

AV TODAY

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Rev. Valson Varghese
Senior Associate Pastor
New Life AG Church



Cherian George
Regional Director,
Fohhn Audio AG



Manmohan Ganesh
Managing Director, Pro FX



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Editor's Note

As we revel in the holiday cheer and get ready to wrap up 2024, we gift you this special edition with a real-world view into the trends, nuances, and considerations of AV Tech in Church settings. To tell the stories of the transformative power of AV on Church installations, we cover the custom sound solution for two congregations at the heritage East Parade Church, Bangalore, and the power of stunning visuals at the St. Francis of Assisi Catholic Church, Dubai. Before I close, on behalf of all of us at AV Today, we hope you have a festive season filled with joy, positivity, and growth.

You'll agree how important it is to look at our AV world through the eyes of the end-user; to give you this view, we chronicle the journey of the New Life Assembly of God Church, Secunderabad. Our not-to-be-missed Podcast with Manmohan Ganesh, Pro FX Tech, and an Exclusive Interview with Cherian George, Fohhn Audio AG, are also inspiring reads.

Our love for technology continues with in-depth articles on Beam Steering, Mixed Reality, the aesthetic possibilities Stretch Fabric Lighting offers, and a Humly Room Display Solutions review by Mr. Raja S. Prabhu. Lastly, with a brand New Year ahead of us, we reflect on how we can, as an AV industry, gather momentum on Sustainability and environmentally-friendly practices.

Before we sign off, we thank you wholeheartedly.

Every partnership, conversation, and dialogue has made a difference in shaping our journey together this far. India is a unique market, and so is the AV landscape. If we know India better, it's because of so many of you who have joined us on this exciting journey that we began earlier this year.

Wish you a super start to 2025; we look forward to continuing this journey with you.



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Unmatched Sound Excellence

Fohhn Audio AG: Leading with Trust, Innovation and Quality

Cherian George of Fohhn Audio AG discusses Fohhn's innovative audio systems and their foray into the Indian market.

From introducing the first battery-powered loudspeakers in the 1990s to becoming the leader in beam steering technology today, Fohhn Audio AG has been at the forefront of sound excellence in the global ProAV industry. With three decades behind them, Fohhn has been developing and manufacturing high-quality loudspeaker systems from their base in Nürtingen, Germany, and their foray into the Indian market marks an exciting new chapter for the AV landscape in India.

In an exclusive interview with Cherian George, the regional director of Fohhn Audio AG, we delve into the company's unique market positioning, world-class audio solutions, and their journey since entering the Indian ProAV market just four years ago.

A sound start

Fohhn Audio launched in India during the COVID-19 pandemic, which, needless to say, was a time of much uncertainty. "We used this period to lay the groundwork and educate our customers about Fohhn. When the market opened up, we got the opportunity to do some interesting projects, including the new Indian Parliament in New Delhi and with corporate clients like Microsoft, Google, SAP, and YouTube," he says. Emphasizing that everything from R&D, assembly, and logistics to sales for Fohhn is based in Germany, he

highlights that delivery turnaround time to India is just 4 to 6 weeks.

Cherian explains Fohhn's approach: "We don't focus on verticals; instead, we work on projects based on applications across a wide range of spaces, including halls, small office environments, town halls, and large venues with acoustically challenging environments. These projects don't have to be high-value; they can be small-scale as long as clients require high-quality, pristine-sound solutions and are not overly budget-conscious."

"In India, we have worked with a few large Churches and expect to work with more as the demand for high-quality sound matures. Numerous premium government projects are also on the horizon, and upscale spaces are being developed. Corporates are also setting up experience centers that require immersive sound solutions; all these will be a potential

market for us," he explains. Cherian also talks about the significant opportunities in the rental market, "We just sold our first rental system in India, and I believe the rental market will be huge for us."

Fohhn currently operates in India through a single distributor stockist, 'That Sounds Good Audio Innovations.' According to Cherian, Fohhn provides comprehensive support, working directly with consultants, system integrators (SIs), architects, and end users from planning to





commissioning. He adds that SIs appreciate the extensive support Fohhn provides, not only in design and commissioning but also with other equipment that may need to be integrated. Cherian adds that today, in India, clients are willing to invest in high-quality audio solutions, and consultants in India are also aware of Fohhn's portfolio of products.

A class apart

"Fohhn is all about excellent sound and optimum speech intelligibility," Cherian emphasizes passionately as he shares what sets Fohhn apart in the audio industry. "We believe we are the only company globally in the premium segment, offering a comprehensive portfolio of high-quality products with a niche in almost the entire spectrum, and we have been doing pretty well."

With a dedicated 8-member team in India, Cherian highlights the importance of having a strong market presence. "Our direct presence gives us a pulse of the market and allows us to better understand client needs, which makes a massive difference," highlighting that the high level of customer satisfaction that Fohhn enjoys stems not just from the quality of its products but also from the exceptional support it provides. "Our team includes acoustic design engineers in Germany and India, along with highly skilled professionals in India, including riggers and commissioning engineers, who are among the best in the industry. We have just one person globally managing spares, service, and warranty, and he doesn't have much on his hands because the product is built like a tank," says Cherian.

He highlights Fohhn's commitment to quality: "We take complete ownership of the process, managing everything from planning and design to commissioning and service. As a result, we have zero complaints from customers." Cherian adds that they do a lot of product demos for clients. "Since Fohhn is relatively new to the Indian market, clients may be unfamiliar with our offerings, so having them listen and experience the product firsthand helps clear apprehensions and always makes the sale for us."

Cherian then tells us about the Fohhn SoundLab in Germany, an experience center he believes is the best way for clients to experience Fohhn's entire portfolio of immersive audio experiences. "When clients visit the SoundLab, we are confident the client will be won over. However, we

understand that not everyone can make the trip to Germany, so we offer smaller demos for those unable to travel."

Fohhn Beam Steering Technology

Today, Fohhn stands at the forefront of beam steering technology, which it has been pioneering for the last 15 years; we ask Cherian what makes it so unique.

Cherian emphasizes that Fohhn offers a unique lineup of column beam steering and straight array speakers tailored for high-quality music reproduction and rock-and-roll sound. Their offerings include point source speakers and audio solutions suitable for various environments, from Churches to corporate spaces. "Any venue that requires specific acoustic solutions for pristine, high-scale music with beam steering technology, I believe our performance is unmatched," he explains.

Fohhn currently has no traditional line arrays, which is reflected in their tagline: "The future of line array is straight." Cherian believes that while other companies working on beam steering technology may soon shift toward straightening their line arrays, Fohhn has been perfecting this approach for over 25 years. "With the Fohhn system, setup is streamlined - just plug in your computer to adjust the display angle. It's that easy. To rig a system for 10,000 people, you only need two people.

In contrast, larger line arrays typically require many hands and complicated setups, which can be challenging." He describes Fohhn's advanced beam steering control, which allows for precise sound targeting. "Our beam steering speakers offer a very high degree of control, enabling adjustments to the sound beam and beam opening angle in fine 0.1-degree increments, while competitors offer broader 1-degree adjustments or more."

Cherian also highlights Fohhn's superior sound quality. Their speakers excel in tonal richness and musicality, especially for high-sound pressure level (SPL) applications like live performances and immersive audio experiences. "It's common to see frequency ranges in data sheets claiming 20 Hz to 20 kHz, but the reality is more complex. The tonal quality of our speakers is far superior," he notes.

Audio technology for Churches

It's the Christmas season, and we couldn't do without asking Cherian about Fohhn's audio solutions for Churches. "Globally, Churches are our primary market, and we've done some phenomenal projects catering to traditional and contemporary Church environments," he says. Cherian points out that Fohhn works exceptionally well in traditional and contemporary Church settings, with solutions for both high SPL music and speech applications. "We specialize in optimizing speech clarity in traditional Churches, especially those with Gothic architecture that experience long reverberation times, sometimes stretching to seven to eight seconds," he says, citing a recent Church project in Germany with a reverberation time of 13 seconds.

In contrast, modern Churches, often influenced by the American model of worship, have typically relied on sound systems from brands like Meyer Sound and L-Acoustics, which cater to contemporary styles and SPLs. However, Cherian notes that awareness of Fohhn's offerings is steadily growing in the U.S. market. "We offer sleek speakers that blend seamlessly with the existing acoustics, including custom color combinations to complement the interior design of the space," he adds.

Leading with trust, innovation, and quality

Sharing insights on Fohhn's plans in India, Cherian says, "We are on track for double growth this year and expect to achieve the same next year. Our product quality is excellent, and our customers have developed an almost blind trust in us. In the first two years, we focused on educating our clients about Fohhn; now, they actively choose us, which we believe will lead to strong repeat business." He adds that continuous innovation is ongoing, and the focus is on raising awareness of its product line-up.

In conclusion, Cherian says, "Our primary goal is growth, and unless there are significant market shifts in the next two to three years, we are confident about achieving exponential growth. With the projects we have in the pipeline and the increasing emphasis clients are placing on quality, I'm confident we'll meet these goals."



Small Steps, Big Blessings

The New Life Assembly of God Church



A four-decade journey of embracing AV technologies that are enhancing the worship experience for its growing congregation.

From its humble beginnings as a small, intimate gathering of just four people, the New Life Assembly of God Church in Secunderabad has blossomed into a vibrant congregation of nearly 6,000 worshippers today.

*Rev. Valson Varghese, Senior Associate Pastor
New Life AG Church*

In discussion with Senior Associate Pastor, Rev. Valson Varghese and Media Director, Philip David, we walk through their inspiring journey of embracing AV technologies that have continued to elevate the worship experience for their growing congregation.

The start of a new journey

Rev. Valson Varghese tells us how it all began. “On the second Sunday of July 1983, our Senior Pastor (Late) Rev. Earl Stubbs and his wife Rev. Arlene Stubbs, gathered to worship the Lord in their home with just four people. Since then, we have moved to various locations and rented premises for almost 35 years: a hotel conference hall, a car garage, an old movie theater in Millennium Gardens, where we spent about 28 years. In

2018, we relocated to a new facility in Kompally.” Today, 41 years on, the New Life Assembly of God Church is a thriving community with three locations: their main campus in Kompally and branches in Hitech City and at Diamond Point in Secunderabad.

Pastor Valson reflects on their journey, noting that they started with just basic microphones, simple lighting, and old-style video cameras. “We have gradually and steadily evolved and invested in equipment; one of the greatest strengths in this journey has been the personnel,” highlights Pastor Valson, introducing Philip David, who leads media production at the Church. “With his IT background, Philip has recruited top technical talent to guide our AV investments. Our media team helps us assess needs and make purchases,

some outright and others via hire purchase. We’ve come some way and still need a few more pieces of equipment,” Pastor Valson explains.

Philip explains that major AV upgrades at the Church began during their time at Millennium Gardens. “Initially, we invested in a Bose 802 speaker system and a Yamaha LS9 console, but we quickly outgrew this setup and upgraded to Meyer sound’s JM1P with 600 & 700 HP Subwoofer, all running through Allen & Heath ILive consoles. Millennium Gardens had a capacity of about 400 people, with two overflow sections that could accommodate around two-thirds of the attendees. We had hanging speakers - Mayer sound’s UPQs, large LED screens, and televisions in the overflow areas.”



Philip highlights that the AV system upgrades resulted from their own extensive research. Pastor Valson adds, "Quality was a top priority, as providing excellent sound and high-quality AV was essential in a city where people experience excellent equipment in their corporate workplace. So, we wanted to provide a relevant and modern experience when they came to Church." He adds that the Church's leadership was open about these investments, which Pastor Valson reflects have become a blessing to their local ministry.

Investing in Quality

Philip tells us about the AV systems at our current campus at Kompally. "Our new campus is built on a 12-acre property, including a 3,000-seat auditorium and 100,000 square feet of space. We have upgraded all our equipment to fit the needs of our new campus with products like D&B Y series for PA system with V series subwoofers and Avid S6L console mixing 80 channels of audio for the audience, while the worship team on stage have independent 3D immersive mixes using Klang by Digico. For lighting, we are using the GrandMA 3 accompanied with Robe and LBT for lighting. In the Video world, we now use Canon cinema series cameras for mobile and Sony Broadcast cameras for videography. Multimedia and Graphics use ProPresenter with Resolume Arena running on Mac Studios for maximum efficiency and reliability. All our services are live on YouTube and we do a separate Audio multi channel mix with Avid S6L 16C console integrated with Waves Superrack for managing tones and levels going to our hardware Video encoders from AJA Helo & Teradeck. The other two campuses, Hitech City and Diamond Point are rented premises with AV Systems from EV, RCF & Shure, and we rent other AV equipment for larger events."

Pastor Valson discusses the design of their new campus and explains that they engaged an AV consultant from Australia for acoustic treatment before construction began. "We were careful to ensure everything was done correctly, and overall, it has been executed well." Affirming the importance of this investment in AV, he says, "We care about quality, and we care about the worship experience of our people, which is why we invested in quality media."

Philip explains that the consultant assessed various factors, such as room acoustics, noise levels, wall vibrations, and airflow from the AC units, to ensure minimal noise interference in the

seating area. "We conducted extensive research before starting this project, and his expertise was invaluable," he says. Highlighting that his team is well-versed in AV technologies, Philip shares how they have also supported many other Churches. "We have a talented audio team, some of whom have started their own businesses, a lighting consultant, and a skilled video production team experienced in various events. All our volunteers started out with us, and we continue to learn and grow together as a team. This also speaks a lot about the Church's leadership, as Pastor Arlene Stubbs and Pastor Valson have been very supportive. They allow us to try new things, understanding that these are often trials; you never know if something will work or fail."

A lifeline during the pandemic

"COVID-19 was an eye opener," says Pastor Valson as he emphasizes the pivotal role media played during the pandemic and the surge in media use in Churches ever since. "COVID was a game changer for Churches globally, and because we were already using media to the fullest, we could seamlessly transition to online services during this paralyzing period. When the entire world shut down, we continued to hold services every single Sunday," he highlights. They utilized video cameras and even started using iPhones and any other equipment they could access to provide ministry to their community through services, prayers, and messages delivered via various media channels.

Philip adds that local Churches were on the back foot when it came to media, and many struggled with technology at the time. "During the pandemic, we organized a dedicated team and moved all the equipment to everyone's homes. Everyone would record and send videos to a central location. And one person would compile the final video for release on Sunday morning on YouTube."

"When the world was impacted by COVID-19, I would say that God

prepared us in advance. We were able to conduct Sunday school, youth meetings, worship services and even preach online. We held pastors' meetings, daily devotions, and prayer meetings on Zoom virtually. In remote villages, a simple cell phone could effectively convey the love of Jesus and the message of salvation through Him. The gospel could still be shared, and the ministry could continue. So, I thank God for the media and our outstanding team," he says, adding that they actively leveraged media to support and support those suffering, offering comfort and hope while ensuring help was available.

Growth and grace

In conclusion, Pastor Valson reflects on this beautiful journey of faith and resilience: "Over the years, we have evolved; we did not strategize our path; instead, we embraced each new location as we were looking for a home for our growing congregation, a space for the children's Sunday school, and parking for our cars. And each location was adequate for our needs at the time."

"It has been an incredible journey over the past 41 years, and we give God all the credit. We have not advertised or actively sought out new members; God has sent them to us. Miracles have occurred along the way—signs and wonders, healings, and many individuals have found peace with a living God and salvation in their hearts," he says. "AV has definitely played as much a part as we have. As much as we saw the difference in the previous premises, we have exponentially invested and grown in the current premises when it comes to AV. We are grateful to God for our team and the ability to equip our Church with the necessary equipment."





Lights, Sound, Worship! How AV Tech is Redefining the Church Experience

Is AV ushering in a new world of worship experiences in churches? Join us as we explore this and more.



Reflecting India's rich cultural and spiritual diversity, houses of worship, such as Churches with different worship styles, are integrating tradition and technology to engage with congregations in new, meaningful ways. A multitude of factors come into play when creating an immersive worship experience, and AV is definitely a major one among them. What was once considered an afterthought is now seen as vital to the experience.

In this edition of AV Today, we explore the intersection of faith and technology in Churches with insights from Murali Manohar, Director - Technical at Cinetekk, and Father George Jackson Louis, Broadcast and AV Consultant. Drawing from their vast experience in AV installations across Churches in India, they give us a peek into the world of

AV in Churches and the various nuances and considerations at play.

AV in diverse Church contexts

AV design in Churches is tailored to suit specific worship styles practiced. Murali highlights these different styles, noting, "There are different styles of Christian worship; for instance, one is celebratory worship practiced in Roman Catholic and traditional Churches, while high-intensity worship or charismatic prayer is a hallmark of Pentecostal communities." Murali explains that most Church committees have members with a background in music and tend to seek the same level of compelling musical environments at their Church.

He explains that each Church or cathedral is part of a diocese in Roman Catholic Churches. "For example, the Dharmapuri Diocese oversees Krishnagiri and Hosur. You have one consultant who works closely with each diocese, collaborating with Original Equipment Manufacturers (OEMs), distributors, and AV service integrators. Since this consultant knows the size of upcoming Churches within the diocese, budgets are allocated using a standardized approach. After executing a project based on this template, replicating the process for multiple Churches becomes much more efficient," he says, adding that this streamlines project execution across Roman Catholic Churches.

Murali points out that, in contrast, the Pentecostal Churches, which make up about 40 percent of the Church landscape, adopt a more independent



approach to AV design and implementation. "They have internal committees but lack external accountability, allowing for more flexibility in decision-making and expansion. This autonomy aids the rapid expansion of Pentecostal missions, enabling them to upgrade and grow much faster," he notes.

When asked about AV consultants in Churches, Murali says, "There are separate consultants and system integrators (SIs) who specialize in AV projects for Churches. Each diocese has its own media team with designated consultants they closely work with," says Murali, adding that some priests actively pursue relevant certifications to stay informed of the AV industry landscape. He emphasizes the importance of building relationships and maintaining regular follow-ups for successfully engaging with Churches, "Previous experience with Church installations and a strong social media presence is also valuable. As an SI, educating the Church committee about system functionalities with simulations and a breakdown of concepts like the Speech Transmission Index (STI) is crucial in showing how it benefits the venue. All this helps build a stronger case for budget approvals."

Fr. Jackson shares his perspective, "When designing sound systems in Roman Catholic Churches, optimizing speech intelligibility is an important consideration. This would mean ensuring that voices are clear and easily understood. There is also some choir music, which needs an emphasis on low-end frequencies to enhance the overall sound."

Emerging trends, nuances, and considerations

Prioritizing AV at the start

Fr. Jackson observes that traditional Churches often focus on aesthetics, such as stained glass and architectural design, with AV considerations typically coming in later. Since budgets may become limited towards the end of the planning process, they may opt for the minimal solutions, which can create problems such as poor sound quality or inadequate lighting during services. "After some time, they will see that the Church is beautiful, but they cannot hear anything, certain lighting or fixtures are not working properly, or smart integration has not been done. This has been a constant complaint so far. However, we are seeing a shift in approach; Churches are starting

to include AV at the planning stage and are involving AV integrators and consultants in the design planning process."

Going digital

Media management in Churches is on the rise the world over, and members of specific congregations are adapting to hybrid services, which allows them to participate in prayers and Sunday mass at their Church from anywhere in the world. Mentioning that about 70 percent of Churches are now leveraging professional streaming technology, Murali says, "Tradition does not change, but hybridization and digital technologies are enabling Churches to offer engaging and more accessible services to their congregations. This is especially beneficial for senior citizens, who can stay at home and watch content comfortably."

Every Roman Catholic diocese has its own communication channels, such as the Diocese of Mylapore, which operates as the main media channel for prayer requests. "Independent Churches have their own apps where congregants can access sermons, register for events, and engage within their community. So, everything is at your fingertips. Moving forward, I also see a lot of OTT (over-the-top) platforms also emerging. It is like a community beyond the Church," explains Murali.

"As streaming becomes more popular, many Churches, even smaller ones, are upgrading from analog systems and are now engaging with their communities through platforms like YouTube. They are getting feedback from their listeners and are eager to address the needs of their congregations," highlights Fr. Jackson.

A standardized approach

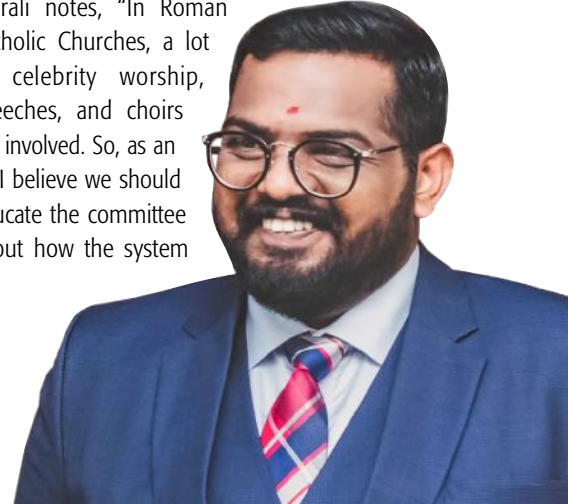
Since the Pentecostal mission has a global presence, they work towards implementing consistent standards of AV technologies across their Churches. Murali elaborates, "For example, two popular ministries that have presence around the world, hire consultants for various projects covering everything from addressing electrical requirements all the way to AV design and execution; this allows for standardization within the ministries."

Murali also mentions the 'Church Protection' YouTube Channel, which features people exploring different Churches and their protective measures. "From here, they gather ideas and

technologies they could use to develop new concepts and solutions."

An appetite for investment

Murali notes, "In Roman Catholic Churches, a lot of celebrity worship, speeches, and choirs are involved. So, as an SI, I believe we should educate the committee about how the system



Murali Manohar, Director - Technical at Cinetekk

works, show them simulations, give them a breakdown of the Speech Transmission Index (STI) and its benefits, and then justify the value it brings. When we educate them and justify our recommendations effectively, we stand a good chance of getting our budgets approved. It's also important to be involved from the beginning, and nowadays, the congregation understands the need for a good sound system."

Fr. Jackson adds, "For a traditional Church with a capacity of around 300, the budget typically ranges from 20 to 25 lakh rupees. In contrast, Pentecostal and independent Churches often spend 20 to 30% more because their intensity levels are higher as they have high charismatic prayer. Some independent Churches may hold services 24/7, requiring more sturdy systems to handle continuous use. So, the requirements are completely different."

Maximizing operational efficiencies

Operationally, one challenge remains: the presence of untrained personnel, as most operators of AV equipment in Churches are primarily volunteers. "To address this, we design an installation that allows users only specific controls; specifically, the tuning and calibration of the system are controlled through the software and processors, and the Digital Signal Processor (DSP) settings are locked. This means users can't alter the



Father George Jackson Louis, Broadcast and AV Consultant

quality of the tone; they can only adjust the mixing,” says Fr. Jackson.

As a former technical director at a regional communications center for Catholic bishops, Fr. Jackson notes the importance of training future Church leaders on acoustics, emphasizing concepts like reverberation and echo. “These concepts will give them a reference point when they become leaders in their assigned Churches. We are also gradually expanding our training offerings; some of the priests who have a background in music are interested in more advanced sound design training, which we plan to incorporate.”

Murali emphasizes that good architectural sound system design, with good DSPs and other

components, is key. “Certain DSPs also act as a mixer, and you could enable control over an iPad, set default levels, and customize access to features you want them to use. Take Q-SYS as an example; it includes a feedback suppressor. So, if the design is done well, many operational challenges can be managed smoothly, addressing most of the requirements for successful sound management.” For larger congregations, SIs often deploy staff to improve operational efficiency. “At Cinetekk, we assign one engineer for every 100 kilometers to manage multiple venues; this eases the challenges of relying on unskilled volunteers,” says Murali, emphasizing that they provide support for three months post-installation before project handover.

Murali also shares that some Churches are adopting PTZ (pan-tilt-zoom) cameras with advanced features like face recognition and AI technology to minimize the need for specialized camera operators, a trend gaining momentum as Churches seek to manage multiple podiums and choir locations.

The case for good lighting

When it comes to displays, many Churches are upgrading right now, as they understand that good lighting is crucial. “A standard lighting level in a Church is often more than 200 to 300 nits, roughly equivalent to sunlight. To achieve this brightness level, Churches must invest heavily in high-end projectors. For example, a Church we worked on recently has a space of approximately 120 by 100 feet, equipped with 220-inch LED displays on either side. According to them, LED displays are cheaper to operate than projectors,

especially considering distance and lighting conditions. Also, some LED displays with 500 to 600 nits brightness levels are much cheaper than projectors. To match the brightness of a high-end projector, you would need at least 25,000 to 30,000 lumens, which requires about 32 amps of power. So, an LED display wall is about one-tenth of the cost of running a high-end projector,” explains Murali.

He further elaborates that while laser projectors offer superior quality, they come at a higher price tag. “For example, RGB laser projectors between 20,000 to 30,000 lumens can cost between 40 to 50 lakh rupees, and the mounting setup adds another layer of complexity. In contrast, an LED wall simplifies installation, requiring only a single data cable and AV over IP added in. “Once again, it’s about educating the Church committee about the pros and cons of the various display options.”

As new Church establishments come up and the adoption of digitization and advanced technologies gathers traction, it is clear that the market for AV in Churches will continue to gain momentum: A significant opportunity indeed not just for businesses but also for AV technologies to amplify the message of community, connection, and hope in our busy and ever-evolving world.



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Orchestrating Harmony

Custom Sound Elevates Worship for Heritage Church



A unique and innovative sound solution transforms the worship experience for two congregations at East Parade Church.

In the heart of Bangalore's bustling central district stands one of the city's iconic heritage buildings: the East Parade Church. Built in 1865 by Wesleyan Methodist missionaries for British soldiers stationed in Bangalore Cantonment, the Church features a majestic facade with eight Corinthian columns. Continuing its rich legacy, the Church currently serves two large pastorates: the East Parade Malayalam and East Parade Tamil congregations of the Karnataka Central Diocese of the Church of South India (CSI).

Sound is at the heart of crafting a meaningful and connected worship experience; recognizing this, the Church's joint committee knew it was time to uplift the audio experience for worshippers. Rontek Systems was tasked with transforming the audio experience in this historic sanctuary.

Two congregations. One stage

Jacob Abraham, the founder of Rontek Systems,

emphasizes the uniqueness of this project: "Being a heritage building, implementing acoustic treatments such as absorption panels and making other modifications were not feasible due to restrictions and costs. Another distinctive aspect is that the Church serves two congregations, and this is the first time they have undertaken such a major project with a single vendor."

He explains the layout of the Church: "The interior is shaped like a cross, without any columns or pillars blocking the view of the altar. There is a left wing and a right wing; the choir for the Malayalam service occupies the benches on the left, while the Tamil choir sits on the right side during their worship. The two congregations hold services at different times, each on their respective sides of the Church."

Jacob describes the setup of the two separate sound systems used by both congregations earlier. "The two congregations had their own microphones, speakers, and mixers that were challenging to manage. When the Malayalam service ended, the microphones would be removed

and replaced with a different set for the upcoming Tamil service," he says, adding that the process was quite chaotic, with multiple speakers on each side and a tangled mess of wires.

Integrated yet independent

Jacob explains the thought process behind designing the bespoke audio solution for the Church: "The challenge given to me was to design an integrated sound system with a shared set of priority microphones and loudspeakers but independent mixing capabilities for each congregation. This would enable both congregations to control specific elements, such as the choir microphones and keyboard organ mixing, and allow for a seamless switch between worship services held by the two congregations. Occasionally, the congregations come together for a combined service, so the sound system needed to cater to this as well."

Seamless sound

The main front-of-house [FOH] speakers comprise the JBL CBT 1000 and the CBT 1000 E (Extension)



column array speakers. "Instead of depending on the main speaker to cover the entire Church, I opted to cover a smaller area and placed the low-frequency LE speakers on top for extended coverage throughout the Church. This deviates from Harman's original design, but it works well. We took multiple opinions and ran a trial before finalizing this approach," he explains.

Jacob highlights JBL's constant beamwidth technology, with two adjustable beams: a bottom beam that can be widened to cover a lower section and a top beam to cover a greater distance, helping precisely aim the sound toward the listening area. "Given the church layout, I realized we needed additional fill speakers, so we used four JBL CBT70J-1 line array column loudspeakers in the main sanctuary area of the Church," he adds.

The JBL CBT50-LA-1 line array column loudspeakers are used as front-fill speakers placed on the sides, physically aligned, and configured to create the perception that the sound is coming from the front. This was achieved through careful time alignment, and the Haas Effect explains Jacob. "Additionally, four JBL Control 29 two-way surface mountable speakers were used in the wing areas of the church, which had no major acoustic challenges because of the lower roof height," he explains.

Bridging beats

A shared Shure SCM 410 four-channel automatic mixer is connected to the priority microphones near the altar, including the altar mic, the reading table, and the pulpit mic, shared between the two congregations.

"The Shure mixer is a crucial component that automates microphone management, quickly and seamlessly switching between the priority microphones based on speech detection, ensuring there are no delays in the audio," explains Jacob.

The common Shure mixer is connected to two 24-channel Soundcraft Ui24R mixers, one on each side for the Tamil and the Malayalam congregations. Jacob adds that these two Soundcraft digital mixers remain independent, allowing each congregation to fully control its mixing requirements

without interfering with the other. "The congregations hold special programs that often require multiple inputs, instruments, microphones, and choirs, and the respective Soundcraft mixers on either side coordinate the audio for each side depending on the service happening at the time."

On rare occasions, when the Church has a combined service, Jacob says that both the Soundcraft mixers are connected simultaneously, with one configured as the 'master' and the other as the 'slave.' "This allows the system to retrieve channels from the second mixer and bring them onto the main system, simultaneously enabling the use of microphones and keyboards from both sides during one single service. This is a unique solution, which I believe hasn't been done before," he notes.

Jacob explains that the default configuration is set up for the Malayalam congregation service

a cordless microphone manually, turning it on during the procession and switching it off once he reaches the altar. This cordless microphone is the only device the priest operates; all other microphones are muted and unmuted automatically. After the procession, the main altar microphone is automatically unmuted, controlled by the Shure SCM 410 Mixer, as soon as the priest starts worship at the altar table. When the presenter speaks from the reading table, the other two microphones are muted while the designated microphone activates according to specific settings. This process is fully automated, so the transitions are seamless without any delays."

Automated transitions

Rontek Systems' manufacturing acumen enabled



on the left side, where most of the equipment is located. Both systems connect to a common public address (PA) system and loudspeakers through a shared amplifier and DSP loudspeaker management system. "I used the dbx DriveRack 360 as a loudspeaker management system for loudspeaker time alignment and hall correction using automatic parametric equalization."

Jacob explains a typical church service: "It usually starts with a procession in which the choir and priests carry the cross. The priest operates

them to innovate and create custom solutions tailored to the unique needs of this project. One is the choir microphone automation, explains Jacob. "When the organist plays, the audio signal from the organ triggers the automatic unmuting of six choir microphones. Additionally, a pilot microphone is positioned in the choir's front row; when the choir sings unaccompanied, the signal received by the pilot microphone mutes the six choir microphones three seconds after the choir stops singing."



Powering harmony

The foundation of this system is the Rontek AViRON-Pro, a smart power management solution customized to meet the project's unique requirements. "This custom power management system solution plays a crucial role in the sequential startup and shutdown of the equipment, starting with the Digital Signal Processing (DSP) and then the mixer, followed by the amplifiers. It seamlessly integrates with the other custom-built components, such as the microphone muting and changeover boxes, to provide a comprehensive and automated solution for the Church's sound system," highlights Jacob.

Jacob explains how a key fob can turn on and shut down the power management system remotely from within a 10-foot distance. "When the remote key is pressed to start the system, it automatically powers the connected devices in a specific sequence. First, the DSP is powered on, followed by the mixer, and finally, the power amplifiers. This sequential power-up ensures that the critical components are ready before the rest of the system is activated. The shutdown process occurs in reverse order."

The changeover between the Malayalam and Tamil services is also automated, with the swap boxes reconfiguring the connections using a 12-volt trigger signal. "When the Tamil service is about to start, a 12-volt trigger voltage is sent from the power management system on the Tamil side when that system is turned on using a different

remote key. When the main system is shut down and on standby, the 12-volt trigger starts and configures the system per the Tamil congregation settings." This changeover process is instant since the DSP and critical components stay powered on, allowing the swap boxes to manage around eight connections, including the automatic mixer and subgroup Aux outputs. "We also designed a custom direct injection (DI) box and stage box solutions for the project," highlights Jacob.

Rising to the challenge

Guided by his experience working on previous sound installations at the Church since 2006, Jacob collaborated closely with the Church's joint committee to explore viable solutions for the project. Being a heritage site, the team faced limitations on the acoustic treatments they could implement. Additionally, ensuring a smooth and automated transition between the two congregation services without disruptions or the need for manual intervention was a complex challenge. "To address this, we implemented tailored solutions, including an automatic mixer, microphone muting and changeover boxes, and a power management system. These innovations allowed both congregations to share common resources while still meeting their individual needs, all within the constraints of the heritage building."

Jacob points out that user dependency is a major challenge in church sound systems, as untrained users often operate the mixer. To address this,

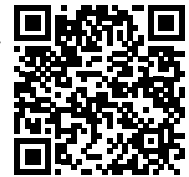
the system was designed to reduce reliance on users and minimize errors through automated features like automatic microphone gating and power sequencing. "Each congregation's settings are configured in conjunction with the automatic swapping units, and the selected configurations are indicated by two different colored LEDs on the system," he adds.

Enriching worship

Dr. Immanuel Selvaraj, a member of the Church joint committee and part of the East Parade Tamil congregation, expresses his satisfaction with the results. "The high roof and structure impact the acoustics, and after many iterations, we finally developed a functional and efficient audio system that met the needs of our two congregations. We also needed a system that catered to various age groups, including senior citizens. Rontek Systems ensured that the setup and requirements for each group were distinct, and we are happy with the results. We also have a service contract with the team to ensure ongoing support," he says.

The enhanced sound system at East Parade Church has not only enriched the worship experience but also continues to honor the rich legacy of unity and shared faith that has thrived in the sacred space of the East Parade Church over generations.

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Elevating Worship with Stunning Visual Experiences

LED Displays Enhance Connection and Community at Dubai Church



The St. Francis of Assisi Catholic Church in Jebel Ali, one of the two Catholic churches in Dubai, UAE, is an impressive architectural landmark. Established in 2021, it attracts a diverse congregation from various cultures and nationalities worldwide. To enhance the spiritual experience for its growing community, the Church's management team entrusted Almoe Productions (Almoe AV Systems LLC) with upgrading its aging projector system to a modern LED screen solution.

Rhea Javier Tapiador, project sales manager at Almoe Productions, explains, "One of the unique aspects of St. Francis of Assisi Church is the diverse community it serves. There are multiple Masses in different languages, including English, Malayalam, French, Arabic, Spanish, Tagalog, Malakanra, Sinhalese, Italian, Ukrainian and Tamil. So, this project required a deep understanding of the space and the specific needs of the worship spaces. While others also bid for this project, we were chosen, perhaps because of our existing working relationship with the Church in various capacities like Almoe Rentals and Almoe Production."

Elevating the worship experience

A spacious and serene sanctuary for worshippers, the St. Francis of Assisi Catholic Church accommodates up to 2,000 people indoors and 600 in the outdoor arena. Rhea explains how the previous AV setup with multiple projectors often left attendees at the back complaining about visibility. The Church Committee also shared feedback about needing a clearer and more vibrant display system to present a wide range of content, including scripture verses, sermon notes, dynamic video feeds, and song lyrics. Initially, the plan was to replace only the projectors. However, Rhea and her team encouraged switching to optimal color-quality LED display screens, knowing that this change would significantly enhance the worship experience. "Unlike projectors, which have certain limitations, LED screens offer superior brightness and visibility," she explains.

"The main aspect we considered was the distance, which is why we proposed Specktron visual solutions, highlighting factors such as resolution, energy

efficiency, and the ability to create an impact in diverse settings," says Rhea. Another important factor was an in-house service division and dedicated support for service issues. "While other brands usually offer a three-year warranty, we went a step further by offering a five-year warranty for our LED displays," she adds. The client's end goal was to elevate the worship experience by creating a more spiritually enriching atmosphere to accommodate their growing congregation, and this is precisely what Rhea and her technical crew delivered in close collaboration with the Church Committee.

Seamless integration

Seven Specktron LED display screens of different sizes have been seamlessly integrated into the existing AV system. Rhea explains that the dimensions of the screens were based on the viewing distance. "We also took the church's interior design into account to ensure that every worshiper has a clear line of sight," she adds.

Rhea describes the placement of the screens. "Indoors, we have five Specktron P2.5 LED display



screens to ensure optimal coverage throughout the sanctuary. Two screens, each measuring 2.5 by 1.4 meters, are installed in the Parish Hall and one above the Our Lady of Perpetual Help image. We also have two larger screens, measuring 3.2 by 1.9 meters: one is positioned next to the Our Lady of Perpetual Help image, and the other is mounted at the front of the church to accommodate larger audiences.”

Two Spektron P4 high-brightness, weatherproof LED display screens are installed on either side of the outdoor arena. “One large unit, measuring 4.8 by 2.8 meters, faces the large hallway, serving about 600 worshippers. The other smaller screen, measuring 3.2 by 2 meters, faces the front of the church. These outdoor screens provide clear visibility even in bright sunlight,” she says.

“We didn’t stop at the technology,” she adds, highlighting that the team offered comprehensive training to ensure ease of operation. “The screen frame colors are also customized: white for the indoor and black for the outdoor screens to match the interiors and enhance visibility for attendees. Overall, these screens play a huge role in amplifying the emotional and visual impact of spiritual teachings and events, ultimately creating a more engaging experience for attendees,” she notes.

system manages the content feed for the screens.

Bringing communities closer

The Divine Connection App, an innovative digital solution developed by Almoe Productions, is the icing on the cake. Rhea elaborates: “We introduced the Divine Connection app to enhance church engagement and foster community connection. The app is a church management and engagement platform that helps religious communities strengthen ties with parishioners, streamline operations, and improve communication. It is customizable for other churches as well.”

Rhea explains that instead of worshippers taking pictures after Mass, they can instantly scan a QR code displayed on the screen to access prayers and shared images. “This seamless integration boosts engagement and modernizes how the congregation interacts with worship materials. It also has many other features like Mass schedules, live streaming, online donations, prayer requests, and event management, which help worshippers stay connected and participate in church life, no matter where they are,” she adds.

spot in the sanctuary,” she explains. Additionally, seamless integration with the Church’s AV infrastructure was essential to support both live and remote video feeds and media playback, all while remaining user-friendly for the volunteer AV team. Despite these challenges, Rhea and her technical crew delivered a transformative visual experience.

A note of gratitude

On behalf of the entire parish community, Fr. Antony P.A. OFM Cap., the parish priest of St. Francis of Assisi Catholic Church, expresses his heartfelt gratitude for the team’s contribution to creating a more engaging and spiritually enriching environment for parishioners. In his note of appreciation, he states: “Your partnership with us not only reflects your commitment to our parish but also your dedication to enhancing our worship experience through top-notch technology. Your ongoing support has significantly improved our ability to serve our community and provide them with an inspiring place of worship. We are truly grateful for the collaboration and the exceptional service that the Almoe Group continues to provide.”

Enhancing the worship experience

Sharing her final thoughts on the project, Rhea says: “The enhanced visuals have improved engagement, and the outdoor screens have expanded the Church’s reach, accommodating overflow crowds during major events,” adding how his project is a prime example of modern AV technologies creating more inclusive and immersive environments.

She concludes by highlighting the transformative impact of technology in modern houses of worship. “The right AV technologies can truly transform the worship experience. For instance, enhancing the visual experience gives worshippers a clear view of the sanctuary where the clergyman delivers the sermon, while improved audio helps make the sermon clearer and more memorable. Lighting is also vital in areas like the altar, the choir, and the grotto. These factors create a more engaging atmosphere, especially for live streaming.” She adds that live streaming is gaining traction in churches. “Many congregations use platforms like Facebook and YouTube to reach remote worshippers beyond the walls of the church. Moreover, recording and media integration are core to this experience today.”



NovaStar controllers are integrated with the main Extron control system, enabling smooth transitions between both systems. “The LED displays are connected to the existing Extron DTP CrossPoint 108 4K matrix switcher. For the indoor displays, we used the NovaStar MCTRL600 and TB60 controllers and for the outdoor displays, we installed the NovaStar TB60,” she elaborates, adding that the existing content management

Battling the elements

But were there challenges along the way? Rhea explains that one significant issue was ensuring the outdoor screens could function effectively under direct sunlight while the stands needed to withstand extreme temperatures. “For the indoor screens, it was crucial to have wide viewing angles so that all attendees could see from any

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Beam Steering Technology Revolutionizing Audio Quality in Traditional Churches

Traditional churches are architectural marvels that often present unique acoustic challenges. High vaulted ceilings, expansive spaces, and reflective surfaces like stone and stained glass, while visually stunning, can lead to sound dispersion, echoes, and poor speech intelligibility. As congregations increasingly rely on clear audio for sermons, music, and announcements, the demand for innovative sound solutions grows. Beam steering technology is emerging as a transformative tool in addressing these challenges, offering precise audio delivery while respecting the aesthetic and functional integrity of these sacred spaces.

Understanding Beam Steering Technology

Beam steering is a cutting-edge audio technology that uses digital signal processing (DSP) to control

the direction of sound waves emitted by an array of speakers. Unlike traditional loudspeakers that disperse sound uniformly, beam steering systems focus sound into targeted beams, directing audio precisely where it's needed and minimizing unwanted reflections.

This is achieved through the manipulation of phase and amplitude across multiple drivers in an array. By delaying and shaping the sound waves emitted by each driver, the system creates constructive interference in the desired direction and destructive interference elsewhere. The result is a highly controlled sound field that can be dynamically adjusted to suit different spaces and applications.

Acoustic Challenges in Churches

Traditional churches present unique and often

challenging acoustic environments due to their architectural features, which were primarily designed for grandeur and spirituality rather than modern acoustic needs. Below is a more detailed exploration of the main acoustic challenges in churches:

1. **Reverberation:** The long reverberation times in large churches can cause speech to become muddy and indistinct.
2. **Echoes:** Reflective surfaces such as stone walls and vaulted ceilings can create unwanted echoes.
3. **Uneven Coverage:** Achieving consistent sound levels across the congregation can be difficult due to the layout and size of the space.
4. **Aesthetic Constraints:** The installation of bulky audio equipment can detract from the historical and spiritual ambiance of these spaces.

1. Reverberation: The Prolonged Decay of Sound

One of the most significant acoustic challenges in churches is excessive reverberation, where sound persists long after its source has stopped. This is due to the following architectural features:

- **High Vaulted Ceilings:** These tall structures reflect sound waves repeatedly before they dissipate, prolonging the decay of sound.
- **Large Open Spaces:** The sheer volume of space in a church allows sound waves to travel farther and linger longer.
- **Reflective Materials:** Hard surfaces like stone, marble, glass, and wood reflect sound waves instead of absorbing them.

Impact on Audio Quality:

- Spoken words, such as sermons, lose clarity, making it difficult for congregants to understand the message.
- Music, while potentially enhanced by



Jeil Church, Seoul, Korea



reverberation, can lack definition and articulation, especially for fast or complex passages.

2. Echoes: Discrete Reflections of Sound

Echoes occur when sound waves reflect off distant surfaces and return to the listener with a noticeable delay. In churches:

- **Curved Surfaces:** Domes, arches, and apses often create focal points for sound reflections, amplifying certain frequencies in unintended areas.
- **Long Distances:** The distance between walls or from ceiling to floor allows sound waves to reflect back to listeners as distinct echoes.

Impact on Audio Quality:

- Echoes can overlap with the original sound, causing distortion.
- The delay can make it hard to follow a speaker or musician, especially for people seated far from the source.

3. Uneven Sound Coverage

The layout and design of churches can lead to uneven sound distribution, where some areas are too loud while others are too quiet. This is due to:

- **Pillars and Columns:** These structural elements block sound, creating “shadow zones” where audio quality is diminished.
- **Asymmetrical Seating Areas:** In many churches, the congregation may be spread across pews, balconies, or side chapels, making it challenging to deliver consistent sound to all areas.

Impact on Audio Quality:

- Congregants in some areas may struggle to hear clearly, leading to disengagement.
- A speaker or performer’s voice may seem faint in one part of the church and overwhelming in another.

4. Ambient Noise

Churches are often located in busy urban or sub-urban areas, making them susceptible to external noises, such as:

- Traffic sounds, sirens, or construction noise from outside.
- Internal sounds like HVAC systems, creaking wooden pews, or the movement of the congregation.



Mosteiro Monterol, Braga, Portugal

Impact on Audio Quality:

- These noises can mask or interfere with the intended sound, reducing intelligibility and focus.

5. Feedback and Resonance Issues

The combination of sensitive microphones, amplifiers, and reflective surfaces can lead to:

- **Acoustic Feedback:** The characteristic high-pitched squeal that occurs when sound loops between a microphone and a speaker.
- **Resonant Frequencies:** Certain frequencies may be amplified excessively by the space’s natural acoustics, creating an imbalanced sound.

Impact on Audio Quality:

- Feedback disrupts the service and distracts the congregation.
- Resonant frequencies can make certain notes or words overpowering, distorting the overall audio balance.

6. Acoustic Separation in Multi-Use Spaces

Many churches serve dual purposes, hosting worship services as well as concerts, weddings, and community events. This dual use creates additional challenges:

- Different events require different acoustic

profiles—choir performances might benefit from reverberation, while spoken word requires minimal echo.

- Fixed sound systems are often inadequate for meeting these varying needs.

Impact on Audio Quality:

- A single acoustic setup may not be suitable for all activities, leading to compromises in sound quality.

7. Aesthetic Constraints

While not a direct acoustic issue, the need to preserve the aesthetic and historical integrity of the church limits the installation of sound treatments like absorptive panels, baffles, or visible speakers. This restricts the ability to control problematic acoustics effectively.

Why Beam Steering is Ideal for Addressing These Challenges

Beam steering systems directly tackle these issues without requiring major architectural modifications:

- They reduce reverberation and echoes by directing sound precisely to the congregation, avoiding reflective surfaces.



Trinity Church, Regensburg, Germany

- They ensure even sound coverage across all seating areas.
- Their discreet design blends seamlessly into the church's interior, maintaining its visual integrity.

By overcoming these challenges, beam steering technology ensures that every sermon, hymn, and prayer is delivered with clarity and reverence, enhancing the spiritual experience for all attendees.

How Beam Steering Improves Audio in Churches

1. Precise Sound Coverage

Beam steering technology allows for tailored audio coverage, ensuring that sound reaches every corner of the congregation while avoiding reflective surfaces. This is particularly beneficial in churches with complex layouts, as the sound can be directed to specific seating areas without amplifying echoes.

2. Enhanced Speech Intelligibility

By focusing sound beams directly at the audience, beam steering reduces reverberation and background noise, making sermons and readings

clearer and more impactful. This is essential for maintaining the engagement of congregants.

3. Minimal Visual Impact

Many beam steering systems are designed to be slim and discreet, blending seamlessly into the architectural features of traditional churches. Some systems can even be color-matched or concealed behind decorative panels, preserving the aesthetic integrity of the space.

4. Adaptability

Modern beam steering systems can be programmed for different acoustic scenarios, such as sermons, choir performances, or musical events. This flexibility ensures optimal audio quality for a variety of church activities.

5. Reduced Need for Physical Modifications

Unlike conventional sound systems that may require extensive structural alterations, beam steering systems can often be installed with minimal changes to the building. This is particularly important in historical churches where preservation is a priority.

The Technology Behind Beam Steering Systems

At the heart of beam steering systems is advanced DSP software that controls the behavior of

multiple speaker elements in an array. Key components include:

- **Speaker Array:** Most beam steered speakers are column arrays which have an array of closely spaced high frequency and mid frequency speakers, each powered by their own discrete amplifier. These amplifiers are built into the array cabinets and utilise highly efficient Class D designs. Most array cabinets comprise of anywhere from 16 to 32 discrete amplifiers powering one or many speakers.
- **DSP Algorithms:** A digital signal processor (DSP) is at the heart of the loudspeaker array. Also placed within the array cabinet, this DSP is an advanced piece of hardware with the capability of running multiple channels of processing. This DSP is programmed and controlled by software, running on a computer, that helps in visualising the resultant final beam. This software also helps with adjusting frequency, phase and delays, which digitally "steer" the resulting beam to audience areas and avoid hard surfaces, thereby reducing reflections.
- **Control Interface:** Usually, the same software that is used to setup the system is used to also control and fine tune the settings in real time. The audio engineer can change the settings to suit different configurations and modes such as speech, music or both.
- **Dynamic Steering:** Some systems offer real-time beam adjustment, enabling operators to modify sound coverage during live events.

Conclusion

Beam steering technology represents a significant advancement in addressing the acoustic challenges of traditional churches. By offering precise sound control, improved speech clarity, and minimal visual impact, it allows churches to enhance the worship experience without compromising their historical and aesthetic value. As this technology becomes more accessible, it is poised to become a cornerstone of modern audio solutions in sacred spaces.

For those involved in the design and installation of audio systems, understanding and leveraging beam steering can be a game-changer, ensuring that every word and note resonates clearly with the congregation.

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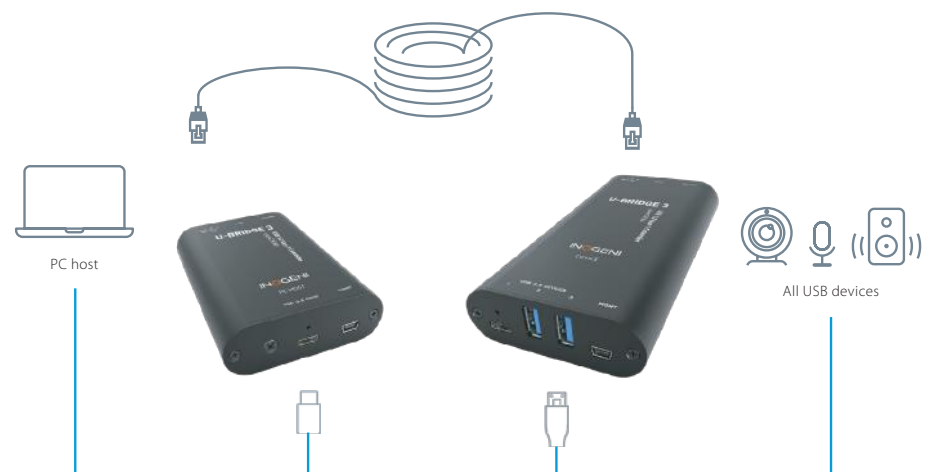
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Crafting Experiences Beyond Products By Bridging Innovation and Customer-Centric AV Solutions

Welcome to another exciting episode of our podcast series, where we delve into the remarkable journeys and inspiring stories of veterans who have significantly shaped the future of the AV industry. In this episode, we are honored to feature Mr. Manmohan Ganesh, the Founder and Managing Director of Pro FX Tech Limited. Manmohan is an experienced business leader within the consumer appliances, premium audio, and electronic manufacturing sectors. He

its connection to BPL, where he was a founding team member

PRO FX was founded to deliver exceptional AV experiences rather than just sell products. They initially launched the PRO FX's H-Series, an innovative with speaker range, but faced challenges in scaling manufacturing and accessing global markets. This led to a shift towards providing premium AV solutions with comprehensive cus-

Manmohan notes that the evolving Indian AV market presents significant potential, fuelled by a rising affluent class and growing demand for premium solutions. However, a key challenge is educating consumers about high-fidelity systems versus mass-market electronics. PRO FX addresses this with customer education and extensive reseller training, utilizing a hybrid model with experience centers and over 700 resellers to reach tier-2 and tier-3 cities where demand is increasing.

Manmohan identifies key challenges in the AV industry related to ethics and collaboration. Price undercutting and low-quality solutions damage the industry's reputation. To overcome these issues, the industry must prioritize ethical practices, professionalism, and high-quality solutions to capitalize on opportunities in sectors like offices and retail.

Looking ahead, PRO FX envisions a bright future in the AV sector, with plans to enhance its offerings to meet the increasing demand for high-quality experiences. However, challenges such as talent development, consumer awareness, and the adoption of global best practices must be addressed for India to emerge as a significant player in the global AV market. According to Manmohan, PRO FX is committed to improving the AV landscape in India through technology, craftsmanship, and a customer-focused approach. As Manmohan puts it, "We've always chosen the harder path, but it's one that leads to lasting impact and enduring success."

In this inspiring podcast, Manmohan's journey and insights inspire us on their path to success, paved by a continuous focus on innovation, education, and customer satisfaction. That's how PRO FX truly sets the benchmarks in the industry.

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has witnessed the industry's evolution, faced numerous challenges, and possessed a clear vision for its future.

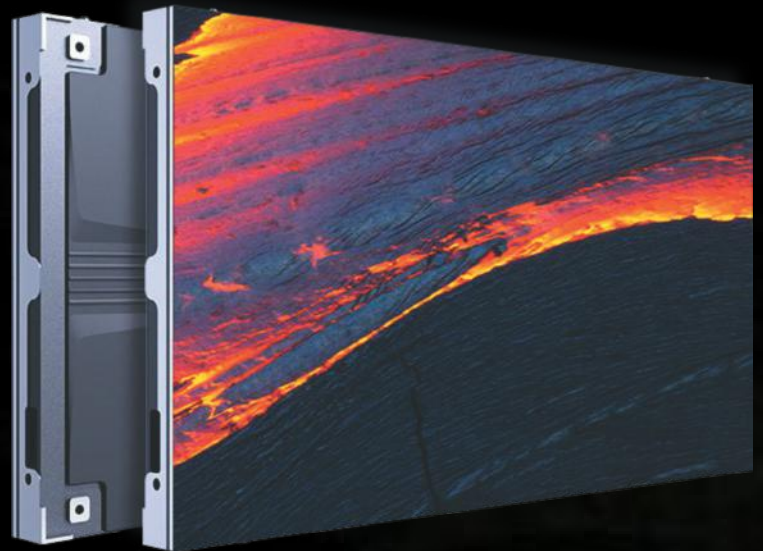
Manmohan, the former COO of BPL Limited, reflects on the company's legacy as India's largest manufacturer of consumer electronics, recognized for its early commitment to "Make in India" manufacturing and quality products. He emphasizes how BPL instilled a commitment to quality and excellence, which inspired the creation of PRO FX. PRO FX aims to deliver unforgettable experiences rather than just products, focusing on premium audio-visual solutions and exceptional service. Manmohan discusses the origins of PRO FX and

customer support. Manmohan highlights that PRO FX stands out in the AV industry for its strong commitment to customer service. Their stores serve as immersive experience centers, and they offer a 365-day support system to ensure assistance is available even during late-night events.

PRO FX's transition from residential to professional AV solutions was driven by satisfied customers seeking the same quality in corporate environments. Executives and CEOs who experienced PRO FX's services at home began requesting them for offices, restaurants, and retail spaces, leading to projects like experience centers, pubs, and luxury homes.

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SCAN ME!



Effortless Room Management

Humly Room Display Leads the Way



In today's dynamic work environments, efficient management of meeting spaces and work areas has become essential to support collaboration, streamline operations, and boost productivity. The challenge for many organizations is to find solutions that balance the need for flexible workspace arrangements with the practicality of maintaining order and optimizing real estate usage.

To address this, innovative solutions are emerging, offering advanced tools for seamless meeting room bookings, desk management, and space optimization. Among these, the Humly Room Display stands out as a leading option. This cutting-edge product combines advanced technology with an intuitive design to create a streamlined workspace experience.

operation. By leveraging such innovative tools, organizations can effectively adapt to dynamic workplace demands while maximizing productivity and enhancing employee satisfaction.

Introducing Humly Room Display

In this edition, AV Today presents an exclusive, comprehensive product review of Humly Room Display, authored by Mr. Raja S. Prabhu, Director of Operations at ihD Ltd and Lead Consultant for AV, Acoustics, ELV, Security, and IT. In his review, Raja explores the system's hardware specifications, standout features, and practical use cases, emphasizing how this innovative solution can revolutionize the way organizations manage their meeting rooms.

visual confirmation of space availability, reducing the need for manual checks and streamlining the overall booking process.

The system is equipped with an 8-inch captive touch display that is both highly responsive and designed to be integrated into a variety of office environments. The display itself can be powered via Power over Ethernet (PoE), simplifying the installation process by eliminating the need for separate power sources. This compact yet powerful design allows for easy integration into any office space, from small setups to large-scale corporate environments.

Key Functionalities of the System

Humly Room Display provides a range of features designed to make space management simple and efficient. The system can be integrated with popular platforms such as Microsoft, Google, Appspace, and Nexodus, ensuring that it can seamlessly adapt to existing corporate IT infrastructures. Moreover, it supports direct third-party integration via API, making it highly customizable for diverse workspace needs.

One of the key functionalities of the Humly system is its local and web-based booking options. Users can make reservations directly through the panel or via a user-friendly app, reducing the time and complexity of space

Physical Equipment Design and Aesthetics

The Humly Room Display boasts a visually appealing design that blends seamlessly into any modern office setting. Its aesthetic appeal is complemented by a thoughtfully crafted, user-centric interface that makes space management intuitive and accessible. One of the most striking features of the device is its multicolored LED lighting, which indicates room availability with ease, even from a distance. This allows for quick,



Raja S. Prabhu, Director of Operations at ihD Ltd

Part of the broader Humly Workplace Solutions, the Humly Room Display is specifically designed for room scheduling and booking. It features RFID compatibility, a sleek and modern design, and seamless integration with calendar systems, ensuring effortless



management. The system automatically updates to the cloud, providing real-time data on room availability and usage. This feature is particularly useful for organizations that require constant monitoring and management of their meeting rooms.

Streamlined Local and App-based Booking Processes

The local booking feature is simple to use and ensures that space reservation is straightforward, minimizing administrative tasks. It provides an intuitive interface for users to choose available rooms, select desired time slots, and confirm reservations effortlessly. Additionally, notification updates are sent to the administrative team in real-time, which helps to streamline the overall space management process.

For a more extensive and flexible option, the app-based booking system offers even more convenience. It acts as a comprehensive directory within the office, allowing users to find and reserve meeting spaces with just a few taps. This eliminates the need for separate booking software and reduces the workload of facility management teams by automating the process. App-based features can also track room usage, offering deep insights into space utilization, which in turn helps to improve real estate management over time.

Flexibility Through Multiple Booking Options

A standout feature of Humly Room Display is its multiple booking options. Users can reserve spaces directly through the panel or via the app, offering flexibility and ensuring seamless access for all team members. This versatility simplifies space management and maximizes space usage. Additionally, detailed analytics provide valuable utility feedback, helping the administrative team assess room usage patterns. This data-driven approach enables better resource allocation, reducing costs associated with underutilized spaces and allowing organizations to make informed decisions that optimize real estate, leading to cost savings and improved productivity.

Versatile Installation Options

The Humly panel can be installed using

various mounting options, making it suitable for both glass and hard surfaces. Its design provides ease of installation without compromising on visual appeal or functionality. With multiple cable exit options, the system ensures flexibility during the setup process, supporting a clean, organized appearance once installed. This approach simplifies integration into any space, helping organizations maintain a polished look while enjoying the benefits of advanced workplace management technology.

Additional Features Enhancing Workspace Functionality

Humly Room Display offers features beyond space booking. The panel tracks room usage statistics, providing insights into space utilization and areas for improvement. It also serves as a wayfinding tool, displaying room locations and availability in real-time. Multiple users can schedule events simultaneously, promoting collaboration. Additionally, the panel functions as a multifunctional display, broadcasting static images and serving as a signage tool to communicate important information, reducing the need for separate signage displays.

Customizable API-Level Integration

API-level integration is one of the most significant advantages of the Humly Room Display. With customizable options, organizations can tailor the panel's functionality to meet specific needs, such as sending notifications to services like pantry or logistics management. This level

of customization enhances user experience by seamlessly connecting various workplace systems, leading to more efficient workflows and improving overall service quality. As a result, employees enjoy a more streamlined environment where tasks are automated, and the focus remains on productive activities.

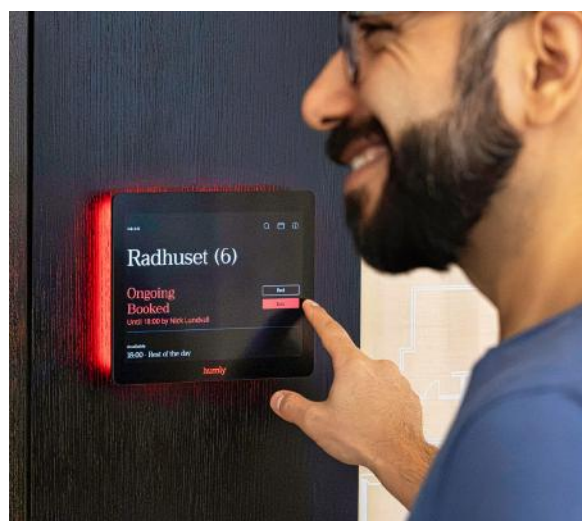
Web-Based Control and Management

The web-based control panel is a key feature of the Humly Room Display, enabling the administration team to centrally manage room displays. Its intuitive interface simplifies tasks like updating availability, managing resources, and tracking system performance. This integrated platform efficiently handles large setups, reducing manual oversight and saving time for administrators. In larger office environments, it streamlines room allocation, real-time updates, and general management, resulting in time savings and fewer operational issues.

Conclusion

Humly Room Display is a thoughtfully designed and highly functional solution that enables organizations to manage their room bookings more efficiently. It combines cutting-edge technology with an intuitive user interface to provide a streamlined experience for reserving meeting rooms, tracking space usage, and improving overall real estate management. By offering multiple booking options, API-level integration, and advanced management features, Humly reduces complexity and enhances the quality of the workspace, leading to greater productivity and user satisfaction.

Ultimately, the value of Humly lies in its ability to simplify complex space management tasks while adapting seamlessly to the changing dynamics of the modern workplace. Whether for small startups or large enterprises, Humly offers a versatile, scalable solution that is poised to meet the evolving demands of the workspace, providing an ideal balance of function, simplicity, and aesthetic appeal. As organizations continue to seek ways to optimize office environments, Humly Room Display stands out as a leading choice for those looking to enhance their space management processes.





Mixed Reality and Spatial Audio

A Groundbreaking Trend in Convergence

In the rapidly evolving Pro-AV industry, two groundbreaking technologies Mixed Reality (MR) and Spatial Audio (SA) are converging to redefine immersive, interactive experiences. By enhancing how users engage with digital environments, these technologies enable more natural and dynamic interactions, combining realistic visuals with immersive audio. This fusion is opening up new possibilities across multiple sectors, including live events, corporate training, retail, and entertainment.

This article delves into the advancements of Mixed Reality and Spatial Audio, exploring their combined potential. We will be diving into the technical aspects, highlight the latest products on the horizon, and showcase a few case studies that demonstrate the power of this transformative technology fusion.

Mixed Reality, The Fusion of Virtual and Augmented Reality

Mixed Reality (MR) seamlessly combines the physical and digital realms, enabling immersive 3D experiences that feel intuitive and interactive. Unlike Virtual Reality (VR), which immerses users in a fully virtual environment, or Augmented Reality (AR), which overlays digital elements on the real world, MR integrates virtual objects into real-world surroundings. This creates dynamic, engaging user interactions that bridge both realms effectively.

The term "Mixed Reality" was coined in 1994 by Paul Milgram and Fumio Kishino in their paper "A Taxonomy of Mixed Reality Visual Displays." Their work introduced the virtuality continuum, which spans entirely real to fully virtual environments. Modern MR extends beyond visuals to incorporate spatial mapping, allowing virtual objects to interact realistically with real-world spaces. Advanced input systems such as hand-tracking, eye-tracking, and voice recognition further enhance user interactions. Precise location and positioning technologies enable synchronized physical and digital spaces, facilitating shared, collaborative 3D environments.

The applications of MR are revolutionizing industries. In live events, MR combines physical staging with virtual effects, creating captivating performances. For example, synchronized digital effects can elevate concerts with virtual performers. In corporate training, MR provides immersive, hands-on scenarios, helping employees develop skills in a safe yet engaging environment, boosting learning outcomes.

More than a technological blend, Mixed Reality is a transformative tool reshaping how we engage with physical and digital worlds, driving innovation in entertainment, education, and beyond, and unlocking endless possibilities for the future.

Spatial Audio, The Future of Virtual Surround Sound

Spatial Audio is revolutionizing how we perceive sound by creating an immersive 360-degree auditory experience. Unlike traditional surround sound, which confines audio to a flat horizontal plane, Spatial Audio positions sound all around the listener, even above and below replicating how sound behaves in real life.

At the core of this technology is the Human-Related Transfer Function (HRTF), a sophisticated algorithm that simulates how humans naturally perceive sound direction and distance. HRTF factors in the way sound waves interact with the unique shape of the ears, head, and torso, allowing the brain to accurately pinpoint the origin of a sound. This precise replication results in a highly realistic and lifelike audio experience.

The applications of Spatial Audio are vast and diverse. In entertainment, it enhances music, movies, and gaming by immersing audiences in dynamic soundscapes that feel authentic and engaging. For professional environments, it's transforming fields like virtual meetings, education, and simulation training by delivering clear, directional audio cues.

Spatial Audio doesn't just enhance sound quality and it redefines it by bridging the gap between physical and digital auditory experiences. As industries continue to adopt this groundbreaking

technology, it's poised to become the standard for creating natural, immersive sound environments across both consumer and professional domains.

The Convergence of Mixed Reality and Spatial Audio

The integration of Mixed Reality (MR) and Spatial Audio is revolutionizing the Pro-AV industry, offering fully immersive environments where users interact with both virtual objects and lifelike sound. This convergence is transforming how businesses and creators deliver content, providing new ways for audience engagement in sectors like live events, corporate training, retail, and entertainment.

In Corporate Training and Collaboration, MR combined with Spatial Audio can simulate real-world scenarios for training and meetings. Trainees can experience sounds from specific directions, adding realism to exercises like equipment handling, emergency response, and customer interactions.

In Live Events and Concerts, MR and Spatial Audio create immersive concert experiences where attendees, whether in-person or virtual, can hear sounds from all around. Artists perform in hybrid virtual-physical spaces, while sound engineers manipulate audio to align with performers and visuals.

In Retail Showrooms, MR enables customers to interact with virtual products, while Spatial Audio simulates how those products sound in different environments. For instance, customers could visualize a home theatre system in their living room, with the audio experience replicated to match the setting.

Mixed Reality and Spatial Audio in Projection Mapping

Mixed Reality Projection Mapping is transforming how industries deliver visual experiences, offering a more inclusive and engaging alternative to traditional VR and AR technologies. Unlike headsets,



which often limit interaction to individual users, require adjustments, and can cause discomfort or health concerns, projection mapping provides a shared experience. Multiple users can engage simultaneously without the need for AR glasses or VR headsets, fostering communal interaction and eliminating the sense of isolation often associated with wearable devices.

A remarkable example of this technology in action is Disney's Makeup Lamps, which use projection mapping to alter actors' appearances live on stage, such as adding wrinkles or changing colors, all in real-time and without physical makeup. Expanding on these possibilities, creative studio THÉORIZ has developed interactive mixed reality environments where projections respond dynamically to participants' movements across walls, ceilings, and floors. This creates a fully immersive experience without requiring headsets, offering a balance of technological innovation and user comfort.

By combining Mixed Reality Projection Mapping with Spatial Audio, these experiences are elevated further, delivering synchronized, multi-sensory environments that captivate audiences. This technology is not only making interactive visuals more accessible but is also redefining communal engagement, creating shared moments that are as immersive as they are inclusive.

Latest Mixed Reality and Spatial Audio Innovations

Several cutting-edge products are harnessing the combined power of Mixed Reality (MR) and Spatial Audio, pushing the boundaries of immersive experiences in the Pro-AV space.

Magic Leap 2 integrates high-quality Spatial Audio with advanced MR visuals, offering immersive soundscapes that adapt to the user's movements and interactions with virtual elements. This makes it a perfect tool for industries like film, retail, and live event production. In virtual production, filmmakers can use Magic Leap 2 to pre-visualize scenes while hearing realistic sound effects that align with their actions within the virtual set.

Sennheiser AMBEO delivers 360-degree Spatial Audio, designed to integrate seamlessly with MR platforms for a truly immersive experience. Ideal for live event broadcasting and immersive media production, AMBEO allows content creators to offer realistic, location-based sound that enhances

the MR visuals. In live sports broadcasting, AMBEO's spatial audio transports viewers into the stadium, with crowd noise and commentary surrounding them.

Vizrt Viz Engine, a leading real-time graphics engine, also supports MR environments and integrates with Spatial Audio to create dynamic, immersive virtual set designs. This technology allows broadcasters to synchronize audio with virtual objects and environments in real time. Broadcasters using Viz engine can create virtual studios where both visuals and sounds evolve interactively, providing viewers with an enriched experience during live broadcasts, such as news and sports events.

Use Cases and Installations Across Various Business Sectors

In Virtual Concerts, the integration of MR and Spatial Audio created a unique experience where fans, both in-person and virtually, could interact with artists through virtual avatars. Using technology like Sennheiser AMBEO, the concert delivered a lifelike atmosphere, with Spatial Audio adjusting to the listener's position within the venue. This enabled fans to hear the music from different angles, providing an immersive and interactive concert experience.

In the electronics retail sector, a hybrid MR and Spatial Audio setup is transforming customer engagement in flagship showrooms. With Magic Leap 2 headsets, customers can visualize virtual home theatre systems in their own home environments. Spatial Audio simulates how the systems would sound, adapting based on the customer's movements or proximity to virtual sound sources. This creates a deeper connection with the product, while allowing retailers to reduce physical stock in-store.

The convergence of Mixed Reality (MR) and Spatial Audio is revolutionizing movie production, unlocking new avenues for creativity, efficiency, and audience engagement. In pre-production, MR enables filmmakers to explore virtual sets, reducing costs and refining their vision before physical construction. Directors can immerse themselves in 3D environments, experimenting with camera angles, lighting, and character movements with unparalleled precision. Spatial Audio complements this by synchronizing sound within these virtual spaces, providing a seamless integration

of visuals and audio for comprehensive planning.

Beyond production, these technologies are transforming how audiences experience movies through interactive storytelling and immersive engagement. MR allows viewers to explore narratives from multiple perspectives and interact dynamically with virtual characters. Spatial Audio enhances these interactions by aligning sound to the viewer's position, amplifying realism. At home, MR headsets and Spatial Audio systems immerse audiences in films, with sound and visuals dynamically responding to their movements, creating a deeply engaging experience.

In virtual production, MR and Spatial Audio blend physical and digital elements in real-time. Massive LED screens project digital environments, enabling actors to perform within realistic virtual worlds. Spatial Audio ensures soundscapes align with the environment, immersing both actors and crew in the scene. Additionally, MR tools help visualize VFX elements, such as digital characters or special effects, during live-action shoots. Spatial Audio complements these visuals by synchronizing sounds like footsteps or dialogue with their precise positions, enhancing realism and production efficiency.

Conclusion

The convergence of Mixed Reality (MR) and Spatial Audio is revolutionizing the Pro-AV industry, creating immersive, interactive environments that engage both visual and auditory senses. From virtual events to corporate training and retail showrooms, the fusion of these technologies is driving the next wave of innovation in how we experience and interact with both digital and physical spaces. As MR headsets and Spatial Audio solutions continue to advance, their applications in Pro-AV will expand, offering deeper and more immersive experiences for both businesses and audiences.

In the future of filmmaking, the integration of MR and Spatial Audio represents a significant leap forward for the film industry, offering more creative freedom, cost-effective production, and immersive audience experiences. As these technologies evolve, they are likely to become central to how filmmakers craft stories, blending the physical and digital worlds to create groundbreaking cinematic experiences.



Illuminating Conversations

The Transformative Power of Stretch Fabric Lighting in Virtual Meetings

Virtual meetings have become a staple of professional communication, evolving rapidly in the post-pandemic world. While technology ensures connectivity, the environment from which participants interact plays an equally crucial role in delivering impactful meetings. A well-lit and aesthetically pleasing space fosters productivity and engagement, which is where **Stretch Fabric Lighting** emerges as a game-changer.

This article explores the concept of Stretch Fabric Lighting, its benefits in enhancing virtual meetings, and its applications in India's unique cultural and spatial context.

What is Stretch Fabric Lighting?

Stretch Fabric Lighting is an innovative architectural lighting solution combining stretchable fabric panels with integrated LED lighting systems. This versatile and customizable lighting method transforms spaces by offering soft, diffused, and shadow-free illumination.

Key Components:

- 1. Fabric Panels:** Made from durable, high-quality, fire-retardant materials, these are stretched taut over aluminum frames.
- 2. LED Light Sources:** Installed behind or around the fabric to ensure even, glare-free light diffusion.
- 3. Customizable Designs:** Available in various

shapes, colors, and patterns, allowing for creative integration into any space.

How Does Stretch Fabric Lighting Improve Virtual Meetings?

Additionally, these panels diffuse light evenly, preventing harsh spots or overexposed areas on camera. For example, in offices or home setups with natural light, the interplay of shadows during different times of the day can be distracting. Stretch Fabric Lighting mitigates this by providing consistent artificial lighting that complements nat-



1. Enhanced Visual Clarity

Lighting is a critical component of video conferencing, yet it's often overlooked. Poor lighting conditions can cause uneven exposure, pixelation, or dark shadows, which detract from the overall meeting experience. Stretch Fabric Lighting ensures consistent, diffused illumination that flatters the speaker's face and background, making participants appear more professional and approachable.

ural light, maintaining a steady and high-quality video output.

In the era of 4K and HD video conferencing tools, visual clarity significantly impacts audience engagement. Whether presenting to clients or collaborating with teams, Stretch Fabric Lighting ensures the speaker's expressions and gestures are clearly visible, improving non-verbal communication.



2. Professional Ambiance

A polished and well-lit environment influences how others perceive you in a virtual meeting. Stretch Fabric Lighting adds sophistication by transforming mundane spaces into aesthetically pleasing areas. The clean lines and modern appearance of the panels project a sense of professionalism, making participants appear more credible.

For example, many corporate leaders use virtual backgrounds, but these often lack authenticity. A physical setup enhanced by stretch fabric panels with integrated lighting eliminates the artificial feel, creating a natural yet professional ambiance. The lighting design can also be aligned with corporate branding—for instance, integrating color schemes or subtle logos within the panels—strengthening the organization’s identity during external-facing meetings.

3. Customizable Color Temperatures

Stretch Fabric Lighting is not a one-size-fits-all solution; it is customizable to meet various needs. LED systems integrated within the panels can be tuned to emit different color temperatures:

- Warm Light (2700–3000K): Ideal for informal or collaborative virtual meetings where warmth and relaxation are encouraged.

- Neutral Light (4000–4500K): Best suited for most professional meetings, striking a balance between warmth and focus.
- Cool Light (5000–6500K): Perfect for tasks requiring high attention to detail, such as design reviews or financial presentations.

The ability to adjust color temperature enables users to tailor their lighting to specific scenarios, enhancing their virtual presence and creating a more engaging environment. For instance, startups pitching to investors can create a neutral, focused lighting setup, while teams hosting creative brainstorming sessions might opt for a warmer, inviting light.

4. Reduced Eye Strain

Digital eye strain, often caused by prolonged screen exposure, is aggravated by poor ambient lighting. Inadequate or overly harsh lighting forces the eyes to work harder to focus, leading to fatigue, discomfort, and even headaches.

Stretch Fabric Lighting addresses this issue by providing soft, uniform illumination that reduces glare on screens and minimizes the contrast between the screen and surrounding areas. Unlike traditional overhead lights that can cast uneven brightness or cause reflections, these panels emit indirect light, ensuring

comfortable viewing during extended meetings.

In Indian homes, where natural lighting varies widely based on region and time of day, stretch fabric panels create a stable lighting environment that complements screen use, making them a valuable addition to work-from-home setups.

5. Acoustic Enhancement

Many virtual meetings suffer from poor audio quality due to echoing or ambient noise, especially in larger or sparsely furnished rooms. Stretch Fabric Lighting can double as an acoustic solution when paired with sound-absorbing fabrics. These specially designed panels reduce echo by absorbing sound waves, making voices clearer and reducing background noise.

This feature is particularly beneficial for spaces in Indian homes or offices that often have tiled floors and hard surfaces, which amplify sound reflections. By incorporating sound-absorbing fabric panels, users can create acoustically optimized spaces for clearer communication, without needing separate acoustic treatments.

Applications of Stretch Fabric Lighting in Indian Context

India presents a diverse range of architectural and



cultural spaces where Stretch Fabric Lighting can be seamlessly integrated. Its versatility makes it suitable for urban offices, educational institutions, co-working spaces, and even homes.

1. Corporate Offices:

In urban India, where virtual communication drives business operations, corporate offices can use Stretch Fabric Lighting to create professional meeting rooms. The panels can be customized with branding elements, such as logos or corporate color schemes, enhancing the brand's identity during client-facing virtual calls.

2. Educational Institutions:

As e-learning gains momentum, universities and schools require well-lit environments for online lectures and presentations. Stretch Fabric Lighting offers an optimal solution for auditoriums, seminar halls, and studios, where clear visibility and acoustic balance are critical.

3. Residential Spaces:

India's growing work-from-home culture demands

4. Hospitality and Event Spaces:

Hotels and banquet halls hosting virtual or hybrid events can leverage stretch fabric panels for dynamic, visually engaging backdrops. These panels also serve as customizable solutions for wedding planners, creating themes that adapt to online and offline interactions.

5. Retail and Commercial Spaces:

Retailers in India increasingly adopt virtual store tours. Stretch Fabric Lighting enhances product visibility, presenting items in their best light during virtual walkthroughs.

Why is Stretch Fabric Lighting Perfect for India?

India's spatial dynamics range from ultra-modern high-rises in metros to traditional, compact layouts in smaller towns. Stretch Fabric Lighting's adaptability caters to this diversity:

Space Efficiency: Stretch fabric panels can be installed in areas with limited space, offering a sleek, low-profile solution for lighting.

Cultural Versatility: The fabric panels can incorporate motifs, patterns, or colors reflecting India's rich artistic heritage, blending modern functionality with cultural aesthetics.

Key Considerations for Choosing Stretch Fabric Lighting

1. Fabric Quality:

Ensure the fabric is fire-retardant and capable of withstanding environmental factors like humidity and dust, common in many parts of India. The translucency of the fabric is critical in determining the transmission rate of light and the illumination quality.

2. Lighting Quality:

Opt for LEDs with high color rendering indexes (CRI) to replicate natural light, critical for video meetings. The LED lights have to be evenly placed behind the fabric for uniform illumination. The distance between the light source and the fabric must be between 30cm to 50cm for an optimum experience. Consider the ceiling height while choosing your led light source. The distance between the led modules must be equal to distance between the module and the stretched ceiling for a 120 degree led source. Led modules with high energy efficiency of around 100lm/w shall provide high luminous flux with low energy consumption.

3. Installation Expertise:

Partner with experienced installers who can customize the panels to fit diverse spatial and functional needs.

4. Maintenance:

Stretch Fabric Lighting requires minimal maintenance but periodic cleaning to prevent dust accumulation is recommended.

The Future of Stretch Fabric Lighting in India

As India continues to embrace hybrid work and virtual communication, Stretch Fabric Lighting is poised for widespread adoption. Its blend of functionality, aesthetics, and sustainability makes it an ideal choice for transforming Indian spaces into technology-friendly, visually appealing environments.



ergonomic and aesthetic home-office setups. Stretch Fabric Lighting enables individuals to transform small spaces into professional-looking environments for video calls, interviews, or webinars.

Energy Efficiency: With its reliance on LED technology, Stretch Fabric Lighting aligns with India's push toward sustainability and energy-saving practices.



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Pursuit of Global Environmental Sustainability

How the AV Industry Steps Up

Gro Harlem Brundtland, a Norwegian politician, widely known for her role as Chair of the World Commission on Environment and Development (WCED) once quoted “Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Sustainability begins with individual responsibility and a personal commitment to change. It must be ingrained within each of us, starting at the foundational level and nurtured from childhood. Embedding sustainability as a core value early in life ensures it becomes second nature, influencing decisions in personal, professional, and business contexts.

At its core, sustainability is about safeguarding the future by addressing the needs of the present ensuring personal well-being, healthy environments, and clean air. People are naturally more inclined to care for others and the planet when their immediate surroundings and personal lives are in balance. Solving today’s challenges is, therefore, the first step toward fostering a sustainable mindset that benefits both current and future generations. Only such minds, grounded in balance and responsibility, can truly comprehend and actively work toward innovative solutions for sustainability. As a first step, let us fix our personal challenges and cultivate balanced well-being, creating the foundation to think beyond ourselves and prioritize the needs of future generations.

UN 2030 Sustainable Development Goals

In September 2015, all 193 UN member nations adopted the 2030 Agenda for Sustainable Development, which includes 17 Sustainable Development Goals (SDGs) and 169 targets. The SDGs are a global call to action for all nations,

irrespective of income, to promote prosperity while safeguarding the planet. These 17 goals aim to eradicate poverty, drive economic growth, enhance social well-being through education, healthcare, social protection, job creation, and tackle urgent challenges like climate change and environmental sustainability. Goal 12 focuses on responsible consumption and production, advocating for sustainable manufacturing practices, and emphasizing reuse, recycling, and reduction across the product life cycle.

Let’s explore how Audio AV industry is going to achieve the UN Sustainable Development Goal 12 “Responsible Consumption and Production”. Goal 12 is about ensuring sustainable consumption and production patterns, which is key to sustain the livelihoods of current and future generations. Our planet is running out of resources, but populations are continuing to grow. If the global population reaches 9.8 billion by 2050, the equivalent of almost three planets will be required to provide the natural resources needed to sustain

must embrace sustainable practices in production and consumption, such as reducing energy usage in AV equipment, promoting recycling, and encouraging the use of green energy sources.

Positive changes are emerging across industries, including the rise of sustainability reporting. This trend is also gaining traction in the AV industry, with more companies publishing sustainability reports and demonstrating commitment to environmental responsibility. This growing awareness is helping shape a future where sustainability is central to business strategies. Governments play a key role in driving these changes by implementing and enforcing policies that reduce waste generation, encourage circular economy practices, and support sustainable procurement strategies. In the AV industry, this can mean setting regulations to reduce e-waste, promoting the recycling of AV equipments, and incentivizing the use of eco-friendly materials in manufacturing.

On an individual level, consumers can adopt more sustainable habits by opting for AV products that have a lower environmental impact, such as energy-efficient equipment and those made from recyclable materials. Reducing the carbon footprint of day-to-day activities such as using energy-efficient displays, leveraging virtual meetings to reduce travel, and recycling old AV gear can also contribute to a more sustainable AV ecosystem. These changes, both at the industry and individual level, can drive significant progress toward a more sustainable future for the AV sector and society as a whole.

A deeper understanding of the environmental and social impacts of products and services is essential for driving change. In the AV sector, this means examining the full lifecycle of products from manufacturing and transport to use and disposal and considering how each phase affects the environment. For example, evaluating the energy consumption



current lifestyles. In the context of the AV industry, this calls for a shift towards more sustainable production processes, energy-efficient technologies, and eco-conscious consumption. The AV industry



of AV equipment during operation, the sustainability of materials used in production, and the recyclability of devices after use can provide businesses with critical insights to minimize their ecological footprint.

Strategies to Encourage Sustainability

Enhance Energy Efficiency

Promoting energy efficiency is one of the most effective ways to reduce the environmental impact of the AV industry. To meet the demand for environmental responsibility, it is essential to source energy-efficient AV products and develop solutions that comply with these standards.

A key strategy in this effort is the adoption of ECO modes, which significantly lower energy consumption. This feature automatically puts devices, such as display screens and video conferencing equipment, into low-power or sleep mode when they are not in use. By utilizing energy-efficient technologies like LED displays and low-power devices, we can achieve substantial reductions in energy consumption throughout the production, operation, and disposal phases. AV systems, particularly those used for video conferencing or virtual meetings, often consume a significant amount of energy; however, recent innovations are leading to more efficient solutions.

AI-enabled AV systems now include features such as automatic power shutdowns and energy-efficient lighting, which help optimize energy use. Recent advancements include low-power LED, advanced 3-chip, 3LCD laser technology projectors, smart lighting for home theaters, and low-energy audio systems. Furthermore, high-resolution displays now offer energy-saving features, such as automatic brightness adjustment based on ambient light. Advanced System-on-Chip (SoC) technology reduces both hardware requirements and power consumption.

Additionally, some eco-friendly maintenance practices include conducting regular audits of energy consumption, using IoT devices to monitor AV system usage, and utilizing smart sensors to adjust power settings based on activity. These methods help lower energy usage, reduce carbon footprints, and decrease operating costs.

Develop Technologies for Hardware Versatility

Power over Ethernet (PoE) technology enables small devices to receive power through the same

cable that provides their network connection. This approach eliminates the need for separate power supplies, simplifying installation and reducing cable clutter. Additionally, PoE is environmentally friendly, as it decreases packaging and shipping costs, thereby lowering the carbon footprint. It also reduces the demand for electrical outlets, contributing to a more efficient office setup and additional energy savings.

Implement a Circular Economy Model



Adopting a circular economy model is a transformative step toward sustainability in the AV industry, focusing on minimizing waste and maximizing resource efficiency. Manufacturers can design products with durability, repairability, and recyclability at the forefront, enabling longer product lifespans and reducing the need for frequent replacements. For example, repair-friendly devices that allow users to replace components easily can significantly promote longevity. Integrators and end-users can embrace refurbishment and reuse practices, choosing to upgrade or repurpose equipment rather than discarding it.

Additionally, implementing take-back programs ensures responsible recycling and proper management of end-of-life AV equipment. Collaborating with specialized recycling facilities helps recover valuable materials, such as metals and plastics, which can be reintegrated into the production cycle. By shifting to a circular economy, the AV industry not only reduces its environmental footprint but also achieves cost efficiencies and strengthens its commitment to sustainable innovation.

Maximize the Adoption of Renewable Energy Sources

Accelerating the adoption of renewable energy sources is a transformative strategy for promoting sustainability within the AV industry. Transitioning to clean energy options such as solar, wind, and hydroelectric power for manufacturing facilities, corporate offices, and event venues not only minimizes the carbon footprint but also contributes to global efforts to combat climate change.

Implementing on-site renewable energy systems, such as solar panels or wind turbines, can help companies achieve energy independence while reducing operational costs over time. Additionally, partnering with green energy providers to power supply chains and logistics networks can amplify the impact across the entire ecosystem. Organizations can further enhance their commitment by incorporating energy storage solutions, such as batteries, to ensure reliability and efficiency. Beyond environmental benefits, these efforts demonstrate leadership in sustainability, resonate with eco-conscious consumers and stakeholders, and align with industry standards for achieving a low-carbon economy.

Implement a Sustainability Awareness Program

Raising awareness about sustainability in the AV industry is crucial for driving meaningful change. Companies can organize workshops, webinars, and educational campaigns to educate stakeholders on the environmental impact of AV technologies and the need for sustainable practices. Encouraging industry professionals to



pursue eco-friendly certifications and accreditations can further foster a culture of sustainability.

Encourage Collaborative Research

Collaboration among industry stakeholders plays a vital role in driving meaningful progress toward sustainability. By fostering partnerships between manufacturers, integrators, end-users,

to end-of-life management. Furthermore, encouraging open dialogue and knowledge sharing within the industry can accelerate the adoption of best practices and inspire new approaches to sustainability. Investment in research and development focused on greener technologies not only supports innovation but also positions stakeholders as leaders in sustainable practices, creating a

environmental concerns such as reducing carbon emissions, minimizing waste, and transitioning to renewable energy sources. By setting measurable and time-bound objectives, businesses can effectively monitor progress and adapt their strategies to overcome challenges.

A comprehensive roadmap not only fosters accountability but also aligns sustainability efforts with broader corporate values and stakeholder expectations. Additionally, it provides a platform for innovation, encouraging companies to explore sustainable technologies, practices, and partnerships. Clear goals inspire employees, attract eco-conscious consumers, and build trust with investors, ultimately positioning the company as a responsible and forward-thinking industry leader. Sustainable practices are no longer just a choice but a vital commitment to ensuring long-term environmental and economic resilience.



and even academic institutions, the industry can pool expertise, resources, and insights to develop innovative, eco-conscious solutions. Such collaborations can lead to breakthroughs in alternative materials, sustainable manufacturing processes, and energy-efficient product designs without compromising on performance or quality. Joint research initiatives can uncover opportunities to reduce the environmental footprint of products across their lifecycle, from design and production

competitive edge. Together, these efforts lay the foundation for a more resilient and environmentally responsible future.

Sustainability Goals and Roadmap

Establishing well-defined sustainability goals and a robust roadmap is crucial for companies striving to make a meaningful environmental impact. These goals serve as a strategic framework, guiding organizations in addressing critical

Conclusion

Sustainability is more than just a concept; it is a way of life that requires daily commitment and conscious effort. It involves making thoughtful choices that conserve resources, protect the environment, and ensure a better future for future generations. Every decision has an impact, from the energy we use to the products we choose. Embracing sustainability as a lifestyle means incorporating eco-friendly habits into our personal, professional, and business practices. This approach demonstrates that small, consistent actions can lead to significant, lasting change. Let sustainability shape our values, guide our actions, and define our legacy.





Chalaky, Kerala

House of Worship

Transforming Worship Cutting-Edge Sound Reinforcement at Divine Retreat Center



Consultant: NA

Integrator: SOUNDVISION PRO

Category: House of Worship

Client: DIVINE RETREAT CENTER

Contact: www.soundvpro.com

Founded in 1987, the Divine Retreat Center serves as a hub for worship and spiritual retreats, offering multiple halls and chapels for its visitors. Recently, its main hall underwent a major renovation, where sound reinforcement became a key focus. After extensive evaluations, the MAILA compact line array system from LD Systems, Germany, was selected for its superior speech clarity and uniform sound coverage.

SoundVision Pro, a leading system integrator based in Kanyakumari, managed the installation process. Following multiple demonstrations, the MAILA system stood out due to its innovative design and performance. This state-of-the-art system features modular satellites equipped with LD Systems'

patented SmartLink connections, ensuring seamless integration and adaptability.

The setup includes 12 mid-high array satellites, complemented by the MAILA COLUMN low-mid extension and amplifier module, forming the primary PA system. To enhance low-end frequencies, two dual 15" MAILA Subwoofers were installed for controlled bass reinforcement. On stage, LD Systems MON15A coaxial active monitors were implemented to provide performers with clear and accurate sound monitoring.

This advanced audio solution ensures that the renovated hall offers an exceptional auditory experience, perfectly aligning with the center's mission to create a spiritually enriching environment.

Gandhinagar, Gujarat

Visitor Attraction

Illuminating Heritage Transforming Gujarat's Spiritual Landmarks



Consultant: Rhino Engineers Pvt Ltd

Integrator: Star Dimension Private Limited

Category: 3D projection mapping

Client: Gujarat Pavitra Yatratham Vikas Board

Contact: www.rhinoengineers.in

The Gujarat Pavitra Yatratham Vikas Board's 3D projection mapping project integrates advanced technologies to create an immersive AV experience. Cutting-edge projectors and lighting systems form the backbone of this installation. Key equipment includes five Barco 3-Chip DLP Laser Video Projectors (22,000 lumens), two Kwant Laser Light Projection Systems (3x3 mm), and a variety of LED fixtures from Aura, including wall washers and façade lighting solutions. In total, over 600 meters of flexible LED linear lights and 887 specialized light fixtures illuminate the site.

The control systems employ Barco's Media Production Server, Dataton's 3D Projection Mapping Software, and Aura's DMX controllers for seamless playback and lighting

synchronization. For audio, a 7.1 Dolby Surround Sound system by Turbosound enhances the sensory impact.

To ensure uninterrupted operation, the project incorporates robust power solutions, including a 120 kW solar panel system (545 Wp per panel) and an online UPS with a 30-minute backup.

This sophisticated setup showcases a harmonious blend of artistry and technology, transforming the space into a vibrant cultural landmark. By leveraging state-of-the-art equipment, the project reinforces the site's spiritual and aesthetic significance, offering an unforgettable experience to visitors.



Jammu – J&K

Education

Empowering Learning Through Innovation Advanced AV Integration at IIT Jammu



Consultant: NA
 Integrator: Vallect
 Category: Education
 Client: IIT, Jammu
 Contact: www.vallect.com

Vallect was chosen as the AV integrator for the design and installation of specialized Auditorium AV and Smart Lecture Theatre solutions at IIT Jammu. The project includes a state-of-the-art 300+ seater auditorium, featuring a Christie 4K10-HS Laser Projector with 10,000 lumens brightness and a 3840x2160 UHD native resolution. The auditorium is also equipped with video conferencing, recording, streaming solutions, a digital podium, and line array systems to deliver a seamless AV experience.

Additionally, Vallect integrated advanced AV systems in multiple Lecture Theatres across the campus, accommodating capacities ranging from 40 to 150 seats. Key components include Christie DWU760 projectors, AMX

switchers, Lutron lighting control, Kramer cables, and Netgear ports to enable video conferencing, interactive collaboration, and live streaming capabilities.

These cutting-edge solutions have significantly enhanced the teaching and learning experience. Faculty members benefit from streamlined lesson delivery using tools like digital podiums, presentation software, and immersive media. Students enjoy dynamic, engaging lessons supported by interactive displays, real-time collaboration tools, and multimedia content. Collectively, these advancements have created a modern and innovative learning environment for the campus.

Varanasi, UP

House of Worship

Kashi Vishwanath Temple Innovative Solutions for Challenging Conditions



Consultant: ND STUDIO
 Integrator: Eyeviz Digital Solutions India Pvt Ltd
 Category: Projection Mapping Category at House of Worship
 Client: Kashi Vishwanath Temple, Varanasi
 Contact: www.edsindia.co.in

This sacred site operates continuously, with multiple cremations taking place simultaneously, creating challenging environmental conditions with significant ash and dust in the air. Temperatures at this location range from 8°C to 45°C, with humidity fluctuating between 30% and 82% throughout the year. The project involved installing 16-meter-high poles equipped with projectors and customized all-weather casings. These poles faced stability issues, particularly during the rainy season when the river rises, submerging them up to half their height. To mitigate this, we reinforced the pole bases and added support structures to ensure stability during high water levels. Onsite fabrication of specially designed steel frames further ensured proper stability and alignment for each pole.

This initiative demonstrates our ability to innovate and adapt in extreme conditions, reflecting our commitment to delivering high-quality solutions in demanding environments. The successful execution at Manikarnika Ghat highlights our technical expertise and dedication to preserving the cultural importance of this sacred site. By integrating advanced AV technology, we have enhanced the site's functionality while respecting its spiritual and historical significance. This project is a testament to our skill in overcoming environmental and logistical challenges to achieve excellence.



Thrissur, Kerala

House of Worship

A Symphony of Faith and Innovation Transforming the Worship Experience



Consultant: NA

Integrator: ZACS AND PHILS

Category: House of Worship

Client: Infant Jesus Monastery,
Thalore, TrissurContact: www.zacsandphils.com

The Infant Jesus Monastery in Thalore, a historic spiritual haven founded in 1925, has long stood as a symbol of faith and learning in Kerala. As it approached its centennial, the monastery embraced a transformation to enhance its infrastructure and worship experience. Central to this revitalization was an advanced audio system designed to overcome the acoustical challenges posed by its reverberant interiors. Zacs and Phils, renowned for their expertise, crafted an innovative solution blending cutting-edge technology with thoughtful design.

Through the use of Turbosound Milan 12 speakers, the Marani DSP processor, and Audio-Technica microphones, the system delivered clarity and precision, transforming sermons and hymns into profoundly

immersive experiences. The carefully calibrated setup overcame the reflective surfaces and expansive space, ensuring balanced sound that resonated beautifully without distortion. Complemented by BEHRINGER monitors and the Yamaha MGP24 console, the system achieved seamless operation and exceptional audio quality.

The project's success transcended technical achievement, uniting the congregation in a shared sense of wonder and connection. By modernizing its worship spaces without sacrificing its spiritual essence, the Infant Jesus Monastery set a benchmark for innovation in sacred environments. This journey stands as an inspiring testament to the harmony of tradition and technology, enriching lives for generations to come.

Western - India

Corporate

Transforming a Corporate Office into a High-Tech Collaborative Hub



Consultant: NA

Integrator: Kore AV Solution LLP

Category: Corporate

Client: Redbrick offices

Contact: www.koreavs.com

Kore AV Solution LLP took on the ambitious task of converting a large corporate office complex into a state-of-the-art collaborative workspace. The goal was to create smart, interactive environments that foster seamless communication, teamwork, and productivity across spaces, including meeting rooms, a boardroom, the cafeteria, and collaborative zones.

Despite several challenges, including a tight timeline, the need for seamless integration of advanced AV technologies, and the customization required for each room, Kore AV successfully delivered a future-ready solution. The systems were designed to ensure consistent user experiences while allowing for scalability to adapt to future needs.

In collaboration with Exodus Information Technology Pvt. Ltd. and iTEQ Innovations Pvt. Ltd., Kore AV implemented advanced technologies from globally recognized brands such as Samsung, Biamp, Poly, Logitech, and AMX. The project was completed on time and exceeded client expectations. Employees now benefit from modern, intuitive spaces optimized for in-person and remote collaboration.

This project highlights Kore AV's expertise in delivering innovative, high-quality AV solutions. It reflects their commitment to redefining workspaces and establishing themselves as leaders in India's AV integration industry.

"This project reflects our dedication to delivering transformative AV solutions," said Mr. Sachin Karekar, Partner at Kore AV Solution LL



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