Minnesota State University

Mankato, Minnesota

Immersive Technology On a Grand Scale

360-degree digital video, lighting and sound turns university ballroom into an immersive meeting and concert environment

The terms "immersive technology" and "student union ballroom" don't usually go together.

But when the Centennial Student Union at Minnesota State University in Mankato renovated its ballroom last year, "immersive" was the best word to describe its new video, sound and lighting system.

This system, part of a $4.5 million renovation completed recently, gives the new space capabilities closer to what you'd expect at a nightclub in Las Vegas than anything on a university campus. It includes a 17-screen wrap-around video system, a unique lighting system that combines LED wash lights, theatrical lights and linear LED ceiling fixtures, a powerful house sound system and the ability to rig concert sound systems brought in by bands on tour.

Because all of the signal transport and switching is handled by Crestron DigitalMedia™, images are always shown at full resolution in their native formats. And, according to Terry Dahl of Video Services, Inc. (VSI) who installed and programmed the AV system, the room is surprisingly easy to control and manage.

More than a place to party

The new ballroom is more than just a great place for a party or performance. "We book about 550 events each year on average," says Laurie Woodward, Director of the Centennial

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Student Union and Student Activities. Events range from student, faculty and local business meetings to events held by university groups and townspeople.

In its first days of operation, Woodward says it hosted a major fair for new students trying to decide their major, a career day for seniors, a lecture by National Geographic Photographer Jimmy Chin, who showed photos on the screens all around the room, a concert featuring an orchestral history of Minnesota, the launch of a capital funds campaign by the university foundation, a wedding, a scholarship dinner, career fair and Halloween party.

The space can be divided into up to five sections, handling meetings and events for three to 1200 people. With so many projectors installed, no single section has less than two high-definition screens available.

The video processor is state-of-the-art. Will Craig, Principal Multimedia Consultant for Stillwater, MN - based Elert and Associates, who designed the video and audio systems, used a master computer running software to create a single image using any or all of the projectors.

Since the system feeds seventeen 1920 x 1200, 5000-lumen projectors, the system gives an event planner a 32,640 x 1,200 pixel canvas. He or she can populate that space with virtually any type of still image, animated graphic or video from 28 separate digital and analog sources input into a Crestron DigitalMedia™ switcher. "We were trying to build a digital palette for students and other users to create interesting datascapes that can transport and inspire people," Craig explains.

Operators use a Crestron control system, touch screen or iPad® with the Crestron Mobile Pro® app to control all inputs, house lights, volume levels and settings on the sound system. There are also five 4" wall-mounted Crestron touch screens, one for each section of the room, providing basic room and presentation controls.

A built-in house PA, two amplifiers and 17 ceiling speakers can be configured with any of the Crestron touch screens or the iPad. The room is designed to accommodate performers who would normally bring in their own concert systems. "We have good rigging points so a band can fly the sound and lighting gear they choose," Woodward explains.

Most importantly, the ballroom is a great teaching tool. "We wanted the ballroom to be a laboratory for our theater department and students from other departments, as well as, a place where they could learn how to work with multimedia projects, concerts and events," explains Dan Elliott, CRUX Operations Director. "The new systems offer an opportunity for theater majors, music majors and others to demonstrate what they're learning in the classroom before they get their first job in the field."

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Simple presentations made simple

Given the complexity and sophistication of the technology, the university wanted traditional presentations to be simple to set up. "We were asked to create a system so easy and quick to use that someone with no prior knowledge of the systems could walk into the room, plug a laptop or another source in and make it work," Craig explains.

To make this possible, the design team first designated one projector in each space as the default projector for a simple presentation. If someone goes into any section of the ballroom, plugs in his or her laptop and presses a button on the Crestron touch screen, the image immediately appears on the default projector.

Second, they created a presentation cart for each section of the ballroom with a wide variety of source inputs, so the system will work with any device the presenter uses. "Because the room is used for so many different types of event, we did not want staff looking for cables or connectors or manually connect devices for users," Craig explains. The carts also include a 24" LCD preview monitor, an audio mixer and the Crestron MPC-M20 media presentation controller.

The system also uses a photo cell to detect which airwalls are open and closed, so users do not have to designate which section or sections of the ballroom they are in. Plug in a device and the Crestron processor switches to the proper input, turns on the appropriate projector and activates the appropriate section of the room-combining sound system. The DigitalMedia switcher automatically handles any issues with EDID and HDCP copy protection, so the system works reliably.

A fiduciary responsibility

Woodward says one reason the system has so many capabilities is that she was determined to get the best possible value for her students. "We saw this as a once-in-a-lifetime opportunity to build this kind of space. In higher education, we do not have the budgets to create and renovate a ballroom like a hotel might. We have to do the best we can to design systems that will adapt to new technologies as they emerge."

Terry Dahl adds that the DigitalMedia backbone will be useful for many years to come. "The digital wiring and switcher has more bandwidth than is needed for the 1080p signals that it's currently carrying. When Deep Color and higher resolution standards come along, whether 4K or something else, DigitalMedia will be ready."

"DigitalMedia has worked very well," Craig adds. "We put our trust in our relationship with Crestron and I'm very happy to say they came through. They kept the promises they made last year about the DM® product."

"We have a fiduciary responsibility to keep these systems viable long term," says Woodward. "Student unions are built and maintained with student fee dollars. Our students are making the investment in their school."

"We're really excited about the endless possibilities that we have here," she adds. "I can't tell you what our students and clients will do with this space, because I don't know what they will come up with. We're counting on them to dream a bigger dream and then make it a reality."