

Ambedkar National Memorial in New Delhi Opens New Chapters in Museum AV A Technology Book of Vision

-By Ram Bhavanashi

Museums, all over the world, are taken to be galleries of technology play, often seeking to communicate the message of content in subtler ways. However, the Ambedkar National Memorial in New Delhi seeks to redefine the whole concept of a memorial with a subtler fusion of technology, and the otherwise sensitive content, seeking to elevate the experience to next level.

In what is an arguably masterly ingenious work of tribute to one of the most compelling personalities in modern Indian history, a select set of thought leaders and technology players have come together to create a first-of-its-kind memorial in the world.

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FACTFILE:

Project Name: Ambedkar National Memorial
Project Location: New Delhi
Project Segment: Government
Project Type: Infotainment
Project Owner: Dr. Ambedkar Foundation (under MoSJ&E)
Project Overall Budget: Approx ₹100 crore (approx. US\$14.5 million)
AV Project Budget: ₹30 cr (US\$4.2 million)

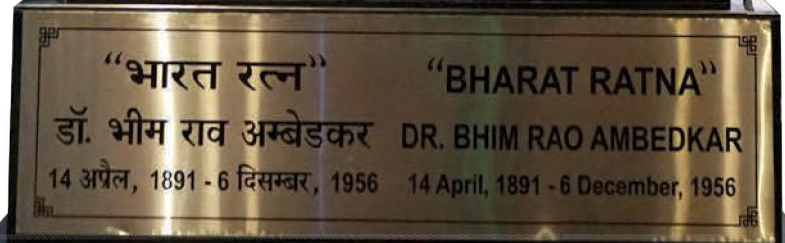
Project Consultants

PMC: CPWD
HVAC: CPWD
Design Consultant: Civil Consultants, Lucknow
Technology Consultant: Design Habit
Exterior Lighting Consultant: Philips India
Interior Lighting Consultant: Pan Intellectcom Ltd
Content Consultant: Devender Singh, Associate Professor, DAIC
Systems Integrator: Pan Intellectcom Ltd.

Project Highlights: India's first- single largest LED Video wall install; multi-layer Pepper Scrim technology; mobile App for hands-free headphone audio; one of the largest projection mapping installs; Interactive browsing table...

The Preamble

The 26, Alipore Road, New Delhi, is an address that – rhetorically said – has given an 'address' to India as a nation. For, it is the place where Independent India's first Law Minister Dr. Bhimrao Ramji Ambedkar – widely revered as the Architect of Indian Constitution – lived his last days; and today, it's a place made like a grand





The open-book form exterior of the Ambedkar National Memorial- striking read reference to the Constitution of India with which he is widely identified.

treasure, and in the process earned its address in record books. A modern, technology-powered ensemble of life and times Ambedkar lived and impacted- a new, exalted address for museum AV where technology subtly runs through both poignant and prideful content presentation, making the dissemination of knowledge about the person more immersive experience than ever!

A personification of many tenets – jurist, economist, social reformer, statesman, (and a violinist too, besides being India’s first double Doctorate) – Ambedkar defined the bedrock of the country’s polity, besides impacting the thought processes of millions and generations to follow.

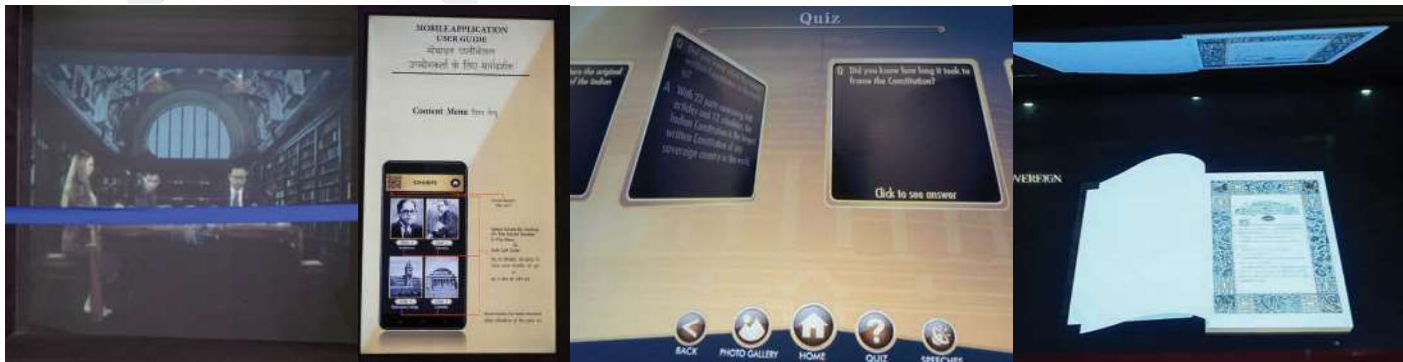
Initiated by Dr. Ambedkar Foundation – an autonomous body under Ministry of Social Justice & Empowerment (MoSJ&E), Government of India – the museum is a unique exemplification of knowledge dissemination about one of the most eminent Statesmen India

has ever produced- by means of its symbolism and innovative ICT. Consider this:

- The Memorial is designed like an open book – striking a ready reference to Ambedkar’s architecting the Constitution of India – whose page edges are lined by specialised stainless steel fins, curved like page folds and dotted with as many as 27,000 individually-programmable LEDs for illumination during nights
- Entrance to the museum is designed like a *Chaitya* (prayer hall) arch, while it is fronted from below the staircase by a 36-foot *Ashoka Stambh* (pillar), made in bronze, besides two sculpted *Thorans* (entrance arches) resembling those at Sanchi
- The Memorial’s ICT design is characterized by as many as 6 numbers of indoor LED video walls, including a pair of large video walls – measuring 10.3m x 3.4m each – lining the back wall on either side of exit arch, and depicting various facets of Ambedkar’s life and times
- With a total coverage area of over 192 square meters, the LED



Left: The 7-feet statue of penancing Buddha, made in single, spotless Vietnamese marble adjacent to the Meditation Chamber. Right: The 12 Buddhist mudras adorning the wall lining the pathway to cafeteria.



TECHNOLOGY AT ITS BEST: Introduction of Pepper Scrim Screen (multi-layer) technology; Mobile App (for personalized audio); Interactive screens, and 3D-holograms- all come together to characterise an immersive experience.

video wall is first of its kind in India, and one of the largest in the region, if not the world

- An expansive wall-to-wall projection mapping above the two video walls by blending as many as seven 3-chip DLP projectors infuse a larger-than-life impression
- For the first time in India, Pepper Scrim screen technology is brought to design. Coming with a highly transparent and extra-wide metallic scrim, the technology is employed to render 3D hologram effect truly immersive, as content can be seen from both sides
- For the first time again, a dedicated mobile App has been developed and deployed for voice guide inside the museum. The App enables visitors to use their own set of mobile and headphones, to listen to the audio content. Compatible with both iOS, and Android, the app can be downloaded on any individual's phone, and easy to operate
- Substantial exploits in animatronics through robotic solutions and ingenious use of proximity sensors made to create hyper realistic human actions
- As many as 16 units of 55-inch interactive screens and workstations weaved into disseminate diverse traits of information relating to Constitution of India

That's not all, there are more though- like a 7-foot high statue of the Buddha in penance posture- made of spotless Vietnamese marble, surrounded by an eye-pleasing mural made in fibre-reinforced plastic (FRP); a meditation chamber; and the 12-mudras (hand gestures) of Buddhism adorning the wall leading to cafeteria down under.

While these characterizations seek to communicate the tenets of the Buddhist faith that Ambedkar embraced towards the last phase of his life, the Memorial's interiors feature a unique ICT backbone and weaving of technology sophistication into the story telling via a multitude of exhibits.

Looking from the viewpoint of its locationing, size and scaling, besides the purpose and vision, the creation of the Memorial in its totality appears to have been necessitated by the 'situational conditions!' It's like the idiomatic situation of 'invention being the mother of necessity!'

16 FACETS OF AMBEDKAR'S PERSONALITY :

Economist, Nationalist, Humanitarian, Analyst, Writer, Orator, Philanthropist, Labour Minister, Law Minister, Lawyer, Political Analyst, Parliamentarian, Sociologist, Educator, Music lover and Animal lover.

Constitution of Team Ambedkar Memorial

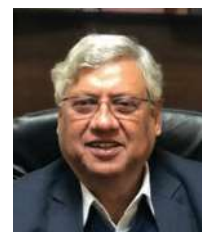
The first major requirement before the Ambedkar Foundation, the apex body empowered to oversee the creation of the Memorial, was to evolve a vision on the model of Memorial- both structure-wise and texture-wise. It had a generic consensus that the intended Memorial had to be a depiction of socio-economic and political world in which Ambedkar grew and endeavoured to impact, and a hint of instruction from the Prime Minister that it had to be technologically world-class. The Foundation had the CPWD working like a typical project management consultant, tasked with calling for tenders, hiring consultants, contractors and integrators, besides evaluating and monitoring the work progress.



According to VK Jain, Executive Engineer-Development Project-CPWD, the department mapped the project task assigning a dedicated expert for each of the jobs. "With the timeline being the biggest challenge, besides the structure itself, we kept on board a dedicated expert to evaluate the work specifications at every stage so that systemic delays are avoided, and jobs are completed on time." The first one to come on board the challenging project was the Lucknow-based architectural firm Civil Consultants, winning an intense competition through a very innovative design.

"We won the project by sheer inventiveness," recalls Ajai Behl, chief of Civil Consultants. "That the site is constrained by both vertical and lateral spread limitations (just 7,274 sqm plot area, and restriction of 11m height above the ground), we proposed an open-book design that is sunk three storeys below the ground."

"Ambedkar is internationally identified with scripting Indian Constitution; so symbolizing the Constitution making would be ideal, but how!; a flat, closed book doesn't appeal, and neither a vertical book form," recalls Ajai Behl. "So, we proposed an open-book form with inventive formatting inside."



THE GENESIS OF THE MEMORIAL

The Government of India – during the Prime Ministerial tenure of (now) late Atal Bihari Vajpayee in 2003 – acquired the adjoining land and site of this house with a view to developing that into a memorial as a tribute to his contribution to the country. Years passed while an autonomous body called Dr. Ambedkar Foundation was set up for the purpose under the Ministry of Social Justice and Empowerment (MoSJ&E) which in end 2011 initiated a feasibility study through a high-level committee. Seven months down the line, the committee submitted its report following which MoSJ&E in 2013 assigned the construction of memorial to Central Public Works Department (CPWD).

The ascension of the then Gujarat Chief Minister Narendra Modi to the seat of Prime Minister in mid-2014 a sort of expedited the process as the MoSJ&E under the new government allotted in June 2015 a budget of of ₹99.64 crore (approx. US\$14 million) with a completion time-frame of 30 months. However, the work on the project began only in April 2016, following the laying of Foundation Stone by Narendra Modi, for whom the project reportedly became as prestigious as those of Dandi Kutir and Statue of Unity in Gujarat.

That the design could not rise more than 11 meters above the ground, the only way to spread was to go below. That's how three storeys of the four-storey structure are sunk into the ground, making for parking, cafeteria and one level for exhibits.

This design of three-storeys going below the ground met another challenge as the soil was too rocky and then underlined by soft earth, owing to its being in close proximity with the Yamuna river. "It was something like a submarine floating on ocean," quipped the architect. "We had to make it solid grounding by means of anchoring piles." While the structure was thus on, Ajai Behl scouted for dedicated museum content design resource, and found another Behl – Amardeep of Design Habit – who is renowned for technology-woven content, particularly in museums and memorials. Having famed projects like Virast-e-Khalsa, and Golden Temple Plaza standing testimony, Amardeep was like an obvious choice for Ajai. The two Behls thus joined hands- in the sense that Amardeep shall design the museum on behalf of Ajai.



Known for exploring technology finer lines, Amardeep Behl brought his ingenuity to place weaving in a technology design that met two essential requirements- time and space. "Those two were the potential challenges," recalls Amardeep.

"The commissioning date was already announced (by the Prime Minister) and fast-approaching, so no time luxury for story-telling micro artefacts as was the case of *Virasat Khalsa*, and we needed to act fast; on the other hand, the space limitations inside the building too didn't permit expansive design exhibits," he explained. "Same time, we were also required to create a world-class blend of static, dynamic, and interactive multimedia for an immersive, larger-than-life experience. So, it is something like a situational necessity for us to explore newer horizons of design."

Thus came in the ideation for large LED video walls making an important element of content presentation, and message communication. As many as six Direct View LED video walls – including two large video walls measuring 3.4m X 10.3m, besides two more measuring 6m x 7.7m – characterize a major tenet of story-telling at the Memorial.



"It's actually like encapsulating the Memorial's story-telling concept with these four video walls," opines Amardeep. "There are of course other compelling factors like multi-layer Pepper Scrim, animatronics etc."

With a view to creating space for this size of video walls, Amardeep suggested removal of one level that Ajai had created by then, and Ajai accepted in the light of the necessity. According to the Design Habit chief, in the given constrained conditions of space and time, they made good use of technology, to create immersive story telling. Value-adding the PMC and Consultants' efforts were the coming on board of Gurugram-based Pan Intellectom as the project's AV Systems Integrator. Having already made a big name with the projects like Virasat-e-Khalsa and Golden Temple Plaza besides others, it was an easy walk for the SI to win the competition and land the project.



"It was a very challenging, yet prideful project," says Harbir Singh, Managing Director of Pan Intellectom. "Prideful, simply because it's about recreating and disseminating knowledge about the life and contributions of a person called Ambedkar," explains Harbir. "Challenging, because of not just system specs, but the sensitive nature of content as well."

According to him, "a key aspect of the work was creation of Content Document based on the Content Advisory Note included in the tender, and according to items mentioned in the Contract." The

creation will involve a high degree of research, interaction with institutions and specialists identified in the Content Advisory Note. The approved Content Document will form the basis of all the content creation for the museum – static, dynamic and audio visual content.” Value-adding their part to content authentication, Pan Intellicom interacted with subject matter experts. “We had personal interactions with noted luminaries like Dr. Nilanjan Sarkar, Deputy Director and Development Manager at the London School of Economics (LSE) from our office at Gurugram and greatly benefitted,” Harbir explained. “We also had ready access to rare documents and artefacts related to life and achievements of Dr. Ambedkar; much of the material was available to us at our workplace in Delhi.”

According to the PAN chief, Sue Donnelly, Archivist-Risk and Compliance Unit at the LSE was of immense help in this pursuit. The objective was to focus on real and only authenticated facts and manuscripts so as to convey multiple facets of Dr. Ambedkar, and relevance of his ideology to modern day India. “The client wanted the content to be carefully worded in order to avoid hurting the sentiments of people,” recalls Harbir. “Same time, the content also had to acquaint people with Dr. Ambedkar- without touching dark sides of any religion or community.”

Evidently conscious of the sensitive nature that Ambedkar subject matter is often made to be, MoSJ&E with a view to ensuring a flawless content backdrop, appointed a subject matter expert to validate the content at every stage. Thus came on board Dr. Devender Singh, Associate Professor at Dr. Ambedkar International Centre, an autonomous academic body under MoSJ&E.



Says Devender Singh: “When Government of India decided to create a Memorial on the site, nobody knew it was to be made a holistic ensemble of Ambedkar’s life and contribution- through such a modern sophisticated audio-visual technology.”

According to him, the Government wanted them to create a fascinating model (of letting people know what Ambedkar did to the country, in the same manner as he did); but hadn’t given a concept. It was left to them. The only condition was the model they create had to be world class; “there can be nothing orthodox, as also objectionable.”

“I told the team on task: ‘Sardar Patel was (like) a hardware engineer who assembled this (otherwise-fragmented) country, Ambedkar was (like) a software engineer who provided the Operating System for running the country.’”

- Dr. Devender Singh, Associate Professor, Ambedkar International Centre, MoSJ&E



Imagery through murals & technology: (Left) Ambedkar’s travails in Baroda- notice the LCD window; (middle) Ambedkar’s wedding in the long, vertical display; & (right) Ambedkar’s education, including that at London School of Economics

Thus took shape a Team Ambedkar Memorial. Thus, even as the technology design consultants worked the presentation architecture of Memorial, Devender Singh did an intense research; interacted with diverse personalities, and interviewed as many 40 experts from across the country, collating data about various aspects of Ambedkar’s life and endeavours.

Says Dr. Singh: “a generic impression among people is that they know Ambedkar and his contributions; but there is much more that the world doesn’t know about him. It is that objective of knowledge dissemination the Memorial is aimed at achieving.”

Apparently, he worked out and weaved in all those things that shaped or marked Ambedkar’s personality. A case in point is Ambedkar’s life at London School of Economics, and that at Columbia University. “There is no other museum in the world that depicts lesser known facts of a Statesman like we did,” vouches Devender Singh. “There are as many as 16 facets of Ambedkar’s personality that are not fully

known to the world; some of them are little known. We depicted them through hi-tech paneling and projection mapping. These 16 facets make up the content for an expansive projection mapping lining the entire top portion of the back wall above the large LED video walls.

Another case in a point was the presentation of Panch Teerth (five holy pilgrimage places). It was Narendra Modi's ideation that five places that defined five demarcating phases in Ambedkar's life be presented at the Memorial by means of technology- which why there are exhibits that depict Janma Bhoomi (birth place- Mhow in Madhya Pradesh); Siksha Bhoomi (learning place) the house – 10, King Henry Road – in London where he lived during his higher collegiate education; Deeksha Bhoomi in Nagpur, where he converted to Buddhism; Maha Parinirvana Bhoomi, the 26, Alipore Road house where he lived his last days, the site where the Memorial stands today; and finally, the Chaitya Bhoomi, the site of historic Indu Mills at Dadar in Mumbai, where Ambedkar began his endeavours for emancipation and empowerment of labourer communities through unions and organized agitations.

Ambedkar, 'Inclusive Growth' Integrated

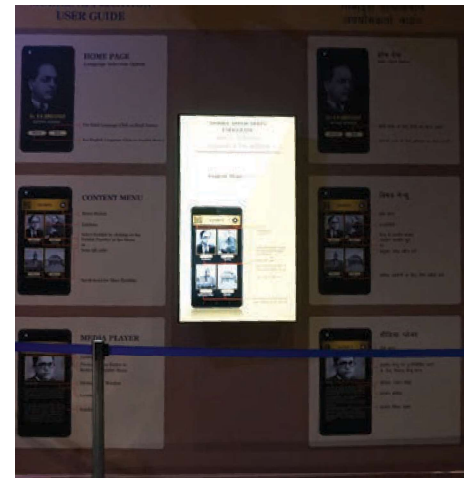
An essential aspect of Ambedkar's philosophy and message was Inclusive Growth- meaning 'every citizen must be given equal opportunity/ right to growth in terms of political, social and economical. Ambedkar believed three elements are possible through liberty, equality, and fraternity and sought to explain this through a slogan of his own in 1924- Educate, Organize and Agitate- meaning first educate to liberate the thought processes; organize amongst those suffering from inequality, and then agitate for rights of the communities.

Thus opens the systems integration process at the very beginning of the Memorial, right up at the entry. The philosophy is explained by means of an exhibit and a slogan board.

As if to give a sense of ensuing technology sophistication, the very next exhibit is actually a mobile App and User Guide, explaining how visitors can install the mobile App on their smartphones and stay independent of any audio device while they walk through the exhibits.

"The mobile app has been developed in-house for the voice guide used in the Memorial," explains the Pan Intellectom chief. "This enables the visitor to use their own set of mobile and headphones, to listen to the audio content. The app can be downloaded on an individual's phone and, is both Android- and iOS-compliant.

While staying within the confines of suggested BoQ, the integrator did pitch their expertise to value-add the initiative technologically and experientially. According to him the three most impressive exploits have been the integration of multi-layer Pepper Scrim screen technology; large video walls and the mobile App.



While Ambedkar was a known Ahimsavadi (believer of non-violence), not many people know that he was a violinist too; he often used this association of his with violin to say "Violin, NOT Violence."

- Devender Singh, Associate Professor, DIAC

"For the first time in India, the Pepper Scrim Screen technology used to create immersive experience," Harbir details. "Deployed in gallery No. 5, 13, 14 and 15, the technology provides for highly transparent and extra-wide metallic scrim for large-scale 3D hologram effects," he vouches. "The best part of this technology is that video content can be seen from both sides of the scrim."

The large size Direct View LED video walls from Delta Displays on as many as six surfaces is as unique as they can get, elaborates the PAN chief. Exhibit nos 3 and 4, immediately on the left of the main entrance, are treated in LED video walls measuring



16 FACETS OF AMBEDKAR'S PERSONALITY PROJECTED: The projection mapping above the large LED video walls on either side of the arch depict the lesser-known facets of the person that Ambedkar was.



(Left) As many as 7 Christie projectors combine to map imagery of some of the lesser known facets of Ambedkar's personality. (right): Visualizing different phases of his life through Holograms

6m x 7.7m and 6m x 3.4m respectively. Exhibit no. 12 features video wall measuring 6m x 7.7m again while exhibit no. 17 is characterized by 6m x 7m Video Wall.

Exhibit nos. 18 and 19 – presenting a larger-than-life imagery of the facts of Indian Constitution and diverse aspects of Ambedkar's life story – are what will arrest the visitors attention, perhaps more than most exhibits- due to their sizing up to 10.3m x 3.4m each, stretching from the middle to the end of the wall on either side of rear entrance arch.

"There is no precedent of such a large scale use of high-quality LED screens, in the entertainment or government sector in India," vouches Harbir.

"Almost 200 sqm of LED walls installed in one single site is a rare and prideful achievement," says Hemant Agarwal, Vice-President, (Display Solutions Business Unit), Delta Electronics India. "Equally prideful is the ability of Delta's 4mm slim Direct View LEDs to maximise the impact of visual content on the audiences."



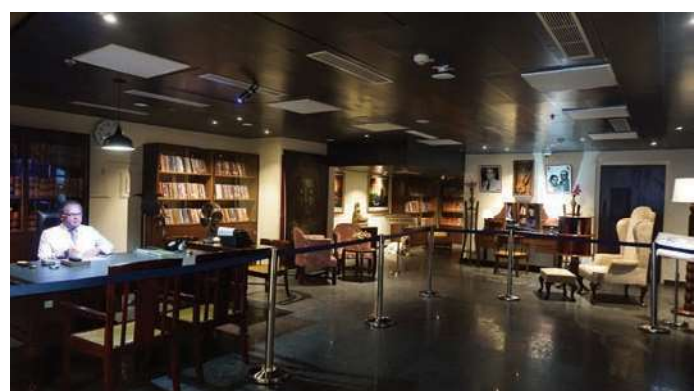
According to him, the unique technology brilliance that Delta LEDs bring, with a contrast ratio of over 8,000:1, a light output of over 1,500 nits and native 16-bit color processing, the 4mm LED delivers excellent image and video quality in all types of indoor settings.

With the extensive use of dynamic media, audio-visual content and multimedia technology, the Memorial creates a truly immersive experience of the life and contribution of Ambedkar, he added. Another interesting feature at Exhibits 18 and 19 is the arguably one of the largest projection mapping done by means of as many as seven Christie 3-chip DLP projectors. Covering the wall surface above the LED wall till the ceiling, and stretching from entrance to the edge of the wall the mapping captures the visitors imagination, in a striking contrast with the LED wall below.

"Ambedkar Museum is the latest project that Christie has embarked on in India, following several successful museum installs across India," says Rishubh Nayar, Christie's National Sales Manager-Enterprise. "This project exemplifies Christie's dominance in the museum vertical market in India," he affirms. "With 21 units of 14,000-lumen projectors on show, backed by Christie Pandoras Box media servers, the Ambedkar Museum is a visual feast for all."



According to him, the projection major practically has all leading museums in India powered by their visual solutions and image processing functions. Christie's ability to design and implement unconventional visual installs, backed by a broad range of high-performance projection and video processing solutions, fitting all budgets and requirements make them the most preferred in their class.



REALSIM THROUGH ANIMATRONICS: (left): Dr. Rajendra Prasad, India's first President signing the Constitution while other national leader watch; (right) Recreation of Dr. Ambedkar's office chamber



SANKALP for social equality: (left) Ambedkar, having suffered ignominy in Baroda, resolving to crusade for social equality; (right) his leading the historic mass conversion to Buddhism. Notice the Buddha statue - Ambedkar's final recourse - in the rear end.

Resembling Realism with Animatronics

There are at least half-a-dozen exhibits done in truly mesmerizing animatronics. Particularly those exhibits that depict the scenarios of Dr. Ambedkar presenting the Constitution copy to Dr. Rajendra Prasad, India's first President; perusing the Constitution by the then leaders of Constituent Assembly, comprising Jawaharlal Nehru, Maulana Abul Kalam Azad, Sarojini Naidu and others; and Ambedkar himself delivering the speech are rendered simply spell-binding owing to their AV finesse that create a real life like experience.

The hyper-realistic mannequins, made of silicon, and their exposed parts made of FRP, along with the movement of eyes and hands up the ante of WOW experience.

Interactive Table: The Interactive table pavilion, featuring 16 units of 55-inch Samsung displays, is yet another AV exploit as it allows for browsing of various types, eliciting information of diverse nature and lengths that include speeches of different leaders of the time. The Memorial's AV backbone features extensive deployment of AV gear from Kramer Electronics that include Twisted Pairs, HDMI cables, Patch Cards, Connectors and Receivers. The audio gear is powered by surface-mount 2-way loudspeakers by Eurocom, amplifiers by Lab.Gruppen, and audio interfaces by Behringer. The lighting fixtures comprise those from DTS, SGM, and Neo Neon.

Ambedkar Envisioned, Realized

The stakeholders of the Memorial creation, say in unison: "Mission Accomplished in aplomb." Given the scale of challenges, and the fascinating way it turned out to be, an accomplishment that is capped with the commendation by none other than the Prime Minister was like a gratification of highest kind.

This project was adjudged the Highly Commendable Government AV Installation in Premium Range at the Prestigious 2018 Systems Integration India Award Programme.

"We were able to complete the project in the shape and manner required by the client in compliance with the Contract Agreement," says a prideful Harbir. "Our success is reflected in the feedback by visiting dignitaries as well the Inaugural Address by our Prime Minister."

Concludes Devender Singh: "For me, the best part is that I got the complete world of Ambedkar the way I wanted it, and the way the Government has specified to us."

That's Ambedkar Envisioned & Realized.

- www.panintellecom.in
- www.designhabit.com
- www.deltadisplays.com
- www.christiedigital.com
- www.kramerav.com



THE MAHAPARINIRVAN & The Highest Halo: The large horizontal display wall depicts Ambedkar's Final Journey unto Eternity (right). The first image the wall (left) showing the then President of India H.E. Venkitaramanan presenting India's highest civilian honour Bharat Ratna - conferred on Ambedkar posthumously - to Mrs. Dr. Savita Ambedkar. On 14th April 1990.