Courtesy of Diane M. Kennedy

# Higher Learning Made Accessible Using Alexa and Extron Programmable Control

"Alexa fired up my imagination and set me on the path to integrate it with an Extron Pro Series control system so that non-technically savvy faculty members and others can use our AV/IT systems with ease."

Robert E. Kennedy, MS, CTS
Media and Control Systems Engineer
at the University of Scranton

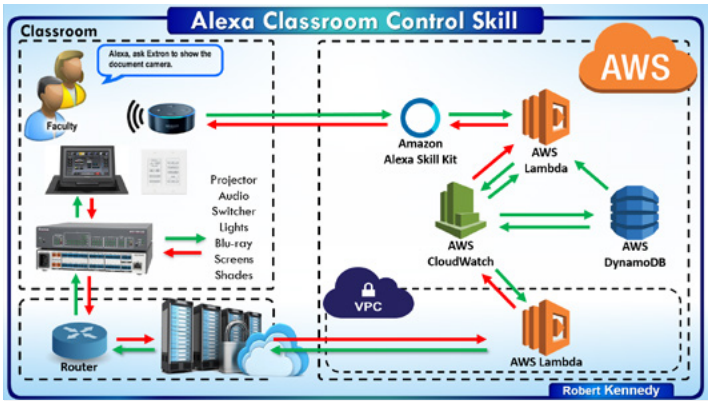
## Challenges

Robert Kennedy, the Media and Control Systems Engineer at the University of Scranton in Pennsylvania had a vision of the ideal, user-friendly classroom AV system interface. It would support hands-free operation and be ADA-compliant. He wanted to use voice activation to control all operations, including powering up the system, selecting a source, pausing the presentation for questions, and recalling lesson material for display.

Kennedy decided to pair Amazon® Alexa™ with Extron Pro Series control systems. IP Link® Pro control processors and Alexa use API modules to control an AV device. Typically, a programmer must write each API. The challenge was how to write the vast quantity of modules needed for a university campus installation.

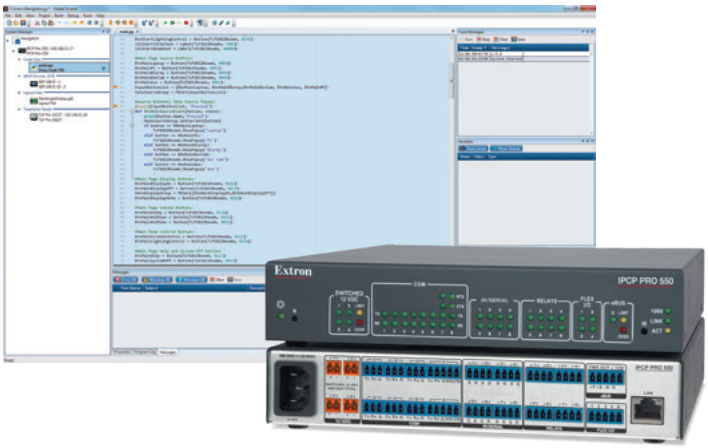
## Alexa and Extron Control: The Perfect Match

Kennedy had a breakthrough when he realized he could let Alexa control the Extron IPCP Pro 550 control processor, which operates the AV devices. Instead of writing an Alexa API for each device, he wrote just one API to control the Extron processor. The Extron Global Scripter® programming environment enabled building a separate module that causes the control process to identify Alexa similar to the way it identifies a TouchLink Pro




**Graphical representation of the Alexa Skill/Extron Alexa process. Courtesy of Robert E. Kennedy, CTS, The University of Scranton**

**An Echo device records the command and streams it to Alexa for extrapolation and transmission to the IPCP Pro 550 control processor. Courtesy of Diane M. Kennedy**




**Global Scripter® was used to build a module that makes Alexa appear similar to a TouchLink Pro touchpanel to the IPCP Pro 550 control processor.**

touchpanel. A simple verbal command during testing successfully triggered a relay on the IPCP Pro 550, confirming there was a visual and audible communication path to the control processor.

Two programs, Alexa Skill and the Extron Alexa module, enable voice operation of devices managed by the Extron control processor. Alexa Skill facilitates sending voice commands to an Echo™ device to be parsed and extrapolated into meaningful intents that can be processed in the cloud. The Extron Alexa module enables bidirectional communication between Alexa Skill and the control processor. Alexa confirms each request with a default response and indicates what was done. The Extron Alexa module offers more flexibility, enabling default responses to be modified for enhanced clarity and detailed information. The result is a convenient and ADA-compliant method of AV system control.

As an example, the instructor walks into the classroom and with a few verbal commands lowers the lights, turns on the AV system, selects the lesson, and sends the content to all room displays. The instructor is free to move among the students while continuing to teach or assist with group dynamics and collaboration. Voice control of the AV system is also extremely valuable to those with physical challenges.

## Equal AV System Access for All

After two years of development and testing the pairing of Alexa and Extron Pro Series control systems, Robert Kennedy has built a working and scalable solution for classroom AV voice automation. Currently, it can carry out over 250 unique commands.

Faculty can operate classroom technology without having a working knowledge or comfort level with the AV control system. The design should prove to be most helpful in interactive spaces. The instructor can issue verbal commands such as sharing content from one student station with the rest of the class while moving among the other stations.

Voice control also takes a step beyond the 2010 ADA standards that directly apply to classroom audio visual system design. While instructors and students enjoy the ease of voice control, the university's evolutionary AV systems controlled by Alexa and the Pro Series control processor enable individuals with mobility and vision challenges to have equal access to the benefits of technology in the classroom.