Combining art and engineering: Electroland lights up public art with interactive displays

Summary

- Electroland specializes in large-scale public art projects that create interactive experiences.
- The team found that the technology commonly used in the industry was not robust enough for permanent outdoor settings.
- By turning to the world of industrial automation and Phoenix Contact, Electroland has created several unique projects that will further enhance its already-strong reputation for reliability.

Customer profile

Electroland (www.electroland.net) is a California-based company that creates interactive experiences and large-scale public art projects. Each Electroland project is site-specific and designed with the space in mind. Each combines light, sound, images, motion, architecture and interactivity. Owners Damon Seeley and Cameron McNall co-founded Electroland in 2002.

Challenge: Show technology not designed for outdoor use

For many years, the team used different technologies from the Broadway and Las Vegas show control world, as well as a few “do-it-yourself” lighting techniques. Because these technologies often weren’t designed for permanent outdoor settings, however, Electroland encountered issues with performance and reliability.

Solution: Industrial automation meets the demands

Approximately five years ago, Electroland sought ways to improve the robustness and reliability of its control technology. They turned to the world of industrial automation and found Phoenix Contact. Although the world of interactive art is not a typical one for Phoenix Contact, the concept of reliable, robust solutions is a familiar one.

To achieve Relax in the Denver Airport, Electroland used Phoenix Contact Inline controllers and relays to control the lights of the display, and terminal blocks provide reliable connections.
Results

Keeping people moving via the ‘Flightpath’
One of the first applications that Electroland used Phoenix Contact products for is a 400-foot-long tunnel in the Edmonton Airport in Canada. This installation, titled Flightpath, was installed in 2011 and is located in the arrivals corridor of the airport. As passengers walk down the hall, they trigger sensors, and Flightpath displays a combination of light and sound.

Flightpath makes adjustments to its display, depending on the number of people moving through the space at a given time. Because of this, no two experiences are ever the same. To achieve this individualized effect, a large number of sensors must reliably acquire the data from the environment to react to the people in the space.

By incorporating Phoenix Contact bus couplers, unmanaged Ethernet switches and power supplies for photoelectric sensors, as well as some creative engineering from Electroland, Flightpath offers passengers arriving at the Edmonton Airport a one-of-a-kind experience.

Denver Airport helps passengers ‘Relax’
Flying can be a draining experience, so when the Denver Airport commissioned an Electroland project, they envisioned something to help travelers reduce stress. In 2013, Electroland debuted an installation called Relax in the Denver Airport.

Relax is a 1,300-square-foot display composed of five illuminated panels, each displaying a themed episode. Each of the five themes speaks to the experience of being in an airport. One of the panels pulses the word “RELAX” as passengers walk by. Other panels display a tropical beach scene with undulating water and a bay, while another cycles the words “Arrival” and “Departure” set against images of clouds.

To achieve Relax in the Denver Airport, Electroland turned once again to Phoenix Contact products. Inline controllers and relays control the lights of the display, and terminal blocks provide reliable connections. A bus coupler chooses which of 48 relays is lit to achieve the desired lighting effect.

Electroland also used PC Worx Express to generate the lighting program. Although Electroland employees had no prior PLC programming experience, they took on the challenge of learning PC Worx, an IEC 61131 programming software. With the help of Phoenix Contact automation sales engineer Shawn Gillespie and field application engineer Matt Varano, Electroland learned the software to incorporate into these installations.

Blooming in Norfolk
Electroland’s relationship with Gillespie and Varano deepened when Electroland was commissioned to design and build an interactive sculpture to serve as the centerpiece sculpture in MacArthur Square — a lively location in downtown Norfolk, Virginia. This installation, called MetalMatisse, was unveiled in May 2013. The improbably large steel vase and flowers sculpture, which stands at 30 feet tall, is an interactive adaptation based on paintings by French artist Henri Matisse. The individual flowers within the vase light up and emit sound when visitors approach. Intermittently, the entire sculpture comes to life in a carefully orchestrated composition of light and sound.

To achieve the interactive sculpture that sits in downtown Norfolk, Electroland again enlisted the support of Phoenix Contact. MetalMatisse uses a Phoenix Contact bus coupler to process the data that is received via custom sensors present in each of the flower elements. These sensors allow the sculpture to interact with visitors. The installation also uses an IP20 bus coupler inside an IP67 enclosure, a custom translator for sensing and lighting data, managed Ethernet switches to route data to a Power over Ethernet midspan device, gigabit switches, terminal blocks for power bussing, a WiFi access point radio and a 3G router modem.
for troubleshooting. The entire system is run on Phoenix Contact’s Valueline industrial PC, using Electroland’s custom stack of Java software.

Using the 3G router modem, Electroland employees are able to remotely access and observe the performance of this application from their offices in California. Although they have not encountered any issues with the installation, an employee in California is able to log in and perform resets on parts of the sculpture or the sculpture in its entirety, if necessary. The connection is fast enough to screen-share in real time on the Valueline, so that imagery rendered on screen in California is identical to what is going on in Virginia.

To help with the implementation of the products, Phoenix Contact sent Dan Boone, field application engineer. According to Damon Seeley of Electroland, “That kind of access to a specialist who understands the products both presale and in the field is huge.”

Seeley likened the process of creating a new piece of interactive art to creating a new musical instrument: “It has never been played before, so we don’t know exactly how it will sound. While there are expectations and criteria so we have some idea, until it’s built, we don’t actually know.”

With the help of Phoenix Contact products, Electroland is able to make unforeseen changes to their installations while achieving the reliability that the company is known for.

What Electroland is doing is not typical for Phoenix Contact either, and the benefits are mutual. For Shawn, Matt, Dan and the rest of the Phoenix Contact team, working with Electroland has opened the door to more creative projects, while Electroland gets a peek into the high-performance world of industrial applications.

According to Seeley, Phoenix Contact products are vital to the operations and longevity of the installations: “In the world we operate in, there often isn’t a good reputation for permanent technology-driven artwork.”

Electroland has worked for 11 years to establish a reputation of reliability, and Phoenix Contact is helping them keep the lights on.

Photos courtesy Electroland