ELECTROSONIC WORLD

Electronic Images, Video, Lighting, AV & Motion Picture Control

No 10

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Image Control 2000

The increasing sophistication of corporate communications, the continued worldwide expansion of visitor attractions, and the demand for the technical support service needed to ensure continuous, reliable operation of display systems are all creating new opportunities for Electrosonic and its customers.

Shown here is an example of the increasing number of corporate-sponsored visitor centers, designed to appeal to the general public. It is also an example of where a major creative production company has taken advantage of Electrosonic products and experience.

The Spirit of Ford interactive science and technology center opened in Dearborn, MI in May 1999. The 50,000 sq ft building is in the shape of an ellipse, like the Ford trade-mark. The Center provides a great day out for the family, with many interactive exhibits and shows.

Busch Creative Services were appointed by Ford to design and produce the main exhibit displays. One of the problems they faced was the need to provide a display for the center atrium, which would be on a scale commensurate with the size of the space, and which could work in high ambient light.

Busch Creative Services decided that the display space would be most effectively filled by a 53ft x 8ft videowall sourced by DVD players. They chose an Electrosonic videowall, for its excellent value, bright images and flexible programming.

The Electrosonic videowall at The Spirit of Ford interactive science and technology center normally runs set shows, but for special events it can be patched through to alternative sources, to show live video and other programming. Show design and production by Busch Creative Services. See also "Auto makers choose new ways to promote their image" on Page 7.

The videoconference suite at Halifax Group Treasury in London. One of many corporate communication installations by Electrosonic, the room can also be used for presentations based on high resolution graphics.

Latest technology in ES™ systems

Electrosonic customers are benefiting from the way in which the company is applying the latest technology. Since the last issue of ELECTROSONIC WORLD there have been many significant advances as new technologies have either become practical or affordable.

The London Stock Exchange display shows market and financial information from the Exchange's own computer network. Video inputs, and an accompanying audio system, are used for special events.

In this issue we report on many applications of our latest VECTOR™ image processing product, of new display technologies such as Plasma and DLP™, and of new methods of show sourcing and control; in particular the use of Electrosonic media server and ESCAN™ show control and monitoring systems.

For example, the impressive reception area at the London Stock Exchange now features a high resolution, high brightness display which runs a continuous sequence of world-wide financial information.

AWAV are audio-visual consultants to the Exchange, and were responsible for the design and completion of the system.

Andrew Wilkinson, principal of AWAV, said "We chose the VECTOR and ProDigital™ display solution because VECTOR can cope with a number of computer and video inputs simultaneously; and the quality and brightness of the DLP™ based displays withstand the very high ambient light conditions in the glass walled reception area. Also, Electrosonic's proven track record of providing audio-visual solutions played a big part".

Spider-Man®

Read all about it on Page 16.

The entrance to the Spider-Man ride, at Universal Studios Islands of Adventure. The ride uses an Electrosonic 3D projection system.

"Electrosonic did some terrific engineering on Spider-Man...The Spider-Man attraction uses several effects and technical methods that have never been attempted before, and Electrosonic's projection control system ensures that projected images synchronize perfectly with other effects". Scott Trowbridge, show producer, commented when this amazing attraction opened in May 1999 at Universal Studios Islands of Adventure, a new theme park in Orlando, FL.

The NBA Store on New York's Fifth Avenue uses Electrosonic media servers for their displays, like this giant interactive display with bright 8ft high image. For more information on the NBA Store see Page 8. Photo © fotos international.

ELECTROSONIC WORLD

Company News

ELECTROSONIC WORLD is mainly about Electrosonic's customers, but on these two pages we take the opportunity to explain our current business strategy, say something about our website and sponsorship activity, and give a brief 35 year overview.

Editorial

We found we had so many good stories piling up in 1999 we decided to bring out a new issue of ELECTROSONIC WORLD several months earlier than usual. It is also our 35th Anniversary Year, which gives us another excuse to bang the drum!

Our intent with ELECTROSONIC WORLD is to provide a record of some of the best work we are doing as a company worldwide; for the benefit of our customers, trade colleagues, staff, and suppliers. We hope that it will also be used by designers and specifiers as a source of ideas and even inspiration.

In this issue we have included some longer articles of a general review nature. We hope you find them of interest. People can be forgiven for thinking that technology is moving too fast; but, in fact, provided you are only concerned with the application, the technology very often looks after itself. The review articles and many of the other stories make this clear.

At Electrosonic we have a simplistic view of how video and audio visual systems should be designed. It is to design backwards from the image (in the widest sense) to be seen or heard by the audience; it is not to design forwards from some particular technology. This "out of the image" philosophy ensures that the appropriate technology gets used.

Of course we would be hypocrites if we did not admit that we are excited by new technology. Many of the projects we are doing now, and certainly all of the products we manufacture, benefit from technology which has only reached commercial viability in the last few years.

We intend to continue our leadership in "image control", by combining our 35 years of applications experience with intelligent use of new technologies as they become available. Through ELECTROSONIC WORLD we will keep you informed as to how we get on!

Electrosonic World

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Products Solutions Service

Image processing and show control equipment, including VECTOR™, IMAGESTAR™, ESLINX™ and ESTA™, are the principal products offered by the Electrosonic Products Division.

We have organized Electrosonic to operate as three distinct types of business which we call Products, Solutions and Service. All three work together, but each has its own management. All three relate directly to our theme of Image Control, and we do our best to ensure that customers are matched to the most appropriate part of our organization.

Products

Our Products business is built around high performance image processing and show control equipment. We sell this equipment directly to staging companies and suitably qualified re-sellers in North America and the UK; and through appointed dealers in other countries.

The products are complex, so a considerable commitment is required on both sides. We must provide the product training and technical back-up, and our re-sellers and professional users have to commit to acquiring the specialist product knowledge and to releasing staff for training.

We aim to provide our professional users and re-sellers with all the information and support they need to make the most of our products.

Solutions

Our Solutions business operates over a wide field. Our aim is to provide complete audio visual solutions in the "group experience" market – in practice this means we serve the needs of corporate presentation facilities, decision spaces, theme parks, museums, exhibitions and retail display. We aim always to use the appropriate technology for the job – whether or not this involves the use of Electrosonic products.

Our solutions business often develops special hardware or software "tools", either because nothing suitable exists on the open market, or because we can see a way of adding further value. Some of these items go on to be developed by our products business, but most are only available as part of complete solutions.

While we work on a worldwide basis, our clientele is limited. For us to add value, we must be near our clients, so the majority of our designer and specifier clients are located near our offices. We aim to expand our solutions business by opening more full service engineering offices near new client groups, as we did recently in Orlando, Florida.

Service

The Service business does more than simply support the other two. Certainly it is our means of keeping in touch with our products and solutions customers; but it is also becoming a serious business in its own right. We aim to give "peace of mind" by providing service contracts for complex audio-visual installations.

A large part of our service effort is geared to optimizing the performance of the installations; ensuring that our customers' installations are delivering full value as originally specified.

Again we are gradually expanding the geographical coverage we can give. Of course we are especially well qualified to support systems which were either installed by Electrosonic, or which use Electrosonic product.

However, this is not a restriction, and the proportion of "non-Electrosonic" service business is expected to rise. We have developed a lot of expertise in the service of third party products and are pleased to make it available to others.

Service contracts are administered from our Minneapolis MN, and Dartford UK offices. Clients include Prudential Assurance (for their meeting room systems) in the UK, and Best Buy (for their HD videowalls installed nationwide) in the USA.

The Home Page at www.electrosonic.com

Electrosonic's solutions business operates from Dartford UK, Burbank CA, Minneapolis MN and Orlando FL.

Come visit www.electrosonic.com

In early summer 1999 the Electrosonic website was completely overhauled. We recognized the value of the world wide web, redesigned the site with the full involvement of all our business and technical experts, and believe we now have a site to be proud of. We would like to hear what you think about it!

On www.electrosonic.com you will find a welcoming home page giving a brief outline of our activities, and directions to the other pages.

Our aim is to provide:

- Descriptions of our products, solutions and service businesses.
- Product information
- "Project profiles" giving examples of the projects which our world wide business has undertaken
- Contact details for our various offices
- Notice of job opportunities

In addition the site has password protected access to our latest show control and programming software, and some technical documentation. This is to help our appointed dealers and professional customers have immediate access to product upgrades. The website serves the whole Electrosonic organization, but is administered from our Minneapolis office. Anyone who has actually created a website themselves will tell you that they represent a lot of work, but we are committed to the site and to its continuous improvement. That's why we would like to hear from users, so we can prioritize the addition of new features.

Electrosonic sponsors IEE Faraday Lecture with VECTOR

What is digital? How does it work? Why is it better than analogue?

The annual IEE Faraday Lecture has a history of drawing back the curtain on such developments and the 1999 lecture, presented by the University of Kent with the support of Kent County Council, did just that for the dawn of the digital revolution.

The Digital World visited 14 cities during a nine-week tour designed to highlight the excitement and contribution of engineering to life.

It was aimed at school pupils between 14 and 18, as well as the general public, and, like all Faraday Lectures, was part of the IEE (Institution of Electrical Engineers in the UK) drive to attract young people into engineering.

The lecture was enjoyed by a live audience totalling 45,000 – but was also televised and shown internationally.

Audiences at the IEE Faraday Lecture could be up to 1,000 people; the videowall helped the lecturers' explanations.

University of Kent

A team from the Electronics Engineering Department of the University of Kent told the story of the 'Digital World' from its roots, back in the discovery of electro-magnetic induction by Michael Faraday, through the first telegraph systems, to the telephone, radio and television. Using a combination of audio-visual and hands-on demonstrations they showed why digital offers such better quality and what it may mean for the future.

Programming the Faraday Lecture videowall at Hawley Mill

Electrosonic supported the tour by the provision of a videowall, using the company's latest products.

The display consisted of 24 Electrosonic ProDigital™ high brightness projection cubes, which use DLP™ (Digital Light Processing) technology from Texas Instruments, and was controlled by Electrosonic's then recently launched VECTOR™ processor.

The Electrosonic display showed up to eight simultaneous images, any one of which could appear at any size, on any part of the videowall.

Inputs were a mixture of video and graphics. Video was derived from live cameras directed at the demonstrations, and from an Electrosonic 4-channel digital video server playing back MPEG-2 compressed video.

Graphics were derived from PC based "virtual instruments"– such as a virtual oscilloscope and a virtual spectrum analyser – and from presentations created using MacroMedia Director™.

The VECTOR processor retimed and resized all incoming images to fit on the display, which had an overall resolution of 4800 x 2400 pixels.

Videowall success

Professor Phillip Davies, Director of the Electronic Engineering Laboratory, University of Kent at Canterbury, said: "We were very pleased to present the 1999 Faraday Lecture.

On a national and international level, it's a great opportunity to reach out to school children, to show them just how crucial electronic engineering is to today's technology."

He went on to say "The success of the lecture was due in no small part to the contribution the videowall made; it had a great impact on all who saw it, and was a great vehicle for explaining the impact of digital technology. We were very grateful for Electrosonic's help."

In fact Electrosonic's sponsorship was very much aimed at strengthening the links between the company and the university.

The production and the logistics of the tour were organised on behalf of the IEE by Neil Linden-Johnson. The massive task of programming the display fell to Rick Swenson a post graduate at the University of Kent Electronic Engineering Laboratory.

The display was programmed using the new version of C-THROUGH™ designed for use with the VECTOR processor; this controlled both the source equipment and the videowall effects. In this case the major cues were released manually, whereas timed sequences were automatic.

"Freezes" were used to hold still images on the screen when necessary. In all the 50 minute lecture had 2300 cues – one every 1.3 seconds on average!

The videowall acting as a backdrop to foreground experiments.

35 Years in control

Electrosonic Ltd was founded in England in 1964.
A few years later, in 1972, Electrosonic Systems Inc was founded in Minneapolis, MN.
The two companies are managed and operated as a single organization. Electrosonic has always been among the first to apply new technology. Just some of the milestones in its 35 years are:

1964
One of the first companies to manufacture automatic thyristor dimmers.

Electronic dimmers 1964

1965
Among the first companies to offer electronic dissolve units for slide projection.

1967
Install mixed media displays at EXPO 67, Montreal; the first of many major EXPOs for Electrosonic.

The ES3601

1968
Probably the first company to make all-electronic programming systems for mixed media shows, using multiplexed data on magnetic recording tape. Engineered Kodak "Carouselvision" at Photokina 68, a 40 projector 20 screen show.

1970
Engineered many multi-image installations in 13 different pavilions at EXPO 70, Osaka Japan.

1970-76
Introduction of AV Presentation Units, culminating in the very popular ES3601 and ES3609 units.

The London Experience 1977

1976
The first company to use microprocessors in electronic dissolve controls.

1983
One of the first companies to offer electronic scene-setting systems for architectural lighting control.

1985
Among the first to achieve practical solid state audio replay systems for museum and exhibition displays.

1986
The first to adapt the new memory architectures being developed for the computer and optical products markets to videowall image processing applications.

Wheels Dark Ride at National Motor Museum used solid state digital audio 1985

1988
Created the most practical and flexible videowall programming and image processing systems with the PICBLOC™ range.

1991
Introduced the IMAGINE™ range of digital lighting control products and systems. Today all Electrosonic's former lighting control activities are handled by Helvar Lighting Control Ltd. Electrosonic no longer operates in the lighting products field.

1992
Built the world's biggest videowall with 850 monitors at EXPO 92 Seville (where Electrosonic equipment was used in 35 pavilions controlling over 2000 video screens and 500 slide projection screens).

850 monitor wall at EXPO 92

1995
Started developing customized MPEG compressed video systems. Delivered the compression and copying workstations for Steven Spielberg's "Survivors of the Shoah" project.

1997
Delivered the 130ft wide high resolution electronic image display at the Newseum, Arlington VA. It can display up to 36 asynchronous electronic images simultaneously, with any image placed at any required size anywhere on the display.

1998
Devised new algorithms for electronic image resizing (patent applied for) which form the basis of VECTOR.

The Media Wall at the Newseum

1999
Winner of AV Technology Awards for Systems Company of the Year and Excellence in the Use of Videowall.

Advances in Display Systems

Here we record some recent projects where the latest display techniques have been used. In each case Electrosonic engineering has delivered excellent value, and eliminated the risk of using new technology.

90 HD Displays for Best Buy

The VECTOR processor, as used by Best Buy, is modular, and can be configured with a variety of input and output cards to suit a wide range of analog and digital inputs and outputs. While mainly intended for videowall use, it is also suitable for multi image processing onto a single screen.

One of Electrosonic's biggest contracts in 1999 was the supply and installation of 90 High Definition videowalls for Best Buy, who trade as America's number one consumer electronics and appliance specialty retailer. Electrosonic's new VECTOR™ technology promoted the latest consumer product - HDTV.

The decision of the FCC to mandate broadcasters to transmit a significant proportion of their output as High Definition Television has introduced a new era in consumer TV product.

Best Buy are determined to take advantage of this by heavily promoting HD, but to have any impact in their large, well lit stores they need a really BIG high definition image. They get it from a 20ft (240inch) diagonal display in 16:9 aspect ratio made up from 12 PV8000 projection cubes fed from an Electrosonic VECTOR image processor. The versatile VECTOR, controlled by a computer running the C-THROUGH™ videowall control program, allows the display to show any mixture of NTSC video, computer graphics, off-air HDTV and an in-store digital HD source (a Sencore server/player)

One of 90 Electrosonic High Definition Videowalls installed at Best Buy locations throughout the USA.

Tom Schneider, General Manager of Best Buy's Electronic Display Services said "The support for HDTV inputs in Electrosonic's VECTOR image processor, along with the committed, problem solving approach of their people, allowed us to showcase the benefits of HDTV in the best possible way". Beside the right technology and the right price, Electrosonic offered reassurance to Best Buy. They had already supplied 200 monitor based videowalls to promote Nintendo games in Best Buy locations, so the ability to handle nationwide rollouts was not in doubt.

Included in the HD package is Electrosonic's ServiceNet support plan.

This ensures that each store is visited regularly to ensure optimum display performance is achieved. Unlimited telephone technical support, fast emergency call out and immediate on-site exchange of any defective equipment complete the package.

At Electrosonic we expect to see a dramatic increase in the use of HD displays in the near future, and we really appreciate the way in which Best Buy are helping to raise the standards of public big image display. Tom Schneider again "The newly installed walls were so riveting that employees found it hard to take their eyes of them at first".

Floating image display for Sadler's Wells

The recently re-opened Sadler's Wells Theatre in London features a glass walled entrance foyer that is the full height of the building. In daylight passers-by can see into the building; but after dusk a big video display can be seen - apparently a "floating image" which appears without the need for any mechanical devices or moving screens.

The display, brainchild of Sadler's Wells Chief Executive Ian Albery and architects RHWL Partnership, is used to promote forthcoming productions, Sadler's Wells in general, and most especially to provide visibility for Sadler's Wells sponsors. It is also being used to showcase the work of video and digital media artists, which complements the changing programme of displays throughout the building, featuring both emerging and established artists, working in a wide range of media.

The video "screen" is a separate sheet of glass mounted behind the main exterior glass cladding. For practical reasons it is actually nine sheets of glass arranged 3x3, each 1.9m x 1.43m to create a total screen area of about 24 square metres (255 sq ft). Each sheet is a sandwich of two glass sheets with a PDLC (Polymer Dispersed Liquid Crystal) filling.

The floating image display at Sadler's Wells seen at night. It uses Electrosonic PICBLOC-3™ image processing.

The PDLC layer itself is between two transparent electrode layers.

When an electric charge is applied to the electrodes the PDLC becomes transparent; however if no charge is present, the layer is translucent and makes a reasonable projection surface.

PDLC Screen

Passers-by see the picture as a back projected image; theatre-goers see it as a front projected image. In fact PDLC makes a better back projection surface than it does front projection; however, the use of high brightness projectors ensures that this is not a problem.

A view of the projectors, mounted under the foyer balconies. Notice how some projectors are inverted to get them nearer the screen centre line. Photo from Barco.

The show system is programmed so that the images are reversed during the immediate pre-show period and during the show intervals, so that the theatre-goers see the images the "right way round".

In order to achieve sufficient brightness, to fit the physical constraints of the building and to exploit the multiple image possibilities of the screen format, nine projectors are used, one for each screen section. The only place these can be mounted is under the foyer balconies; which results in the need for extreme "perspective control" to avoid keystone distortion on the individual images - in some cases the projection lenses are very far from the optimum centre line.

The display is equipped with videowall image processing equipment, and can accept a variety of video sources. Two are permanently installed (a computer video playback unit and a video text generator) and other sources can be used on an "as needed" basis.

The Sadler's Wells "Floating Image Display" has the following features:

- **24 sq m PDLC "screen" built by Long & Co under sub-contract to Electrosonic, based on the use of "Polyvision" PDLC material supplied by G.A Stanley Palmer Ltd. Overall screen assembly weighs 2.4 tonnes.**
- **Uses nine Barco 3200 LCD video projectors, modified for easy lamp access.**
- **Videowall image processing is Electrosonic PICBLOC-3™, with capability of accepting up to four video sources.**
- **Programming and scheduling is by Electrosonic C-THROUGH™. Besides controlling the videowall images, the system programs the PDLC electrodes and the scan reversal and projector input switching needed to "flip" the images.**
- **A Scala "Info-Channel" facility is provided for on site generation of text and graphics sequences.**

Electrosonic Ltd engineered and installed the complete display system, working directly for Sadler's Wells and reporting to the project manager, Roger Spence.

NikeTown comes to London Town with ESCAN

The world's biggest NikeTown features the latest in audio-visual engineering from Electrosonic.

NikeTown London opened in July 1999 on a prime 70,000 sq ft site at Oxford Circus. It is the only place in the UK where the entire range of Nike's footwear, apparel and equipment can be seen. But it is more than a store; it is a place of "sports inspiration", hosting special events, a weekly running club, athlete interviews and, in partnership with Community Service Volunteers, encouraging sports and leisure activities throughout London.

The "Core" at NikeTown, London. Four concealed high power video projectors are used in the show.

The Core

A three storey high 360° projection screen is the centrepiece of the store. The screen is perforated so that under the right lighting conditions, it is possible to see through it a "tower" of 750 photographs celebrating sport at every level. Every 20 minutes the store's window blinds close, and the core "comes to life" with a massive show of light and sound, and spectacular sporting images of "London at play".

In order to ensure that the core projection concept would work, full size mock-up tests were carried out in a hangar in Portland, OR. The tests, and the final core projection installation, were supervised by consultant Josh Weisberg (of Scharff Weisberg of NYC) who had also been responsible for the big image projection at the New York NikeTown.

In the "Pavilions" video playback is neatly integrated into the merchandise displays. Here a plasma display screen is being used.

The Town

The core sits in the store's "Town Square", which is surrounded by buildings housing different sports areas on three levels. Each area or pavilion is devoted to a different sport, and is themed accordingly. Video screens are cleverly built in to the merchandise displays, and show relevant information or inspirational footage – whether it be the ideal swing of a golf club, or the technology of footwear.

The ambient sound in each pavilion is carefully designed to match the mood of the activity featured, creating a continually changing sound picture of sport.

The System

Electrosonic designed, built and installed the audio-visual system. Seventeen full size 19" source and control racks are sited in a control room on a floor above the store. The complete system was built and tested at Electrosonic's Hawley Mill plant prior to delivery.

The 24 channels of video are sourced from Electrosonic video servers with mirrored, hot swappable drives. Video is stored as MPEG-2 files, played at 15Mb/s for the big core images, and 8 – 10Mb/s for the smaller display screens.

The 120 channels of audio are sourced from a mixture of the audio from the video servers, and Electrosonic ESTA™ solid state audio players. All audio is routed through a programmable audio matrix, and thence to a total of 81 amplifiers (14kW in all!) feeding 239 loudspeakers.

ESCAN

The source system is run as a network. A master computer is networked to the server computers, and to a portserver; which controls all external equipment needing RS232 or RS485 control. The master computer runs ESCAN™, ElectroSonic Control Area Network.

ESCAN includes "Easy Schedule" to program events on a calendar or time of day basis; or to respond to external triggers; and "Site Manager", which provides monitoring of all major equipment items.

ESCAN has the facility for direct control from touch-screen control panels, used to set up pre-programmed system configurations either in addition to automatically scheduled events, or to override them.

ESCAN is suitable for wide area operation; anything that can be programmed or monitored locally can also be programmed and monitored at a distance.

ESCAN also allows for direct delivery of media by wideband network. However, at NikeTown all show and interactive media are currently delivered on CD-ROM and are loaded locally.

Partial view of the control and source racks. They include a CCTV system to monitor the Core Show.

In this photo the tower of photographs can be seen through the perforated screen.

The Team

NikeTown London was realized by an experienced team. Led by Nike's Creative Brand Director, John Hoke and Manager of Global Retail Media, Michael Welch, who provided all the audio and video program material, the principal team members were:

Architects: BDP

Main Contractors: Kvaerner Trollope & Colls

AV System: Electrosonic

Store display manufacture: Exhibits International (Canada) and Keijsers (Netherlands)

Show lighting: AC Lighting

For the benefit of those interested in the equipment used in the AV system, the following is a partial listing:

Video servers: Electrosonic

Main control: Electrosonic ESCAN

Audio players: Electrosonic ESTA

Big show projectors: Barco 9200

Touch screen controls: AMX

Device controllers: Alcorn McBride V16

Audio control: Peavey Media Matrix

Power amplifiers: Crown

Main loudspeakers: EAW

screenzone™ go ProDigital

Screenzone Media Networks of South Orange, NJ is behind a new concept of movie and music promotion.

Big displays installed in shopping malls promote current movies and music videos, and provide interactive terminals for visitors to learn more about the movies and music and to book tickets. Screenzone needed a display engineering partner to realize the compact back to back screen system, giving two 8ft x 4ft displays in only 5ft depth.

Electrosonic delivered a specially engineered mirror optics version of their ProDigital™ displays which are based on Texas Instruments DLP™ technology.

In the current installations the displays are fed by VECTOR™ processors to give an image 2400 x 1200 pixels. The image source is a screenzone video server, which receives its program updates over a proprietary wideband network.

Electrosonic delivered specially engineered DLP displays with VECTOR processing to Screenzone at Garden State Plaza, Paramus NJ (20 miles from New York City).

Screenzone installation in the Del Amo Fashion Center, Torrance CA.

The giant screen in the New York NikeTown is over three storeys high. Photo courtesy Scharff Weisberg.

Nike round the world

NikeTown London is the biggest NikeTown, but it is not the first to use an Electrosonic audio-visual system with ESCAN™ control. Worldwide there are now seven Nike Stores or NikeTowns which have been equipped by Electrosonic. These are, in order of completion, New York (NY), Toronto (Canada), Melbourne (Australia), Miami (FL), Berlin (Germany), London (UK) and Denver(CO).

Each of these stores now has a consistent media architecture, with overall system control by ESCAN; video playout by Electrosonic MPEG-2 Server and audio control by Peavey Media Matrix.

Display devices vary according to the store design, for example in Miami the big show projection is by Digital Projection DLP™ projectors.

In Berlin installation was subcontracted to ProVideo GmbH, and in Australia to Rutledge Engineering. New York was a "retrofit", where the original laserdisc based source system was replaced, necessitating a lot of night work.

NikeTown in Denver and NikeTown in Berlin, two of seven Nike locations using ESCAN.

Corporate promotion

Today's corporations make maximum use of mixed media presentation techniques. Electrosonic's products and solutions businesses help them do it.

The show area at Island East combines light and sound with projection. Five video projectors are used onto a wide metal mesh screen; which can part in the middle, as shown here, to reveal a single rear projection screen.

Real estate promotion

For many years promoters of new real estate developments have used audiovisual techniques. Architectural models would often be supported by multi-image slide shows, and sound and light presentations.

Today the idea continues – but now the presentations take advantage of the latest advances in electronic presentation. Recent examples with Electrosonic involvement have been in Dallas, TX and Hong Kong.

The Amend Group's WorkPlace Technologies Division co-ordinated the design and construction of this multi-purpose presentation/conferencing room.

Amend Group

In Dallas, Electrosonic reseller A Visual Image provided a comprehensive presentation system to The Amend Group, a real estate firm who needed a facility for presenting conceptual ideas to customers, for communicating with remote sites and for supporting business meetings.

A Visual Image and Amend Group selected a high resolution DLP™ display with VECTOR™ processing from Electrosonic as the prime means of display. An AMX touch screen allows the display to show many different configurations of S-Video and computer graphics.

Jeff Powers, Vice President of Technology at The Amend Group says "We have come a long way from showing sketches and verbally describing site, building interiors and technology concepts. With the use of CAD and animation tools, we are now able to model concurrently displayed options – with photos, site videos, floor layouts and supporting text. Communication and use of technology have always been key components to the successful delivery of our projects. The functionality and quality of the Electrosonic videowall has enabled us to take these to a higher level".

The Info Resource area at Island East combines an LCD touchscreen with a big back projected image.

In the Lifestyle area at Island East a touch screen LCD display is combined with plasma display panel (PDP).

Island East

Electrosonic's solutions group takes on large scale turnkey audio visual projects anywhere in the world. Island East is a massive new commercial and high class residential development in Hong Kong. Its remarkable "by appointment only" corporate visitor centre includes show areas, meeting rooms and marketing suites tailored to different kinds of customers.

The centre was designed by MET Studio, with AV production by McLean English and lighting design by DHA Lighting Design Services. While the AV system was engineered and built by Electrosonic in the UK, after sales support is provided by Electrosonic's Hong Kong office.

Lucent Technologies International

The Lucent Technologies Executive Center in Warren NJ presents Lucent Technologies as a young, dynamic company very different from the AT&T from which it emerged.

The Center consists of high quality meeting and business suites, a dedicated videoconferencing facility and a multi-screen multi-format show element which uses video and slide projection, lighting and stage mechanics.

The entrance to the show is through electrically operated glass doors which are engulfed in a halo of blue light when visitors are invited to enter the show area. A dramatic steel floored corridor leads to the 15 seat show area.

At first this seems to have a solid wall in front of the seats, but it is soon revealed to be a mesh screen with lighting gobo images appearing on and through it.

Entrance to the show area at Lucent Technologies Executive Center, Warren, NJ.

The main show at the Warren Lucent Executive Center uses multiple moving video screens.

The wall moves, and two curved doors move apart to reveal a much larger space, its scale heightened by a starfield, and, later in the show, by dramatic slide projection.

The main show is given on five screens, all of which move (complete with their projectors) in a cleverly choreographed presentation. Projection is by Electrohome video projectors, sourced by Electrosonic video server with genlocked synchronized outputs.

Teamwork

Although Electrosonic's US offices supported the project, the actual engineering was done from the UK. This is because the successful bidder for the design was UK based Firbank Kempster (their team led by David Hall and Ray Cripps). They assembled a design team which included Electrosonic for the AV System, DHA for lighting design and McLean English for AV program production.

One of the meeting rooms at Lucent. The meeting rooms share a common "media bank".

It obviously helped the project that Electrosonic is strongly established on both sides of the Atlantic.

Since completing the Warren installation, Electrosonic has gone on to install similar, but somewhat smaller, systems in Lucent's facilities in Nuremburg, Germany and Shenzen, China.

50 Gas shows on VECTOR™

Visitors to the Westfälische Ferngas headquarters in Dortmund, Germany see a house show with a difference, matched to their own home town.

Westfälische Ferngas is a long distance gas distribution company distributing gas throughout Germany. When visitors arrive they can see a show which always has the same "beginning" and "end", but has a "middle" which is specific to the town or region they come from. This middle section shows Westfälische Ferngas' activities and the close partnership with their local distributor.

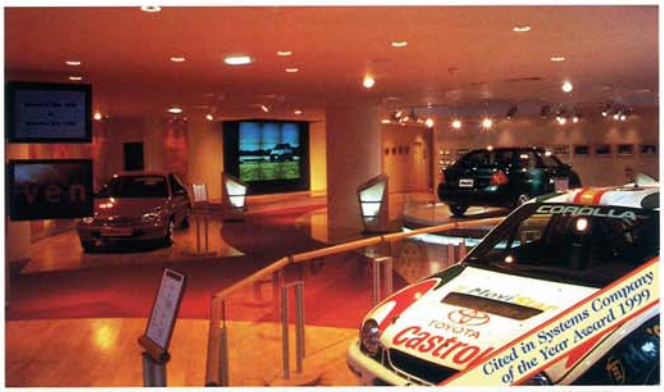
Kosfeld GmbH of Dortmund was responsible for the overall audio visual installation in Westfälische Ferngas' refurbished visitor area. This includes a full presentation room system and a lobby area show system.

The latter presented the problem that the design called for a 3m x 2.25m display to fit into only 90cm depth; and for the display to be able to show computer graphics in addition to the video based show. Kosfeld appointed Electrosonic as sub- contractors to solve the display problems. The multiple show feature is achieved using Electrosonic video server; the shallow depth display by custom mirror versions of Electrosonic's ProDigital™ projection units based on Texas Instruments' DLP™ technology, and the graphics presentation by using VECTOR™ processing.

The Westfälische Ferngas welcome display in Dortmund shows a choice of 50 shows on a 90cm deep DLP display with VECTOR processing.

Auto makers choose new ways to promote their image

Automobile manufacturers operate in a highly competitive world, and need to exploit new methods of creating and maintaining brand loyalty. Electrosonic has been involved with several innovative sites, which embrace techniques of great interest. Here we describe work for Toyota in Paris, BMW in Capetown and Opel (part of GM) near Frankfurt.



Ground floor view of Le Rendez-vous Toyota. The 3x3 videowall uses Electrosonic VECTOR™ processing and Toshiba "cubes". All exhibition video is fed from Electrosonic video servers - but for special events there is provision for off-air, satellite, VCR and internet sources as well.

Le Rendez-vous Toyota

A unique showroom has opened on the Champs Elysées in Paris. Le Rendez-Vous Toyota does, indeed, promote Toyota cars - but it is unlike any conventional car showroom.

Le Rendez-Vous Toyota features an Internet-Café where visitors can surf the net and exchange virtual postcards or join a chat group. A Bar/Bistro offers drinks and culinary specialities from around the world, and a quiet reading corner offers magazines on design, automobiles and lifestyle.

The Carré Lexus is an exclusive lounge promoting the prestige Lexus brand. Interactive multi-media terminals give product information about the whole Toyota range.

Video clips showing Toyota activities worldwide, new product promotions and motor sport activities are shown on high technology displays. These include flat panel plasma display screens, videowalls and high power video projection. Le Rendez-Vous Toyota is also home to a series of special events – including "Happenings" of a cultural or sporting nature on special occasions, such as Halloween or Valentine's Day, and "Cartes Blanches", where artists are given freedom to exhibit their works or even modify the decor of the showroom.

First floor view of Le Rendez-vous Toyota with the Internet Café in the foreground, and another videowall in the background.

Uniplan International, of Cologne, Germany, were responsible for the realisation of Le Rendez-Vous Toyota.

Electrosonic Ltd installed the audio-visual system under sub-contract to Uniplan.

Lava Medienteehnik of Hamburg produced the main video programmes, and were responsible for the computer-interactive systems.

Support service, for both the main AV system and for the computer interactive displays, is provided by our associate company in Paris, Electrosonic Systèmes.

BMW Pavilion

In the Southern Hemisphere BMW have taken a different approach.

On Capetown's V&A Waterfront the BMW Pavilion attracts nearly a million visitors a year. It includes an IMAX® cinema, conference facilities and a restaurant; but it also includes the BMW Exhibition.

The exhibition allows BMW to promote their products and values to the general public. Highlights include historic BMW vehicles, current products and three-dimensional exhibits demonstrating BMW's advanced technology.

To animate the exhibition, and to provide access to information databases, extensive use is made of video and computer display technology.

A large videowall, LCD touchscreens and plasma panel displays all play their part. The complete AV installation at the BMW Exhibition was completed by our South African Associate Company, Electrosonic SA, in just one month.

The BMW Pavilion Exhibition in Capetown features a curved 6x3 videowall. It uses Electrosonic IMAGESTAR™ 31K processors and Seleco "cubes".

Seven 40inch plasma displays (Pioneer 4:3 ratio) are in use at Le Rendez-vous Toyota. These ones are outside the Lexus lounge.

OPEL Live

At Rüsselheim, near Frankfurt in Germany, Opel, part of GM, has invested DM120million (863million) in OPEL LIVE, a new attraction with a capacity of up to 6000 visitors a day, and sited at their main German plant. The visit includes a "Tour of the Senses" Exhibition and an Interactive Gallery, both sited in a new Pavilion at the entrance to the huge site. These are followed by a tram tour of the site, ending up at Building K48, an unused construction hall. K48 has now been fitted out as an exciting exhibition and ride area. Attractions include a 3D movie on car safety; simulator rides, and the "After Dark" ride. Electrosonic was awarded a major contract for the engineering and installation of the exhibit construction. Overall design and project managers (and video producers) were HP-ICM of London and the leisure consultants were Grant Leisure Group.

the complete entertainment lighting and lighting control system; and the complete audio visual systems. Other contractors working on the project included Camber Entertainments, who built the simulators; WGH Engineering, who built the dark ride, and Silver Knight, responsible for most of

The video screens integrated into the high tech exhibits at OPEL LIVE are fed from video servers using MPEG-2.

ESLINX, ESTA & 3D

Many different techniques are used at OPEL LIVE. All show control is by Electrosonic ESLINX™ show controllers and interfaces. All video is carried on Electrosonic video servers. Most audio is delivered by Electrosonic ESTA™ solid state sound players. Some of these are used in the dark ride vehicles to provide on-board sound; and one system is used to play sync sound for the 3D movie. Most sound is delivered by loudspeakers, but English language translation is provided by Sennheiser headphones using infra-red transmission in some areas.

The 3D movie system itself was engineered by our Burbank, CA, office. It uses the "up and over" method of projecting 3D, whereby the two images are printed one above the other on the film, and a special Isco split lens, with built-in polarisers, projects both images simultaneously onto the same screen. The projection system, based on a Christie mechanism, is fully automatic. The lighting system uses around 450 dimmer channels (Celco Fusion) as part of the lighting schemes designed by David Atkinson for the Pavilion and Durham Marenghi for K48.

The simulator platform at OPEL LIVE. Each pod accommodates 20 people for a three minute ride.

Striking exhibits in the K48 building at OPEL LIVE.

The "After Dark Ride" at OPEL LIVE takes visitors through a mock-up of an Opel car plant at night. The cars are fitted with ESTA sound replay units.

Retail display

Electrosonic products are used in retail video displays. Big store systems and "roll outs" benefit from Electrosonic's systems engineering and project management.

NBA Wall on 5th Avenue

The NBA Store opened on New York's 5th Avenue in September, '98 - the first retail establishment to be owned, operated and merchandised by a North American sports league.

The 35,000 sq.ft. (3,300 sq.m) store is spread over three levels and borrows elements from arenas, gymnasiums and playgrounds to create an authentic basketball atmosphere. A 170 ft. (52 m) ramp winds from street level to the lower level, emulating the look and feel of an arena. As visitors descend the ramp they hear sounds of a basketball game - sneaker squeaks, crowd noise, balls bouncing.

As well as the world's most comprehensive range of NBA and WNBA merchandise, the store has a broadcast quality studio, located on the store's integral basketball court, which can feed live radio and TV to stations around the world. NBA Entertainment, the league's full-service TV, video and photography division, has extensive archives of material which are used in numerous multimedia attractions within the store. Fans have access to NBA players, fast-paced game action and memorable historical moments.

The NBA Store on Fifth Avenue features a custom built four-sided "scoreboard", able to show any combination of video and high resolution computer graphics. It uses DLP projection technology and Electrosonic image processing.

Scoreboard display

Suspended within the atrium of the store, a scoreboard system displays themed videos and live telecasts of special events. The system consists of four arrays of Electrosonic ProDigital™ DLP™ videowall cubes, each in a 3 x 3 configuration. The available image sources are 4 channels from an Electrosonic Video Server and 4 channels from the broadcast system, DVD player and Electrosonic Graphics Server. The whole system is controlled by a touchpanel located in the broadcast booth. This passes commands to WinWall software installed on a control computer in the equipment room and to the Electrosonic Control Area Network (ESCAN™) that schedules events throughout the day.

"The multi-sided scoreboard, similar to what fans would see in an NBA arena, is very important both as a design element and as an entertainment feature of the store," said Bill Daugherty, Vice President, Business Development, NBA. "Store visitors encounter the scoreboard as soon as they enter, and it's not unusual for fans to pause for several minutes in their shopping to simply watch the footage on the screens. We are very pleased with the system that Electrosonic created for us, as it combines excellent image quality with ease of operation."

This interactive display at the NBA store allows visitors to "meet the players", and to test their knowledge of the game. "Input" is by touching the array of basketballs to the left.
See also picture on Page1.

PlayStation® Store

The world's first PlayStation® flagship store opened in San Francisco in June 1999, as part of the massive Sony Metreon Entertainment Center.

Electrosonic dealer AVTS engineered some of the complex display systems, designed and produced by Richenbach & Associates.

They are particularly interesting because of their use of the latest display technologies. There are three videowall displays in the store:

The first is related to six large kiosks using no less than 52 20inch LCD displays; arranged as nine 3x1 columns and four 5x1columns. The videowall is fed by a VECTOR™ system, used to scale the images to the displays and to sweep images up and down the columns.

The second is related to the "Software Bar", where participants can order up to six games to play from the software attendant. It uses six Sony 42inch plasma display panels arranged as two 3x1 visual banners. VECTOR's unique scaling allows each of the banners to act as a single display unit.

The third display is a more conventional videowall. It uses a VECTOR unit to feed a 3x3 array of Clarity 50inch LCD cubes. AVTS chose VECTOR as the image processor for this project because of its exceptional image quality and its flexibility. It is particularly well suited to the mixture of displays and sources required by the PlayStation Store.

The PlayStation store has been packed since it opened, with up to 10,000 visitors a week enjoying the opportunity to try out the latest games. For this project Electrosonic dealer AVTS engineered three VECTOR based displays, and was sub-contracted to Richenbach and Associates, general contractor. The picture shows a section of the 'Software Bar' and one of the Game Kiosks in the background.

IMAGEMAG in Durban, Geneva, Glasgow, Lens & London

In our enthusiasm for the latest and greatest in display technology and control systems, it is easy to forget that many customers' needs are met by comparatively simple displays.

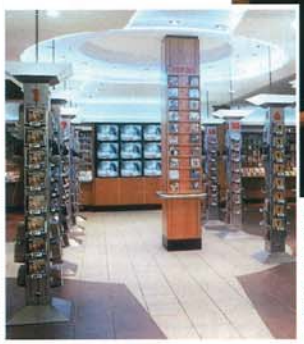
This is especially true when budgets are tight, or when many different sites must be equipped at a modest cost per site.

The monitor videowall represents an economic and eye-catching method of achieving a large animated image. The IMAGEMAG™ processor from Electrosonic is ideal for multi-site application, as these examples show.

RC Lens were French Rugby champions in 1998. Their new stadium store features a viewing "well", with eight monitors in an overhead dome, and a sunken 3x2 IMAGEMAG videowall in the floor, designed by VL2 of London.

The supporters' store at Liverpool Football Club's Anfield ground uses two IMAGEMAG videowalls. This photo shows their 4x3 display, clearly visible across the store.

Orange, the cellular phone company, uses IMAGEMAG based videowalls in its London (shown above) Manchester, Glasgow and Edinburgh outlets.



Mövenpick recently refurbished one of their Geneva restaurant/winebars. Our dealer Ganz & Co installed a 5x4 monitor display sourced by DVD, VHS and off-air. The display is arranged as four single monitors alongside a 4x4 IMAGEMAG videowall (above). Pic'n'Pay is the leading supermarket retailer in South Africa. They are making increasing use of video to animate their stores and entertain and inform customers. In their Durban North Hypermarket they use an IMAGEMAG videowall (installed by Electrosonic SA) in the music section (left).

Chill out at Miss Selfridge

Over an 18 month period in 1997/8/9 the UK based Miss Selfridge chain introduced a new look to many of their stores. A part of the re-design was a "chill out" area equipped with an audio-visual system installed by Electrosonic.

In all, a total of 32 stores were equipped – from Rotterdam to Galway, and Dudley to Carlisle.

The systems feature open-framed video monitors in acrylic "bubbles"; Bose Freespace™ audio systems, and two headphone listening points with selection panels.

The listening points use armoured cables and are backed by an animated display based on spinning CDs.

Video replay for the systems is based on Cadsoft® hard disc players. These use MPEG-1 compression and allow easy updating of programme material. They also allow for on-site generation of text pages.

The "chill out" zone in a Miss Selfridge store. The photo below shows a close-up of the selection panel and the spinning disc display.

Trade shows, Broadcast and Events

Electrosonic image processing products are widely used by rental and staging companies. This page reports the activities of some of our dealers and rental customers.

VECTOR moves into rental

The demands of videowall and multiscreen video display are becoming more stringent. Users are looking for higher resolution, computer sourced displays, and want to exploit new display technologies, which often do not match "traditional" video standards.

Electrosonic's VECTOR™ processor solves the problem, by providing exceptional graphics quality, and by being programmable to match displays of different resolution - especially LCD, DLP™ and plasma displays. As a result it is being adopted by an increasing number of top staging and rental companies.

Exhibitions like the giant CEBIT in Hanover, Germany (the biggest IT exhibition in the world) are particularly demanding. Users typically want to show a mixture of high resolution graphics and full motion video on the same display. At the 1999 CEBIT, leading German rental companies Sigma and Rossbach chose VECTOR systems to meet the needs of their clients.

Clever Media, a leading UK rental and staging company, ran a 14 venue roadshow over an eight week period in the summer of 1999. The client was Freeserve, an Internet Service Provider. The display, seen here at the "Tomorrow's World" Exhibition, used a 4x3 array of Sony cubes and VECTOR image processing. It showed live internet material with exceptional display quality. A presenter stood on the "balcony" next to the videowall and gave live demonstrations from the rail mounted PC.

Electrosonic's dealer in Sweden, Centas AB, supplied an impressive VECTOR driven display for their clients Intensia at the 1999 CEBIT trade show in Hanover, Germany.

The Pioneer stand at CEBIT featured a 4x4 RMV4000 cube wall and number of plasma display panels; all with VECTOR image processing and sourced by four SVGA and three video sources.

Devlin Design Group of San Diego CA designed and supplied the set for TVG, the new gaming network based on horse racing. The set includes a 4x3 PV8000/PICBLOC-3 videowall from Electrosonic.

An impressive 5 x 10 videowall installed by Electrosonic's distributor in Turkey, Visions Communication Ltd. It (and two other 3 x 3 walls not in this picture) supported the Crystal Apple Advertisement Festival. The cubes were Sony RVP411, and the processing Electrosonic PICBLOC-3.

TV Shows

For many years Electrosonic videowall equipment has been used on TV studio sets. It has proved itself especially useful in game shows, awards ceremonies, sports programs and news and current affairs shows.

The set of the French TV show "Video Gag".

Another TV videowall installation by Visions of Turkey. This one supporting an election night broadcast.

Some recent examples are shown here. The one from France, "Videogag" on France's TF1, is particularly interesting. Here the requirement was for the image control of a conventional videowall and of 12 LCD monitors built in to "palm trees" and "flowers".

Mission Video of Paris used Sony "cubes" and PICBLOC-3™ processing for the videowall; but used VECTOR™ processing for the LCD displays because of the easy way in which VECTOR could be programmed to match the LCD exactly.

The Electrosonic computer control program for videowalls and multi-screen video, C-THROUGH™ (in its different variants) lends itself to the use of customized "front end" controllers for game show applications. Such customization is usually done by specialist dealers or systems integrators.

Exhibits use videowall

Trade shows (or, if you prefer, messe, fairs, exhibitions, roadshows etc) represent one of the biggest uses of videowall technique.

While it is true that some exhibition applications of videowall have been taken over by the big single screen projector; most have not.

Videowall remains unrivalled as a means of getting big bright images which can compete with high ambient light levels, and whose display system has a very small "footprint". The programmed multiple image capability of videowalls also allows eye-catching shows to be made.

International customers often need to run the same show at several different venues; and here they can take advantage of the widespread availability of Electrosonic videowall equipment.

The Medtronic Berlin example shown here was actually originated by our Toronto office which staged it first in Toronto. It then co-ordinated the showing of the same show in Berlin and Barcelona.

The European showings were supported by Gahrens & Batterman in Germany, and by RGB Sono (our Spanish distributors) in Spain. The system was based on PICBLOC-3 processing and three CRV disc players.

Electrosonic's videowall dealer in Holland, VDP, hosted a really impressive open house to demonstrate the full range of Electrosonic image processing products working with a variety of displays, so that potential trade show users could evaluate the wide range of possibilities. Some of the combinations shown (not all visible in this picture) included a Seleco SMV300 monitor videowall with Electrosonic IMAGEMAG™ processing, two Clarity 52 inch 2x2 LCD videowalls with IMAGESTAR™ processing, a Seleco SRP41C cube wall with IMAGESTAR GRAPHICS processing and a Sony RVP411 cube wall with VECTOR™ processing.

The company Medtronic used a PICBLOC-3 videowall to support their exhibit at medical trade shows in Berlin (shown) Toronto and Barcelona. The production, by Media Productions of Minneapolis MN, celebrated Medtronic's 50th anniversary. Programming by Duffer Schultz.

The French Post Office hired a 3x3 Sony cube wall with Electrosonic VECTOR processing from Mission Video for the International Stamp Collecting Show in Paris.

Control, Decision & Conference Rooms

Electrosonic engineers complete display systems for control rooms, decision rooms and video conferencing facilities, using a mixture of its own and third party products.

The display at LVVWD uses eight ProDigital™ 50 inch projection units with VECTOR™ processing, to give a 14ft wide display only 28 inches deep. Displayed resolution is 3200x1200, 32 different data and video sources can be displayed. The ProDigital displays use Texas Instruments DLP™ technology, to give a rock steady, evenly illuminated, and highly legible image.

Las Vegas Water

"Electrosonic had the only product out there that could easily integrate data from many sources and provide a large, very high resolution graphic and video display at the same time". Bill Saucier, senior programmer/analyst for the Las Vegas Valley Water District (LVVWD).

The need for a display arose because of the difficulty that an operator had in reviewing detail on many desktop computer monitors simultaneously. Bill Saucier and his colleagues determined they needed a big display which would be legible in detail at 16ft viewing distance.

This problem in principle is faced by many utility companies, telecom networks and transport undertakings. The solution must usually be custom engineered to match the specific requirement.

Bill Saucier again. "Electrosonic customized their C-THROUGH™ Interactive software to allow the videowall processor to work with our existing water distribution control software."

The Sports Book at The New Frontier Casino, Las Vegas, uses a 14x4 Electrosonic videowall. All images are video based, and are predominantly related to horse racing, but also cover all major sporting events. Installation and system design by Diversified Video Inc.

At the Frontier

Meanwhile in another part of town, decisions of a different kind are being taken.

The "Sports Book" is one of the most technically advanced areas in a modern casino. At the New Frontier Casino in Las Vegas they have 176 channels of live sporting events available. The problem is to have a method of showing them to the players, so, in turn, the player can take the right investment decision.

Diversified Video Inc. responded to the New Frontier Casino's requirement for a multiple image display which would work in reasonable ambient light. They provided a system which allows the Sports Book clerks to select from 36 satellite feeds and show up to 16 images simultaneously on a 37ft x 8ft display.

The display is an Electrosonic videowall arranged 14x4. It uses PICBLOC-3™ processing and C-THROUGH™-Interactive program control.

Eight ProDigital 40 inch projection units with built-in image scaling make up the main display in the conference area of the Mission Control Room on Meck Island. The display is typically used to show a mixture of 1280x1024 computer workstation and video surveillance images, but this particular photo shows only video images.

Missile control

Teledyne Brown Engineering had the task of upgrading the Mission Control facility on Meck Island, Kwajalein Atoll in the Marshall Islands. It is used for satellite and missile tests, and is part of the National Missile Defense Program.

A 12ft x 4ft high resolution display is installed in the conference area of the Mission Control room, and is visible from the operating area through a glass partition.

Teledyne Brown Engineering chose Electrosonic ProDigital displays based on DLP™ technology, and fitted with internal image scaling, to meet the display requirement. Each unit in the 4x2 array can accept any input from video up to 1280x1024, and can show all or part of the incoming image.

The display is used to present a mixture of images derived from 17 video surveillance cameras and 20 workstations. A touch screen control system is used to assign the required images to the required position on the display.

The display serves as an overview for operators during a mission, and as the prime information source for VIP's observing the mission.

When not on "active duty" the videowall is used for presentation and teleconferencing applications.

Another view of the Meck Island display seen from the operating area; this time the display is showing only computer images.

At the Arnold Air Test Facility in Tennessee a 5x3 graphics and video wall display is used to show a mixture of engine test data and video surveillance. Electrosonic ProDigital 40 inch DLP displays with VECTOR processing make up the display.

777 Engine tests

Testing of the engines for the Boeing 777 was carried out at the Arnold Air Test Facility in Tennessee, a US Airforce and Navy jet engine test facility - the only one in the world large enough to carry out the test on the ground.

The control and monitoring rooms at the facility are currently being updated with new technology to make testing more economical and suitable for commercial customers. Network based measurement systems and multi-camera video surveillance call for a different instrumentation display approach than applied to the old "engineering dials" previously used - which required many operators to observe.

To make it possible to run tests with only two or three skilled operators, it is necessary to have an information display system which can show a mixture of high resolution computer data and video images.

At the Arnold base ProDigital™ scaling DLP™ displays alternate between the display of direct video inputs and the output of a VECTOR™ processor.

Sterling conference

Videoconferencing only works if both "ends" of the conference are really able to share information. One way to ensure this is to use a two-screen display arrangement, one of which shows the far-end participants, and the other shows shared data from a computer or video camera.

Sterling Software are a rapidly expanding company; information exchange is their lifeblood - so when they moved to new offices in Chertsey, UK, they ensured that their group communication facilities were first class.

They appointed Interior Elements Ltd as their interior designers for their client presentation room, videoconferencing room (which uses the two-screen arrangement) and three training rooms.

Sterling Software's videoconferencing suite uses a two-screen arrangement, one screen for showing "far-end" participants, the other for data.

Audio-visual system design and installation for all five rooms was carried out by Electrosonic. An interesting feature of the rooms is that they all use motorized loudspeakers - a pair of KEF loudspeakers drop down into the room when sound is required, but when it is not, they disappear into the false ceiling.

Visual Enhancement

Big screen and multiscreen displays are functional, informative, decorative and motivational. Examples of users include churches, colleges, airports, arenas, hospitals and restaurants.

The People's Church in Franklin TN use a 4x8 Electrosonic videowall installed by Allied Sound Inc. It shows hymn lyrics, paging information and both live and recorded video. IMAGESTAR™ processing is used.

Art and Brotherly Love

The People's Church opened in March 1999 in Franklin, TN, a suburb of Nashville. The large congregations and the style of service clearly indicated a need for visual reinforcement. Allied Sound Inc, an Electrosonic reseller and AV adviser to the church, installed a 4x8 videowall to meet the need.

The videowall achieves a high brightness display in minimum depth. It is used for the display of hymn words, for visual reinforcement of the preacher during sermons, and standard video playback.

An interesting additional use is as a "silent pager". Parents with small children are given a number - and if they, the parents, are needed in the nursery, their number comes up on the screen.

Passengers arriving at the international terminal at Philadelphia Airport are greeted by a 4x3 PICBLOC-3™ controlled videowall, installed by Electrosonic re-seller Peirce Phelps Inc of Philadelphia.

SCAD

The Savannah College of Art and Design (SCAD) in Georgia is one of the largest colleges of its kind in the USA. They recently installed an Electrosonic videowall in their library.

The library is open to the public, and is seen by two public tours a day. So the videowall display is seen not only by the 4500 students and 700 faculty and staff, but also by prospective students, parents and visitors.

The videowall shows programs produced by college students; a weekly half hour show "SCAD TV", and general information on campus events.

Philadelphia

Philadelphia wants to convey the message that it is indeed "the city of brotherly love". Now when visitors arrive at Philadelphia International Airport, they are kept informed and entertained by a visual display system.

Multiple plasma display screens keep passengers informed of how long they may have to wait to clear immigration (if the line is long, they get free snacks).

An Electrosonic videowall is placed at the end of the moving sidewalk to help direct US Citizens and non-US Citizens to the correct line. The wall also shows welcome messages, weather reports, news and entertainment information.

The display system is controlled by a computer running the Electrosonic C-THROUGH™ computer program. It is connected to the airport's LAN, so different programmed states can be selected from a distance.

The library at Savannah College of Art and Design features a 4x4 Electrosonic videowall. It shows students work, and features in the twice daily college tour.
Photo© SCAD Campus Photography.

Experimental artist George Cisneros created a 21st century version of the Mexican mural for The San Antonio International Center. Sponsored by Southwestern Bell, Cisneros' digital mural "In the light of passing measures" reflects the center's mission, promoting trade between Mexico, Canada and the USA. It is visible at night from San Antonio's Riverwalk. It uses a total of 26 monitors, with 16 arranged as 4x4, and the remainder free-form. PICBLOC-3™ processing and C THROUGH™ programming are used.

Video Aquarium

Visioneering International Inc, an Electrosonic re-seller based in Atlanta, GA, has recently completed two hospital based projects using videowall technique.

The Children's Medical Center at the Medical College of Georgia has several dramatic videowalls to animate the public areas, and entertain the children.

Most spectacular is a 33 monitor 22ft x 6ft "Video Aquarium" showing the exotic undersea world. Visioneering produced a video sequence using cinematography of the highest quality - with generous contributions from notable cinematographers such as Al Giddings, Ron Roy and David Hannan.

The "Video Aquarium" at the Children's Medical Center, Medical College of Georgia (above) has a counterpoint in the "Echo" videowall across the lobby (right). Both displays use Dotronix 27 inch videowall monitors and Electrosonic PICBLOC-3™ processing. Videowall programming by Fury 13.

"Sea", one of four compact videowalls installed at Egleston Children's hospital by Visioneering International.

The smaller environment of the third floor entrance lobby of Egleston Children's Hospital features another Visioneering installation with four 4x1 videowalls, themed as "Sea", "Sky", "Earth" and "Space".

Robert Foah, President of Visioneering says "Our company is pleased to use our 23 years of experience in entertainment video technology to benefit the children of Georgia."

EXPO, Arenas & Sequel

Sports Bars are frequent users of big screen video to show sporting events; it is rarer to come across a restaurant using the medium.

The Sequel (right) just off Clapham Common in London, is such an unusual restaurant - but its display (Toshiba projectors, Electrosonic processing) is used for presenting old movies.

The display is usually sourced from DVD - but there is provision for VHS, satellite and computer inputs as well.

Arena concourses make use of video displays to show arena action, provide information and provide a platform for sponsors.

Typical is the Raymond James Stadium, Tampa, FL (left) home of the Tampa Bay Buccaneers of the NFL where four Electrosonic videowalls are installed at the concourse level. Lighting conditions allow 53inch "cubes" to be used, so the 4x4 displays are 14ft (4.3m) wide.

The picture on the right shows striking use of simple videowall technique in the Algerian Pavilion at EXPO98, Lisbon, Portugal. This 84 monitor display was installed by RGB Video Installacions (Electrosonic's distributor for Spain).

Viewing distance was sufficient to allow the cost-effective IMAGEMAG™ processor to be used.

The same pavilion used ESLINX show control in a mixed media presentation.

Themed attractions

Electrosonic designs and builds the control and image display systems for themed attractions round the world. Some have surprising themes.

Walk-through shows with images, sound and light.

The attractions described on this page all have three things in common. First, they are visitor attractions with serious subjects where visitors enjoy a structured experience; moving from one area to another, and seeing and hearing a part of the story in each area. Second, they are excellently designed to match their subject and the space they occupy. Third, they all use Electrosonic Video Server and ESLINX™ show control technology, backed by Electrosonic systems design and project management.
But there the similarity ends. The subjects and design style of each of them could hardly be more different; being respectively the planet on which we live, wine, and the story of an underground army.

"How it all started" at Dynamic Earth uses three rear projection screens with synchronised video.

Dynamic Earth

A new arrival in Scotland is "Our Dynamic Earth", a visitor centre on the site of an old Wm. Younger Brewery near to Edinburgh's extinct volcano "Arthur's Seat". This is highly appropriate because Dynamic Earth is all about how the earth was formed; and how events like earthquakes and volcanic eruptions, which seem violent aberrations to us, are just part of the continuing process of Earth's regeneration.

In this spectacular exhibition, designed by Event Communications Ltd, visitors go through a series of galleries such as "How it all started", "The Oceans", and "The Polar Regions". For the first part each is a separate show with synchronised sound, light and imagery - special emphasis is placed on the quality of sound, especially when it comes to earthquakes! This means that visitors go through on the "pulsed flow" principle. The later galleries are free-flow.

The "Showdome" at Dynamic Earth uses 18 ES5050 Kodak/Electrosonic France automatic slide projectors to fill the dome in a spectacular multi-image show.

Extensive use is made of multi-screen and multiple image video presentations. Most of these are video based, but in some cases slides are used to achieve a different "look" to the show, or to solve difficult optical problems.

Interactive exhibit in the "Rainforest" area at Dynamic Earth.

Event selected a number of producers for the AV content. McLean English Productions, Media Projects International and A Slight Shift produced the shows, and Atacama produced the interactive exhibits.

Audio production was by Peter Key Sound Design.

In "Oceans" at Dynamic Earth visitors are in a "submarine". The "portholes" are water tanks with controlled bubble flow; behind them are rear projection screens with synchronised video sequences.

Vinopolis

Vinopolis "City of Wine" is on London's Bankside, between Southwark Cathedral and Shakespeare's Globe Theatre. It occupies an amazing series of huge brick lined vaults below an elevated railway line. Vinopolis includes an extensive wine shop, a gift shop, restaurants, art gallery, conference centre and banqueting suite. But the main attraction is the Wine Odyssey.

Metamorphosis at Vinopolis - a year in the life of a vineyard shown in just a few minutes on a 9m x 3m screen. Three Sony VPH-D50 projectors are used with electronic soft edge masking. The three synchronised video sequences run from Electrosonic server.

The Wine Odyssey takes visitors through 22 galleries, each one devoted to an aspect of wine or to a country in which it is produced. At the end of the tour visitors have the opportunity to taste five wines from a selection of 200 (for a small supplement they can taste another five!).

In this exhibition all audio is delivered to visitors by individual audio guides. The system used here is the Galleryguide system from Antenna Audio. It provides up to four hours of commentary and sound effects in a choice of six languages. Audio for individual exhibits is selected by the visitor. Introductory commentaries and sound tracks accompanying video are heard automatically.

In "America" at Vinopolis a choice of video programmes is seen through "Hollywood" movie camera viewfinders.

The Galleryguide system gives each visitor a programmable CD-ROM player. Selection of individual commentaries is by push button. The automatic commentaries are also heard from the CD-ROM, but an external infra-red control signal is used to trigger them.

Antenna Audio has a direct contract with Vinopolis which includes full service.

At Vinopolis, Electrosonic was responsible for the complete video system - many of the galleries have relevant video and interactive programmes, and a notable thing about them is the elegant way in which the exhibition designers (Jasper Jacob Associates) have integrated them into the exhibition design. Media production was by Media Projects International.

The exhibition also uses 270 channels of Helvar dimmers under Sceneset control supplied directly to the main exhibit contractors, Kimpton Walker, for the lighting scheme designed by DHA Lighting Design Services.

In "Italy" at Vinopolis you ride through the Italian countryside on a "Vespa". The windscreen becomes a viewing screen for a projected video. It uses a PDLC screen laminated into the real windscreen (see "Floating Image" story on Page 4 for more about PDLC).

Elegant integration of projected video in the "South of France" section at Vinopolis.

The Palmach Trail

In Tel Aviv the Palmach Association has opened The Palmach Trail which tells the story of The Palmach, a group of young, idealistic and brave people who were instrumental in the creation of the State of Israel. Its members included many who went on to lead the country in all walks of life (including Yitzhak Rabin who became Prime Minister).

Visitors to the exhibition see events from 1941 to the War of Independence in 1948. Starting in a street in Tel Aviv, moving to a wood where new recruits are joining the Palmach, and thence to a tented kibbutz. The story follows a young group of "Palmahniks" through their training, through action in the blowing up of the Allenby Bridge, detention at the hands of the British, and through their support of the then illegal immigration of Jews into Israel.

The finale is a show in a rotating auditorium, featuring the road to Jerusalem and the winning of the War of Independence. By making the whole "Trail" a human drama based on a defined group of people (some of whom lose their lives) the importance of the Palmach is made clear in a moving and inspirational story. The dramatic footage is specially shot in colour, whereas documentary (contemporary) footage is in black and white.

Realistic scenery, in this case refugees in the hold of a boat, on The Palmach Trail.

The Palmach Trail takes about an hour and a half; visitors move from one "scene" to another, in each of which filmed material blends well with excellently realised theatrical sets. The multi-channel sound tracks are in Hebrew, but there is to be provision for English translation by infra-red headphones.

The Palmach Trail was designed by Eliav Nahlieli of Program 1 Design. Audio visual production was the responsibility of Shein Audio Visual and the automatic show system was engineered by Electrosonic. Most of the sets were built by Scenic Route of York, England.

A Palmach encampment. In this sequence the tent gauze is also used as a projection screen.

The 1941 Tel Aviv scene on The Palmach Trail includes a large gauze, here showing contemporary film footage.

Video projection and videowalls for attractions

Big electronic images can now be used under a wide range of viewing circumstances. But how do you use them effectively, and are there any ground rules? This article reviews the current state of the art for displays suitable for attractions.

It may sound obvious, but the most important thing is to have something to show and a reason to show it. Curiously there are users who commission a big video display without proper thought as to what is going to be shown on it, and how the display will operate.

It is important to design display systems holistically, in the sense that one simultaneously takes into account:

- The viewing circumstances; including such things as image size, viewing distance, ambient light.
- Practical constraints and cost of ownership, for example maximum "footprint" permitted for the display, and the cost of consumables for the life of the display.
- The nature of the image and image sequence. Quite different considerations apply for a billboard application than apply to a major attraction's pre-show.
- The way in which the programme material is produced.

Developments in technology have opened up many new opportunities, but technology alone does nothing. Without good programme material, and without a defined set of objectives, displays on their own achieve little.

The Golf Hall of Fame, in St Augustine, Florida, has a nine minute introduction show called "Passion to Play" shown on a widescreen videowall. The format achieves maximum impact in the space. It uses eight video sources from computer server, which allows for both multiple image effects and the showing of film-resolution full screen images. The server allows footage of recent championships to be added to the show (as frequently as weekly during the PGA tour season). Exhibit design by Ralph Appelbaum Associates, show production by Mediaworks of New York for PGA Tour Productions. Video compression services are provided by sponsor IBM. The complete display system was installed by Electrosonic, using PICBLOC-3™ image processing and 32 Pioneer videowall "cubes". These are arranged as a center 4x4 block flanked by two 4x2 arrays slightly stepped forward from the center section.

Dover Castle in England survived a year's siege from the French in 1216. A new exhibition tells the story of the seige in a production designed and produced by Centre Screen Productions to a brief from English Heritage. Electrosonic installed the video, lighting control and audio system. This features LCD video projection direct on to the castle walls. All show control is by ESLINX™, video is sourced from an Electrosonic MPEG-2 server, and audio comes from a combination of the server and ESTA™ solid state sound replay units.

Walt Disney World® Resort in Lake Buena Vista, Florida features "Pleasure Island", an entertainment complex which includes seven nightclubs. The open-air performance area includes a big videowall, ideal for evening and night time display, which shows a multimedia show called "Metamorphosis". The videowall can also be used as a support for live performances, and can show camera images from the crowd.
The videowall is a 6x6 array of Electrosonic PROCUBEs™ served by PICBLOC-3™ processing. The housing was specially engineered by Electrosonic to be suitable for outdoor use. A closed loop air handling system and a custom built heavy duty frame makes it suitable for Florida's 115° F, 100% humidity and high winds.

Ambient light

Video displays only have any impact if they are of high contrast and bright enough to match the ambient lighting conditions. Outdoor displays for use in sunlight are only possible with low resolution displays based on individual lighting elements and are outside the scope of this article. However high resolution displays are possible for use outdoors in overcast or night time conditions, and there is now no problem in having big high resolution displays in most lighting conditions encountered within attractions and similar spaces, such as shopping complexes, exhibitions and museums.

The arrival of big, high light output projectors for video means that there can be a choice of big single image projection or videowall technique, using multiple projectors. However, in order to get a high contrast display, it is necessary to use back projection anyway (otherwise the ambient light "dilutes" the image).

For image sizes up to about 4m wide there is little to choose in overall cost between using a big single projector and using a videowall.

However, the big single image system takes up more depth. For many applications the multiple image capability of the videowall, combined with its very small "footprint", makes it an attractive proposition.

New projection technology

There are a number of new technologies which have greatly increased the possibilities, both for single screen and multiple screen display.

While Cathode Ray Tube (CRT) projection still remains good value as the basis of video projection in darkened entertainment spaces, and as the basis of projection in moving image videowalls, all 'big screen' video projection is now done with lamp based projectors.

Leading technology contenders here are Texas Instruments DLP™, exemplified by Digital Projection's "Power" series of projectors; LCD, exemplified by Barco's range of "Light Cannons"; and ILA™ from JVC-Hughes. But both LCD and DLP are suitable for smaller images, and DLP in particular is making inroads into the videowall market.

This is because it is possible to achieve very compact optical arrangements, and because DLP is immune to "image burn". This makes it ideal for the presentation of graphics and "digital signage". Cost of ownership is low too, because the projection lamps last over 6000 hours, and the projection modules use little power.

The Venezuela Pavilion at EXPO 98, Lisbon, Portugal used big screen video projection to great effect. Sono-RGB of Barcelona (Electrosonic distributors in Spain) engineered the system and produced the programmes. Projection was by JVC-Hughes ILA™ projectors, and show control by Electrosonic ESLINX.

Until recently the laserdisc was the preferred source medium, being moderately priced and reliable. But it suffered from the need for dises to be made – incurring both cost and time penalties.

Now the tendency is to use computer servers as the video source, with the programmes stored as compressed MPEG-2 files. Programmes can be rapidly updated – often over satellite links or wideband phone lines.

The new storage methods are also ushering in 'high definition for all'. Displays are being used not only for normal video, but also for high resolution graphics and high definition television. In the case of videowalls this is placing considerable demands on image processing quality – and this is being met by a new generation of high resolution processors. Big video displays are entertaining, eye-catching, informative and fun. They can augment or form a major part of an attraction, and can be used for promotion and information. Experienced vendors can give reliable cost-of-ownership information to ensure that the correct investment decisions are made.

Programme storage

Within the past year there has been a big shift in the way in which continuous running video displays are sourced.

This article first appeared in the February 1999 issue of Attractions Management.

FOR MORE INFORMATION ABOUT THIS PUBLICATION E-MAIL: attractions@leisuremedia.com

Minnesota Zoo has a 600 seat IMAX® theater, very popular with their one million annual visitors. As a pre-show to entertain the waiting audience, a simple 3x3 monitor videowall is used. It carries forthcoming film previews and sponsors' messages. The videowall uses an IMAGEMAG™ processor.

Museums

Museums and visitors' centers are innovative users of audio-visual and mixed media techniques. They can benefit from Electrosonic's comprehensive engineering support.

AMNH exploits high resolution display

The American Museum of Natural History (AMNH) in New York City has recently unveiled two permanent halls notable for their use of high resolution multi-media display. Both are well worth seeing as examples of how new display technology can, in the hands of talented designers, make electronic images seem a natural part of the overall display - rather than a "glued on" item.

Both the halls described here were designed by Ralph Appelbaum Associates (RAA), working to the brief of David Harvey, AMNH's Vice President for Exhibition. Electrosonic's Burbank, CA office was the principal AV systems designer, builder and installer for both halls working closely with RAA to interpret their designs; and with AMNH's own staff to integrate in-house and externally produced programs and some in-house developed image source systems.

View of the Gottesman Hall of Planet Earth that highlights the Dynamic Earth Globe and, in the distance, the Earth Event Wall. For these exhibits images are stored as high definition video, and played from an HD DDR, part of the Museum's own high tech production facility. Photo © AMNH.

Sulfide chimneys from the Pacific in the Hall of Planet Earth. Behind them video footage of the deep sea retrieval on a flat screen display. Photo © AMNH.

African rainforest

The Hall of Biodiversity opened in 1998 with the aim to make sure that the public tunes in to what the museum perceives as a critical environmental issue.

The hall features video displays, interactive touch-screens, 1,500 specimens and models of various species; and, as an impressive centerpiece, a simulated section of the Rainforest in the Central African Republic. This features lifelike representations of plant and animal life, audio of the environment, a row of video PC displays and background video projection.

Instead of painted or still photographic murals serving as the background to the rainforest, the exhibition hall designers used high resolution video projection. Four projectors are used to give a total image area of 11ft. x 32ft. Limited projection depth requires the use of 86in x 134in surface aluminized mirrors, the biggest that the manufacturer has ever made.

Videowall

In front of the rainforest is an 18 x 1 videowall showing nine program segments simultaneously, each in 2 x 1 format, produced by Donna Lawrence Productions of Louisville KY. At times all link together to show one very wide panorama.

Hall of Planet Earth

AMNH's newest permanent hall, the David S. and Ruth L. Gottesman Hall of Planet Earth, opened in June 1999. Ellen V. Futter, President of AMNH, said at the time "The Hall enables visitors to journey to the center of the Earth to feel its extraordinary dynamism. It offers a uniquely tactile environment, and a full sensory experience with the sights and sounds of our planet."

The "Spectrum of Life" combines specimens with video displays and interactive screens.

The rainforest image sequence, seen through the "foliage", was filmed and produced by AMNH staff. The program is stored as four AVI files, played back as 800x600 images at video frame rate by four Pentium II™ PCs using the Duck Corporation's Truemotion Compression.

For the videowall, the playback of 18 synchronized video channels is by two servers locked together. The video projectors are a mirror version of the Electrosonic PROVIEW, with diffuser screens to give wide viewing angles. In all there are 72 channels of MPEG-2 video played from Electrosonic servers in the Hall of Biodiversity.

At the center of the hall hangs the Dynamic Earth Globe, an 8ft diameter hemisphere. The translucent surface acts as a back projection screen for 9600 frames of satellite data, prepared by ARC Science Simulations, to give a stunning moving-image view of earth seen from outer space. Electrosonic co-ordinated the development of the special optics required to achieve the projection, which is by a monster fisheye mirror lens on a Barco 9200 Reality projector.

Nearby a 6ft x 11ft Earth Event Wall provides an electronic bulletin board, showing current news on global events such as earthquakes, storms and volcanic eruptions, and using a mixture of live action video and computer generated animation.

Networked control

For both halls at the AMNH all AV control is in a control room near each hall. However, because the entire system is on a computer network, it can be controlled and monitored from a point three floors above the halls in the AV Supervisor's office. The control room houses all of the source, amplification and control equipment in 19 inch equipment racks (14 of them for Biodiversity and 8 for Planet Earth). All of the audio, video and control systems can be monitored and programmed - locally as well as from a remote location - by means of a 10/100 Base-T network on Windows NT 4.0. The system includes Electrosonic Scheduler and Exhibit Monitoring engineered specifically for the Museum, but based on the Electrosonic ESCAN™ system.

The Rowing Gallery at the River & Rowing Museum breaks new ground by having important exhibits on the ceiling! One of many smaller and medium sized museums using Electrosonic Video Server and show control systems.

Servers in Henley and Wigan

It might be thought that Electrosonic's latest Video Server systems are only suitable for the big installation, like the AMNH described on this page or NikeTown described on Page 5. But this is not the case. They can be configured for small installations, and, indeed are ideal for the smaller museum and visitor centre. Examples of many recent installations are to be found in Henley, Wigan and Brockhole in England and Glasgow in Scotland.

The River & Rowing Museum at Henley on Thames opened in August 1998, and is the first of its kind in the world. Housed in an award winning building by David Chipperfield, the museum has three main galleries devoted to Rowing, The Thames and Henley.

The striking Henley Gallery at the River & Rowing Museum

At the north end of the hall a 5ft x 10ft screen shows Scenes of the Earth from around the world, in a compilation film of thunderstorms, flooding rivers, spewing lava and majestic glaciers prepared by Dennis Earl Moore Productions Inc. This is accompanied by a 24-channel "soundscape", produced by Charles Morrow Associates, which circulates throughout the hall, helping to create an immersive experience of the power of natural events.

Within the main exhibition there are many computer interactive and video displays, notable for the elegant way they are integrated into the overall exhibit fabric.

The People's Palace represents the spirit and character of Glasgow.

The exhibit galleries were designed by Land Design Studio, and make the most of artefacts. Sound and video play their part and are unobtrusively integrated into the exhibit design. All video is played back from Electrosonic video server, and audio-only exhibits use Electrosonic ESTA solid state audio players.

Wigan

Richard Fowler Associates have recently designed the exhibitions at The People's Palace (run by Glasgow Museums) in Glasgow, The Brockhole Visitors' Centre in the Lake District, and Opie's Museum of Memories at Wigan Pier. (The first two were completed as design and build contracts in partnership with Silver Knight).

All three sites use audio-visual systems designed, built and installed by Electrosonic. Again video server technology is used, not because it is "cutting edge", but because it is reliable, reduces the cost of production, and, most of all because Electrosonic has the fully developed show control software necessary to ensure workable systems.

At the re-designed Brockhole Visitors' Centre an old Electrosonic equipped "tape/slide" show was replaced by the latest video presentation equipment.

The Corning Museum of Glass is in the process of a $62million renovation. The picture is a view of the "Hot Glass Show".

Glass in Corning and Sunderland

Electrosonic is currently involved with several museums and visitors' centers associated with the subject of glass.

The pictures to the right are of the recently completed National Glass Centre in North East England. The one above is of the Corning Museum of Glass, Corning, NY.

The Corning work is part of an ongoing renovation of the museum which was opened in 1951 to celebrate the centenary of the Corning Glass Works (now Corning Inc). The museum is now a non-profit educational institution.

We are working with RAA (Ralph Appelbaum Associates) the exhibit designers. So far we have completed an AV system which operates as part of the "Hot Glass Show", where glass blowing skills are demonstrated; another AV System for the Orientation Theater, and a gallery AV system for the new Innovation Center. Both of the latter use an Electrosonic ESCAN™ system for AV control.

The National Glass Centre, Sunderland is now one of the most popular visitor attractions in North East England. Glass was first made in Sunderland 1300 years ago, and the new Centre is in the same building as a stained glass works. PLB Design of Malton designed the exhibition, which makes extensive use of interactive exhibits. Centre Screen Productions produced the programmes and Electrosonic engineered the hardware for the audio-visual based exhibits. The final display shown above uses big back projected video images (from Electrosonic 2xView displays) showing glass being made for different applications. The images synchronise with others shown on standard monitors and with lighting and other special effects. The picture below shows one of the interactive exhibits.

The "On the beat" gallery at Nottingham's Galleries of Justice, soon to be the National Museum of Law in England.

Museum of Law

The Galleries of Justice, an award winning attraction in Nottingham, England, and shortly to become the National Museum of Law takes visitors through a tour of two and half centuries of crime, punishment and the law.

The exhibition, which is another project by Event Communications, is housed in original court buildings and a 1905 police station, and makes extensive use of audio-visual and interactive displays - engineered by Electrosonic, and based on Electrosonic show control products.

Visitors meet the custody sergeant, have their mugshot and fingerprints taken and get locked in a cell. They learn about police "on the beat", and forensic science. They attend a "trial" in the court-room and see how hard life was in a 19th century gaol.

Civil Law is explained using touch-screen interactive displays.

Video projection in the "On the beat" gallery.

Sioux Falls

The Washington Pavilion at Sioux Falls, South Dakota, has recently opened the Wells Fargo CineDome (exterior view below) - a 60ft diameter "tilted dome" theater seating 172 people. It shows a program of large format movies (it opened with "The Living Sea", which was seen by 27,000 people in the first two months).

Electrosonic's Burbank office was involved with the project over a period of several years, helping to develop the theater design to ensure the best optical layout and seating capacity. The projection system, part of which is shown in the photo below, was engineered and installed by Electrosonic. It is based on the 8/70 film format and a custom Electrosonic dome projection lens (built by Elcan Optical Technologies). The system uses an Iwerks Linear Loop™

projector, a12kW lamphouse, platter film handling and DTS sound replay. A Spiralift™ is used to raise the projector from the maintenance to the operating position.
CineDome is an Iwerks trademark used by Washington Pavilion with their permission.

Irish Music & Olympic Spirit

Event Communications Ltd is a well established museum and attraction design practice whose work often uses Electrosonic AV expertise. A recent example is "Our Dynamic Earth" described on Page 12; two other examples are Ceol in Dublin and Olympic Spirit in Munich.

Ceol, the Irish Traditional Music Centre is in the same building as Chief O'Neill's Hotel. Daniel O'Neill (1842-1936) was born in West Cork, and is famous for being both Chief of Chicago's Police Department, and one of the greatest individual collectors of Irish Music.

The Centre has an exhibition area featuring many interactive exhibits with, of course, the greatest emphasis being on music replay. Fostex Hard Disc recorders are used for audio storage.

Olympic Spirit München is a new attraction housed in the former velodrome of the Olympic Park in Munich. The emphasis is on interactive displays; but there is plenty for the less active to see and hear.

Panasonic is a major Olympic sponsor, and provided much of the display equipment used at Olympic Spirit. Edwards Technologies was the main AV supplier and integrator - however Electrosonic carried out the installation in the exhibition area, and supplied videowall image processing.

Intamin built seven motion based simulators (such as "kayaks" and "bobsleighs") for Olympic Spirit and used Electrosonic control for them. The programming of these was checked by athletes.

The dual purpose auditorium at Ceol shows a panoramic 5-projector show by day, and is used for live performance in the evening. An Electrosonic video server, ESLINX™ show control and Barco CRT projectors are used for the automatic show.

An interactive display at the Irish Music Centre Ceol (which means "music" in Irish).

A bobsleigh simulator at Olympic Spirit. Simulator by Intamin, using Electrosonic ANCOR motion base control.

A view of Olympic Spirit in Munich. To the left, in the distance, can be seen one of the videowall displays - this one on Boxing. Eight videowalls, all using Panasonic 41inch cubes and Electrosonic IMAGESTAR™ processing, and ranging from 2x2 up to 5x5 are installed at the attraction. Exhibit fabrication at both Ceol and Olympic Spirit was by Silver Knight to Event Communications Ltd's designs.

Fatima Fantastica

Techniaudio, our distributor in Portugal, was responsible for installing a mixed media show at Fatima, Portugal, where, in 1917, a series of amazing visions appeared to three children. It is now a shrine visited by millions of people every year.

Show producers were The Visual Connection (TVC), lighting design was by DHA Lighting Design and the complete AV engineering was by Electrosonic.

TVC sensitively interpreted the story; combining location shooting, computer enhanced images and a stained glass effect. The result is a wonderful luminescent experience.

The show is given in a purpose-built auditorium. It uses Electrosonic's ESLINX™ and ESTA™ show control products with EASY™ programming.

The "Fatima Fantastica" auditorium.

Spider-Man

Continued from Page 16

Long print life is not a matter of chance. The film handling system is designed to treat the film gently, and the projection rooms use positive filtered air pressure. The loop cabinets are equipped with humidifiers to ensure the optimum environment for the polyester film, and laboratory standard dust collection mats are placed at each projection room door. All projection rooms are equipped with compressed air for cleaning the film path.

Teamwork

The Spider-Man ride was very much a team effort, led by the Universal Studios Creative team (itself led by producer Scott Trowbridge, Art Director Thierry Coup, Architect Phil Bloom, and including Steve Johnson, project manager for the projection system and, therefore, effectively Electrosonic's "client"). Lighting design was by Anne Militello of Vortex Lighting, and sound design by Tony Micelli of Show Works.

In addition to the vendors already mentioned, other significant suppliers included The Nassal Company (scenery), Itec (ride supervision system) and Soundelux (audio).

The Electrosonic part of the project, itself a multi-million dollar contract, was engineered and managed from our Burbank, CA, office, with assistance from our Minneapolis office in construction and installation. For the final installation period we had a temporary office on site in Orlando - today this would not be necessary as we now have a permanent office there.

Thanks to Universal Studios for permission to publish this article, which has previously appeared in the September 1999 issue of BKSTS "Cinema Technology" and in the September 1999 issue of "Audio Visual" magazine.

The Amazing 3D Adventures of Spider-Man

Already being hailed as "the best simulation ride ever", The Amazing Adventures of Spider-Man™ is the first attraction to combine the multiple vehicle dark ride, the multiple axis motion base, 3D large format film projection, large scale theatrical scenery and a huge range of special effects into a single entertainment.

Electrosonic engineered the massive 3D projection system – creating the largest concentration of big format film projectors to be found in a single building anywhere.

Spider-Man meets his helpers in the Amazing adventures of Spider-Man at Universal Studios new Islands of Adventure theme park.

The ride story

Visitors enter through the offices of the Daily Bugle™, where video monitors show the Bugle's owner, J. Jonah Jameson, extolling the virtues of his prototype newsgathering vehicle, the SCOOP.

However all is not well at the news desks – all the reporters are missing, and yet news is coming through of mayhem in the city. The Sinister Syndicate, Doctor Octopus™ and his evil friends, have stolen the Statue of Liberty using their anti-gravity gun. At the Bugle even lowly freelance photographer, Peter Parker, is missing. Jameson only has the guests at the Bugle and his SCOOP vehicle to get the story.

So he outfits them with night-sight goggles, boards them onto SCOOP and yells "Go get the story!".

As the SCOOP vehicle roars out of the Bugle basement, none other than Peter Parker, a.k.a. Spider-Man, jumps onto the hood of the vehicle to brief the occupants on the severity of the situation, and to enlist their help.

The SCOOP ride vehicle carries 12 passengers, and includes a motion base.

But shortly steel tentacled Doctor Octopus™, electrical menace Electro™, lethally liquid Hydro Man™ and bomb-lobbing Hob-goblin™ are throwing their worst at the involuntary travellers - flame guns with blasts of hot air, water cannon and, worst of all, the anti-gravity gun.

Finally this last weapon zaps the riders 400 feet in the air to the top of a building, before plunging them down the same 400 feet into the street. Fortunately riders really are in the comic strip and Spider-Man rapidly weaves a web to catch the SCOOP.

Technique

The ride vehicles, built by Moog Corporation, travel on a track which winds its way through the huge 1.5 acre building. Each vehicle accommodates 12 people and is itself a "motion base", allowing a full range of motion simulator effects. The building, which has no inside supporting columns, is high enough to accommodate a show where the audience are never aware of scenery or screen "limits" – the show always occupies the full field of view of the rider. Within the hard sets are a total of 13 giant projection screens, 12 showing 3D images, and one showing conventional 2D.

The truly amazing thing is the audience are completely unaware of the use of "screens" as such - the film and set lighting design are seamless, and it is impossible to tell where scenery ends and film starts.

The big difference between Spider-Man and other motion base rides is that the point of view is continually changing as the vehicle moves round the track. Universal Studios identified this 3D problem as the "moving point of convergence", and the 3D film animation, produced by the Kleiser-Walczak Company, has to take this into account.

Clearly it is the position of the car on the track which must determine the timing of the show content. Motion base movement and in-car sound are derived from equipment within the vehicle. Ambient sound, lighting and special effects are all triggered by trackside sensors which detect the vehicles as they pass. The most critical timing relates to the starting of the film sequences.

Why Film?

Today many people would assume that, with the arrival of "Light Cannon" video projectors, a ride like Spider-Man would be completely video or graphics projector based. WRONG.

While one day this may be possible, and while, indeed, the animation has all been computer generated, the required image brightness, resolution and projection optics are outside the capability of today's electronic projectors.

The polarized light method of displaying 3D is highly effective, but requires a lot of light because each light path loses around 80% of the projected light by a combination of initial polarization, and the analyzer glasses worn by the viewer. At Spider-Man, each 3D screen is served by two projectors, each of which would deliver nearly 20,000 ANSI lumens measured without the polarizers, and much more using conventional lenses. The film is 70mm, running at 30 frames per second. One screen uses standard 5-perforation pull down, but all the rest use big format 8-perforation pull down. The higher-than-standard speed improves motion rendition; and the large format allows the use of bigger lamps and a much higher resolution. It also allows the "high square" image needed to fill the audience field-of-view. The original computer images are rendered at varying resolutions from a minimum of 2000 x 1500 up to 4000 x 3000 pixels.

A number of different screen types and sizes are used. All are suitable for 3D, meaning that they do not depolarize the light. Sizes range from about 20ft x 21ft (6m x 6.3m) up to 56ft x 30ft (17m x 9m) on front projection, and 20ft x 24ft (6m x 7m) up to 40ft x 30ft (13m x 9m) on rear projection. The biggest use the patented Torus™ construction to give the brightest possible image.

The projection system

Electrosonic developed, engineered, built, installed and commissioned the film projection system over a three year period. Full size proof-of-concept tests were carried out before details of the ride design were finalized.

The construction program required most of the projection systems to be "walled in" to their high level projection rooms nearly a year before the ride was completed – they are now only accessible by a complex array of catwalks in the roof of the building, nearly 40ft above the ride itself.

Each 3D system is a custom-built assembly built up from components made by top companies in the film presentation business.

Screens are from Stewart, electronic drive projector heads from Christie, lamphouses from Strong, loop

A view towards the loop cabinets sited behind the projectors.

cabinets from Triese, custom designed lenses from Elcan Optical Technologies, and show control from Electrosonic.

The optical requirements are particularly difficult. In order to achieve a practical system within the space, all projection distances are very short, placing enormous demands on the projection lenses. One of the lens designs achieves a 140° field of view (an equivalent focal length of 19mm), but any such "fish eye" lens would normally introduce some distortion into the image. However, because all the animated images were computer generated, it was possible for the animators to include the necessary correction in the film. Even the "rectilinear" lens is only 42mm, (compared with a film aperture width of about 48mm). The whole ride lasts about five minutes.

The film sequences seen on the 13 screens each run a total of 18 seconds, including pre-roll and rundown (actual picture runs for about 14 seconds).

To achieve a reasonable print life each film loop consists of 10 copies to give a sensible loop length of 675 feet.

Since the vehicles can come through the ride at as little as 18 second intervals (in which case the film hardly stops running), and since the park can be open up to 16 hours a day, the maximum demand on the film systems is to show 3,200 shows a day.

Film prints are replaced at 2-3 month intervals depending on park opening hours, meaning a very respectable 19,000 passes for each print.

The maximum capacity of the ride is 2,400 persons per hour.

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One of the 13 projection systems installed at Spider-Man. 25 70mm projectors are used in all, 23 of which are 8 perf pulldown.