CASE STUDY

It’s Game On with Extron NAV at Long Beach City College’s New Esports Facility

Extron

Before the LBCC esports lab existed on the LBCC campus, the players commuted to the esports lab at St. John Bosco High School (left). With the opening of the esports facility in Building M on the LBCC campus (right), esports players can compete on their own home field. (St. John Bosco High School Photo Credit: Matthew Walker).

"Extron collaborated with the LBCC AV technical staff from start to finish. This is LBCC's first esports facility, and many of us were new to esports. Extron brought their experience to the table and explained the options for AV routing and control in esports applications. Based on options presented, we specified NAV® Pro AV over IP for the project. This was the first implementation of AV over IP at LBCC, and it turned out great. We're now considering AV over IP for other teaching spaces at LBCC."

Chris Greenwood
Project Manager
Educational & Multimedia Technologies
Long Beach City College

Mayra Aguilar
Project Manager
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As one of the largest community colleges in California, Long Beach City College (LBCC) provides technology-rich learning environments, a broad range of academic and career technical instructional programs, strong community partnerships, and economic and workforce development initiatives that prepare students for transfer to four-year institutions, career advancement, and personal development. The varied courses of study range from culinary arts to business, health sciences; kinesiology, language arts, communication, science, engineering, mathematics, social sciences, behavioral sciences, visual arts, performing arts, and more.

LBCC has a championship-winning esports program that competes in the National Esports Collegiate Conference (NECC) leagues against more than 600 other two-year/four-year colleges and universities from across the country. The LBCC esports program has teams specializing in League of Legends, Valorant, Rainbow Six Siege, and Rocket League. LBCC entered esports in 2022. For two years, players competed from the esports lab of a nearby high school. In 2024, LBCC opened its own esports facility on the Liberal Arts Campus. Extron is there to provide the audiovisual technology that immerses fans and players in the action.

CHALLENGES

As LBCC's esports program grew in popularity, it became obvious that the players needed an on-campus home field so that competing would not require treks across town to another school's esports facility. The vision was to create a dynamic esports facility that could support both recreational and league competition gaming.

The gaming floor is surrounded by seven 75” displays. Five tracking PTZ cameras capture views of players in action.

“Extron’s AV control system design for the esports facility met our requirement to keep things intuitive for users. The touchpanel GUIs show clickable room maps of gaming stations and video displays. That makes assigning gaming stations to teams, creating competition matchups, and arranging multiple video windows on room displays very natural for users while the control system handles switching and routing behind the scenes.”

Chris Greenwood
Project Manager
Educational & Multimedia Technologies
Long Beach City College

The vision became reality under the direction of LBCC Educational and Multimedia Technology Project Managers Chris Greenwood and Mayra Aguilar, with requirements inputs from LBCC Director of Esports Gabe Giangualano. Local California firms HPI Architecture, P2S Engineering, and EKC Enterprises, Inc. assisted with room design, audiovisual design, and AV system installation. Extron products were specified for AV switching, distribution, and control.

The Wish List:

AV Routing Flexibility. The AV system needed to access video and audio gaming content from any player’s or coach’s PC and show it on multiple flat panel displays reinforced by enveloping sound. During competitions, shoutcasters needed the ability to grab video and audio from any gaming PC to package and produce content showcasing league play in real-time, with fast-paced commentary, shown to in-room audiences on large flat panel displays and streamed to internet gaming platforms like Twitch or YouTube.

AV Control from an Uncluttered GUI. To control AV system routing selections, LBCC needed touchpanels with screens large enough to display all the inputs and outputs in a single, uncluttered GUI layout. Most LBCC standard classroom AV systems use 10” touchpanels. But for the fast-paced esports environment, a larger touchpanel screen was selected to accommodate 47 gaming PCs, ten large flat panel displays, plus six PTZ cameras. AV system control presets were specified so that multi-window displays of team and player matchups could be created on-the-fly with a single touchpanel tap.

NAV encoders mount under the table below each gaming station to send content to the AV over IP network.

NAV encoders, scaling decoders, MGP 641s, network switches, and other AV equipment housed in racks located in the equipment room.

Lots of Auxiliary Input/Output Connections. Auxiliary HDMI and USB connection points available in wall mounted plates and housed in surface mounted boxes on each gaming table were required so that coaches could roll-up a mobile gaming PC to patch-in when needed. These boxes were specified to also handle additional connections when students bring equipment, such as their own game consoles or assisted listening devices.

DESIGN SOLUTION

NAV Pro AV over IP – Flexible and Scalable Backbone for Switching and Distribution

With such a large number of AV endpoints, and the certainty that those numbers would grow over time, it just made sense to go with a NAV Pro AV over IP switching and distribution infrastructure that was easily scalable. For an esports environment where player response time can spell the difference between winning and losing, NAV's ultra-low latency transmission provides an important player edge.

NAV E 101, NAV E 121, and NAV E 401 D encoders receive AV content and stream through standard 1 Gbps Ethernet switches to NAV SD 101 scaling decoders. NAV encoders and decoders also receive optional Power over Ethernet – PoE from the switches via the same network cabling, simplifying the wiring and installation. The NAVigator System Manager with a 240 NAV endpoint LinkLicense® configures, maintains, manages, and controls all the NAV encoders and decoders from a single intuitive browser interface. With a build-out capacity of 240 endpoints, there is plenty of room for growth as more gaming stations and displays are added.

Multiple windows (up to eight) can be shown in a variety of split screen arrangements on any flat panel display in the room and also to viewers following the action over the Internet. This view shows six windows.

One of the five tracking PTZ cameras that capture views of players on the gaming floor.

47 Gaming Stations and Five Coaching Stations in a Floorplan Arranged for Competition

On the gaming floor, 47 Alienware gaming stations are set up on six tables laid out into competition groups. Three of the tables have five gaming stations on each side for 5v5 team practice. Two tables are set up for 3v3 practice. Five stations are set up on a separate table for solo gaming. There is a coaching station located at the end of each team competition table. Each gaming and coaching PC connects via HDMI to an accompanying NAV encoder mounted to the underside of the table.

Flat Panel Displays and PTZ Cameras Share the Gaming Action with Players and Spectators

Displays and PTZ Cameras Everywhere. Wherever you are in the esports facility, all you have to do is look up, and you'll see the gaming action playing in 4K clarity. Seven 75" flat panel displays are positioned on the walls surrounding the gaming floor. Two 65" displays are in the shoutcaster booth to allow event producers to monitor the programming they are creating. A 75" display in the reception lobby alerts people to what's going on as they arrive, and as they pass through the hallway, a 55" display lets them keep track of the gameplay. Five tracking PTZ cameras cover all the player activity on the gaming floor.

Multi-Window Split Screens. The AV system includes two MGP 641 xi multi-window processors, each able to display up to four source windows on a single screen in a variety of split screen arrangements. The MGP units are daisy-chained, allowing up to eight source windows to be shown on any

The Clerk Station is located on the reception desk at the entry to the esports facility.

The reception desk touchpanel operated by the clerk provides an intuitive operator interface for assigning players to teams, naming the teams, and creating matchups. It also sets-up AV signal routing, speaker volume, and other routine tasks.

display. That gives the production crew latitude to create split screen multi-competitor matchups and other dramatic views of gameplay.

Clerk Station Sets Up Team Matchups and General AV System Control

The clerk station is located at the reception desk, just inside the esports facility entry door. This is where players check-in, receive their gaming station assignments, and sign-on to teams. The clerk desk includes a 15" TouchLink® Pro touchpanel where the clerk sets-up the AV system for these assignments, assigns players to teams, and creates matchups. AV system control is handled by an IPCP Pro xi control processor.

At startup, the AV system initializes in guest mode. The clerk enters a PIN to access administrator mode, in which matchups are created, edited, and deleted. By tapping on the gaming station floorplan displayed on the touchscreen, the clerk can create up to six team competition matchups of 5v5 or 3v3 and two team practice matchups of 6v6. The clerk can also create individual 1-on-1 matchups.

Desired team names can be assigned, or the system can assign default names. System presets selected by the clerk automatically establish AV signal routing to show player station screens, plus images from any of the room's PTZ cameras, in multi-window format on any or all of the flat panel displays. The ceiling speakers can carry gameplay audio, voice from the shoutcasters, and voice from an available set of bodypack and handheld wireless mics. The touchpanel has controls to set audio volume and mute for the ceiling speakers.

The shoutcaster booth has two announcer mics, a tracking PTZ camera, an AV system control touchpanel, and two 65" flat panel display monitors.

Play-by-Play Announcers and Production Staff Work from the Shoutcaster Booth

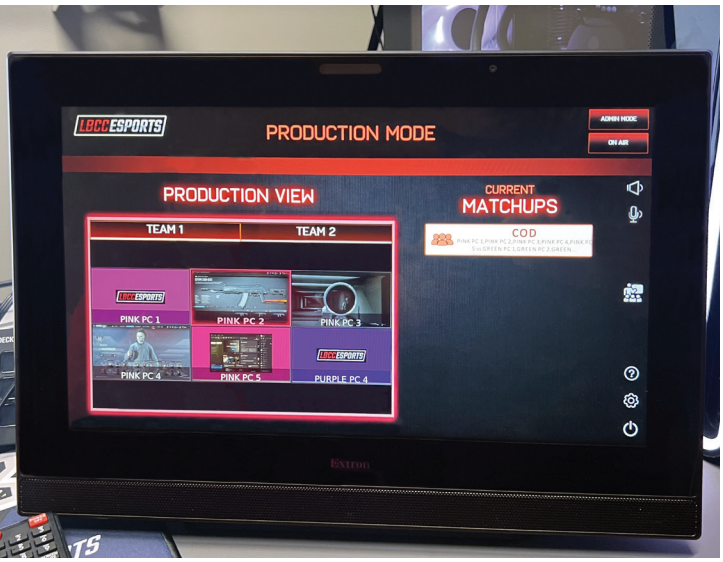
The shoutcaster booth accommodates a production staff of two at a pair of PC stations. Studio-caliber condenser mics are at both positions to announce play-by-play commentary. A tracking PTZ camera captures announcers' body language and gestures that add to the excitement. Two 65" displays let production personnel monitor the program content sent out to the audience.

AV System Controls for Event Producers. The 15" touchpanel in the shoutcaster booth has all of the AV system control capabilities available at the reception desk touchpanel, plus additional production mode controls. A single button tap brings-up the Production Mode GUI. This GUI gives program producers tools to create engaging esports broadcasts with polished, professional production values. The following list describes a few of the tools that allow the production team to create dramatic esports programming that keeps local and online audiences glued to their screens while viewing gaming action:

- When production mode is accessed through the Production Mode button on the shoutcaster touchscreen main user interface, all existing video routing selections to the room's flat panel displays are cleared and matchups previously set up on the main user interface are listed.

- Pressing any of the listed matchups automatically routes video feeds for the first of two opposing teams. In 5v5 matchups, gameplay video from the first team's five players, plus an observer, appears in multi-window format on one of two gaming floor main 75" displays. In 3v3 matchups, video from

The shoutcaster booth touchpanel includes all of the clerk station controls, plus an array of event production controls.



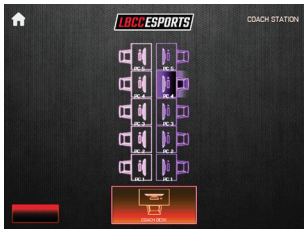
the first team's three players, plus an observer, appears on the 75" display. The video appearing on the 75" display is mirrored on the shoutcaster touchscreen for confidence monitoring.

- The production mode GUI includes selectable preview windows, with visual indication of which windows are currently active. When a producer taps on the desired preview window, the AV content for that window is selected for routing to the second of two main 75" displays, and also to online viewers, via OBS Studio. OBS (Open Broadcaster Software) is an open-source app used by esports enthusiasts worldwide for video recording and live streaming.
- Toggle buttons above the preview windows allow producers to switch between the first and second team of two opposing teams to compose the multi-window viewing layout that is sent out to the local and online audiences.

Coaching Stations

The five coaching station PCs and their touchscreen monitors are semi-mobile, sitting on roll-around tables that are positioned at the end of each team competition table. Each station is equipped with a NAV encoder, allowing the coaching PCs to feed AV content into the AV over IP network. SMB 114 surface mount connection boxes located at the end of each team competition table provide Ethernet connections that allow the coaching stations to hook into the AV over IP network. There are also audio and AC power connections in these boxes for use by the coaching stations.

The coaching stations display an interactive virtual touchpanel user interface on their PC touchscreens using LinkLicense for



The coach is monitoring gaming action while standing at one of the coaching stations. There is a coaching station at the end of each competition table. The coach taps the PC touchscreen to select the desired player's gaming activity to observe. The coach's touchscreen GUI shows the gaming stations in either a 3v3 or 5v5 table layout.

"LBCC is an Extron House. In our experience installing and maintaining AV equipment in our classrooms, we've found Extron products to be superior to those offered by other AV technology suppliers. When non-Extron learning spaces need an AV refresh, we transition them to Extron. Customer service and technical support from Extron is terrific. When we place orders for Extron products, we can rely on timely delivery."

Chris Greenwood
Project Manager
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Mayra Aguilar
Project Manager
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User Interfaces. The touchpanel interface presented to the coach shows six buttons or ten buttons, corresponding to the 3v3 or 5v5 table configuration. When the coach taps any of the player PCs, the gaming video from that player appears on the coach's PC monitor. The coach can route what appears on that monitor to any of the flat panel displays in the room via the AV over IP network so that larger groups can watch the selected player's gaming activity.

RESULTS

When the LBCC esports facility hosted its first tournament of the season in late October 2024, the place was abuzz with nervous energy. That energy emanated not only from the Vikings Esports Team players, but from the IT and AV hardware and software specialists that designed and built the custom high-tech esports facility. Both the esports team and the technology in the facility proved themselves up to the challenge that day.

Gabe Giangualano, LBCC's Director of Esports and Esports Team Head Coach, believes the esports facility can open avenues outside of esports. "I'm anticipating that the IT and AV technology that we've incorporated into the esports facility will serve as a blueprint for other departments. I want this technology to benefit LBCC's academic programs in media, broadcasting, game design, and others that could adopt it," Giangualano said.

LBCC student Cesar Hernandez, who is majoring in Computer Security and Networking, joined the esports team after becoming interested in the facility's computer, network, and AV

The first league competition to be held in the new LBCC esports facility was a huge success.

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Gabe Giangualano
Director of Esports
Esports Team Head Coach
Long Beach City College

systems. "When I heard about the construction of Building M and the technology going into its esports facility, I knew I had to get involved in the esports program in any way I could," said Hernandez. "We have a great set of resources here, and I'm hoping to use them as I find my path in life and chart my career goals."

LBCC's esports program is unique among California community colleges, because it is officially affiliated with the school. That allows the school administration to provide robust support to the team, including championing the inclusion of a state-of-the-art esports arena in the newly constructed Building M.

Summarizing the outlook for the esports program, coach Giangualano states, "LBCC Esports is always looking for students to join our program. We aren't just a competitive program, we're also producing many types of promotional media, organizing events, improving the player development methods, and even growing our esports industry connections for enriching student experience and cultivating industry internships."

LBCC ESPORTS VIDEO LINKS

Click here to watch a fly-through video of the esports facility.

Click here to view tournament competitions on the official LBCC Vikings esports YouTube channel.

Click here to view a news feature covering LBCC esports, broadcast by CBS-Los Angeles KCAL News.

Photos courtesy of Long Beach City College and EKC Enterprises, Inc. Videos courtesy of LBCC and CBS-KCAL Los Angeles.

FEATURED EXTRON PRODUCTS

Model	Description
NAV E 101	1G Pro AV over IP Encoder – HDMI
NAV E 121	1G Pro AV over IP Compact Encoder - HDMI
NAV E 401 D	1G Pro AV over IP Encoder - HDMI and Ethernet – Decorator-Style Wallplate
NAV SD 101	1G Pro AV over IP Scaling Decoder - HDMI
NAVigator	Pro AV over IP System Manager
NAVigator LinkLicense	NAVigator 240 Endpoints Upgrade
MGP 641 xi	4K/60 HDMI Multi-Window Processor with DTP3 Extension
IPCP Pro 360Q xi	IPCP Pro xi Quad Core Control Processor
TLP Pro 1025M	10" Wall Mount TouchLink Pro Touchpanel
TLP Pro 1525TG	15” Tabletop TouchLink Pro Touchpanel
Control System LinkLicense	LinkLicense for User Interfaces
SMB 114	Surface Mount Connection Box - 4 Gang

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