

## Durable, High-Res PTZ Cameras Support Motion Analysis for Next-gen Sound Effects



NTT Group

### NTT Pavilion at EXPO 2025 OSAKA

Installation: April 2025  
Location: Osaka, Japan

#### The Challenge

Deliver a sound experience that responds in real time to the movement of fabric panels covering a pavilion's exterior.

#### The Solution

High-resolution outdoor PTZ cameras captured the motion of fabric panels for real-time video analysis, allowing the creation of sound effects synchronized with the panel movements.

**"The high-precision PTZ cameras enabled us to bring our vision of future communication to life."**

Mr. Hidehiko Iimura  
Deputy Pavilion Director, NTT Pavilion,  
NTT, Inc.

Note: Job title at time of implementation

#### Background

#### Shaping the Future of Communication with Cutting-edge Technology

One of the most talked-about destinations at EXPO 2025 OSAKA is the NTT Pavilion, where visitors can enjoy interactive experiences that explore futuristic communication. Designed around the concept of "Emotional architecture" the pavilion features an exterior covered in hundreds of flowing fabric panels. As the panels sway in the wind, the entire structure is enveloped in a mesmerizing soundscape. Mr. Hidehiko Iimura, the NTT Pavilion's deputy director, explained: "The NTT Pavilion is packed with sophisticated systems powered by advanced technology. One key feature is the sound installation driven by the motion of the fabric panels. As the panels move, cameras capture their motion for real-time analysis supporting the creation of synchronized sound. We use Panasonic's outdoor PTZ cameras to capture that movement."

#### Why Panasonic's PTZ Cameras?

#### Selected for Their Reliability, Image Quality, and Outdoor-ready Design

Mr. Motoi Ishibashi of Rhizomatiks, who oversaw the design and implementation of the exhibition experience, recalled the camera selection process: "Since the expo will run continuously for about six months, we needed a camera that could perform reliably outdoors every single day. We evaluated seven models from a range of manufacturers. Ultimately, the AW-UR100 stood out because it didn't require a protective housing and was built with salt-resistant specifications, making it ideal for the expo's coastal setting. Of course, high-resolution imaging was also essential for accurate motion sensing. The AW-UR100 checked every box—rugged, weather-resistant, and capable of delivering the image quality we needed. It was the perfect fit for this project."

#### Experiencing Communication Beyond the Limits of Time and Space

The NTT Pavilion, themed "Parallel Travel — A Pavilion where visitors travel across space and time," invites guests to explore futuristic communication. Powered by the NTT group's next-generation Innovative Optical and Wireless Network (IOWN), the experience enables people in different locations to feel as though they are sharing the same space and a connection that transcends physical boundaries.

■ More about the NTT Pavilion: <https://group.ntt/en/expo2025/pavilion/>



▲ NTT Pavilion illuminated in the evening



# PTZ Camera System



▲ Two AW-UR100 PTZ cameras capture fabric panel movements while blending into the environment



▲ The fabric panels are programmed to sway dramatically when visitors inside the pavilion smile

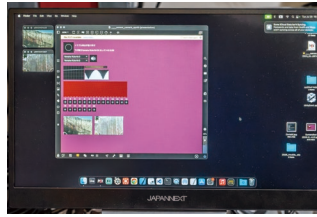


▲ Nighttime view of illuminated fabric panels

## Benefits

### Wide-angle Lens Enables Broad, Efficient Coverage of Large Exterior Walls

Mr. Motoi Ishibashi of Rhizomatiks reflected on the advantages of the AW-UR100: "Its 74.1-degree (horizontal) wide-angle lens allows us to cover an expansive area with fewer units, which was extremely helpful. With other cameras, we would have needed significantly more equipment. Minimizing the number of installations was also important to preserving the structure's architectural design, so that was another major plus. In addition, the camera's discreet appearance blends into the surrounding greenery, so its visual impact is minimal. Moreover, because it supports Power over Ethernet (PoE), we didn't need to run separate power lines, which simplified the installation process considerably."



▲ User interface of the video analysis software developed by Rhizomatiks, displaying captured footage



▲ AW-UE160K camera mounted on the ceiling of Zone 2 to capture visitor activity



▲ Zone 2 showing live footage of visitors captured by AW-UE160K cameras

### Reliable, High-quality Night Capture, Even in Fully Automated Mode

When used continuously for video analysis, the AW-UR100 has demonstrated outstanding operational stability. Mr. Motoi Ishibashi of Rhizomatiks explained: "The Panasonic PTZ cameras run entirely in auto mode, so even at night they deliver high-resolution footage without needing manual adjustments. Since the fabric panels are illuminated from behind, we were concerned that the resulting backlight might degrade image quality, but the cameras have handled it perfectly. The ability to register and recall preset camera angles is also a major advantage. Once configured, the cameras automatically return to their designated position when powered on, simplifying recovery in case of a power outage. Most impressively, since the expo began, the cameras have been operating continuously for nearly four months without any maintenance issues. This level of reliability is what truly stands out."

## Enhancing Interactive Visual Experiences in Zone 2

In Zone 2 of the NTT Pavilion, visitors use 3D glasses to enjoy a recorded performance by the group Perfume. Between shows, Panasonic AW-UE160K 4K PTZ cameras capture real-time footage of the audience, which is displayed as part of the immersive environment. NTT Pavilion Deputy Director Mr. Hidehiko Iimura said: "Zone 2 creates a truly immersive experience, as if Perfume were performing live right in front of the viewers. We've even added physical effects, like synchronized floor vibrations, to deepen the realism. On top of that, by shooting the audience and incorporating them into the visual display, we've created a sense of shared participation—visitors feel like they're part of the performance itself. Honestly, I can't recall a single visitor entering Zone 2 without smiling. That's how impactful the experience has been.

"I believe visual technology will be integral to future communication, so we're showcasing a key part of that evolution. We're using entertainment to make the experience fun and accessible. In 20 or 30 years, if someone remembers seeing this technology at the NTT Pavilion and says, 'Wow, I first experienced this technology at the NTT Pavilion as a child,' that would be our greatest reward."



Mr. Hidehiko Iimura  
Deputy Pavilion Director,  
NTT Pavilion,  
NTT, Inc.



Mr. Motoi Ishibashi  
Rhizomatiks,  
Abstract Engine Co., Ltd.

Note: Job title at time of implementation

### Installed equipment

Outdoor  
4K PTZ Camera  
**AW-UR100 x2**



4K PTZ Camera  
**AW-UE160K x2**

