, enabling it to clean safely, and provide a comfortable, pleasant environment.
- Panasonic's nanoe™X equipped in the dust boxes enables hygienic cleaning.

### (2) Walk support Power Assist Suits, "ATOUN HIMICO"



- HIMICO will lighten the operational staff's fatigue during Tokyo 2020. They will be used by staff who will need to walk for long hours to clean the Olympic Stadium.
- The wires connecting motors mounted on the waist to the supporters on the knees help users move their legs while walking.

### (3) Lower back and arms Support Power Assist Suits “ATOUN MODEL Y + kote”



- The Power Assist Suits help lighten the strains of the operational staff during Tokyo 2020. They are used for transportation of the athletic equipment at the Olympic Stadium.
- For arm support, the motor unit attached onto the upper frame of the ATOUN MODEL Y winds the wire that connects to the wrist holder and pulls up the arm to provide powerful and speedy support.

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### About Panasonic's Olympic and Paralympic Games Partnership

Panasonic has been a worldwide partner of the Olympic Games since 1987 and of the Paralympic Games since 2014 and empathizes with the spirit of the Olympic and Paralympic Games and what they stand for. Through the Games, we want to convey our passion to improve both people's lives and our society. "Sharing the Passion" is our slogan for the Games and we want to share the passion of everyone involved. Whether it's the athletes who put everything on the line for the competition or those who work behind the scenes, the passion they display towards achieving their dreams, together with the beauty of the sport, is spread and shared, inspiring and energizing the world. We will continue to share this passion with people across the world as we seek to better serve people and society through innovation, by addressing social problems, and through individual efforts.

### About Panasonic

Panasonic Corporation is a global leader developing innovative technologies and solutions for wide-ranging applications in the consumer electronics, housing, automotive, and B2B sectors. The company, which celebrated its 100th anniversary in 2018, operates 522 subsidiaries and 69 associated companies worldwide and reported consolidated net sales of 6,698.8 billion yen for the year ended March 31, 2021. Committed to pursuing new value through collaborative innovation, the company uses its technologies to create a better life and a better world for customers. Learn more about Panasonic: <https://www.panasonic.com/global>.

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