INDIA

A 'National' Motto Empowered with AV

Bengaluru's National College rendered modern with AV technology deployment; Hansa Pictures takes honours

By Ram Bhavanashi

FACTFILE

Project Client: B.V. Jagadeesh Science Centre, National College, Jayanagar, Bengaluru
Project Location: Jayanagar, Bengaluru
Project Segment: Education
Project Type: Multipurpose Hall for academics & cultural events
Project AV Consultant: Hansa Pictures
Project AV SI: Hansa Pictures, Bengaluru
Project Interior Designer: Styleworks LLP, Bengaluru
Project AV cost: 50 lakh (US$67,000 approx.)
Project Highlight: AV integration for online learning/teaching platform with Live Streaming
Project AV (main) brands: Panasonic, Works, Data Video, Pixeless, beyerdynamic, Shure, Sennheiser, Milestone, Biamp, Mipro

The National College in Bengaluru, India, is a very nostalgic name for many from the State of Karnataka. The 50+ year old institution – as part of its grand, century-old parent institution with the same name – is like part of the social fabric, and pride for people of the State, with many a high-profile individual elevating its alumni ranks over the years.

That being the reputation of the institution, equipping it with state-of-the-art online teaching platform with streaming capability is a thing of pride for any solution provider. Bengaluru-based Hansa Pictures had the honours. SI Asia presents an account of the prestigious install.

A Nationalistic Ideal

National College Bengaluru – founded by National Education Society of Karnataka in 1917 – is one of the most reputed seats of graduate education not just in the Silicon City of India, but the entire South India. For, its foundation on a very grand, nationalistic ideal and standing through over 100 years – with its offshoot itself completing 50 years of academic excellence – has an immense contribution to the cause of education in the state.

The long, illustrious ranks of its alumni community includes people of exceptional success from different walks of life- R&D, administration, entrepreneurship, sports and entertainment, and more- Manharilal Pranlal Thakkar, former Justice at the Supreme Court of India; Dr. G Guruswamy, Principal Scientist at NASA; Sadananda Maiya, Founder of MTR Foods – a household name in South India - Chandrasekhar, EAS Prasanna, Anil Kumble, and Prakash Padukone, sporting legends of yester years; HD Kumaraswamy, Karnataka State former Chief Minister; M Bhaskar Rao, present Bengaluru City Police Commissioner; and many movie actors, besides a whole big fraternity of NRIs (non-resident Indians).

The mainstay of the institution being the contributions of its alumni ranks and most of them often connecting from distant lands, they wanted to upgrade their alma mater with modern teaching and learning infrastructure keeping in view the fast paced digital transformation of academics and the imperative on the institution in tune with the time. Some due diligence following on the thinking with the college Director Dr. A H Rao, and the administration, the management decided to upgrade the B.V. Jagadeesh Science Centre at its Jayanagar branch college with a state-of-the-art online teaching platform comprising a recording room and streaming capability.

Conceived with the objective of popularizing science and drawing the young generation to basic sciences in the current frenzied days of IT and BT, the Science Centre is founded on the firm belief that no technology is possible without a strong footing in the basics. Built at a cost of 1.5 crore (>200,500 US$ approx.), the Science Centre creation was made possible by the initial donation of 50 lakh (US$67,000 approx.) – the single maximum amount – by one of the institution's high-profile alumni B.V. Jagadeesh who is now an entrepreneur in the USA. As a token of gratitude, the centre has been named after him.

The Big Initiative

An institution of such reputation deciding to set up modern ICT-powered teaching infrastructure is prideful offering and opportunity for any solution provider. Bengaluru-based Hansa Pictures – who made a name for their 'referential work' at many an institution of repute landed this pride.

"We did an AV system deployment job at the Karnataka State Technology Academy (KSTA) in early 2019; the Director of the Academy, and the Director of National College knew each other," said Gautam N Shah, Project Head at Hansa Pictures. "When the National College Director A H Rao had firmed their decision, he understandably checked his connects in the academic line for a suggestion, and thus got our reference from the KSTA Director."

While it was very prestigious to work for such an exalted institution for Hansa, Gautam quickly realized how challenging it was at the same time.

For, the space intended for the upgrade looked very distant thing for technology deployment in its existing form.

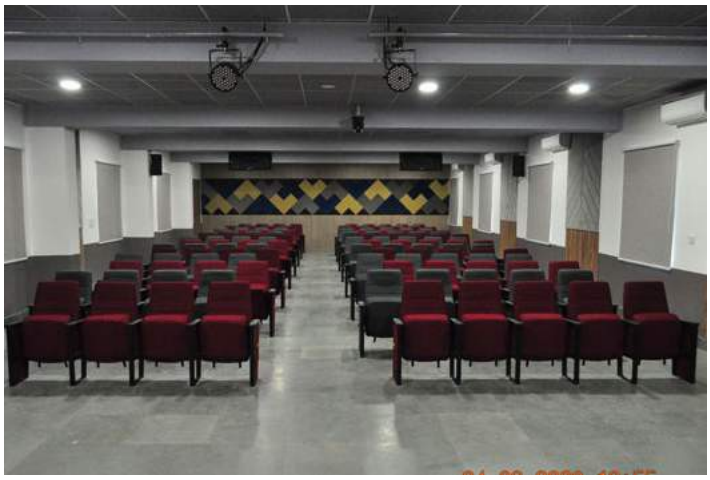
"It was an old, large lecture hall, with as many as 19 large windows with a plenty of natural light and noise coming in from the adjacent road side," recalled Gautam. "It was being used as a multipurpose facility for both academic activities like lectures and examinations, and cultural activities like musical and theatrical performances," he explained. "They initially wanted to create a studio and a lecture hall by splitting the large hall with a sound proof partition which was practically not do-able."

The initiative took its own sweet time – owing to the seeming difficulties – till management appointed one of its alumni Phanibhushan Sharma as its Technical Coordinator for various international collaboration courses like nanotechnology etc. and he became the Project In-charge for this Seminar Hall. Things, then, started taking shape to where they ought to.

Says Gautam: "We had several rounds of discussion, and finally came up with a concrete plan over the following month- right from getting the CAD Drawings done to getting down to the minute details. We gave them multiple iterations on what all could be incorporated, and what technologies could be adopted."

According to him, they gave the college project team an insight into the world of streaming, archiving, connecting multiple locations, and explained how the place could be transformed into a wonderful multi-purpose centre for presentations, lectures and musical programmes.

Impressed with the exposure to the imperatives given by Hansa, the College management entrusted them with the task of deploying the demonstrated technology architecture in the designated facility. The AV Systems Integrator, therefore, was tasked with overall execution of AV integration that comprised a good measure of artcoustics (aesthetics and acoustics) for the hall that measured 82ft x 30ft.



Hansa roped in Styleworks LLP to create a welcoming ambience

Having been taken onboard the project, Hansa quickly roped in Styleworks LLP as the interior design solutions vendor to do overall design, wall paneling, blinds, colour and lighting theme, seating and carpeting, and execute all that in a manner that the space is transformed into an inviting ambience. While imparting a WOW factor was an expected thing, a maintenance-free design was the mandate on the design firm.

The AV/ICT integration solution, therefore, essentially comprised:

- Complete sound proofing of the 2460 sq.ft. hall with a blend of architecture and AV
- A presentation system with a laser projector, two display monitors in the middle of the hall, a two-way camera system for the speaker/ podium and audience area
- Live recording and streaming system to be able to go live on social media platforms
- Cloud space enablement to archive and store data

- A high-speed, IP-enabled 1-5 multipoint VC set-up, along with a soft codec dial-in facility for compatibility with Skype, Microsoft Teams and Zoom etc.

- A signage display to show the programme details for the seated audiences

- Fully equipped stage for theatrical performances

- Automation of entire hall lighting to be remotely controlled by an iPad.

"Once the solution is in place, deploying the designed AV is a routine for any AVSI," says the Hansa Project Head. "However, devising a perfect solution for a space that has large structural issues and ambience noise is always a tough job," he elaborates. "The job turns even more challenging when time constraint is imposed, and available time shrinks further due to some unexpected hassles."

In essence, they were given 60 days to test the place, devise the solution, rope in the systems, install, integrate, test and commission. That was understandably big, considering the extent of challenges the task involved. The most challenging part was the sound-proofing due to the structure of the hall, and its noisy environs.

"After conducting several rounds of audio measurements, we decided to seal off 12 of the 19 windows, and treat the remaining seven in a way that they allow the natural light to come in," informed Gautam. "However, the sealed-off 12 windows required wall panelling that were to accentuate the interiors in colour theme and acoustics."

According to him, the interiors were to be done in such a way that they had to create the WOW factor even as they played the acoustic function for perfect speech intelligibility. In order to achieve that objective, the SI worked with the interior designer to execute a special panelling and design element for the sealed off windows to suite the specifications of aesthetics and acoustics.

The erstwhile plastic seats have been replaced by 135 reclining cushion seats in sync with the colour theme of the interior surface finishes. The ceiling of the hall was simultaneously treated with special grid ceiling to give a .9 NRC value so that it contributed to the specified RT measure.

The AV/ICT Deployment

Audio: The Audio component at the Centre comprised four units of Works ARQ wall-mounted speakers installed two each at the stage, and the audience area, apart from a pair of subwoofers, that is powered by one Works PA1254 amplifier that is in turn augmented by a Biamp Nexia VC DSP.

The audio capturing microphone component comprised one unit each of beyerdynamic Classis GM 158P gooseneck for the podium, Sennheiser lapel EW-100 G4 Series' Lavelier mic set, and a pair of Mipro ACT-312 dual channel diversity receiver with eight switchable channels.

Video: The Video component essentially comprised a 5000 Lumen Panasonic WUXGA Laser light source projector suspended from the ceiling by means of the home-grown brand Pixeless ceiling mounting kit in front of the stage. Facing the projector on the stage wall is a 170-inch diagonal 16:10 Pixless motorized matte white screen but coated with PVC technology hue with a view to enhancing the feel and aesthetics of the screen.

The 5000 lumens Panasonic WUXGA laser projector

Mounted on the protruded stripe of the ceiling in the middle of the hall is a pair of 43-inch Panasonic LH-43RM1DX large format displays. A Pixeless multimedia lecturn takes the podium with sliding lock cover for Touch display, and built-in rack on wheels. It is also augmented with a 21.5-inch Wacom DTK-2241/G0-FX full HD interactive display, with anti-glare and adjustable tilt stand.

"That the full computer system is provided thereof, any presenter can just walk in with just a storage device and start presenting," says Gautam.

The video component is also essentially complemented by a Real Presence Group-500-720p for the purpose of video-conferencing requirement. "With a view to making the VC set-up more 'real,' the design provided for a concealed 50W LED colour corrected VC light," explains the Hansa Project Head. "This concealed VC light device enhances the video of the viewer stretching end-to-end."

"Making it more experiential, we tuned in a soft codec dialling facility that enables the customer to plug in his/her computer, and instantly get connected to meeting platforms like Skype, Microsoft teams, Zoom etc.," he further explains. "It's a10Mbps IP-enabled network to ensure seamless connectivity amongst the meeting members."

Tasked with the video capture, as well as the live streaming function are three units of Data Video PTC 150 full HD cameras – two aimed at the stage, and one aimed at the audience area – coming along with the control unit. Handling the video streaming encoding function is a Data Video NVS 40 multi-channel H.264 streaming encoder/recorder.

With a view to catering to the requirement during cultural events one unit of Bose S1 Pro portable speaker, and five units of Shure wired microphones comprising two pairs of SM-58 and SM-57 dynamic mics, and one unit of SM650-XLR Cardiod microphone for speech application are configured into the audio set-up

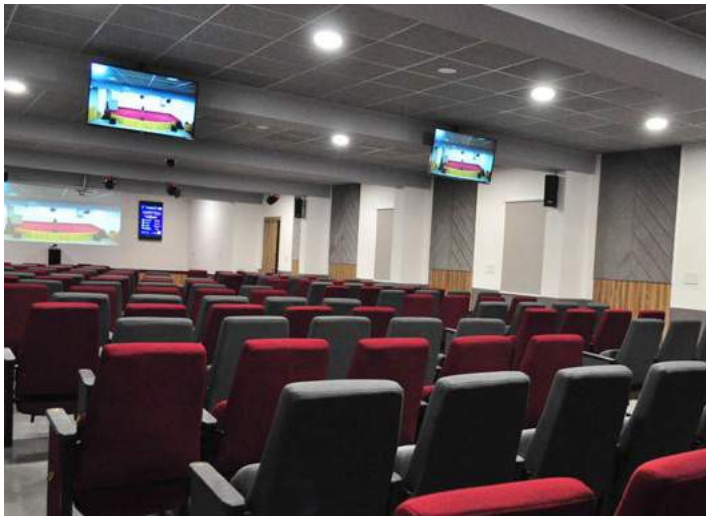
The Control Room:

The Control Room has been equipped with a full set of switching and mixing gear, in addition to a pair of monitors and reference speaker.

A pair of switchers does the A/V switching, featuring Milestone Pro MP-HD44AE 4K ultra HDBaseT matrix switcher, and an 8-channel Data Video SE 2850-8 HD/SD-SDI/HDMI digital video switcher for the audio and a video respectively. Further, a 12-channel Allen & Heath Zed 12FX Mixer with 6 XLR inputs is tasked with audio mixing function.

An Audac LX-504MKII powered speaker is roped in as a Control Room speaker for reference, while a Data Video AD 100M Audio Delay box is also tasked for balancing the input audio upto 700 ms (17frames) audio delay calibration, and volume attenuating 0 ~ 60dB.

For the purpose of monitoring the mixing of A/V feeds and checking the final, edited programme output, a pair of 24-inch Viewsonic monitors is also synced into the Control Room electronics.



The 55-inch Signage display

In the event of special occasions of full-house audiences, with a view to providing information of programme details and other schedules to the seated audiences, a 55-inch signage monitor is also installed in the hall.

Automation: Automation of the entire hall's lighting themes is achieved by a KNX protocol over an Interra dimming that is powered by a Global Cache processor. "We roped in Leksa lighting LED pars for special effects and colour changing during cultural events, as also for the real presence effect during the VC event," informs Gautam.

All the AV gear is rendered remotely controllable by means of an iPad.

"It was the next big challenge, after the sound proofing and interior finishing job," recalls Gautam. "We had a deadline to complete the project in 60 days; while we were through with almost 80 pc of the work in terms of interiors, acoustics and wiring, the client realized that they needed automation. That was a huge challenge as we had to break down some of the things we finished, for the wiring to be done," he explains further. "The customer wanted us to provide dimming facility as well, and all controls were to be provided via the iPad. That took away almost 10 days of our time."

However, the integration team worked hard, and ensured that the entire job was completed before time, he maintained.

"The Works audio systems are known for their sweet sound, and tonal balance, while their amps are sturdy and heavy-duty capable," reasons the integrator in their choosing the Spanish audio major Equipson.

The final outcome of the project was a happy success story for Hansa and the National College project team. According to the integrator, though the size of the hall was not that large the coming of everything together as intended by the client gave them a sense of accomplishment – considering the social image of the institution.

"Most importantly, the customer was happy which is what finally mattered," he maintained.

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