



Case Study

Hyundai America Technical Center, Inc.

Samsung's microLED technology powers innovation in leading automotive design studio

Overview

As a team at the forefront of automotive design technology, Hyundai America Technical Center, Inc. (HATCI) recognizes how a digitized design process is key to remaining competitive and delivering on customer expectations. Samsung's cutting-edge microLED technology, The Wall, was the ideal solution for HATCI who was looking for a high-resolution display with visual accuracy that fits its space. By implementing Samsung's The Wall, HATCI has maximized overall productivity on its design process, saving valuable resources while bringing its automotive designs to the next level.

About Hyundai America Technical Center, Inc.

A subsidiary of Korean carmaker Hyundai Motor Company, Hyundai America Technical Center, Inc. (HATCI) is Hyundai's design, engineering, technology, research, and development headquarters for the North American market. HATCI's activities include automotive design (body, chassis, electronics, and trim), evaluation and testing, quality assurance (QA), and drivetrain development. The company also serves the North American market needs of Hyundai affiliate Kia Motors. HATCI has operations in California, Michigan, and Alabama.

Customer Needs

Having proven the value of the digital design process, the design team at HATCI was looking for a digital display to take their ideating to the next level. The center's existing screens couldn't deliver the color definition required of the team's modern design techniques, and the nascent display technologies lacked the resolution necessary for automotive design. HATCI needed a display that would allow the designers to view their work in true color and high resolution. More than that, the team needed a screen that could provide a full-size side view of a new vehicle without taking up valuable floor space in the studio.



Solution

In search of the highest-quality display technology available, HATCI initially switched to LCDs — with screen sizes ranging up to 98 inches — but soon found that the 98-inch screens were too small to bring full-size automotive design to life.

HATCI was introduced to Samsung's The Wall by Immersion Graphics Inc. (IGI), an industry-leading provider of large-scale, ultra-high-resolution audiovisual systems for advanced visualization applications. IGI arranged for HATCI to experience The Wall firsthand at the Samsung Executive Briefing Center in Irvine, CA. Samsung's The Wall presented HATCI designers with a perfect solution to their display challenges.

Outstanding visual accuracy through microLED technology

Powered by microLED technology and with a pixel pitch of 0.8 millimeters, The Wall produces images that look stunning from any angle, even up close, unlike rear projection display. Millions of bright, micrometer-scale LEDs on a deep black background create unparalleled clarity in true-to-life color — exactly what HATCI's design team was looking for, according to IGI marketing director Paul Helm.

For the designers at HATCI, seeing their concepts come to life in true color on a high-resolution full-size display removes much of the uncertainty that often accompanies the first look of a physical verification model. The Wall's visual accuracy, combined with VR imaging software, has given the team the confidence to extend the design freeze much closer to the first verification model.



Expandable size scale to display full-size automotive design

Before HATCI digitized their design process with The Wall, it was common for each studio to be working on up to three full-size clay models simultaneously. Though clay models needed to be brought together in the same studio for a final design workshop, the logistics and material needs made this a difficult and expensive setup. Each studio was typically forced to narrow down their designs to one model early in the process, which ultimately restricted design permutations.

Compared to the traditional design process, HATCI's digital workflow using Samsung's The Wall not only saves time and money but allows the team to move their design freeze very close to the actual fabrication of the first prototype. The flexibility of The Wall's modular design also means that the display can be expanded to accommodate future design work on vehicles that are too large to fit on the current configuration.



Convenient and flexible installation

To meet HATCI's objective of displaying a modern passenger car at 1:1 scale, The Wall was installed in the design studio in an 8-by-5 tile configuration, comprising a display 21 feet long and just under 8 feet tall. The flexible yet compact hardware requires no complex support structure, so the display was able to be installed flush against a wall in HATCI's design studio, taking up less studio floor space than previous display solutions. With the remaining space directly in front of The Wall, HATCI mounted a VR tracking system so designers can examine their designs in 3D.

"The Wall provides by far the best image quality of any LED technology. This quality is pivotal for HATCI designers to make accurate decisions for future exterior and interior designs."

— Paul Helm, marketing director of IGI

"We're seeing it in 1:1, the volumes and the form, and the textures of the materials as you expect to see them."

— David Nikel, manager of design operations for HATCI

Result

Before HATCI adopted its digital workflow using Samsung's The Wall, it relied on a costly and time-intensive design process that was subject to more uncertainty and inaccuracy. Through The Wall's groundbreaking microLED technology, HATCI designers have been able to work in a more flexible, convenient, and cost-effective way.

About Samsung Electronics Co., Ltd.

Samsung inspires the world and shapes the future with transformative ideas and technologies. The company is redefining the worlds of TVs, smartphones, wearable devices, tablets, digital appliances, network systems, and memory, system LSI, foundry and LED solutions. For more information about Samsung Smart Signage, please visit www.samsung.com or www.samsung.com/displaysolutions.