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Hurrairah bin Sohail speaks with Solutions India Systems to discover how it managed the AV requirements for a hospital installation in India.



Good health

Global Hospitals is one of the fastest growing hospital chains in India and recently opened up a new site. To handle AV requirements Global Hospitals engaged the services of Solutions India Systems and provided a budget of INR 9,000,000 (approximately USD143,575).

Punit Rastogi, managing director for Solutions India Systems and the driving force behind this healthcare AV project, says: "Solutions India Systems was engaged in the project to create one of its kind AV infrastructure, encompassing present day AV technology products which could help doctors to share their experiences through collaboration technology.

"Global Hospitals wanted health-care professionals to be able to show, record and share live operations internally as well as with other national and international hospitals during emergency, complicated operations, training and consultation using

“ Multi-way interactivity was the biggest challenge and was achieved by using latest processors and DSPs. ”
 - Punit Rastogi, Solutions India Systems

convergent AV and IT."

Supplying such a system requires more than just installing the relevant communication systems.

Rastogi explains: "The major objective was to ensure flawless collaboration using state of the art technology. But we also had to ensure that the operation theatres of the endoscopy floor were integrated with a centralised system having control in a different room, from where the head of the department can decide what to content to discuss and show to the audience."

The operation theatre is fitted with an X-ray machine and an Endo machine, both of which sport DVI out as well and BNC out. Three Sony EVIHD3V PTZ cameras have also been installed in the space. This set of equipment serves as the input for the video content which is then distributed. The operation theatre also has three Sony KLVBX350 26in LCD monitors where the video content can be viewed. Three units of the RGB

QV HDx 4/0 four window multi-graphic processors are also employed to process the video content.

With regards to audio three Shure PG 14/PG 30 wireless systems and three Clock Audio C3se+CP73 ceiling microphones are used to pick up sound in the operation theatre. Sound reinforcement is delivered with six Tannoy CVS4 ceiling speakers.

The control room for the Global Hospitals installation serves not only to house the equipment necessary to process and distribute the content captured in the operation theatre but also as the videoconferencing hub. It features a Polycom HD X8000 high definition videoconferencing system without a camera and with HDCI Sony Visca adapter cable. A Polycom network module for ISDN connectivity, a Philips DVD recorder with 250GB hard disk, Akai ADVA36000 DVD player and three Samsung 320 BX 32in LCD monitors are also provided.

Tech-Spec

- Audio**
- Ahuja PF-3BO3T
- Biamp AEC-2HD card and AudiaFLEX DSP
- Bosch ceiling speakers, LBD series wall speakers and LBD series power amplifiers
- Clock Audio C3se+CP73 ceiling microphones
- Extron SI 26 surface mounted speakers and XPA 1002 amplifiers
- Polycom HDX 8000 videoconferencing system
- Shure PG 14/PG 30 wireless headset systems, PG 24/58 wireless handheld systems and MX412D gooseneck microphone
- Tannoy CVS4 ceiling speakers



On this page, left to right. Projection in the Global Hospitals auditorium. Monitoring video feeds in the control room.

Switching duties are performed by an Extron CrossPoint Ultra 1212 HVA 12 by 12 ultra-wideband matrix switcher with ADSP for RGB and stereo audio. Two Extron MTP T 15HD A transmitter and receiver combinations are also used alongside an Extron P/2 DA4xi four output VGA distribution amplifier.

The switchers and scalars were an essential component of the installation. Healthcare equipment does not always integrate easily with standard AV systems. Rastogi explains: "A lot of medical equipment works on a specific signal and a fixed resolution, which was a hindrance when showing the content from it on an external display. But this was overcome using signal converting scalars. Also there was some equipment which used proprietary connections which was decoded by our team and converted to suit the equipment in our design."

With regards to control, a Crestron AV2-TPMC-Pak control system with six COM port, 10/100 Ethernet and 8.4in wireless touch panel as well as a Crestron Cresnet Power Control Interface was installed. A Crestron C2NH-BLOCK multi-type Cresnet distribution block is also used. Interestingly, a Crestron C2N-CAMIDJ camera joy stick controller has been provided to control the PTZ cameras in the operation theatres.

Global Hospitals also had specific requirements when it came to audio. Rastogi explains: "Multi-way interactivity [when it comes to audio] was the biggest challenge and a dream of the customer and it was achieved by using latest processors and DSPs."

The audio system is based around a Biamp AudioFlex CM DSP which provides up to 24 inputs and outputs in any combination by pairs along with CobraNet inputs and outputs. Three Biamp dual-channel mic/line input and output cards are also used along with a Biamp AEC-2HD acoustic echo cancellation input card.

The control room has also been provided with its own Shure SRH 440 wireless headset system and two Ahuja PF-3BO3T ceiling speakers.

The content from the operation theatres is displayed in the auditorium at the hospital for the purpose of teaching and education. For this reason it has been equipped with an NEC NP 4100W +NP08ZL LCD projector which has a brightness of 5,500 lumens and displays visuals in WXGA resolution. The projector is mounted on the ceiling in a fixture that was custom designed by Solutions India Systems and the visuals are projected onto a Remaco PRO-L3030SL2 150in motorised screen.

The auditorium is also fitted with two Sony EVIHD7V PTZ cameras and has a WolfVision VZ-8light3 desktop visualizer. Further catering to users in the auditorium, Solutions India Systems has also installed a customised VGA and audio wallplate for laptop connectivity.

To deliver sound the auditorium was fitted with six Extron SI 26 6.5in surface mounted speakers. A Shure MX412D gooseneck microphone was installed at the lectern while two Shure PG 24/58 wireless handheld microphone systems are available. On the back end Biamp input and output expansion modules along with two Extron XPA 1002 amplifiers were used.

Switching is handled by an Extron MVX 44 VGAA four-by-four VGA and stereo audio matrix switcher along with two Extron DVI to VGA converters. Solutions India Systems has also installed a Crestron light dimming system for the auditorium.

Solutions India Systems installed the background music system for the entire hospital. The integrator chose Bosch ceiling speakers and deployed a total of 49 units across the premises.


Other special areas, such as the doctor's cabin and the training room were provided with Panasonic TH42PH30 42in plasma displays as well as customised VGA wallplates, designed by Solutions India Systems, for laptop connectivity.

The VIP lounge for patients is similarly equipped with Panasonic TH42PH30 42in plasma displays and a

customised VGA wallplate. But in order to handle the audio and video for the larger waiting area an Extron MAV 84 AV RCA eight-by-four matrix switcher along with Extron composite switchers have been provided. The general waiting area features an NEC M350X projector with 3,500 lumens brightness and a Remaco Pro-2424 120in projection screen. Two Toshiba 32HV 10ZE LCD 32in TV have also been installed. Audio in the waiting room is delivered courtesy of two Bosch LBD series wall speakers. Two viewing rooms sport a Toshiba 32HV 10ZE LCD 32in TV each.

Rastogi outlines a recent usage scenario: "A recent international conference with almost 1,000 delegates from all over the world was held where the Operation Theatres (OT's) were shared in a large banquet of a five star hotel and was shown live to this audience."

Solutions India Systems will continue to work with the client. Rastogi explains: "Complete training is provided to the end-user about the functionality of the AV systems at the time of final handover. In the case of any breakdown at the installation, Solutions India Systems offers AMC (Annual Maintenance Care) services along with personalised care. Moreover, Solutions India Systems has stationed a Resident Engineer (RE) at the customers' workstation in order to familiarise and train the users."

Looking to the future, Rastogi says: "Since the customer is using the latest technology, it has complete scalability." 

Tech-Spec

Video

Akai ADVA3600 DVD player
NEC NP 4100W +NP08ZL, M350X projectors
Panasonic TH42PH30 42in plasma displays
Philips DVD recorder
Remaco PRO-L3030SL2, Pro-2424 motorized screens
RGB QV HDx 4/0 four window multi-graphic processors
Samsung 320 BX 32in LCD monitor
Sony EVIHD3V, EVIHD7V PTZ cameras and KLVBX350 26in LCD monitors
Toshiba 32HV 10ZE LCD 32in displays
Wolfvision VZ-8light3 desktop visualiser

Control & distribution

Crestron AV2-TPMC-Pak control system, C2NH-BLOCK multi-type Cresnet distribution block, C2N-CAMIDJ and camera joy stick controller
Extron MVX 44 VGAA, MAV 84 AV RCA switchers and extenders