

Color Therapy: NEC Displays Power Interactive Video Wall at Delaware Children's Hospital

Facility:

- Nemours/Alfred I. duPont Hospital for Children

Vertical:

- Healthcare

Location:

- Wilmington, Del.

Challenges:

- Transform a 50-foot-long hospital wall into an interactive digital environment to entertain patients and their families

Solution:

- 45 NEC X464UN displays in a video wall configuration

Result:

- An immersive, therapeutic experience that engages families and patients, helping to lessen the stress of a hospital visit

It is always difficult on a family any time a child needs to be hospitalized, and a good hospital recognizes that and finds ways to help families cope. A Delaware children's hospital took this approach when, during an expansion, it went above and beyond traditional décor with the installation of an immersive digital experience to help patients and their families take their minds off where they were.

Nemours/Alfred I. duPont Hospital for Children, located in Wilmington, began in 1940 as a pediatric orthopedic institute, and now is a world-renowned children's hospital, offering Delaware's only pediatric trauma center as well as advanced inpatient and outpatient pediatric care in more than 30 specialties. Because families from all over the globe turn to Nemours to care for their kids, the hospital strives to maintain high professional standards while creating a welcoming, calming experience for patients and visitors.

In 2014, the hospital received a grant from the DuPont Company to transform a wall space in the hospital's new five-story atrium into something special for young patients. Nemours staff sought a solution that would visually engage children and families, and make a hospital visit a little better.

The Challenge

Hospital staff members began brainstorming how they might transform the atrium wall, and considered static art and physical displays, but ultimately decided against these.

"The main goal was simple: to engage, entertain and bring joy to the families we serve," said Dr. Neil Izenberg, operational vice president for Nemours Center for Children's Health Media. "In an environment that is so stressful for children, we wanted to bring smiles to their faces and lessen their worries. Of course, we wanted a 'wow' factor, too."

The hospital staff eventually decided that an interactive video wall would provide the reaction they were looking for while also creating an immersive, ever-changing environment that would take children's and families' minds off the circumstances of their visits. The next step was finding a solution provider.

Izenberg acted as organizational lead on key design features. As the head of KidsHealth – a group of clinicians, editors, video producers, designers and researchers at Nemours who develop digital health communications and education efforts – he had previous experience with digital technologies.

"As both a physician and a digital media producer, I really appreciate the power of immersive storytelling and play," he said.

Izenberg and his team came up with some critical features they wanted in the displays that would comprise the wall. They needed screens that could follow



the gently curved wall while remaining stable and perfectly coordinated among various animations. Izenberg then drafted an extensive RFP and invited a number of nationally known companies to submit responses.

The Solution

After the RFP submission and review process was completed, NEC Display Solutions was selected to provide the video wall displays.

“We were looking for a brilliant, beautiful and – perhaps above all – dependable display,” Izenberg said. “We needed displays that were as matched to color and other visual qualities as possible. NEC fit the bill, and they look great.”

Forty-five NEC X464UN 46-inch displays were selected to make up the video wall. The direct LED-backlight LCD displays offer improved brightness uniformity, reduced power consumption and mercury-free components. They have a bezel gap of just 5.7 mm, making them ideal for this type of application. With DisplayPort 1.2 multi-streaming, they can deliver ultra-high-definition resolutions across the entire canvas of displays.

With the hardware selected, Izenberg and the team from Nemours – including educators, nurses, doctors, therapists and AV experts, as well as children, teens and leaders from the area’s children’s museums – put their imaginations to work to design the video wall’s content.

Based on the most important input – that of children and teens – Kinesis Studios, a gestural interaction media developer, created four distinct interactive characters that would “live” in the wall: two that change the landscape and “cast spells” on users, and two that can transform into flying creatures, which users then can control with hand and arm gestures.

“The way we designed it, children could interact through the use of the gesture recognition cameras pointed at them, which kept them from touching the wall,” Izenberg said. This would reduce wear-and-tear on the displays as well as make the experience more hygienic – a key consideration in a healthcare setting.

The Environment

Installed in August 2014, the 50-foot-wide-by-nine-foot-high, 93-million-pixel digital video wall was part of a \$270 million renovation and expansion of the hospital. It is located in full view as soon as families enter a five-story atrium, in the most publicly prominent site in the hospital, adding to an already striking space.

The “Discovery Zone,” as it is called, allows more than a dozen kids, teens and adults to interact at any one time with a fanciful, ever-changing landscape made up of magical creatures and blooming plants, with a suite of music, lighting effects and nature sounds creating an immersive backdrop. Helpful icons nearby demonstrate to users how to interact with the wall with their gestures.

Users control the creatures and plants via Microsoft Kinect 2 gesture recognition cameras, which are installed at the base of the wall. Both cameras and displays are connected to a computer. The cameras’ infrared sensors track body movements (up to two at a time) and send them back to the computer, which creates a silhouette that is integrated into the LCD display and shown within

the digital landscape. The software allows endless interactive combinations: The more people who use it, the more the plants will combine to create new plants.

The experience cycles from day to night, ensuring an exciting experience no matter when patients and their families interact with it. Well-known architectural features of the hospital and its campus are embedded into the whimsical landscape, blending the familiar with the fantastic for patients who have been to the hospital before.

The Results

The planning process was a long one and involved one, and because the software technology was the first of its kind and the environment was so complex, the staff collectively held their breath the first time the video wall was turned on.

“We had faith in our partners – who did an amazing job working with us to design and code the action, characters and environment – but until it was fired up, we really didn’t know whether it would work as planned,” Izenberg said.

It was all worth it in the end because of what the software and display technology was able to achieve: an entertaining, therapeutic adventure that can make a stressful experience a little bit better for families and patients.

“From the day it was turned on, the response from families has been uniformly enthusiastic,” Izenberg said. “It’s fun just to stand and watch parents, kids and even the staff interact with the wall and all the creatures. The response has been completely positive. We achieved the ‘wow’ factor we were looking for.”



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