Nanolumens®

Design Concepts, Engineering, and Ingenuity Lead to Awesome Innovation Hub for Verizon

ProAV manufacturers are no strangers to providing loaner or demo equipment to end users. What the Nanolumens' Special Projects Group (SPG) didn't know is that a single Nixel would come back in a big way. Fast forward six years to a design question from Jeian Jeong and Michael Schneider of global architect and consulting firm, Gensler, asking if Nanolumens' patented Nixel topology could be used as its own independent display. The answer from Nanolumens... a resounding yes!

That's' where Nanolumens excels; taking a concept and making it come to life through complex design, engineering, and ingenuity. For the Verizon Innovation Hub project, Nanolumens' SPG worked intently to determine the complexities and possible outcomes and challenges on this high-profile endeavor.

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What started as, “is this possible?”, turned into a project that looked identical to the original project rendering. That in and of itself is very hard to do on most projects; then throw in a complex design, a concave wall, and a new product topology, and that’s the Verizon Hub project.

The concept was to have a main 16:9 display that splayed out from the main display to create an industrial, deconstructed, video wall display that looked like a circuit board. It needed to have a clean aesthetic, but also seem industrial with parts and cabling exposed – like a TV had exploded … intentionally. The industry has coined a phrase for this as “Tech-o-rating”, and the result was a very tech-forward design with form and functionality.

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The Challenge & Solutions

Former industrial designer and product developer, Dan Rossborough, loves digging into complex projects at Nanolumens. Dan, Director of Nanolumens' SPG, immediately noted that this project could have many challenges, but he was up to the task. It took four months to develop a new product topology for Nanolumens' Nixel, that would serve as the base of this design. A mockup of a mitered chassis on a single Nixel was created to emulate independent "Orphan Nixels", a phrase Dan would coin to describe the Nixel satellite displays that were independent of the main video display. Together with Nanolumens' R&D team, the SPG developed a "daughter-board" that could be affixed to the back of a Nixel. They attached a receive card so that it could be treated as if it were a full array. This bespoke idea left dealing with power and data ports simple.

How Did We Do It?

The stand-alone Nixels have their own chassis and on-board data to allow you to stretch and form any array you can imagine, each programmed with its own offset on two coordinated 4K content rasters (32:9 aspect ratio). The Orphan Nixels, housed on bespoke 3D printed FDM chassis, are fully-front-serviceable on 6-axis adjustable telescoping aluminum mount brackets and power/data tethers on rods to the main body. The main display body: mitered top, bottom, and sides to make the whole array appear to be floating, all made possible by our patented Frame-and-Skin Topology.

The Orphan Nixel Chassis were 3D printed and designed with room for the daughter board and Nixel. A custom mount bracket with 4 axis-adjustment with pitch and yaw to precisely calibrate the new PCB designed Nixels. Prior to using these 3D printed chassis, they were tested with thermal dynamics in mind, and the design proved to be solid.
This complex design required the team to work within the constraints of a concave sound attenuating wall made with MDF. Nanolumens couldn't mount to it, so they had to mount through it. Spacers were used to compress the substrate behind it to allow for precise alignment of the main display and its orphan Nixels. These orphaned 1.5mm Nixels aligned independently with a tolerance of less than a tenth of a millimeter on a grid face that aligns them precisely.

Another element that aided in the design phase was a mock-up developed at Gensler's Design Lab, with a section that was approximately 8 feet wide by 2 feet tall as proof of concept. Nanolumens also hired a media artist to aid in the content mapping of this complex videowall. This, along with a strategic cross-functional team led by Nanolumens' CEO, Ney Corsino, led to a successful project installation.

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The Results

The Verizon Hub project utilized Nanolumens' 1.5mm Nixel in an array that was approximately 17.85' wide x 12.6" tall. The 1.5mm Nixel has become the standard for high-end fine pixel pitch dvLED products. The main videowall section is 16:9, as were each of the circuit-board style "wings". And although it has been some time since Nanolumens used 9mm LED panels indoors, they also provided a ceiling suspended videowall. This was more of a lighting feature to create ambience in the space. This videowall adds almost a diffused mirror effect of the larger curved display for the Innovation Center.

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About NanoLumens

Nanolumens is a US-Based LED design and manufacturer headquartered in Atlanta, Georgia. Nanolumens offers world-class displays across multiple market segments adding wonder to physical spaces. Nanolumens is a pioneer of the true curve technology and are committed to being better. With a bold and visionary team of experts Nanolumens will take your project, in all shapes and sizes, from concept to reality. Nanolumens brings your creative visions to life, leaving a first and lasting impression. We are LED! For more information, visit www.nanolumens.com

About Gensler

Gensler is a global architecture, design, and planning firm with 49 locations and more than 6,000 professionals networked across Asia, Europe, Australia, the Middle East, and the Americas. Founded in 1965, the firm serves more than 3,500 active clients in virtually every industry. Gensler designers strive to make the places people live, work, and play more inspiring, more resilient, and more impactful.

About AVI-SPL

AVI-SPL is a digital enablement solutions provider that works with organizations globally to improve team collaboration and unlock new business value. The largest provider of collaboration technology solutions, which includes its award-winning managed services, AVI-SPL's highly-trained team works hand-in-hand with organizations worldwide - including over 80% of Fortune 100 companies - to strategize, design, deploy, manage and support AV and UC solutions that are simple-to-use, scalable, serviceable, and measurable to ensure business objectives are achieved.

DCL -Design Communications Ltd.

DCL provides custom solutions for the built environment – including signage and wayfinding systems, architectural specialties, experiential design elements and integrated tech. Being at the forefront of innovation, our solutions are driven by the creativity of our clients and the dedication of our workforce. With over 35 years of experience and 17,000+ completed projects working for notable brands worldwide, DCL is the ideal partner for architects, design consultants, property owners and general contractors. Our passion for building custom solutions - managed, engineered, fabricated, and installed – with precision and knowledge is shown in the exceptional results and long-term relationships we build with our clients.

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