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White Paper

The Foundation of Gaming

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

Contents

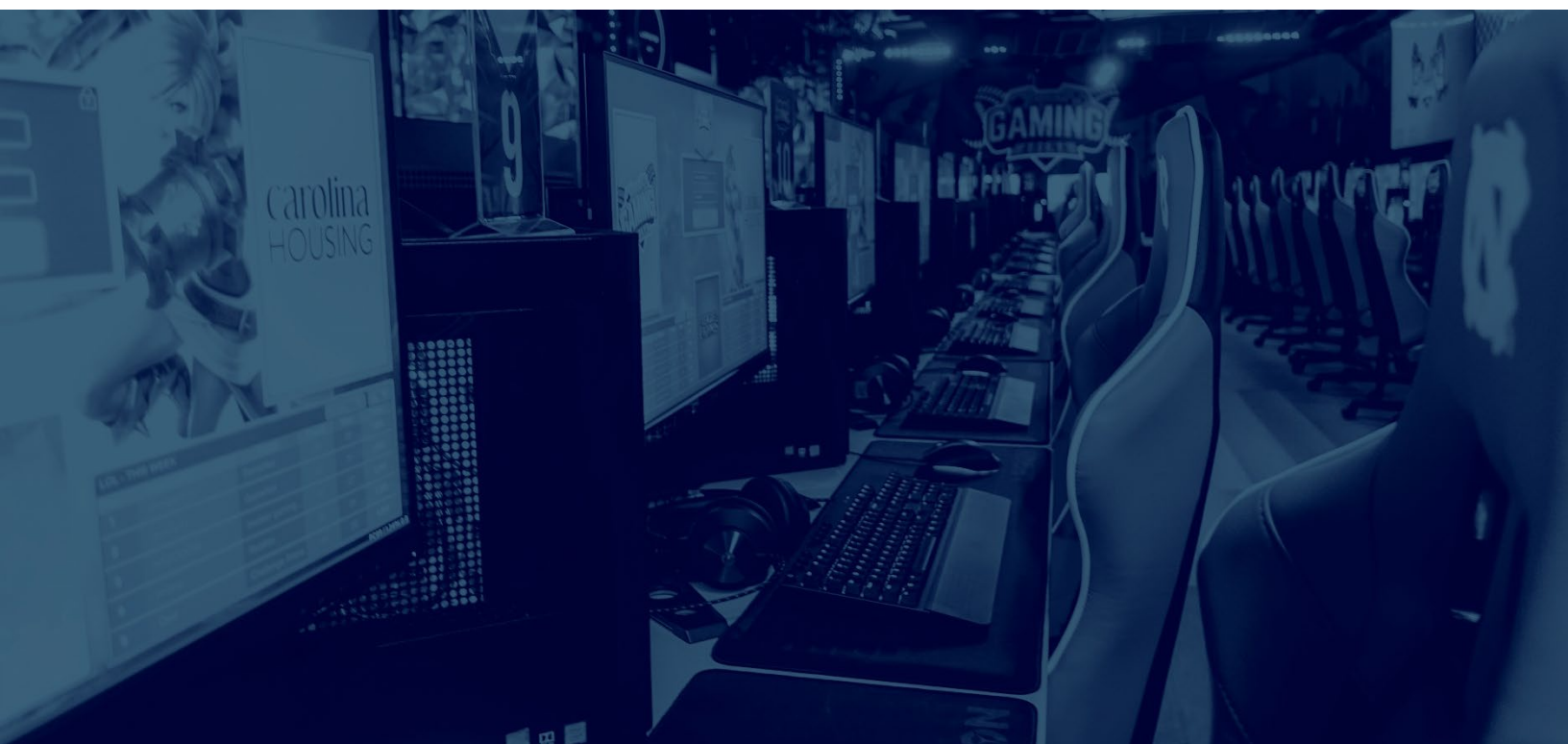
Abstract	3
Introduction	4
Challenge	4
Background	5
Arena Goals	6
Partnerships for Success.....	7
➤ Facility Partners.....	7
➤ Program Partners.....	8
➤ Governance Partners.....	8
➤ Industry Partners.....	8
➤ Academic Partners.....	9
➤ Research Partners.....	9
Community Engagement	10
Arena Layout	11
Physical Infrastructure	12
PCs and Peripherals.....	12
Consoles	12
Game Licenses	12
Server	12
Software Management.....	12
Furniture/Gaming Chairs	13
Lighting	13
AV/Audio Integration.....	13
Other Digital Devices.....	13
Future Growth and Flexibility.....	14
Esports Organization and Athletics Alignment	14
Academic Mission.....	14
Research Mission	15
Conclusion.....	16
Citation	17
Contacts	17

Abstract

Institutions of higher education can harness the intrinsic gaming communities on their campuses to establish gaming initiatives that provide infrastructure, developmental support, academic and competitive opportunities for their student bodies. Each opportunity can serve to benefit the other parts, creating efficiency and sustainability.

Esports programs do require initial investment, but unlock engagement opportunities that do not exist otherwise. If configured properly while retaining flexibility, they also generate revenue that can be returned to the program for future growth and success.

This whitepaper will explore the benefits of an esports program on a college campus and review the process by which Carolina Gaming was launched and successfully built the Carolina Gaming Arena, established the Carolina Esports program and enriched the Carolina Esports Club (formerly the UNC-CH Esports Club).



Introduction

Electronic gaming is an industry that has created an impression on most Americans. Gaming can be experienced in various mediums including smart phones, game consoles, and PCs, often provided free to consumers by game publishers who want engagement opportunities. This accessibility makes it likely that most people have participated in a version of electronic games, perhaps without being aware. Esports, the competitive organized structure of gaming, enjoys participation and viewership numbers that outpace most professional sports, including the NFL and NBA. In 2019, the championship match of one game title drew over five times the viewership of the Super Bowl¹. Despite that expansive exposure rate, there is a void of support for this community on college campuses.

Challenge

Few universities have created programs that encourage competitive esports, and fewer still have any recognizable initiatives around acknowledging and supporting the needs of the broader gaming community.

Some students hail from households where their exposure has been limited by choice or circumstance, and they are nervous to explore a community that they do not yet understand. For those we must provide a comfortable introductory experience that champions experimentation and understanding.

Other students seek competition in non-traditional sports but demand the facilities that they see benefit their peers. They want to see a physical infrastructure that levels the playing field in terms of networking, computing power and visibility.

Academic stakeholders see opportunity for educating students on maximizing their potential in this growing market, while researchers see vast potential for new ventures and studies on the effects and improvement of gaming.

Additionally, and by no means the only other concern, is that voiced by parents and administrators of distraction and addiction, with valid reason. According to the American Psychiatric Association, “gaming disorder is the only behavioral addiction” on the same spectrum as substance addiction². Any program that invites students to join the gaming community must be met with a careful and constant examination of the balance between enrichment and enablement. Failure to do so is a betrayal to the parents who entrust the institution with their children.

Specifically as it relates to the University of North Carolina at Chapel Hill, we saw growth potential in every area of gaming. We also had demand.

Background

In March 2018 there were two parties on campus that were seeking partners to build infrastructure to benefit esports at the University. The first group, comprised of the UNC-CH Esports Club leadership, was hoping to establish more permanent space and networking capabilities for their club as they sought to become varsity athletes and have a national competitive presence. The other was a pair of staff members hoping to see their vision of an official esports program at the University come to fruition.

Neither group found immediate acceptance or resources being offered for their goals. However, staff members Matthew Belskie and Michael Good sought to share their vision of opportunity for gaming to be bigger than a niche hobby during recreational time, and for it to be another avenue to represent their alma mater. They approached ITS ResNET, the technology support group that is assigned to Carolina Housing (the residential education program) for the purpose of on-site technology support and expertise. In order to persuade ResNET and Carolina Housing leadership, the scope of gaming had to be bigger than just competitive gaming. It had to include aspects of student well-being and community enrichment, and Belskie and Good presented examples of schools like UC Irvine and Boise State that each had pieces appealing to what Carolina represents and connections to Student Affairs divisions.

One of the major hurdles of expanding gaming on a college campus is understanding how to frame the proposal to meet the audience. There are many preconceived notions of gaming, with fear of the uncharted territory ever present. Describing gaming in a way that seemed accessible to the entire campus instead of a single club or team made the concept appealing. It also aligned with a strategic plan of Carolina Housing to establish unique experiences and spaces within the residence halls to benefit student growth.

The ResNET team began to pull in other partners for conversations to establish interest and define risks. The obvious partnership achievement would be the creation of a space on campus to expose students to high-quality gaming, and so this became the first project. This space would come to be known as the Carolina Gaming Arena.

Considering the audiences, the decision was made to apply for the Parent's Council Grant, believing if the concept could gain parent approval it should lower the risk considerations for other partners. That presentation was limited to a 5 minute opportunity in front of 50 parents representing current Carolina students. To achieve success, goals had to be defined to tell the story quickly.

Arena Goals

- Open access to high tech gaming equipment to all Carolina Students, regardless of socioeconomic background
- Provide an introduction to first-time gamers with a guide to healthy gaming skills
- Welcome hardcore gamers to a social center that promotes better practices around gaming
- Introduce academic workshops in Game Development and Game Theory to our students
- Partner with academic research around gaming culture and effects on student achievement
- Represent UNC Chapel Hill nationally in competitive gaming tournaments

While these goals were not yet finessed, and have been edited over time, they adequately conveyed the appropriate values for the arena. Carolina Housing obviously wants to invest in projects that benefit its residents, but there is an awareness to the impact its spaces can have on the greater campus community. To make sure resources are used in a way that creates equity, the space would be opened to all students and remain free for use.

To increase the community and encourage healthy conversations and social interactions, the arena would need to create comfort for new gamers who want to experience something new.

The facility would also need to offer high quality equipment and aesthetics to attract the most serious gamer – extracting them from the solo confines of their rooms into a space that encourages dialogue and community support.

And at Carolina we seek ways to use resources efficiently, so we wanted to use the same facility for social interactions, academic achievement and research studies.

Defining those goals helped to identify the partnerships that would be necessary moving forward.

Partnerships for Success

To achieve a product worthy of attachment to the Carolina brand, partners would need to be engaged who could bring key benefits to the project. The following partnerships were the result of hours of brainstorming and conversations on campus and are considered a strong foundation for other projects.

➤ Facility Partners

Facility partners were those that could help build the physical arena on campus with a consideration for future space use flexibility.

- *Carolina Housing* – Helped determine the space to allocate to the project and existing resources that could be shared with the arena. Also provided the largest amount of financial assistance towards the project.
- *Facilities (Housing Support and University Architects)* – Facilities provided multiple staff to oversee the engineering, design, bidding, and contracting of the arena's major systems. They also provide ongoing maintenance support.
- *ResNET* – Designed and completed the technology configuration and install of the Arena. Student employees and volunteers associated with ResNET completed many tasks to lower costs while engaging the community in projects, including painting and pulling Ethernet wires.
- *ITS Networking* – Terminated and configured the networking ports and switch for the Arena.
- *BEAM Makerspace* – Provided assistance with customized aspects of the room including vinyl signage and drapery.
- *Arts Everywhere* – Future plans for a mural on the exterior of the space.
- *Lenovo Esports* – While this is also an industry partner, Lenovo provided countless hours of advice and assistance with the build configuration of the PCs and the server to distribute gaming software throughout the arena, understanding power distribution needs for a tournament environment, and helped develop relationships with other industry partners.
- *Clark Nexsen* – Clark Nexsen served as the lead engineering firm on the mechanical aspects of the Arena, and met weekly with ResNET staff to identify challenges and solutions.

➤ Program Partners

Program partners are those that support the ongoing mission of Carolina Gaming, understanding that it takes dozens of departments and staff working together to achieve success. They also work towards co-hosting events in the arena for the broader community.

- *Carolina Housing* – The on-going success of the arena is its broad use by residents, facilitated through RA programs and special events for Carolina Housing.
- *Esports Club* – The club stands to benefit greatly from the Arena, but they will be giving back through online content and in-person philanthropic and introductory workshops for the public.
- *BEAM Makerspace* – There are plans for ongoing crossover events where students design and build items that benefit events in the Arena.
- *Academic Departments* – Various departments are planning to launch courses related to gaming and some will be taught from the Arena. Topics include sports marketing, sports medicine, business management, and live broadcast production.
- *Residence Hall Association* – There will be campus-wide events co-hosted by RHA.
- *Athletics* – Athletics is lending its support for event organizational expertise and consulting on the movement toward official varsity Esports. They are also a partner for public open-house events that will be coordinated before or after large athletic events on campus.

➤ Governance Partners

- *Carolina Housing* – Carolina Housing will make budget decisions for operational and maintenance purposes. They will also have the ability to supersede any major initiative decisions.
- *ResNET* – ResNET will make decisions concerning staffing and hardware/software support.
- *Carolina Esports Governance Board* – This board will consist of Esports Club leadership, student representatives from RHA and ResNET staff, advisors, and professional presentation from Athletics and Carolina Housing. Their purpose will be to explore and advise or give consent to major initiatives for gaming on campus and how to utilize the Arena in an equitable, efficient and effective manner.

➤ Industry Partners

- *Lenovo Esports* – Lenovo Esports has been a shepherd in terms of identifying hardware solutions, configuration, and relationships with industry partners. They have an ongoing relationship to design and implement organized academic programs for the Carolina Gaming initiative, and are lending support and guidance as UNC seeks to be a leader in organized competitive gaming. They are also assisting Carolina Gaming in improving Esports conference infrastructure for alignment with existing athletic divisions.
- *Extreme Networks* – The networking provider for the Carolina Gaming Arena, Extreme provides support and guidance on network hardware and configuration. They also routinely connect Carolina Gaming staff with other schools and educational partners for collaboration and engagement.
- *Respawn Furniture* – Respawn allowed students to design custom chairs for the Arena and remains an events partner.

- *Bonitz and Mohawk Group* – Bonitz and Mohawk helped make decisions about flooring design that work would well for a high traffic area with rolling gaming chairs that would also reduce glare under the lighting systems of the Arena for video filming.
 - *CDW* – CDW managed a significant number of hardware bidding processes for the project in order to reduce cost and leverage industry experts for AV solutions.
 - *Black Box* – Black Box, a partner arranged through CDW, is helping the Arena configure an IP video wall system. This is the first use case of its kind in a gaming environment but its footprint is substantially smaller with a lower price point compared to traditional HDMI/fiber matrix systems that require a switcher. This tool both allows in-room distribution in exciting ways, but allows us to capture and stream content to our casting studio nearby over fiber connection.
- *Academic Partners*
- Because of confidentiality during planning phases, specific partners will not be named in this document.
- *Research Partners*
- Because of confidentiality during planning phases, specific partners will not be named in this document.

Community Engagement

In order to gauge student interest properly, and to receive a wide variety of ideas and input, student leadership on the staff of ResNET decided to host several community engagement events throughout the Fall 2019 semester.

The largest event was a “pop-up gaming event” outdoors in a high-trafficked area of campus at night. The staff set up 4 large gaming zones with inflatable projection screens and different consoles and VR devices. During the event, staff went around to students and asked to interview them for a 5 minutes survey to give input on the Carolina Gaming Arena design and policies.

The event was advertised through the Carolina Housing newsletter reaching all 9000 residents the morning of the event. In under 1 hour the student staff collected over 200 surveys from students, and value of almost 17 hours’ worth of interviews. The feedback confirmed much of what had already been planned, but added insight into student behavior and demand that was previously being considered only through a competitive angle.

Firstly, we were surprised to hear that 77% of respondents wanted the arena to be staffed at all times. They valued having someone who could instruct them on learning to play games and use equipment.

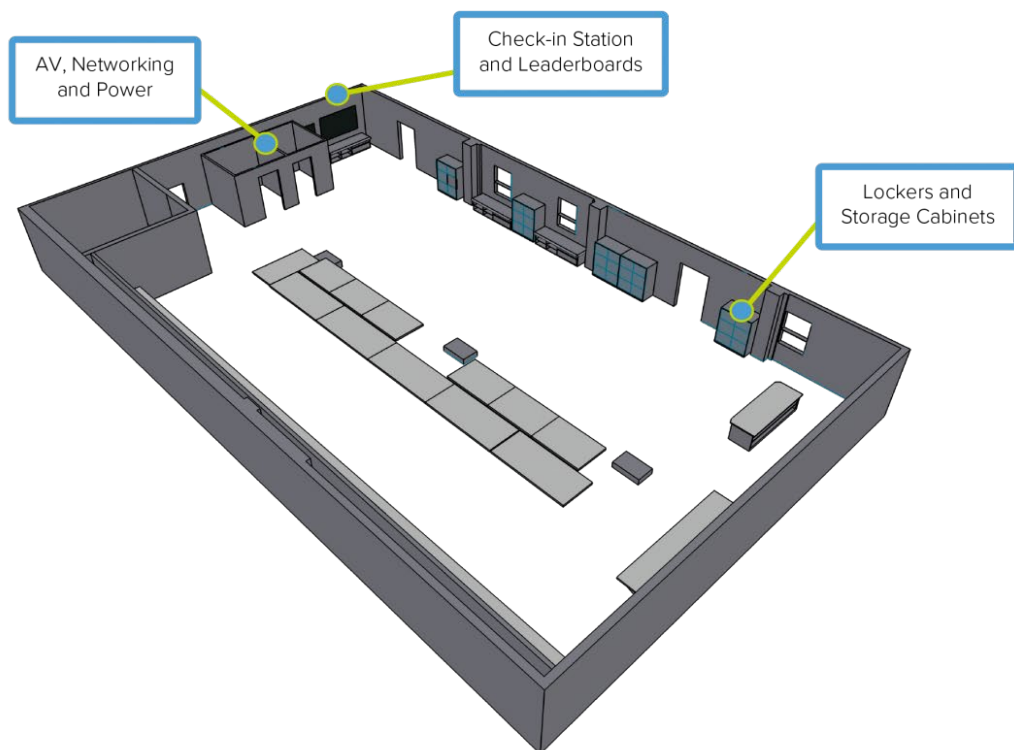
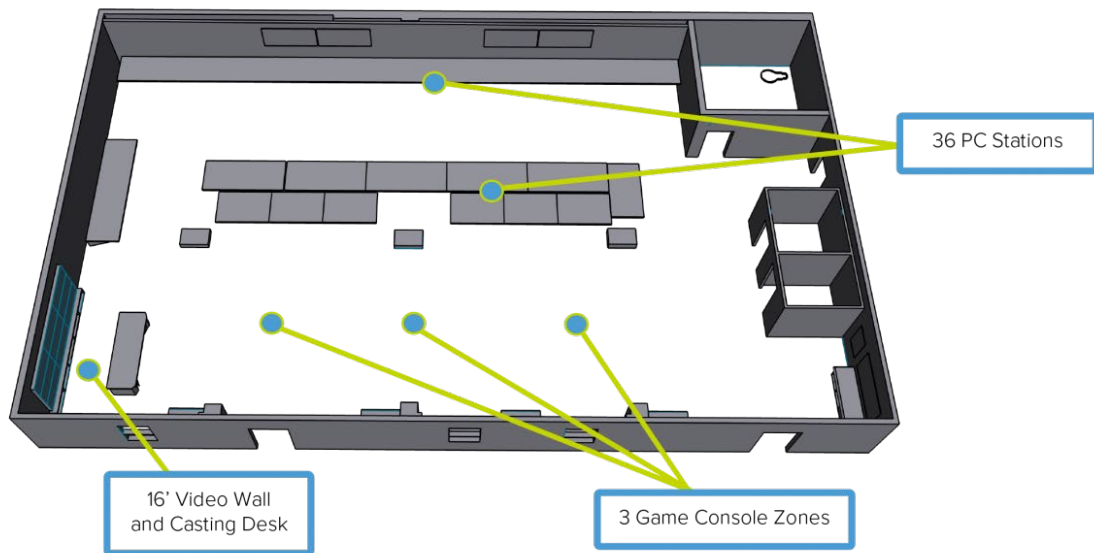
Secondly, the majority valued playing games with their friends in person, something the Arena would achieve passively. However, based on the response some considerations were taken for comfortable group areas around console devices.

And finally, while only 33% of students had ever played in tournaments, 65% said they would like to try if it were from the Arena.

The final layout and design was established after all feedback was analyzed and approved by the Esports club leadership.

Arena Layout

The layout was chosen to maximize the available space, create a flow that draws visitors to the game console side for initial interaction, and features a view of the PC side of the Arena for spectators.



Physical Infrastructure

Computer was chosen based on recommendations by Lenovo Esports. CDW provided feedback on AV integration options and devices.

PCs and Peripherals

- 37 x Lenovo T730 Gaming Desktops (36 stationed areas and 1 at video wall)
 - 9th Generation i9-9900K Processor (3.60GHz, up to 5.0GHz with Turbo Boost, 16MB Cache)
 - 32 GB DDR4 2666MHz
 - 2 TB 7200 RPM + 256GB PCIe SSD
 - NVIDIA GeForce RTX 2080 8GB
 - Z370 Motherboard
- 39 x Lenovo Legion K500 RGB Mechanical Gaming Keyboard
- 39 x Lenovo Legion M500 RGB Gaming Mouse
- 39 x Legion H500 Pro 7.1 Surround Sound Gaming Headset
- 32 x Legion Y27gq-25 27" Gaming Monitors
 - Max 240Hz
 - NVIDIA G-Sync
 - .5ms Response Time
 - 2560×1440
- 6 x Legion Y44w-10 43.4" WLED Curved HDR Gaming Monitors
 - Max 144Hz
 - AMD FreeSync 2
 - 4ms Response Time
 - 3840×1200

Consoles

- 3 x PS4 Pro
- 3 x Xbox One X
- 3 x Nintendo Switch

Game Licenses

- Managed by ggLeap
- Over 100 games offered for free (<https://carolinagaming.unc.edu/games/>)

Server

- Lenovo P520 Workstation

Software Management

- ggRock PXE configuration

Furniture/Gaming Chairs

- 38 x Respawn 100 Racing Style Gaming Chairs

Lighting

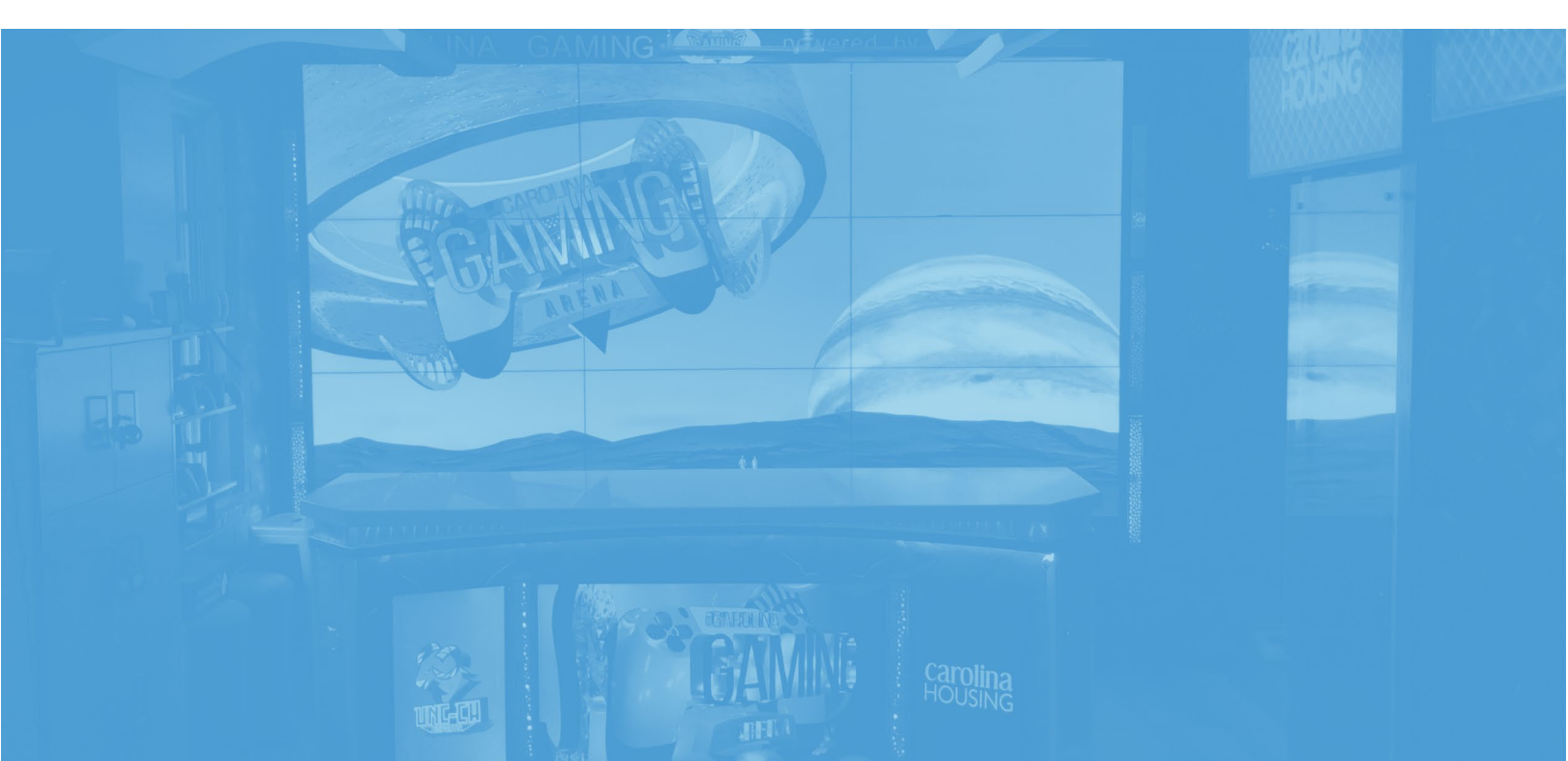
- 30 x Chauvet Colorband T3 BT (Color Bars)
- Custom RGB LED strip integration
- Managed with DMX control by Chauvet Showxpress

AV/Audio Integration

- 9 x Samsung 55" Extreme Narrow Bezel UM55H-E Monitors
- 3 x Video Columns, each includes 2 x Samsung 46" Extreme Narrow Bezel UM46N-E Monitors mounted vertically
- 13 x Monitors for content distribution
 - o 6 x 43" Samsung QM43N 24/7 Commercial 4K Monitors
 - o 4 x 75" Samsung 24/7 Commercial 4K Monitors
 - o 3 x 60" Samsung 24/7 Commercial 4K Monitors
- Managed by Black Box MCX

Other Digital Devices

- 4K Video Cameras
- Wireless microphones
- 2 x GoPro Hero 8
- Behringer x18 Audio Interface for Casting



Future Growth and Flexibility

The Carolina Gaming Arena was always intended to be the first phase in a growing network of partners and resources to be established on campus. Once the space had been built, COVID-19 safety precautions caused us to shut the doors just five days before the grand opening. Despite this pause, campus partner discussions could persist.

One benefit of being closed to the public over the past 10 months is our ability to have individual meetings with club leadership members who could test devices and configurations and give feedback on ways to improve before the public had a chance to critique. That has led a push to establish the Carolina Housing Creative Labs next door to the Arena, which will soon feature a fully equipped casting studio and several audio and video production stations. That space will focus heavily on ways to complement the work happening in the Arena, and for the club and advisors to conduct meetings and planning sessions with campus partners.

Esports Organization and Athletics Alignment

One of the original stated goals of Esports Club members was the desire to be a recognized varsity sport. That is a matter of ongoing discussions to understand how it could possibly fit in traditional collegiate athletic organizations. However, in having those discussions there has been recognition in the shared benefit of each group. Carolina Athletic representations have been assisting to teach Carolina Gaming staff trade skills in event management and production, while Carolina Gaming and Carolina Esports are seen as new ways for Carolina Athletics to reach fans. There are future plans for remote and on-campus gaming tournaments that will be cross-promoted and utilize resources from both areas. And there has already been one indefinable shared experience – the Carolina Esports Rocket League team and the Carolina Men's Basketball competed in the Maui Invitational, one event coordinating the production of two diverse competitive programs.

Academic Mission

Faculty at the University have expressed interest in leveraging the resources of the Arena as well as the establishment of the broader Carolina Gaming program as quality real-world application examples for their courses. Belskie and Good, along with Jeff Palumbo, Global Esports Solutions Manager at Lenovo, are designing the outline for a certificate program that will begin by the introduction of several EE courses at the University with a clear focus on Esports. EE courses, or Experiential Education courses, offer students real-world applications of the subjects they study in the classroom.

One examples of such partnerships and courses includes a sports marketing course designed to help organize and produce a gaming tournament. Other topics being discussed are business courses to focus on managing Esports teams and brands, journalism courses to train the next major shout caster or personality, and marketing courses on player and brand awareness and activations.

The hope is that through EE courses showing success and positive feedback that we may establish a certificate program and eventually a minor at the University.

Research Mission

While academics plays an important part in the student experience, the University is also a hub for research. Within the Carolina community research takes place at faculty, graduate, and undergraduate levels. Critical areas of research reflecting Carolina's core competencies include player health and performance, coaching performance, and sociocultural issues in gaming and esports. Key academic partners in the beginning phase of this endeavor include The School of Information and Library Science; The Department of Exercise and Sport Science; The Center for Information, Technology, and Public Life; and the Curriculum in Undergraduate Research Education which is part of the University's Quality Enhancement Plan.

Through strategic academic partnerships and established public private partnerships Carolina is already poised to be a natural leader in Esports research.

Conclusion

While this is just the beginning of a long road of growth ahead of Carolina Gaming, the initial phase is complete. With the opening of the Carolina Gaming Arena rescheduled to August 2021, students will be able to engage and explore in a comfortable and supportive environment. Those who are new to gaming will be welcomed with open arms and given as much or as little support as they would like. Veterans will be provided a world-class center full of powerful equipment to allow them to reach their full potential. And over-layed on that infrastructure will be a network of professionals charged with monitoring and moderating the community to provide support and education.

Carolina Gaming, Carolina Housing, and ResNET would like to thank the generous support of all of its partners and we look forward to continued growth and success.

Citation

- (1) Pei, Annie. "This Esports Giant Draws in More Viewers than the Super Bowl, and It's Expected to Get Even Bigger." *CNBC*, CNBC, 14 Apr. 2019, www.cnbc.com/2019/04/14/league-of-legends-gets-more-viewers-than-super-bowlwhats-coming-next.html.
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