



CASE STUDY

Wake Tech Creates Multipurpose Presentation Spaces with Extron AV Switching, Distribution & Control Products

Extron



Lecture hall control booth.
All photos courtesy of Wake Technical Community College.



Main AV equipment rack.

Wake Technical Community College (Wake Tech) in Raleigh, North Carolina, serves approximately 70,000 students. At the college's 127-acre Scott Northern Wake Campus, they recently completed full renovation of a large space to create a versatile high-tech lecture hall contiguous with a sunlit atrium. The 4,600 square foot lecture hall includes a stage facing an audience of 275. The 2,500 square foot Atrium seats up to 95 people at tables that accommodate work or dining. The lecture hall hosts presentations, plays, singing competitions, local television broadcasts, and more. The atrium is used as a prefunction area, as an overflow space for events in the lecture hall, and as a standalone venue to host college and community events.

Wake Tech's IT/AV staff worked with pro AV integrator Inter Technologies Corporation to design and install the AV

systems. Extron was selected to provide AV switching, distribution, and control products for the project.

CHALLENGES

Wake Tech's Joshua Cruz, End User Support Analyst II, developed the statement of work for an AV system that would meet the needs of presenters, performers, and audiences who would be using the renovated lecture hall and atrium. Detailed design, installation, programming, and commissioning was performed by an Inter Technologies team led by Audio Visual Project Manager Clinton Wimberly. The AV design is fairly complex compared to Wake Tech's typical classrooms. In addition to the Extron equipment, the stage lighting, house lighting, and sound systems all need to be controlled.



Lectern AV rack with ShareLink Pro 500 presentation gateway and IN1808 scaling presentation switcher.

DESIGN SOLUTION

Most Wake Tech academic and conference spaces are outfitted with Extron AV switching and control, and that is the case for this venue as well. An 8x6 DTP® CrossPoint® 4K presentation matrix switcher services the lecture hall and atrium. It allows a variety of AV content sources to be shown on the lecture hall's main on-stage projection screen via a ceiling-mounted laser projector, on a 65" flat panel display at the lecture hall entry, and on three 77" OLED flat panel displays in the atrium.

AV content can come from the on-stage lectern, from the lecture hall control booth, from an HDMI wallplate in the atrium, or from stage-facing and audience-facing tracking PTZ cameras in the lecture hall.

IN1808 Presentation Switcher Selects and Scales AV Content Sourced from the Lectern

The lectern is located on the lecture hall stage. An IN1808 contained in the lectern determines which AV content originating from the lectern is supplied to the DTP CrossPoint switcher in the main AV equipment rack. It also performs any video scaling that may be required and uses its DTP twisted pair output to send the selected AV signals over the extended distance to the main AV equipment rack via shielded CATx cable. AV sources available at the lectern include a document camera, content from the lectern PC, and images from the lecture hall PTZ cameras. Other inputs handled by the IN1808 are USB, DisplayPort, and HDMI feeds from guest devices that plug-in via active cables that convert these inputs to

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Joshua Cruz
IT Analyst II
Wake Technical Community College

HDMI before application to the IN1808. Also feeding into the IN1808 is the lectern’s ShareLink® Pro presentation gateway that allows wireless sharing of content from portable devices via Wi-Fi. Presenters at the lectern control source selection, volume, and other AV system functions using a TLP 725T TouchLink® Pro touchpanel.

Control Booth is the Control Center for Theatrical Performances

For theatrical and musical performances demanding high production values for sound, lighting, and audiovisual support, there is a concert-caliber control booth run by seasoned directors and technicians. Positioned mid-house, the control booth is equipped with a live production audio mixing console, a lighting control console for stage and house lighting, and an AV system control station.

Audio Mixing: Wireless mic receivers installed in the control booth connect the audio mixing console to a multitude of wireless gooseneck, handheld, and lavalier mics located at the lectern, at the control booth, and on stage. This is in addition to wired mics and other line audio sources that can be connected at three floor boxes at stage-left, -center, and -right. Up to five mics can be used without going through the mixing console.

Booth Operator Station: The control booth AV control station has a 10" TouchLink Pro Touchpanel from which a technician can control all AV system functions. The AV system control station also includes a house desktop PC and a port for connection of a guest laptop PC. Both PCs can provide program inputs to the AV system, augmenting the array of other program sources that can be displayed on the lecture hall and atrium screens. The HDMI ports

of the two PCs connect to the DTP CrossPoint switcher in the main AV rack through a pair of HC 404 meeting space collaboration systems that provide AV signal extension up to 230 feet over shielded CATx cable.

Main AV Equipment Rack Brings It All Together

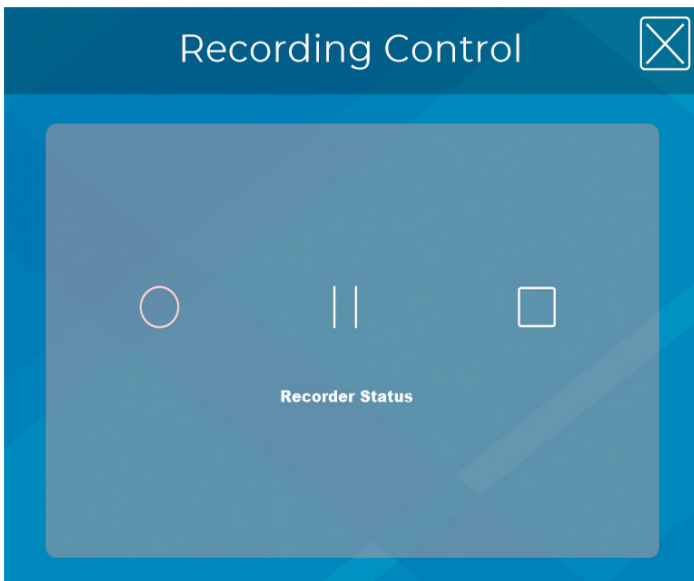
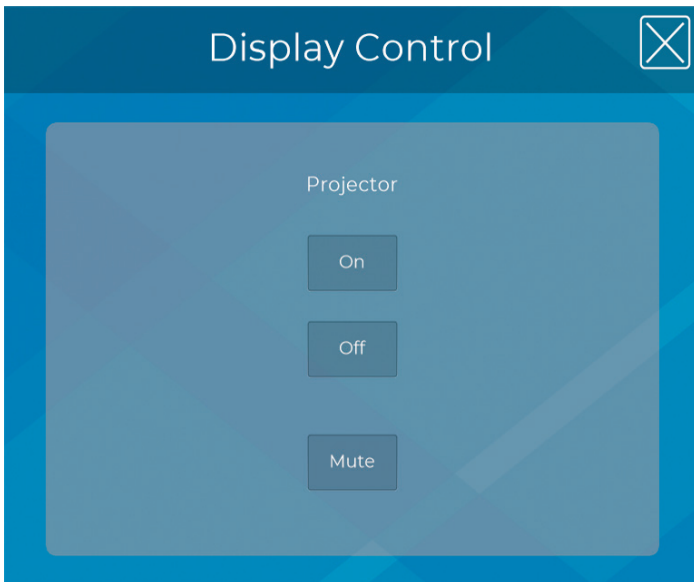
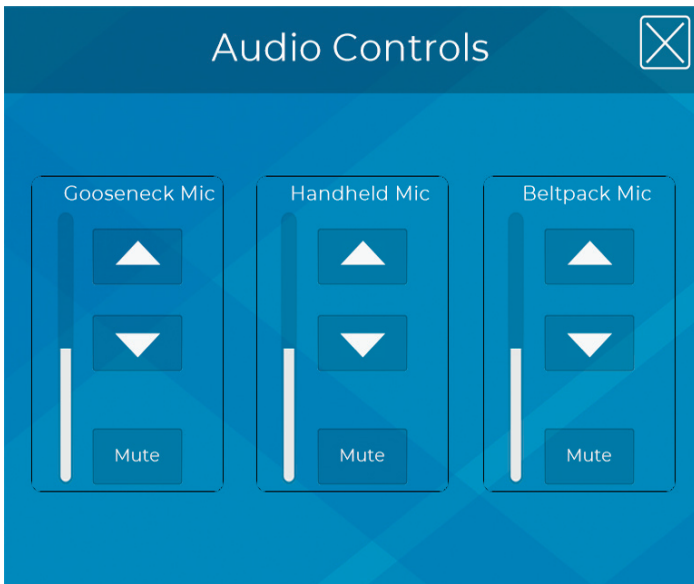
The main AV equipment rack houses the DTP CrossPoint presentation matrix switcher that serves as the central distribution point for all AV content in the lecture hall and atrium. A digital audio distribution server and audio power amplifiers also reside in this rack, linked to the control booth and the lectern via a Dante audio network. The audio system drives high-power vertical array speakers and subwoofers at the lecture hall stage and compact column speakers in the atrium. An SMP 352 streaming media processor located in the main AV equipment rack can record and stream AV content from any available source. It receives AV content from the DTP CrossPoint switcher, from the PTZ cameras, and from the audio network server. The SMP 352 can also send content from its confidence monitor HDMI port back to the DTP CrossPoint switcher for distribution to the lecture hall and atrium displays.

AV SYSTEM CONTROL

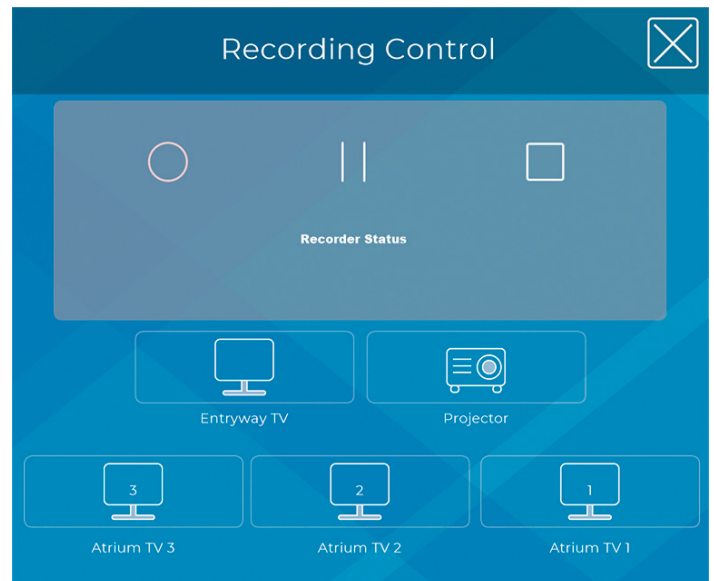
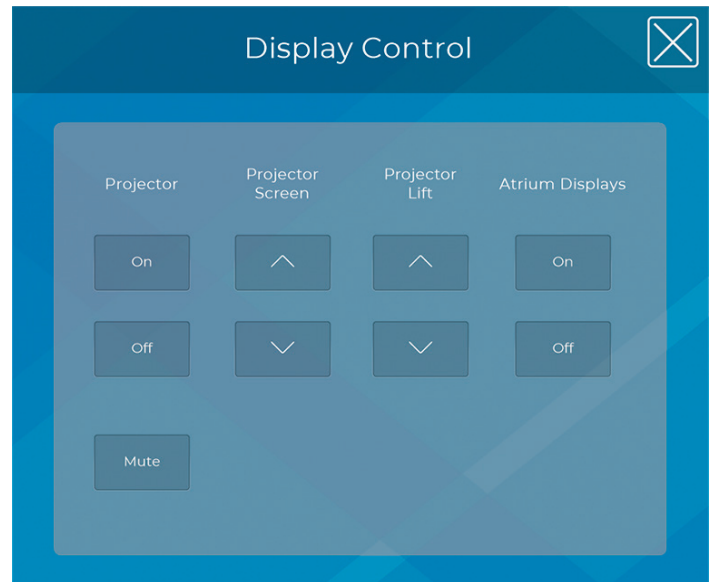
AV system control is handled by an IPCP Pro 350 control processor located in the main AV equipment rack. It communicates over the building Ethernet network with all AV system devices and TouchLink Pro touchpanels at the lectern and the control booth. The control processor also includes relays that control raising and lowering the projector scissor lift and the projection screen. The Extron Control App mirrors AV control touchpanel screens to an iPad wirelessly, allowing event organizers to control AV system functions while roaming anywhere in the venue.

The touchpanel user interface is straightforward and intuitive. The touchpanel screens seen by users at the lectern are simplified versions of the screens available to technicians in the control booth, allowing presenters to start lecturing immediately without the need for extensive AV system setup. The control booth touchpanel screens provide added capability to meet the requirements of theatrical productions and for setting up multiple feeds to multiple displays in the lecture hall and the atrium.

Lectern GUIs



Control Booth GUIs



Compare the touchpanel GUIs for controlling the same functions at the lectern or the control booth. The lectern GUIs (left column) are simplified and control just the essential functions needed by presenters. The Control Booth GUIs (right column) provide more complete and advanced functionality for AV system operators.

RESULTS

The lecture hall and atrium play a key role in Wake Tech's fine arts degree program. It serves as the venue for a variety of dance, musical, and drama performances by students and visiting artists. For example, local television station WRAL produces the "Brain Game" academic competition show from the lecture hall, as shown in [THIS CLIP](#). Wake Tech rents the facility to community groups and corporations for educational events, conferences, workshops, training sessions, and meetings.

Joshua Cruz and his supervisor, Jennifer Unitis, Manager of Academic Computing, report that they've received positive user feedback about the facility's AV amenities. Event coordinators find the ability to seamlessly link audiovisual sources and screens between the atrium and the lecture hall especially useful to accommodate overflow crowds and for using the atrium as a "backstage" area. Event coordinators, once trained in AV system operation, handle most functions without technical assistance.

Cruz says that the AV system installation went well, with no surprises. From the time the Inter Technologies installation team arrived on site to the point where



The atrium located adjacent to the lecture hall can be used as an extension of the lecture hall for prestaging performances or to accommodate overflow audiences. It also functions as a venue to host college and community events with or without food service. It is equipped with flat panel displays, speakers, and HDMI connection ports that link to the lecture hall AV system.

the venue was commissioned took approximately four weeks. Explaining why Extron was chosen to supply the AV switching, distribution, control, and collaboration products, Cruz and Unitis state that, "Reliability, cost, and ease of use have driven the decision for Wake Tech to select Extron as our preferred vendor. Most of our campuses are outfitted with Extron in our academic spaces and conference rooms. The hardware can easily be maintained by our team because they have received training and certification from Extron, and they are thoroughly familiar with the gear because they work with it every day. Additionally, the support from Extron is top notch."

EXTRON EQUIPMENT - PARTIAL LIST

Model	Description
DTP CrossPoint 86 4K IN1808	8x6 Seamless 4K Scaling Presentation Matrix Switcher
DTP HDMI 4K 330 Tx	Eight Input 4K/60 Seamless Presentation Switcher
DTP HDMI 4K 330 Rx	Long Distance DTP Transmitter for HDMI
SW4 12G HD-SDI	Long Distance DTP Receiver for HDMI
IPCP Pro 350	Four Input 12G SDI Switcher
TLP Pro 1025T	IP Link Pro Control Processor
TLP Pro 725T	10" Tabletop TouchLink Pro Touchpanel
Extron Control App	7" Tabletop TouchLink Pro Touchpanel
SMP 352	Control App for TouchLink, eBUS, Network Button Panels, and MediaLink
HC 404	Dual Recording H.264 Streaming Media Processor
ShareLink Pro 500	Meeting Space Collaboration System
	Wired and Wireless Presentation Gateway



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