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6 people, places, projects & products

8 texting the limits

10 natural phenomena

14 space inviters

16 rivers of change

18 child's play

advertisers

centaman	2
electrosonic	5
iaqpa	7
lexington	12, 19
mad systems	9
texas digital	20
whitewater west	13, 15, 17

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When I visited the Museum of Science and Industry for our cover story on their new exhibit Science Storms, I knew it was going to be a busy day. The trip down was arranged last-minute, and honestly I was pleased we were able to coordinate schedules so quickly. My host, Lisa Miner, and tour guide, Dr. Olivia Castellini

were gracious, helpful and informative. They also were blatantly honest. I was visiting the museum on the Thursday before Easter, a day where hundreds of thousands of Chicago's kids were on spring break – and they warned me it would be swamped later in the day.

My visit started 30 minutes before the museum opened, so I had an opportunity to quickly walk through some of the exhibit and take in the amazing exhibit icons in their, well, natural state. For a science nerd like myself, it was pure bliss.

And then the museum opened. Children (and parents) poured into the exhibit like an avalanche, ran around like a tornado, and cackled and shrieked like bolts of lightning. Perhaps this was the true exhibit, I thought.... Science Storms brought to life – literally!

To the museum's credit, the exhibit is designed to allow for a peak attendance day. The iconic experiences are large enough for large groups to enjoy. But if you want to drill down to get to the details of the smaller exhibits, well, it seemed hopeless. Even I was discouraged from trying all the experiments.

On one level, I suppose you want to leave a little something for next time, give people a reason to come back. But does that always fit in with an institution's educational mission when that school kid might only be able to come to the museum that one time with his class?

Perhaps there is an opportunity for museums to take a page out of the theme park playbook and focus on throughput. I'm not a fan of standing in line any more than the next person, but it's already happening within institutions for special exhibits, large screen cinemas, and even specific children's exploration areas (The Museum of Science and Industry had a hefty queue for their kids' EXPLORATION STATION the day I was there).

Tiered pricing plans can also encourage individuals and groups to visit on less crowded days and even out attendance. On the opposite end, exclusivity options can bring in a fair share of added revenue too - which helps to fund more exciting exhibits in the future. And what museum professional, science nerd, or eager schoolkid can argue with that?

-Martin Palicki
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people

SANTA CLAUS, IN - **Holiday World & Splashin' Safari** President **Will Koch** announces the appointment of three new directors to the parks' staff, as two new positions are created.

As Director of Information Systems and Technology, **Joseph P. Hurst** oversees the parks' computer systems, data storage, sound systems, phone systems, servers, camera systems, network cabling and fiber optics. Hurst began his career at Holiday World seasonally in 1990 and was hired full-time in 1996. He is a graduate of Forest Park High School in Ferdinand and the University of Southern Indiana in Evansville, where he earned a Bachelor of Science degree in Industrial Supervision. Hurst resides in Princeton, Indiana, with his wife, Lana, and their daughter, Katherine.

Samantha Ramsey is the parks' new Director of Training and Development. Her duties include planning and implementing Orientation and Hospitality Training for Holiday World & Splashin' Safari's 2,100 seasonal employees. She also heads up seasonal management training and keeps the operations departments fully staffed throughout the season. Ramsey began her career at the park seasonally in 1997 and was hired full-time in 2005; she was named Director of Cleaning in 2007. Ramsey is a graduate of Tell City High School and Oakland City University, where she earned an Associate's Degree in Business Administration and a Bachelor's Degree in Human Resource Management. She and her husband, Chad, live in Tell City.

Replacing Ramsey as Director of Cleaning is **Cathy Greubel**, who has worked seasonally at the park since 2005. She is responsible for a staff of 140 seasonal employees who scrub the parks down early each morning before opening, keep the parks free of litter while open, and clean restrooms and dining area continuous throughout each day. Greubel, who is a graduate of Tell City High School, lives in Tell City with her husband, Gary; they have two children and one grandson.

SAN FRANCISCO, NEW YORK, MINNEAPOLIS - **Auerbach Pollock Friedlander**, Performing Arts/Media Facilities Planning and Design with offices in San Francisco, New York and Minneapolis, is pleased to named four new associates, **Kevin Auses**, **Matthew Ezold**, **Howard Glickman** and **Robert Hill**.

"Due to the depth of our talented staff of dedicated professional we continue to excel in providing outstanding services to our clients. We congratulate our newly promoted associates as members of an outstanding leadership team," says the firm's Founder, **S. Leonard Auerbach**.

projects

OTTAWA, ON - Sitting on 100 acres, **Calypso Waterpark** – Canada's largest theme waterpark – is set to open on June 7, 2010. Offering something for everyone, the park is located twenty minutes from Ottawa, Ontario and is jam packed with signature attractions from **WhiteWater West**, some of which are the first of their kind to be installed in Canada!



Canada's first Family Boomerango and winner of the 2008 IAAPA award for Best New Product will wow guests, taking them vertical as they shoot up a wall, then pause before falling back for a sense of weightlessness as they pass over a transition hump and into a splashdown pool below. This raft ride is ideal for groups and families to share the excitement similarly to the traditional Family Raft Ride, another feature ride in the park.

Those who want to increase the adrenaline rush will experience high thrills sliding down the free fall speed slides, or trying out the eight-lane mat racer for a head-to-head battle of through a series of thrilling bumps, accelerating towards the finish line. Forces will keep riders heart rates up as they swirl around the walls of the SpaceBowl and SuperBowl, other exciting firsts for Canada.

There's lots of fun for the tots as well. They will be delighted with a group of slides all their own that includes two mini slides, an enclosed body slide and a ramp slide.

All of these attractions surround WhiteWater's RainFortress - a fully themed, multi-level and interactive play structure and the largest of its kind in Canada. It will delight park goers with its swashbuckling pirate theme and its giant tipping bucket that intermittently fills and spills on those adventurous enough to stand below. The structure boasts almost 200 features including numerous slides, bridges, climb nets, arch jets, water guns and pull ropes will provide hours of entertainment for hundreds of guests of all ages.

NORTH HOLLYWOOD, CA - **Ernie Merlán**, formerly Co-Principal of **Iguana Digital**, is excited to announce the launch of **Merlán Creative Studio**. We have the same awesome design team, location and cutting edge technology partners. Merlán Creative Studio is creating quality content from Computer Simulations, Animations, Motion Graphics, 3D models, Fly Through and Digital Murals to a variety of Interactive and Augmented Reality products.

We are the one stop content shop for tomorrow's technology, servicing major movie studios, amusement parks, museums and entertainment venues. In the last three years, we designed a "Magic Mirror" attraction for the "House of Tomorrow" in Tomorrowland; traveled around the country on a train to promote a movie about a Scrooge; partnered up with Total Immersion to promote Star Wars™ "The Clone Wars" game and much more. Recently, Universal Singapore opened with 80,000 sq ft of murals that we designed for their new attraction, "Journey to Madagascar".

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True museum buffs and park fans will recognize the “Our American Crossroads” and “The Wizard of Change” exhibits, or EPCOT’s “Bird and The Robot” show. But they might not know the name **Laurence Wright**, the musician credited with creating the soundtrack for these exhibits, as well as a variety of other movies and shows.

Wright recently compiled selections from his decades of work in a 2-CD album entitled “**Ocarina Man**”, named after the woodwind instrument he frequently plays in many of his scores. Wright’s music ranges from extremely contemporary to classic New Orleans jazz. He has composed in styles true to every era in the 20th century. Most frequently, Wright is called to create scores authentic to the 1920s, 1930s and 1940s, but with a contemporary twist. His more modern work has a timeless quality and sometimes a very contemporary sound.



Wright’s work was prevalent in the original **General Motors Pavilion at EPCOT**. “**Bird and The Robot**” was perhaps the most popular show in the pavilion, where a talking parrot interacted with a robotic arm similar to ones used on an automobile production line. The show was whimsical and vaudevillian in nature, which was reflected in Wright’s musical backdrop. He also composed music for **The Water Engine, Torture Test** and **Aerotest**, all featured in the GM pavilion post-show.

On the museum front, he composed the soundtrack for **Our American Crossroads**, a reinvention of a traveling presentation originally created in the 1930s. This was a narrated scale model of a city in which various lots in a small town flip over to reveal the improvements brought by the coming of the automotive age.

He also scored **The Wizard of Change**, the first ever **Holavision®** show, presented at the **California Museum of Science and Industry** and at the **Chicago Museum of Science and Industry**. It traced a history of manufacturing through three different ages starring an alchemist wizard (Richard Doyle), who turns base materials into wealth.

For info on how to obtain a copy of Ocarina Man, contact Laurence at www.ocarinaman.com.

places



JACKSONVILLE, FL - After much speculation by park fans and industry media, the secret is out: The Scooby-Doo-themed interactive dark rides at the four former Paramount Parks now owned by **Cedar Fair** have undergone a major transformation—**Sally Corporation**, has re-themed them into **Boo Blasters on Boo Hill**. Each ride has new characters, new storyline, new music and audio tracks and new, exciting special effects; even the ride cars have a new look.

Created as a family ride, Boo Blasters on Boo Hill pits guests against the wiles of the mighty king of ghosts, Boocifer, and his cohorts as they try to retain their hold on a stockpile of Scare Tonic, which they need to maintain their frightfulness and thus hold onto their haunted domain. The visitors are charged with zapping the Scare Tonic and driving out the ghosts...accumulating points along the way, of course. Many exciting and scary events happen throughout the sixteen-scene black-light ride.

“We’ve had a long history of success with Sally, and we knew we could count on them to deliver high attraction value for our guests,” Decker continues. “They brought new technologies to the project that we had considered too costly in the past, and effectively inserted new components to freshen the experience and deliver a wow factor.”



COLLEGE STATION, TX – Texas Digital has completed its VitalCAST Digital Signage software installation at Marcus Theatres® new Midtown Cinema in Omaha, Nebraska. Marcus Midtown Cinema, which opened in November, is a one-of-a-kind, four-level, five-screen entertainment destination located in Midtown Crossing at Turner Park. Texas Digital is a worldwide leader in digital signage technology, and is Marcus Midtown Cinema’s digital signage provider.

For the Marcus Midtown Cinema installation, Texas Digital’s software is installed on 26 LCD screens in a variety of sizes as digital menu boards, box office signage, promotional boards & wayfinding signs near the theatre’s escalators. Six of the displays are LG’s new 38-inch stretch displays, which are located at each auditorium entrance. The concessions and box office displays will all be updated automatically via an interface between VitalCAST and Marcus Theatres’ Radiant Systems point-of-sale (POS) system. VitalCAST will give the theatre more signage options than static signage allows, such as dayparting and announcing specials, and the ability to adjust pricing and other features on multiple screens simultaneously from Milwaukee. Previously, Texas Digital worked with Marcus Theatres on a VitalCAST installation in their Majestic Theatre just outside Milwaukee.



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texting the limits

interactive attractions using vote-by-text (SMS)

by Jeremy Scheinberg, Chief Operating Officer, Alcorn McBride Inc.

From buying a drink at a vending machine using a cell phone as an electronic payment mechanism to iPhone applications that allow your burrito to be ready at Chipotle when you arrive, the devices we carry around everyday give us instant gratification in our lives. This interactivity applies to entertainment as well. High-end gaming systems allow users to play in immersive environments with players all over the world. TV shows such as American Idol let audiences vote for their favorite performer. With all of this interactivity at home, it stands to reason that themed entertainment audiences want to do more than simply watch a show. They want to play a role in its outcome.

Technology

The use of Vote by Text in a themed entertainment environment begins with a prompt to vote, submission of votes by SMS messaging service, the tabulation of the votes, and the control of the show based on those results. A show controller (for example, the Alcorn McBride V16 Pro) can handle these functions and provide a continuous, interactive experience. During installation, the attraction operator creates an account with an authorized SMS messaging service.

- Prompt for Voting - The prompt will be different depending on the type of show or experience. In a hosted show, it could be a specific cue by the host that encourages the audience to vote. In an automated show or preshow/queue line, it could be a media clip that presents the options, explains how to vote using a phone and opens voting.

- SMS Messaging Service - The SMS messaging service is responsible for the collection and tabulation of the votes. There are a number of services that can handle this task. Alcorn McBride has worked with providers to develop the necessary interfaces to allow for automation of the voting process (thereby eliminating the need for an operator to run the message collection process - even in a hosted show). During show operation the V16 Pro automatically communicates with the service to handle the vote processing and incorporate them into the show flow without any operator intervention required. When voting is to begin, the V16 Pro sends a message via its Ethernet connection to the SMS messaging service. The service resets its current vote counts and

begins to accept new votes.

- Tabulation of the Votes - When a guest texts a response to a pre-determined number, that vote is registered and stored. The service keeps a running count of the number of votes for each option. The number of options is only limited to the number of options which work within the show flow. For example, if the guest is to choose their next destination in a "journey", 2-5 options may be a reasonable number. Too many options can lead to decision paralysis and may require a larger voting window in order for guests to make a choice; this limits the number of voting opportunities and can impact show flow, duration and throughput. Depending on how the voting system is configured, guests can be limited to one vote (by source phone number) or they can vote as many times as they want within the voting window. The amount of time within which the system will accept votes is completely configurable. When the voting window expires, the V16 Pro sends a message to the SMS voting service to close voting and return the results.

- Results - Once the results are tabulated, the response is entirely up to the show's designers. The V16 Pro can display the results to the audience via a display system or branch the show's media in a specific direction. The possibilities for how the show proceeds are nearly endless and allow for the creation of fantastic experiences with tremendous audience buy-in.

Applications

Here are just a few ideas selected from a wide range of possibilities:

1. "Choose your Own Adventure" - Much like the series of children's books, a ride, show or preshow can branch into entirely different areas based on guest feedback. If a story is told in a way that engages the audience, the outcome of the experience can branch in a seemingly endless number of directions. This variety encourages repeat visitors, and provides a sense of ownership in the collective experience.

2. Talent Contest - There are plenty of opportunities to bring a talent competition to any themed entertainment venue. From large-scale band competitions to small venue

karaoke contests, the addition of vote-by-text gives every member of the audience a role in the final outcome, without the expense and hassle of installing a dedicated wired (or wireless) voting system. Even in a hosted live show, the show control system can manage the polling, handle voting tabulation and control accompanying media, lighting, etc.

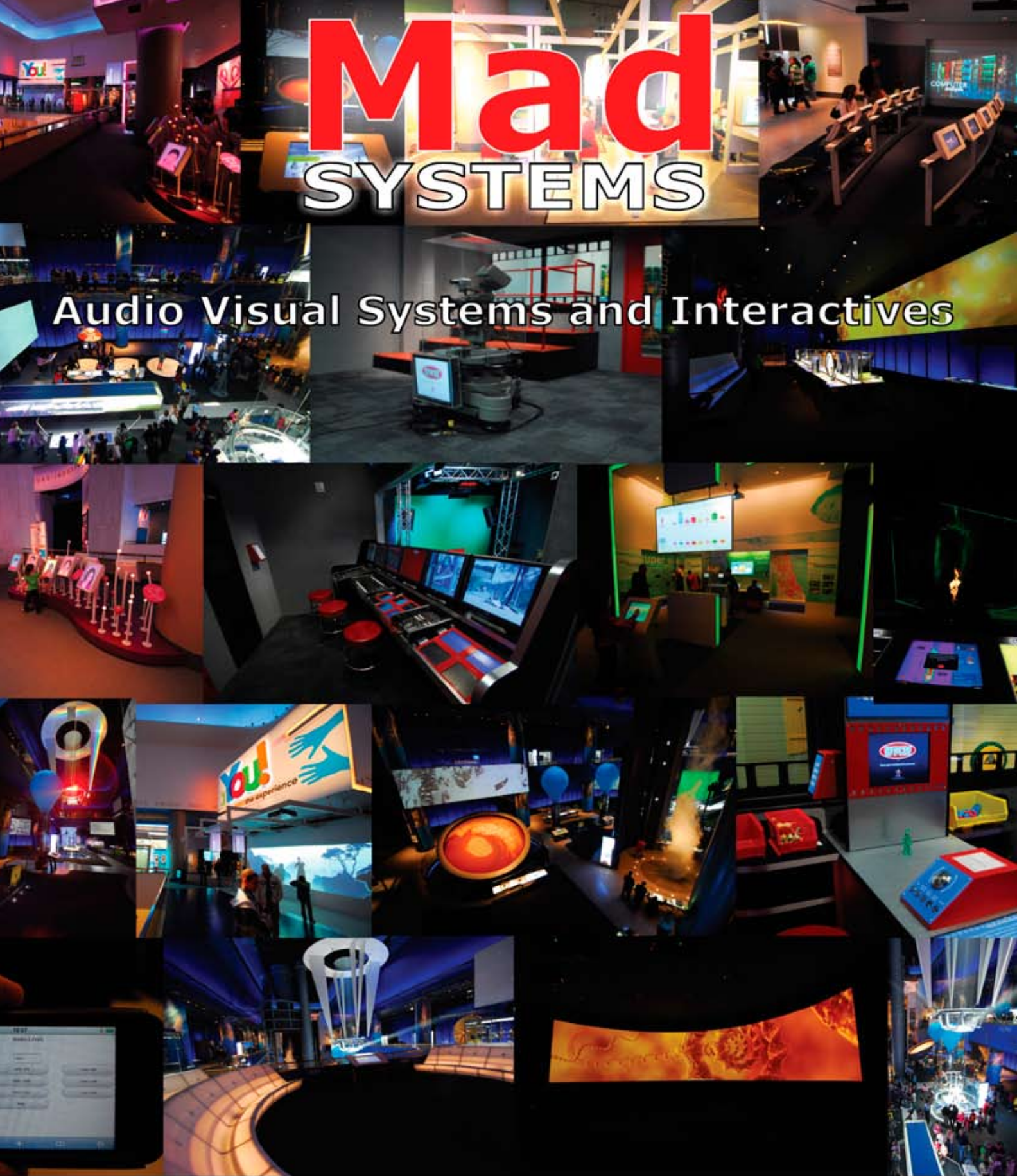
3. Interactive Queues and Preshows - Throughput is an issue in any attraction. Popular rides and shows may have extensive queue lines, with guests becoming restless. Adding vote-by-text provides a number of ways for guests to interact with the environment around them. For example, guests can have a shared experience with the people around them by choosing the media that is presented; they can compete with others in vote-offs to hear specific songs; they can trigger effects that happen to guests elsewhere in the queue (water cannons, smoke/lighting effects, etc.) All of these examples provide an interactive element that makes the queue less of a hassle and more of an engaging experience.

4. Branded Environments - The lessons learned from entertaining and engaging guests in themed venues are rapidly finding their way into the brand space as companies seek to promote their products in new and more interesting ways. This can translate into applications as simple as a kiosk in a mall all the way up to a completely themed retail store. By using interactive elements - such as vote by text - brand managers can create a repeatable engagement between their brand and potential customers. They can also gain valuable market research about those potential customers.

As educational, commercial and entertainment venues look for new ways to engage with their guests, there is an ever-increasing need to provide a two-way experience. It is not enough to simply speak to a guest. It is important to make them a part of the experience. With new technologies like vote-by-text it is possible to take advantage of a device that 90% of your audience already carries—a mobile phone—allowing them to interact with their environment and determine their experience. The promise of creating a unique experience with multiple outcomes encourages your guest to return, in order to find out what will happen next time. **ipm**

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the **museum of science and industry**
unleashes **science storms**

By *Martin Palicki*

Most attractions or museums have one icon, or centerpiece that draws people inside. For decades, the Museum of Science and Industry in Chicago arguably had its Coal Mine exhibit, placed toward the back of the museum's main hall, beckoning guests inward with its periodic whistle call.

As of March 18th, however, the Coal Mine has some competition. In the museum's new Science Storms permanent exhibit there isn't just one icon, however, there are SIX. And each one is more impressive than the previous one.

The exhibit focuses on basic science and replaces what was once the Grainger Hall of Science and a temporary exhibit space, which has relocated to other areas of the museum. Exhibit planners knew they needed to update

the museum's collection of basic physics and chemistry exhibits, and had been working on the project for five years. Senior Exhibit Developer Olivia Castellini was brought on by the museum for the Science Storms project and helped guide the direction of the exhibit.

"Our goal from the beginning was to find elements of science that inspire wonder in people," explains Castellini. "We turned to natural phenomena that everyone is able to appreciate and understand." The exhibit then branches off from these natural phenomena and explains the scientific principles behind them in smaller exhibits, bringing in other examples. The effect is a sort of modular, free-flowing exhibit where one can wander in and out – the complete opposite of the linear start-to-finish style exhibit the Coal Mine offers.

Science Storms' six iconic exhibits include

avalanche, tornado, sunlight, tsunami, fire and lightning. A seventh area, atoms in motion, includes some of the most interesting artifacts of the exhibit, but doesn't feature a predominant icon. Most of the exhibit fabrication was completed by Lexington Design + Fabrication, based in southern California.

"We have raised the bar in the museum fabrication field by creating these very complex interactives with fine details, and high end finishes that perform brilliantly day after day," said Howard Smith, Lexington's Project Manager for Science Storms. "The project required Lexington's team's to commit to an exhaustive, mock-up, prototyping and re-engineering process essential to proving the science."

With the avalanche disc in the foreground, tornado to the right and sunlight prisms in the middle, the Science Storms exhibit has iconic demonstrations of science everywhere you look. Photo courtesy Museum of Science and Industry.



AVALANCHE

Visitors approach Science Storms from the museum's main rotunda and ascend a small ramp. The entire first level of the exhibit is built on a raised platform, which was required in order to run data, electric, and water to the various elements of the exhibit. Immediately to the left is the exhibit's first icon, a slowly rotating disc, 20-feet in diameter. The giant disc, placed at an angle, is filled with garnet sand and glass beads. The different colored materials spin around inside the disc, depending on the speed of rotation, controlled by a steering wheel nearby.

As the disc's speed changes, the particles move, forming different types of motion within the disc, and exhibiting how granular materials can, en masse, behave like liquids. The effect is mesmerizing, as guests stop and stare in wonder.

Creating the 20-foot disc was a challenge in itself. Environmental artist Ned Kahn had created similar discs on a smaller scale in the past, mostly as art installations. The steel disc was manufactured in pieces and assembled onsite to allow it to fit through the museum's receiving doors. A polyurethane coating was required to create a single smooth surface on top of the steel plates. In order to keep the surface blemish-free, the museum constructed a temporary clean room around the disc in order to apply the polyurethane layer.

Surrounding the avalanche disc is an assortment of experiments and hands on exhibits that replicate lab experiments and teach guests about motion, including a giant Newton's cradle, and a tennis ball launcher that shoots balls from one side of the balcony to the other.

At a normal exhibit, a bottleneck at the avalanche disc might seriously clog the exhibit. But there's something bigger and even more eye-catching just beyond.

TORNADO

Standing 40 feet tall, a spinning tornado swirls from the floor all the way up to the ceiling, changing shape and moving around – controlled by museum guests. The tornado is created by 48 ultrasonic misting foggers and four giant fans (each the size of a VW bug) in the museum's ceiling that creates a swirling airflow and draws the fog up from the ground. Vents on the side open and close based on controls operated by visitors and change the tornado's shape and form.

It is the second piece from Ned Kahn, based on several smaller 8-foot versions he had created. According to Olivia Castellini, the museum staff wasn't really sure the tornado would form.



The giant Tesla coil, suspended from the museums ceiling, creates an electrifying lightning show periodically throughout the day. Photo courtesy of Museum of Science and Industry.

"With such a large scale, and in such a large space, it was hard to precisely know how the air currents in the museum would affect the formation of the tornado," said Castellini. "We all crossed our fingers when we turned the fans on for the first time, but within seconds, we had a tornado."

Surprisingly, the exhibit is extremely quiet. The fans are only running at 30-40% of capacity, so designed to increase their useful lifespan and minimize noise. The return air ducts, which run alongside the walls of the tornado space, feature acoustical treatment to reduce sound levels.

Once guests walk through the tornado, they can try their hand at building smaller ones, play the role of a storm chaser, learn about air pressure and hop into a wind tunnel booth to experience 80mph winds.

"We wanted to show people the exciting side of being a scientist," explained Castellini. "Each area features videos that highlight active scientists and asks them why they do what they do, what excites them and what they are planning on researching next. Each video is a human story that complements the science story around it."

The exhibit's media was produced by Cortina Productions, Inc. and the A/V systems were designed and integrated by MAD Systems.

Most areas have multiple touch screen stations, some on large monitors, that allow the guest to explore on a deeper level through

video, interviews, and virtual experiments, the concepts being presented in each section.

"The A/V systems for Science Storms were created to be easily accessible by a wide audience, and to be intuitively understood," said Maris Ensing, MAD Systems Principal. Castellini agrees that a great deal of layering is available in the media content provided, and both 8-year olds and 80-year olds have been observed getting into the virtual content.

TSUNAMI

Behind the tornado, a 30-foot long plexiglass tank awaits guests' input for creating waves to crash upon a model shoreline. Typical ocean waves can be contrasted with a tsunami-style wave, and its effects are measured on two different types of shorelines. The tank, filled with mineral oil to avoid evaporation, also has a camera focused on it, shooting slow motion video of the waves crashing on the shoreline. The tank is one of the main icons fabricated by Lexington.

"Science Storms was one of those peak professional experiences and we couldn't have enjoyed more working with Kurt Hanfelner and the entire team at MSI," said Richard Bencivengo, President and CEO of Lexington. "Jack Pascarosa and Shari Berman of Evidence Design created an amazing experience and Lexington is proud to have been a member of this all star team and to have contributed to this ground breaking exhibition."

Surrounding the wave tank guests can explore waves in various ripple tanks and through a 20-foot tall oscillating wave form sculpture.

LEXINGTON

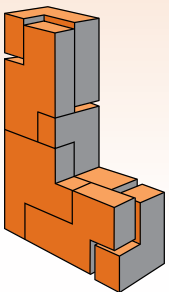
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The museum also acquired a tsunami-detecting buoy recently decommissioned by NOAA. According to Castellini, the museum was ready to have one fabricated, as NOAA did not have any available when one broke from its mooring and washed up on Kodiak Island in Alaska.

SUNLIGHT

The typically cavernous interior of the museum is pierced by direct sunlight at this station in the exhibit. A heliostat system on the museum's roof directs sunlight down through a skylight where it intersects with four giant prisms. Each is 9 inches on a side and 40 inches long. The museum luckily found a source for the prisms that had some extra available. Should one of them break, it will take nearly two years to get the glass and form it into a replacement prism.

The prisms create rainbows that dance and move around the space. Below, the sunlight shines down on photovoltaic cells that power small electric cars on a racetrack. Nearby, exhibits explore the visible light spectrum, fiber optic technology, and a unique translucent color room allows guests the opportunity to add and subtract different wavelengths of blue, green and red light to create some surprising results.

LIGHTNING

No matter where you are in the Science Storms exhibit, or just about anywhere in the museum's main hall, you know exactly when the giant Tesla coil suspended from the ceiling is activated. If you can't see the bolts of lightning emanating from its center, you can certainly hear the giant shocking noise as it cycles on and off. It is set to discharge periodically, though a museum staffer can also control specific displays of lightning for use during an impromptu demonstration or a group presentation.

Beneath the coil a variety of experiments on static electricity and magnetism allow guests the opportunity to interact up close (and safely) with electricity.

FIRE

The exhibit's fire section is located close by the lightning exhibit. At the center is a fireproof chamber, similar to ones used by Underwriters Laboratories, that features a controllable flame and different sprinkler heads. Guests perform a live experiment to see which types of fire suppression systems are most effective. In doing so, flashing laser beams bisect the chamber and make clear the movement of water particles as they react to the heat, and vice versa.

The fireproof chamber is the only real fire in the exhibit. The remainder of the fire exhibits rely heavily on virtual experiments and simulated fire.

ATOMS IN MOTION

Hidden behind the fire exhibits, a compact area devoted to atoms and the elements contains some of the most interesting, and overlooked parts of Science Storms. A display of ferrofluid, which changes shape when exposed to magnets, is positively captivating, while a Periodic Table brings the elements to life.

Projected onto a flat surface, an image of the periodic table of elements invites guests to move small RFID pucks over various elements, in effect picking them up, and moving them to a virtual reaction chamber. As elements are brought together, reactions ensue. Create some table salt and a virtual pile of salt spills onto the table. And that's just on the tame side.

The table brings the elements to life and allows for exploration in ways that a traditional school lab isn't able to provide. "With more and more chemicals being banned from school science labs, students don't have the learning opportunities available to them that they can have here," said Castellini.

The exhibit space also allows for more in-depth exploration. Two classrooms near the atoms section give places for students (or teachers) to break out and focus more specifically on one topic. Museum educators are able to provide tracks for just about any group and level.

"Our main target for Science Storms is 10-14 year olds," said Castellini, "but the reality is they are not coming alone." That's why

the exhibit offers so much to see and do for each of the main areas. If one of the big icons doesn't catch someone's interest, one of the smaller more intimate exhibits might. And the free-flowing nature of the exhibit encourages exploration at a personal level.

"Anyone can work the controls and move through the exhibit," explains Castellini. "But our goal at Science Storms is to inspire wonder. The best part of this whole project is coming out here and seeing the looks of fascination in people's faces. That's when I know Science Storms has been successful." **ipm**

BEHIND THE SCREENS

Mad Systems designed and built the media delivery and interactive systems for Science Storms, which had to take into consideration an extremely lively space with potentially many sound sources including the Tornado and the Tesla coil. Mad's Mad Dash server provides the media for all the media pieces, and in the case of Atoms and Avalanche also provides edge-blending, and its internal warp engine takes care of the Tornado primary media piece which is projected onto a concave surface.

Distributed speaker systems are used to deliver punchy special effects into the space, with specific listening stations providing the narrative for each of the media stations, which were set up to reduce sound bleed in the space as much as possible.

SolidDrive speakers are built into the benches of both the Lightning and the Atoms exhibits, and the Atoms exhibit uses the precedence effect to make visitors feel that the audio is delivered from speakers behind the screens, where the reality is that the main audio is actually provided by the benches which are fitted with SolidDrive transducers.

The AV system does not only provide media, but it also provides a control and diagnostics function. The control system turns the Science Storms gallery on in the morning, and it turns it off at night, removing power from every last single exhibit wherever possible. There are 14 exhibits that have Programmable Logic Controllers to take care of the detailed control and safety requirements of those individual exhibits, and the Mad control system controls their functionality and then if there are any fault messages, it collects those messages and sends an email to the maintenance staff. It also checks for projector status and lamp burning hours, and warns maintenance staff in case of projector issues or of lamps getting near the point where they need to be replaced, again by email.

The audio is DSP (Digital Signal Processing) based, and each audio channel was set up using a measurement microphone to ensure that the audio quality and speech intelligibility, a very important factor in venues such as this, is the best it can be. It also allows the overall sound levels to be controlled so that the museum has an easy method to change audio depending on how busy the gallery is - and again, changing the levels may be done from an iPhone connected to the Science Storms system.



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space inviters

NASA searches for the next generation of **space explorers**

By Mattheis Carley

For the 10% of Americans currently unemployed, there's good news: NASA is hiring! But you won't find a help wanted ad for astronauts in your local newspaper. NASA is (unofficially) searching for the next generation of scientists and engineers, but their recruitment technique goes a little bit beyond Craigslist. NASA's Kennedy Space Center Visitor Complex recently collaborated with BRC Imagination Arts to open a compelling, new exhibit that reveals the future potential of space. Exploration Space renews a sense of wonder in visitors, encouraging them to take part in NASA's continued growth and exploration of space. Visitors learn about NASA's latest developments throughout the 10,000 square foot attraction, emphasizing the future of space technology by showing emerging projects, and most importantly, the next generation of people who are creating them.

It can be tempting to focus solely on NASA's astounding history, especially when its future is overshadowed by politics and apathy. With so many achievements and missions firmly lodged in the past, younger generations may not fully grasp the importance of continuing space exploration. Sadly, many might struggle to name the first person on the moon but could rattle off decades of sports trivia or all the latest celebrity gossip. NASA may even be considered a nostalgic notion of the past as baby boomers revel in memories of The Space Race and what many consider to be the agency's heyday. Today's youth seem to perceive space exploration as having more historical significance rather than a future of unimaginable possibilities.

Exploration Space seeks to change those perceptions by showing the new, fresh face

of the NASA design team. Rather than only highlighting the cosmos, this human element is integral to the experience. Life-size images of young NASA team members are featured throughout the gallery, emphasizing the roles future generations will play in space exploration. Various projects are sketched out on enormous wall surfaces, accompanied by partial blueprints and concept drawings. Visitors feel as if they are a part of an in-depth NASA brainstorming session.

"This is a first for NASA and the Kennedy Space Center Visitor Complex. Rather than celebrating the accomplishments of the past, Exploration Space is about the future. It is something entirely new and exciting," explains Matthew Solari, Director of Education Development for BRC Imagination Arts. "It puts guests where they want to be – at the center of the adventure."

The centerpiece of the exhibit is an immersive 10 to 12 minute live show presented by a NASA "Communicator" (a live actor who narrates and takes Q&A at the end). It utilizes a stunning array of video surfaces throughout the exhibit to envelop visitors in a story of how NASA is working to overcome the challenges involved in deep space exploration. The show concludes with a captivating call to action: "You are the ones who will lead us into the next frontier, and beyond. You are tomorrow's explorers."

BRC designed the experience to be almost entirely free-flowing. After the show, explorers have the opportunity to wander and interact with a myriad of new NASA concepts and technology including entering a full-scale model of a space capsule as it is under construction. Inside, a young NASA technician's laptop shows pictures of her friends and colleagues at work.

Visitors can test their dexterity and learn the challenges of maneuvering in space by

Full-sized 12' x 8' model of the Orion Crew Space Exploration Vehicle that allows guests to walk inside and view the cockpit through non-reflective glass. Designed by BRC Imagination Arts and technically designed and fabricated by Lexington Design + Fabrication.





Visitors check out the latest technology at NASA's Exploration Space. Photo courtesy of BRC Imagination Arts.

attempting orbital docking and lunar landing at video game-like stations. Before they depart for home, explorers can have their pictures taken and enhanced, portraying them as an astronaut on the moon, on Mars, or on a spacewalk. BRC created sleek computer stations with integrated cameras that allow the user to email the photo or post it on Facebook.

BRC is known for brilliant visual storytelling and used this as the primary communication method in Exploration Space. This approach is also essential to engage younger visitors. "The depth and breadth of educational content in the exhibit is stunning," continued Solari, who is also the Stage Director for the project, "but you

never notice it. The team made a commitment to delivering rich content using almost entirely a visual language that is entertaining, high-tech and immersive."

The immersive environment might not be a fertile hiring grounds – yet – but it does awaken a sense of awe and wonder in guests and hopefully encourages them to pursue further education in science and exploration. And job seekers beware: NASA has yet to comment on whether a visit to Exploration Space qualifies as a resume builder. **ipm**

The Kennedy Space Center Visitor Complex captivates over 1.5 million guests annually and is one of Florida's top tourist attractions. BRC has teamed Lexington Design + Fabrication, NASA and Delaware North Parks and Resorts on the project. Highlights include:

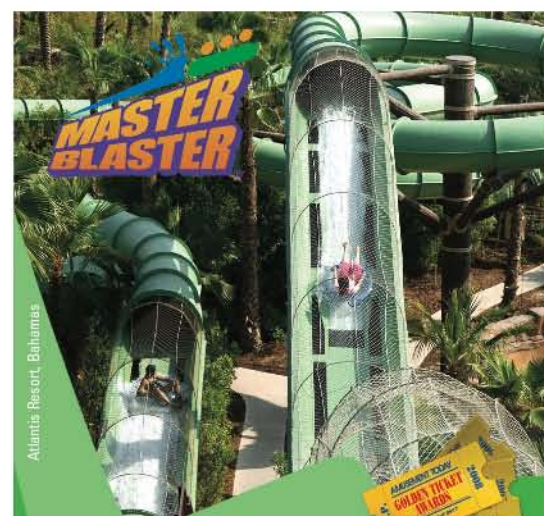
Orion Crew Space Exploration Vehicle - NASA's newest spacecraft concept, with capacity for four to six astronauts. The model shows the unique way an astronaut will ride, sleep and do daily tasks in space in the future. BRC and Lexington created a full-sized 12' x 8' model that is semi-open, allowing guests to walk inside and view the cockpit through non-reflective glass.

The LER (Lunar Electric Rover) - The most advanced moon rover, equipped to fully house two explorers for 14 days straight and transport them over thousands of miles of rough terrain on 12 special Michelin "Tweels" (tire-wheels). BRC designed this 10' x 12' exhibit model that Lexington tech-designed, cast in fiberglass and finished with high gloss and reflective automotive paint.

The ATHLETE (All Terrain Hex-Legged Extra-Terrestrial Explorer) - Future space exploration will require entire bases to be transported across a planet's surface. The ATHLETE is a giant 15' x 6' robot that crawls like a crab with its six legs-on-wheels over any terrain imaginable, carrying up to 1,000 pounds on its back. BRC acquired a two-legged portion of a full-sized aluminum model from Jet Propulsion Labs. Lexington crafted an atmospheric graphic wall and a mirrored wall, then bolted the model to the walls in a way that gives the illusion of being a complete vehicle.

Interactive Game Kiosks -- Lexington tech-designed and fabricated the futuristic-style kiosks that BRC designed for two interactive space games where visitors have fun trying out their skills at spacecraft landing, docking and staging.

"Join Us" Kiosks - To help spread NASA's message that they're seeking a new generation of space explorers, these four kiosks allow guests take photos of themselves in superimposed NASA space suits, with option to instantly email the photos with messages to friends. BRC designed and Lexington installed the kiosks with webcams, two-way mirrors, LED lights and keyboards.



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rivers of change

the national mississippi river museum & aquarium
prepares for expansion and growth

by Martin Palicki

Situated along the banks of the mighty Mississippi River in Dubuque, Iowa, the National Mississippi River Museum & Aquarium is expanding. Since 2005, the museum has been focused on the \$13 million expansion project, widening its focus from not only the Mississippi River, but throughout the rivers of America.

The project includes four new areas for the museum, a research center, traveling exhibit, and a new ticketing and admissions system.

- Rivers to the Sea traces the story of water and rivers as they flow from streams to rivers to the ocean. Guests will explore artifacts, inter-active exhibits, images, live ocean animals, touch screens, models, and mini theaters. This gallery will include the Ocean Today kiosk, presented in partnership with the Smithsonian Institution, NOAA and the Coastal America Coastal Ecosystem Learning Center network.

- Children will be engaged through a delightful presentation of rivers as Water, Life and Energy in the RiverWORKS Gallery, learning that rivers are functional as well as fun. Through hands-on water-based activities, they learn about rivers and what rivers mean to all of us. This children's "museum within a museum" keeps its river focus, which distinguishes it from many other wet or splash exhibits in museums and discovery centers across the country. The core message for visitors becomes: Rivers are fun and functional! A collage of visually exciting elements—a bicycle pedal-powered water cycle; larger-than-life, crawl-thru beaver lodge; a flowing river model with waterwheel—greet visitors and draws them inside.

- The RiverWAYS Gallery will show how rivers provide beacons for exploration as well as opportunities for living, explore how rivers are a part of our national identity, and explore the intersection between natural and cultural history. The

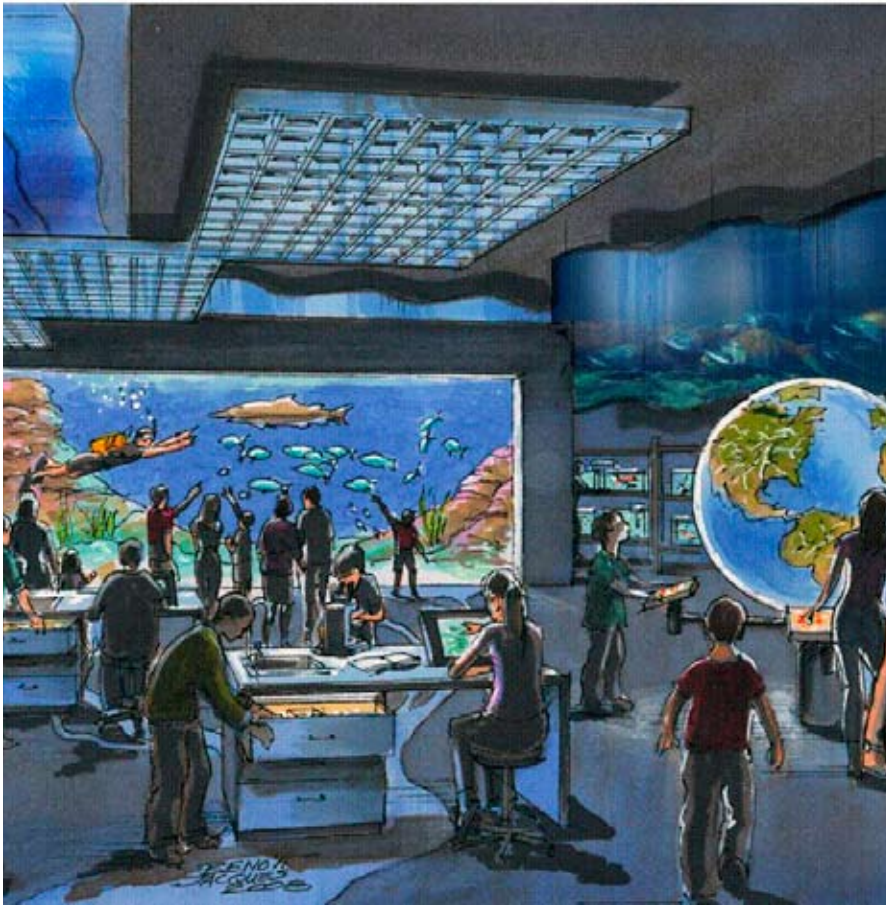
sounds of moving water, the mist from a waterfall and smoke from a nearby camp fire will hang in the air. The images from audiovisual elements will flicker in the softly lit space. Set within this immersive gallery, an informal theater experience provides a history of canals across the diverse and watery interior of the United States.

- The River Research Center will be a place for important research about the science and history of rivers. This space will have exhibits that showcase the dynamic research that is will be conducted not only in this center, but at other research institutions within Iowa and throughout the Mississippi River valley.

- The Large Format 3D/4D Theater will be the first large format digital theater in the region. For the digital theater and other digital technology, the River Museum is engaging Edwards Technology of El Segundo, California.



The National Mississippi River Museum & Aquarium traces the history of the Mississippi River and calls for its continued preservation.



The new Rivers to the Sea gallery will include interactive exhibits and artifacts. All images courtesy of the National Mississippi River Museum & Aquarium

With partial funding from the McKnight foundation, the Museum & Aquarium will create a traveling version of these exhibits which will be available for travel throughout the Mississippi River valley from 2010 to 2012. Two formats will be available – an 800 square foot exhibit and also for venues with smaller footprint availability, an interactive touch screen computer exhibit which will have many of the learning components loaded into the kiosk.

The museum is also switching its Ticketing Point of Sale system to the CENTAMAN Enterprise Solution. The Museum is looking to improve how it tracks visitors and manages revenue.

“We were originally a local history museum,” explains Marketing Director for the museum, John Sutter. “But we have become a regional attraction, drawing visitors from Chicago as well as from all 50 states. Last year we had 225,000 visitors. With the expansion this year, we are hoping to top 300,000.”

Sutter is anxious to turn on CENTAMAN’s tracking features, identifying how much revenue comes from which geographic regions and also allows for targeted coupon promotions. The system will also provide a new online ticketing portal, and pull in data from admissions, retail and food and beverage.

The system also manages group sales and VIP programs (Memberships). “When a group or VIP checks in with their bar-coded ticket or ID card, the system can send an email or a text message to the group sales director or development coordinator so they know their group or VIP has arrived,” says Sutter.

The admissions system, along with the rest of the museum’s new exhibits is in the final stages of installation. Opening is scheduled for summer 2010. For more information on the museum, visit www.rivermuseum.com **ipm**

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child's play

the new children's museum of the upstate focuses on learning through exploration and fun

by Martin Palicki

Most children's museums are about 25,000-40,000 square feet. But The Children's Museum of the Upstate in Greenville, SC is getting ready to celebrate its first birthday in its 80,000 square foot building. The museum is housed in Greenville's old library building, situated on the cultural campus known as Heritage Green.

The project originated in 2004 and has now become a staple for young families in the area. The focus is on learning through play and exploration.

"We are not an institution concerned with children coming to learn facts," explained Carol Scott, museum president and CEO. "We want them to explore, ask questions and figure out how things work."

As such, the museum's exhibits are designed to be enticing to children, recreating the real-world environments they replicate in a way that is accessible and durable for children. All but one of the museum's exhibits were designed and built by Lexington Design + Fabrication, based in Los Angeles; the electronics and software for the WTCM Studios and BI-LO

Market exhibits were designed and built by Mad Systems in Orange County.

"We were especially impressed with how the museum is designed for a diverse group of children," said Richard Bencivengo, President and CEO at Lexington. For example, the Formula 1 themed Start Your Engines! Exhibit features a life-like racecar that children can virtually "drive" around the country. Lexington worked with a real Formula 1 racecar designer in creating the car's appearance, and a software programmer who designs high-end Formula 1 racecar simulators. The result is a realistic driving experience along one of several tracks, each providing a different level of difficulty for children to explore.

"The educational philosophy of the Museum's exhibits and programs is in line with documented educational philosophies which emphasize the diverse abilities of children," said Scott.

Similarly, the EarthWatch exhibit allows for integration of more science-specific content aimed at older schoolkids. The exhibit consists of a 3-foot globe that displays high-resolution images, interactive animations and live data

from the internet to show real-time depictions of the changing earth. The exhibit can show any image appropriate for the spherical display, including those related to climate, ecology, oceanography, political and historical simulations, the sun, planets and moons. Lexington worked with media producers Harvest Moon Studios to create a short film that connects Greenville's environmental history to the global problem of pollution

"We wanted to show children of the Upstate how dynamic the world is and how their personal choices affect the planet. We used the best in interactive and real-time technology to tell this compelling story," said Patti Drum, Vice President of Design at Lexington Design + Fabrication.

Technology is also a key component to the museum's WTCM Studios, one of the favorite exhibits at the museum, offers budding actors, news reporters, singers and instrumentalists the opportunity to experience the world of television and music in a realistic, imaginative way. The studio features a control room where visitors can activate on-stage lighting, add sounds and edit recordings into finished productions. A non-facilitated mode allows kids to scan their barcode to automatically start recording their performance, whereas a facilitated mode provides opportunities for kids to act as directors, and crew members as they use cameras, a greenscreen with background video, teleprompters, lighting and other television equipment to record footage.

The system may be run in automatic mode, where simple touchscreens teach kids the basics to handle the system, and a manual mode (typically for after-hours work-shops) where the covers come off and the real lighting, audio and video mixer desks are available for use. The exhibit also allows for families to collect their videos on a DVD at the giftshop.

"This is probably the most fun and sophisticated TV studio in any children's museum" said Maris Ensing, President and Founder of MAD Systems. "We worked hard to provide a system



Lexington designed and fabricated nearly all of the museum's exhibits. Photo courtesy of Commercial Imaging



The Start Your Engines exhibit takes the Formula 1 theme and explores ideas of speed, power and friction. Photo courtesy of Commercial Imaging.

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From Concept to Completion



Kids can pretend to be a television reporter and then purchase a video of their experience at the end of the day. Photo courtesy of Lexington Design + Fabrication

that would be easy to use on a day to day basis, but at the same time could be used as a real studio so that kids had an opportunity to enjoy a hands-on studio experience, and to learn at the same time”.

That seems to be the key to the museum’s success – the blending of realism with playfulness and exploration has brought over 77,000 visitors to the museum in the first eight months of operation. Almost 8,000 children participated in field trips, and nearly 5,000 celebrated a birthday at the museum.

“The Children’s Museum is a place of possibility, nurturing the future leaders, dreamers, scientists, artists, teachers and helpers from around the region,” said Scott. “We’re here to ignite a passion for learning – empowering all children to discover their full potential and expand their view of themselves and the world.” **ipm**

The majority of the museum’s exhibits focus on three main areas:

Health and Nutrition

- BI-LO Market – a child-sized grocery store focused on making healthy choices
- Healthy Heroes – an exhibit filled with physical, mental & visual challenges
- Children’s Hospital – an environment to investigate the body and how to take care of it
- What’s Cookin’ Kitchen – a workshop area for nutrition education

Sciences and the Environment

- Start Your Engines – a Formula 1 themed exhibit focused on speed, power & friction
- 3-2-1 Blastoff! – a space to explore aerodynamics, air pressure & flight

- Light Waves Ahead – an exhibit focused on the role of optics, light & lasers
- Reedy River Bend – a Reedy River-inspired exhibit to discover the wonders of water
- Talkin’ Trash – a conservation exhibit that encourages environmental consciousness

Arts and Humanities

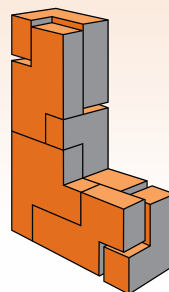
- Off the Wall – a unique space for discovering the visual, performing & language arts
- WTCM Studios – a real television studio designed for creativity and self-expression
- Garage Rock – an area to explore melody and pitch using unexpected instruments



The Children’s Museum of the Upstate, Greenville, SC



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