Creating immersive, kinetic experiences

A successful combination of interactive content and kinetic technology was at the centre of an ambitious installation at Poland's Sky Tower Shopping Centre. *Zoe Mutter* discovers how a giant kinetic video wall was incorporated into the mall, acting as an intuitive solution to attract and engage customers.

During the planning stages of the Sky Tower Shopping Centre - a new mall in Wroclaw, Poland - one of the project's key requirements was to equip it with a unique entertainment zone to attract customers, yet at the same time promote a food court partially hidden within the mall building.

The installation was expected to become a hallmark of the mall, now widely recognised in the city.

Coinciding with the mall's development a new kinetic technology from Aduma appeared on the market which it was thought could be used to engage a large number of visitors. This is when the Polish interactive and kinetic technology specialist joined the project, working closely alongside Joanna Sikora, key account manager, shopping centres.

"Most of the technological infrastructure was already in place from when the shopping centre was opened in spring 2012," explained Maciej Mielcarek, vice-president, Aduma.

"Introducing new interactive content has become easier partly thanks to Designer. This is Aduma's proprietary software tool used to create interactive content as part of movement detection, touch and augmented reality. It's powerful yet intuitive which makes it a perfect solution for non-technical users."

When initially discussing such a large-scale installation Aduma considered projection or LED screens. However, the company eventually decided to use NEC seamless LCD screens, so it could build a huge video wall to display large graphics in the form of a wide panorama. This also showcased smaller-size content, such as games and adverts.

"At the beginning we already knew that just displaying content wouldn't be enough," comments Mielcarek. "We wanted to engage the audience, create an immersive experience and as a result increase customer ROI."

High reliability and image quality

By closely co-ordinating its efforts with the video wall construction team, Aduma achieved a smooth running installation process. Cabling, custom-made and projected in-house mounting solutions created easy service access to each screen and the back of the entire video wall.

The company then proceeded with the installation of screens, computers, movement sensors, audio equipment and server infrastructure.

Challenges overcome by Aduma included finding a way to protect the video wall from damage. This was achieved during the final stages of the installation thanks to a 12mm protective glass layer. The company also had to secure necessary ventilation to the screens so it could work faultlessly at least 16 hours per day.

"We needed to guarantee extremely high reliability of the entire system, a high level of image quality and - given the scale of the entire installa- »

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Vice-president, Aduma

tion - low power consumption, proper heat management and a rational cost structure," continues Mielcarek.

"We'd acquired a lot of previous experience working with similar technology projects so the choice of hardware for us was relatively straightforward. The most critical components were naturally the screens and we went with NEC X461UNV seamless displays which fulfilled all the critical criteria."

The video wall comprised 45 seamless NEC screens in a 15 x 3 configuration which gave a total dimension of 15 x 1.8 metres. This meant pictures with a 9600 x 1080 pixels resolution could be displayed. At five times full HD it makes this installation one of the largest shopping mall video displays in Europe.

Dynamic reaction to movement
"The system integrates two functional elements, providing interaction within two separate layers. The first layer is large format graphics displayed on the entire wall. This creates a coherent interactive panorama which reacts to the movement of passers-by in a two metre interaction zone," says Mielcarek.

The second layer is divided into five separate interactive, gesture-detecting modules, three metres wide and 1.8 metres high, each (nine screens in a 3x3 configuration) designed for individual interaction.

To activate a selected module shoppers simply need to stand on the spot marked on the floor. Using the kinetic video wall the customers can then play games, explore promotions, fly a kinetic plane or browse the map of the shopping centre via gesture control, for example.

A smaller video wall was built into a corridor leading to the food court where the larger video wall was located. In this case - due to heavy traffic and a relatively small width of corridor - Aduma implemented a system with only one layer of interaction - reacting dynamically to movement of each person passing by.

There were a number of reasons behind Aduma's decision to choose NEC X461UNV displays, Mielcarek elaborated: "The screens are very high

quality with small content gaps (7.3mm) so it's easy to integrate third party peripherals at a relatively affordable price. We liked the programmable ambient light sensor - reducing power consumption - and NEC's heat management helps to increase the wall's longevity."

Engaging and informing customers
Advanced AV technology is increasingly being regarded by shopping centre managers as critical if they're to offer better customer service through informing and guiding customers. The process should create engagement and extend shopping time. It is also used to stand out in the market and create unique marketing campaigns.

"At Aduma we try to have a holistic approach to solutions to achieve all of these goals and as a consequence contribute to increasing turnover," continues the vice-president.

"Well designed solutions meant the shopping centre already had a lot of great AV technology. This included LED strips and columns creating a unique mood, multi-touch way finders for intuitive navigation through the centre and two large interactive video walls with frequently changing content to engage the audience."

Throughout the installation the target audience remained a priority. Aduma knew the mall clients would not be experts in the technology so the company's main goal was to provide a totally intuitive experience.

"The users have to quickly understand how the interactions work so it is all about the natural user interface," he continues.

The technology at the core of the screen's functionality was Aduma's proprietary interactive digital signage system. The industry has already recognised interactivity as the key to increasing user activation and ROI yet there has been no solution flexible, powerful and scalable enough to allow OEMs and integrators to incorporate the full range of interactive technologies into their portfolios, claimed Mielcarek.

Aduma addressed this problem with its interactive digital signage platform, simplifying the creation and display of interactive content.

Featuring a technology which is accessible, even for non-technical users, the signage solution is also a modular and scalable system that integrates established interactive technologies yet incorporates new technologies as they emerge. The solution is built on experiences from projects carried out for clients including Google, IBM and T-Mobile.

A sensory showcase
Audio responsibility for the project was handed over to specialised sensory marketing company, IMS which believes in the power of incorporating audio systems with video to appeal to all senses. "They should enhance the customer's experience, build loyalty and become the sensory showcase of a facility," explains Wojciech Grendziński, IMS' vice-president and sales director.

IMS' Mediabox musical computer ensures that even if the sound system installed in a facility is poor, the quality of sound will be high thanks to a customised sound card. The device is updated via the internet and maintains connectivity. "The

A high level of system reliability and image quality was necessary, along with low power consumption

Golden Ear 24 system allows us to regulate volume and react if the device malfunctions," he says.

The equipment reads music prepared by IMS music consultants from a hard drive. A basic playlist contains at least 550 pieces of music, mastered to avoid differences in volume.

Rhythm and volume are adjusted to the time of day, usually being slightly lower in the morning and evening, and higher when the noise levels increase.

Music was played via Telproject's Audible Warning System (DSO) through Bosch LBC 3951/11, LBC 3090/01 and LHM 0626/00 speakers designed to work in high temperatures and in the event of a fire.

User-friendly interfaces
The shopping mall was equipped with a number of kiosks made up from 40-inch Hyundai D320MLi multi-touch screens and running Aduma's Wayfinder kiosk software. The application helps shopping mall customers find their desired shop or facilities and delivers other useful information.

The Wayfinder software aims to be intuitive, thanks to 3D graphics presenting the mall plan and names of specific shops along with a user-friendly multi-touch interface (you zoom, shift and turn map and photos with your whole hand).

An interactive 3D map presents an intelligent shop searcher, a tenants' list presented in alphabetical order or by line of business and detailed information about particular tenants. Other features include dynamic animation defining the shortest way to the desired destination, information about

events and promotions, a screensaver, and information about public transport.

There is also a mechanism for carrying out competitions based on barcode scanners and thermal printers. Selected modules of the Wayfinder application can additionally be integrated with websites and updated automatically.

A free content management system also means you can edit the mall's 3D map and customise the remaining modules of the application, such us contents and a loyalty programme.

The entire system was co-ordinated by a central Actina Solar server equipped with Aduma software.

Delivering interactive solutions
"This video wall was fairly complex. But this is our daily bread and butter after all. We have delivered over 1,000 interactive solutions to more than 150 clients who challenge us to go beyond the technologies of today. We are software people who speak the language of the AV industry and deliver the requested results," says Mielcarek.

"The kinetic video wall showed a large amount of media coverage even before the shopping mall opened. Since then continuous updates of the content made by the owner of the shopping mall has confirmed they see a real value in the system." ■

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