Immersive remote lectures through a PTZ Camera system that provides high resolution and outstanding operability

Hoshi University

System: **Lecture Capture System**

Period: September 2020 Location: Kanto

Needs:

Hold remote classes using interactive live video streaming

Solutions:

Introduce a PTZ Camera system with high resolution and powerful optical zoom to create immersive remote classes through video

"Now, students can experience immersive remote learning that makes it feel like they're really taking part"

Mr.Kazuki Inaoka

System Audit Engineer,
Registered Information Security Specialist
and Assistant Manager,
Information Systems Office, Administration Department
Hoshi University

*Job titles are at the time of the interview.

Background

Introduction of a PTZ Camera system for remote classes through live streaming

Hoshi University established its Information Systems Office in 2017 with the aim of promoting the use of ICT on campus. This office has been working to renovate attendance systems and student portals. E-learning system development was also progressing steadily, however, the emergence of the COVID-19 pandemic in early 2020 made the implementation of distance learning an urgent task. For this project, the system has been expanded through the introduction of lecture capture equipment. HD Integrated Cameras AW-HE40HW and Wireless Remote Controls AW-RM50G are used for live video streaming of lectures from all 21 lecture rooms on campus.

Why they choose panasonic

Image quality and operability suited to capturing lectures

The introduction of cameras for capturing lectures during the second semester was considered following a large number of requests for interactive video classes in response to the on-demand lectures that were held during the first semester. The 30x optical zoom and high resolution of the AW-HE40HW enable it to capture items such as text on blackboards or whiteboards, diagrams projected onto screens and teachers speaking at the lectern in the various sizes of lecture rooms. In addition, video was transmitted between the camera and a PC via USB. The construction of a system that enables video streaming to begin immediately after connecting to the host PC has minimized the time and effort spent on preparation, allowing lecture time to be used more effectively.

Training for professionals who provide health care and save lives through pharmaceuticals

Hoshi University has operated on the founding principle of "a 'cradle' in which talents who will serve the world are fostered" since its establishment in 1911. The university promotes the development of pharmacists and drug discovery researchers who demonstrate highly-specialized skills in clinical settings. Its approximately 2,000 students are continuously engaged in study and research activities with the aim of becoming professionals who can make a contribution to the wider world through pharmaceuticals.

- Address: 2-4-41 Ebara, Shinagawa-ku, Tokyo
- URL https://www.hoshi.ac.jp/site/

▲Hoshi University: The Main Hall was completed in 1924 and stands as a symbol of the university.

Benefits of this system

Immersive remote lectures made possible with video from high-resolution cameras

Hoshi University has been conducting remote classes using the web conferencing service Zoom since the second semester, which began in September. AW-HE40HW cameras are used to capture lectures given by teachers in each lecture room. "With the introduction of the PTZ Camera system, students can experience immersive distance learning that makes it feel like they're really taking part rather than just watching," explains Kazuki Inaoka from the Information Systems Office of the university's Administration Department, who is in charge of the operation and management of ICT systems. "The on-demand lectures during the first semester were based on slideshows and audio. This placed a number of restrictions on the class format, such as not being able to write on the blackboard and not being able to show real objects. The AW-HE40HW is able to clearly capture writing on blackboards or whiteboards and diagrams projected onto screens. This enables teachers to give lectures with the same wide variety as in-person classes. Teachers can control the camera themselves in consideration of the content of the lecture, such as by pulling back to show the whole blackboard or zooming in on text. The wide angle of view and powerful optical zoom support any way of working. In addition, students use a range of devices for learning, from notebook PCs to tablets and smartphones, but there have been no reports that the images being difficult to see for users of certain devices. Students are also able to ask a lot of questions through the functions of the web conferencing service, enabling immersive lectures with interactive communication." Shinya Fukui from Alpha Computer, Ltd. was responsible for creating a total system proposal in response to Hoshi University's request for remote lectures. On his choice of equipment for this project, he explained, "The AW-HE40HW has 30x optical zoom and supports full HD video output. We were able to make our proposal to the customer confident in the knowledge that the camera's functions are well adapted for capturing text on blackboards, which is frequently required during lectures."

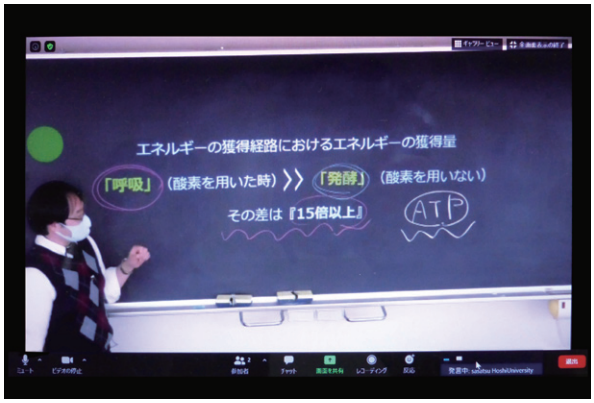
Smoothly-run lectures supported by controllers with presets

The AW-HE40HW in each classroom is controlled using an Wireless Remote Control AW-RM50G. Five preset camera orientations facing the front of the lecture room were allocated, including the full blackboard, the lectern and the left and right sides of the blackboard. These presets were applied to all lecture rooms. As a result, operating the system feels the same in any room, enabling lectures to be captured without disruption even in the event of changes. The remote controller, shaped like that of a TV, is easy to operate and has received praise for enabling smooth control during lectures.

▲Lecture room setup: The blackboard is captured by an AW-HE40HW installed on the ceiling.

▲A host PC is used for video streaming and an AW-RM50G is used to control the AW-HE40HW.

▲An AW-HE40HW is installed on the ceiling.



▲Student view on PC screen: The text on the blackboard is from a projector, with the teacher adding annotations in chalk. The clear reproduction of projected text and the color of chalk have been well received by users.

Future prospects

We want to use this system as an important part of infrastructure for promoting ICT-based learning

This year, all non-practical lectures were conducted remotely, but we plan to shift to in-person teaching from next year. In order to enable students to congregate on campus while maintaining appropriate distancing, we plan to implement "satellite classes" that connect the lecture room where the teacher is present with a number of other lecture rooms over Zoom. The Education Department is currently overseeing the progress of demonstrations and testing. We are also exploring applications such as live streaming of seminars at academic conferences and recording video of lectures. Although COVID-19 was the catalyst for introducing this camera system, it has already become an indispensable part of the university's infrastructure. Even after remote classes come to an end, we hope to put it to a wide range of uses.

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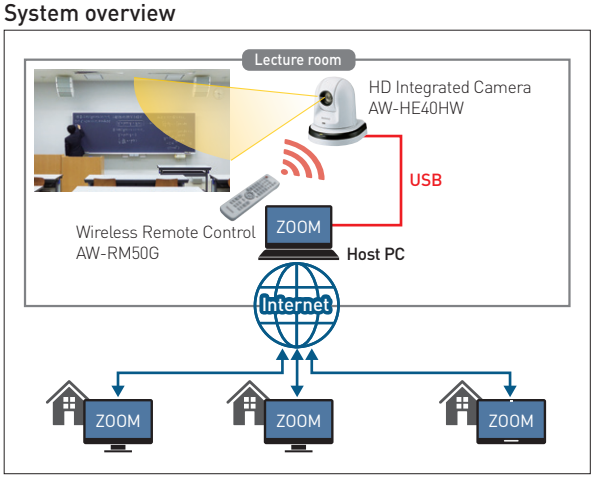
System overview



Equipment delivered

•HD Integrated Camera **AW-HE40HW** x21 •Wireless Remote Control **AW-RM50G** x21

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See our website for details on other projects. https://pro-av.panasonic.net/en/