



राष्ट्रीय प्रौद्योगिकी संस्थान श्रीनगर

NATIONAL INSTITUTE OF TECHNOLOGY SRINAGAR

(An autonomous Institute of National Importance under the aegis of Ministry of Education, Govt. of India)

हजरतबल, श्रीनगर, जम्मू-कश्मीर, 190006, भारत

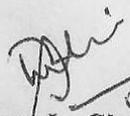
Hazratbal, Srinagar Jammu and Kashmir, 190006, INDIA

Order No. NIT/CPU/21/ 1940

DATED: 01/09/2021

With reference to the bid no. GEM/2021/B/1382497 Dated 24-07-2021, pre bid conference for the establishment of Smart Cum Virtual Classroom at NIT Srinagar was held on 12-08-2021. The specifications were discussed in detail in the meeting and some technical and commercial parameters have been revised accordingly. The revised technical specifications have been duly vetted by the technical committee members and external experts.

Approval is hereby granted for the revised technical specifications which is annexed to this file at Annexure A.

  
01/09/2021  
Officer In Charge  
Central Purchase Unit

Annexure A

S.NO	Description	Particulars
1.	Interactive Flat-panel	<p><u>SITC of Interactive Flat Display</u></p> <ol style="list-style-type: none"> <li>1. Screen type: Scratch resistant, Anti-glare, germ resistant</li> <li>2. Tempered glass: Yes</li> <li>3. Size: 85/86 inches</li> <li>4. Panel Type: TFT LCD</li> <li>5. Backlight Technology: DLED</li> <li>6. Static Contrast Ratio: 1200:1</li> <li>7. Dynamic Contrast Ratio: 5000:1</li> <li>8. Light Source: LED</li> <li>9. Colors: 1.07 B</li> <li>10. Brightness (nits): 350 cd/m2</li> <li>11. Color Space Support: 10 bits</li> <li>12. Resolution (Pixels): 3840x2160 (UHD)</li> <li>13. Aspect Ratio: 16:9</li> <li>14. Response Time: Max 8 ms</li> <li>15. Viewing Angles: 178(H); 178(V)</li> <li>16. Backlight Life (Hours): Minimum 50000 Hrs</li> <li>17. Refresh Rate: Minimum 60 Hz</li> <li>18. Touch technology: Infrared</li> <li>19. Touch Points: 20-point multi touch, 10 points writing</li> <li>20. Touch pen or Stylus: Minimum 2Nos</li> <li>21. Tip detection: 3mm and 8mm</li> <li>22. Touch Resolution: 32767 x 32767</li> <li>23. Surface Treatment: Hard Coating (7H or Above)</li> <li>24. Bezel: Slim</li> <li>25. Orientation: Landscape</li> <li>26. Embedded Platform Processor: ARM Cortex-A73*2 1.1Hz + Cortex-A53*2 1.5Hz</li> <li>27. Embedded OS: Android 8.0 or latest Version</li> <li>28. Platform RAM: Minimum 8GB DDR4</li> <li>29. Platform storage: Minimum 256 GB SSD</li> <li>30. Annotation Software: Basic Annotation Software Provided by Same OEM</li> <li>31. Cast Software: Screen Content sharing software Provided by Same OEM</li> <li>32. Connector Interfaces: <ul style="list-style-type: none"> <li>• HDMI IN (2.0) x 3</li> <li>• HDMI OUT x 1</li> <li>• VGA x 1</li> <li>• Audio IN x 1 (PC Audio in)</li> <li>• Audio OUT x 1 (Earphone out)</li> <li>• RS232 x 1</li> <li>• OPS Slot x 1</li> <li>• USB 2.0 Type A x 3 (Front 2, Rear 1)</li> <li>• USB 3.0 Type A x 4 (Front 1, Rear 3)</li> <li>• USB Type B Touch Port x 2</li> <li>• Ethernet Lan (RJ45) x 1</li> </ul> </li> <li>33. Remote Control Feature: Yes</li> <li>34. Speakers: Internal speakers Minimum 12W x 2</li> <li>35. Physical Compatibility:</li> <li>36. Top Camera Plate x 1,</li> <li>37. Wall Mount: Yes (VESA with screws)</li> <li>38. Slot in PC Compatibility</li> <li>39. Power Consumption: Maximum 350W</li> <li>40. Warranty (in months): 36 or more</li> </ol>

<p>2.</p>	<p>Digital Podium With all accessories</p>	<p><u>SITC of Digital Podium With all accessories:</u></p> <ol style="list-style-type: none"> <li>1. Type / Mounting: Free standing , Wheel mounted</li> <li>2. Construction: 1.5 mm or above CRCA steel sheet, stainless steel sliding top and lock, and stainless steel front face of the table</li> <li>3. Security &amp; Mobile: Security lock system with one master key &amp; easy transportation with four all directional lockable wheels.</li> <li>4. Storage: Keyboard, Mouse Drawer, Side shelf for Laptop.</li> <li>5. Standard Features: <ul style="list-style-type: none"> <li>• Electric Hydraulic Systems for monitor(Compatible up to 22inch monitor).</li> <li>• Multifunction Switcher Control Panel.</li> <li>• Wooden Top with Centralized LockingSystem.</li> <li>• Cold Rolled Steel Cabinet with 9U Standard Rack and Centralized LockingSystem.</li> <li>• Access doors from both sides for quickservice.</li> <li>• Industrial Standard Castor Wheels withQuick Lock Pad- Full-fledged Sound System.</li> <li>• Space to keep other devices such as PC,Laptop, Visualizer.</li> <li>• Provision for Cooling Fan and External</li> <li>• Power Source.</li> <li>• Optional Branding for Brass Logo orSticker Work.</li> <li>• Space to place the visualizer/documentcamera between touch monitor and sliding top.</li> <li>• Built in 8 ports PDU.</li> </ul> </li> </ol> <p><u>SITC of Controller</u></p> <ol style="list-style-type: none"> <li>1. Features: Power ON/ Off, Projector / Display on/ off, volume control, External PC, Input, Touch pad Keys.</li> <li>2. I/O Parts (ON Front Panel of the cabinet): USB x1, HDMI IN x1, AUDIO OUT x1, SOUND IN x1, VGA x 1</li> <li>3. LAN Connection: RJ 45 LAN Port</li> <li>4. Source selection: Switch to toggle between various sources for the output on the projection screen throughtouch panel</li> </ol> <p><u>SITC of Audio</u></p> <ol style="list-style-type: none"> <li>1. Wireless Microphone system: Hand Held Microphone x1, collar Microphone x1, wireless Microphone Receiver x1</li> <li>2. Gooseneck Microphone: 80CM length, with light, double soft copper tube, 1.5M wire, 3 cores cannon plug.</li> <li>3. Amplifiers and speakers: 100W RMS Amplifier and 4 speakers of 50W RMS each.</li> </ol> <p><u>SITC of Visual Presenter / Document Camera</u></p> <ol style="list-style-type: none"> <li>1. Product structure: Built in and fixed for installation, folded twice_ upright, no need to put it down</li> <li>2. Camera: 20 megapixel or above</li> <li>3. Focus Mode: Auto Focus, Support Digital Zoom and optical zoom</li> <li>4. Light Source: Built in high Strength of LED light</li> <li>5. Interface: USB</li> </ol>
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#### SITC of Touch Monitor

1. Screen type: Scratch resistant
2. Size: 21 inch or above
3. Panel Type: IPS Technology
4. Static Contrast Ratio: 1,000:1 (type)
5. Dynamic Contrast Ratio: 50M:1
6. Light Source: LED
7. Colors: 16.7M
8. Color Space Support: 8 bits
9. Resolution: 1920 x 1080 (Full HD)
10. Aspect Ratio: 16:9
11. Response Time: 5 ms
12. Viewing Angles: 178(H); 178(V)
13. Backlight Life (Hours): 30000 Hrs Minimum
14. Refresh Rate: 60 Hz or Above
15. Blue Light Filter: Yes
16. Flicker-Free: Yes
17. Touch Screen: Projected capacitive
18. Touch Points: 10-point multi touch
19. Surface Treatment: Hard Coating (7H or Above)
20. Connector Interfaces: HDMI x 1, DisplayPort x 1, VGA x 1, Earphone out x 1 (3.5mm plug), Audio in x 1, USB 3.0 Type B x 1, USB 3.0 Type A x 2
21. Speakers: Minimum 3W x 2
22. Touch: Finger and stylus
23. Power Consumption: Maximum 25W
24. Warranty (in months): 36 or more

#### SITC of CPU

1. Processor: Core i7-10500T (6-Core, 12MB Cache, 3.0 GHz to 3.8GHz, 35W)
2. Operating System: Windows 11
3. Memory: 16GB (2x8GB) DDR4 non ECC memory
4. Hard Drive: M.2 256GB PCIe NVMe Class 40 Solid State Drive
5. Wireless: Intel® Wi-Fi 6 AX201, Dual-band 2x2 802.11ax with MU-MIMO + Bluetooth 5.1 with External Antenna
6. Ports & Slots
7. Power Button
8. Universal Audio Jack – (1 or Above)
9. Line-In/Out - (1 or Above)
10. USB 3.2 Gen2 Type-C Port – (1 or Above)
11. USB 3.0 Gen1 Type-A Ports – (2 or Above)
12. HDMI 2.0b (1 or Above)
13. Thumbscrew
14. Padlock Loop
15. RJ-45
16. K-lock Slot
17. DisplayPort (2)
18. Power Connection
19. Keyboard and Mouse: Wireless Keyboard and Mouse (International English) Black
20. Environmental Standards: ENERGY STAR Qualified
21. Power Supply: 90 Watt AC Adapter
22. Warranty: 36 Months Basic Onsite Service
23. Dimensions & Weight
  - Depth: Max 40 mm
  - Width: Max 200mm
  - Height: Max 200mm

#### SITC OF DSP

1. Frequency Response 20Hz-20 KHz
2. THD < 0.1% , 20 Hz-20 KHz
3. SNR > 106 dB
4. 12 (balanced/unbalanced) analog mic/line inputs and 8 (balanced/unbalanced) analog line outputs
5. Should have one USB audio interface for providing 4 digital audio input and output
6. +48 V DC switchable Phantom power to atleast 8 inputs

		<p>7. Acoustic Echo Cancellation in all the audio input channels with selectable noise cancellation</p> <p>8. A/D,D/A conversion:24 bit,48 Khz sampling</p> <p>9. AEC convergence upto 50 dB/sec</p> <p>10. AEC Tail length &gt; 200 msec</p> <p>11. Noise cancellation upto 20 dB</p> <p>12. Should have features such as gain, filtering, dynamics, feedback suppression, auto mixing</p> <p>13. Should have one RJ 45 Ethernet control port ,one USB control port,one bidirectional RS-232 control port</p> <p>14. Should support protocols ARP, ICMP, IP, TCP, DHCP, HTTPS, Telnet, SSH</p> <p>15. The GUI software used for control /configuration /mixing should work with windows operating system.</p> <p>16. Should have LED indicators.</p> <p>17. Regulatory Compliance: CE, c-UL,UL,C-Tick, RoHS, WEEE</p>
3.	Wireless microphone UHF Wireless Lapel + Headworn Mic	<p><u>SITC OF Wireless microphone</u> <u>UHF Wireless Lapel + Headworn Mic:</u></p> <ol style="list-style-type: none"> <li>1. Type: Wireless</li> <li>2. Form Factor: Handheld</li> <li>3. If Wireless, Operating Range (meter): less than 20 meter</li> <li>4. If Table Top, Length of Goose-neck (mm): 6 millimeterPolar Pattern / Directionality</li> <li>5. Cardioid: Microphone</li> <li>6. Transducer Type: Condenser</li> <li>7. Frequency Response (Hz) 20-20,000 Hz</li> <li>8. Signal to Noise Ratio (dB) &gt;90dB</li> <li>9. Sensitivity: -50 dBV/Pa (3.15 mV)LED Indicator Available</li> <li>10. On/Off switch AvailableVolume Control Yes</li> <li>11. Audio Connector Type: XLR</li> <li>12. Power Source: 12 V DC NOM. /300 MA</li> <li>13. Operating Temperature Range (Degree C): 0-50</li> <li>14. Net Weight (Gram): 300-400 gram</li> <li>15. Warranty (Years): 2</li> <li>16. Number of channels: 16</li> <li>17. Modulation Type : FM</li> <li>18. Operating Time of 8 hours or above with battery</li> <li>19. Noiseless ON/OFF/Mute Switch. Should have gain Control</li> <li>20. RF Output of maximum 10mw</li> </ol>
4.	Wide angle webcamera	<p><u>SITC OF Wide angle web camera:</u></p> <ol style="list-style-type: none"> <li>1. Type of Camera &amp; Speaker Phone Combination: StandaloneUSB Camera WITH STAND</li> <li>2. Resolution: Full HD(1920 x 1080 progressive signal)Compression Format H.264</li> <li>3. Frame Rate: 30 fps Zoom Range Optical N</li> <li>4. Zoom Range: Digital 3X Field of View (Degree) 120</li> <li>5. Controls Settings of PAN , TILT and Zoom: Yes</li> <li>6. Remote Control: Yes</li> <li>7. Integrated Speakers: yes</li> <li>8. Number of MICS: 1</li> <li>9. Auto Focus: Yes</li> <li>10. UL/CE certification Yes</li> <li>11. Certifications available: Yes</li> <li>12. Operating Temperature Range (Degree C): 0 - 50</li> <li>13. Warranty (Year): Minimum 3</li> </ol>
5.	Cables and Connectors	SITC of HDMI cable, EP to EP cables, and other cables as persystem requirement
6.	Full HD PTZ Camera with Accessories for Teacher	<p><u>SITC of Full HD PTZ :</u></p> <ol style="list-style-type: none"> <li>1. Camera: <ul style="list-style-type: none"> <li>• Ultra-HD imaging system supports 4K, 1440p, 1080p, 900p, 720p, and SD at 30fps</li> <li>• 1080p, 720p at 30fps and 60 fps</li> <li>• Smooth motorized pan, tilt and zoom</li> </ul> </li> </ol>

		<ul style="list-style-type: none"><li>• Pan: <math>\pm 90^\circ</math></li><li>• Tilt: <math>+50^\circ / -90^\circ</math></li><li>• 12X HD zoom</li><li>• Field of View</li><li>• Diagonal: <math>90^\circ</math></li><li>• Horizontal: <math>82.1^\circ</math></li><li>• Vertical: <math>52.2^\circ</math></li><li>• Autofocus</li><li>• 3 camera presets</li><li>• Kensington security slot</li><li>• Video mute/unmute LED indicator</li><li>• Standard tripod thread</li><li>• 4k Broadcast PTZ Camera</li><li>• Frames per Second: 60</li></ul> <ol style="list-style-type: none"><li>2. Remote Control: RF remote control with battery</li><li>3. MOUNT: Invertible wall/roof mount</li><li>4. Cables / Power: AC Power adapter</li></ol>
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7.	Video Conferencing kit for Hi-tech classrooms	<p><u>SITC OF Video Conferencing kit for Hi-tech classrooms</u></p> <ol style="list-style-type: none"> <li>1. Type of End Point: 1+7 Multiparty Full HD</li> <li>2. System Resolution: 1080p, 30 fps</li> <li>3. Type of Camera: PTZ</li> <li>4. Camera Positioning System: Automatic</li> <li>5. Voice Activated</li> <li>6. Optical zoom: 10X</li> <li>7. Video and graphics content on video call:1080p, 30fps</li> <li>8. Number of microphone supplied :1</li> <li>9. Wi Fi Connectivity: Yes</li> <li>10. OEM Warranty (Year): 5</li> <li>11. Type of End Point: 1+7 Multiparty Full HD</li> <li>12. Type of sensor: CMOS</li> <li>13. Camera Control (focusing, brightness, white balance) Automatic</li> <li>14. Optical zoom: 10X</li> <li>15. Field of View at zoom (Degree): 65</li> <li>16. Pan range Minimum to Maximum (+/- Degree):100 -100</li> <li>17. Tilt Range (Degree): 20-30</li> <li>18. Cord and Connector to be supplied Yes</li> <li>19. System delivers Full HD video and voice &amp; Full HD content foran overall Full HD experience at specified bandwidth</li> <li>20. Video coding support Protocol :H.263,H.264AVC,H.264SVC,H.264 High Profile System has G-722/ G-711/ G-729 or equivalent</li> <li>21. Wideband audio coding support: Yes</li> <li>22. Number of microphone supported: 2</li> <li>23. Number of microphone supplied: 2</li> <li>24. Number of camera support from the same OEM: 2</li> <li>25. Number of Ethernet connection points for System supports for RJ-45, 10/100/1000 Mbps Base-T Ethernet connection: 2</li> <li>26. System supports AES encryption video calls; System has Encryption On and Off capability: Yes</li> <li>27. Video Codec shall support 16:9 format: Yes</li> <li>28. Power supply: 230 + or - 10% volts, 50 Hz</li> <li>29. All equipment are in compliance with the requirements of ITU-T (SIP Protocol &amp; H Dot 323) Standard related to Video Conferencing: Yes</li> <li>30. System to be IPv6 ready from day one: Yes</li> <li>31. System uses standards based protocols &amp; the offered system isinter operable with any existing H-323 AVC/SVC based VC equipment in a P to P call on VC end point; All H/W and S/Wrequired to make it interoperable is included in the scope of supply: Yes</li> <li>32. Number of Input HDMI or equivalent Ports: 3</li> <li>33. Number of Input USB Ports: 2</li> <li>34. Number of Output HDMI or equivalent Port: 3</li> <li>35. Calendaring Feature: Yes</li> <li>36. System supplied complete with the following components fromthe same OEM <ol style="list-style-type: none"> <li>(a) Codec</li> <li>(b) Camera</li> <li>(c) At least one Microphones with suitable connectivity</li> <li>(d) Remote Control/Touch Panel</li> <li>(e) Data sharing capability using H/W or S/W</li> <li>(f) Necessary Cables</li> </ol> </li> <li>37. Type of Microphone: Omni Directional For cancellation of noise and better audio quality, it should have DSP and HDMI audio extractor</li> </ol> <p><u>SITC OF DSP</u></p> <ol style="list-style-type: none"> <li>18. Frequency Response 20Hz-20 Khz</li> <li>19. THD &lt; 0.1% , 20 Hz-20 Khz</li> <li>20. SNR &gt; 106 dB</li> <li>21. 12 (balanced/unbalanced) analog mic/line inputs and 8 (balanced/unbalanced) analog line outputs</li> <li>22. Should have one USB audio interface for providing 4 digital audio input and output</li> <li>23. +48 V DC switchable Phantom power to atleast 8 inputs</li> <li>24. Acoustic Echo Cancellation in all the audio input channels</li> </ol>
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- with selectable noise cancellation
- 25. A/D,D/A conversion:24 bit,48 Khz sampling
- 26. AEC convergence upto 50 dB/sec
- 27. AEC Tail length > 200 msec
- 28. Noise cancellation upto 20 dB
- 29. Should have features such as gain, filtering, dynamics, feedback suppression, auto mixing
- 30. Should have one RJ 45 Ethernet control port ,one USB control port,one bidirectional RS-232 control port
- 31. Should support protocols ARP, ICMP, IP, TCP, DHCP, HTTPS, Telnet, SSH
- 32. The GUI software used for control /configuration /mixing should work with windows operating system.
- 33. Should have LED indicators.
- 34. Regulatory Compliance: CE, c-UL,UL,C-Tick, RoHS, WEEE

SITC OF HDMI audio extractor

1. It should be compatible with various HDMI source devices. HDMI input: Blu-ray player, DVD, HD player, cable/satellite box, Amazon Fire TV, Apple TV, PS3/4 Pro, Xbox, PC/laptop, HD camera, Chromecast, Fire Stick, Roku,HD DVR etc. HDMI Output: Full HD TV, Monitor, Projector. Audio output: Speaker, amplifier, soundbar or other sound systems.
2. It should have three audio mode: with PASS, 2CH, 5.1CH Three Audio Mode Options, RCA L/R output support PASS 2CH PCM, Optical SPDIF output support PASS 2CH PCM, 5.1CH Dolby Digital, DTS
3. It should have
4. HDMI support resolution up to 4K@30hz, HDMI 1.4b, HDCP 1.4, Full HD 1080P, 3D, 36-bit deep color. Support audio format: DTS-HD/Dolby-trueHD/LPCM7.1/DTS/Dolby-AC3/DSD
5. It should link HDMI Audio Converter and designed to extract the digital audio embedded in HDMI source and output it via optical SPDIF or 3.5mm stereo audio out. Original video/audio signal is also passed through to HDMI output.

**Room controller for controlling volumes etc.**

8.	Spotlight WIRELESS Advanced Presentation Remote	<u>SITC for presentation remote</u> <ol style="list-style-type: none"> <li>1. It should have feature of Digital pointer with customizable options</li> <li>2. Sensor technology: Motion sensor, 3D accelerometer and Gyroscope</li> <li>3. Battery:</li> <li>4. Battery Life (rechargeable): 3 months 4May vary based on usage.</li> <li>5. Battery Details: Rechargeable Lithium Polymer, 85 mAh</li> <li>6. Connection Type:</li> <li>7. Bluetooth Low Energy and 2.4 GHz wireless connection</li> <li>8. Wireless range: 30 metre</li> <li>9. Should compatible with windows</li> <li>10. Presenting environment: Projector screen, TV &amp; LED screens, Video conferencing, Multi Screen.</li> <li>11. Should have proprietary receive with charging cable</li> <li>12. <b>Warranty (years): 3 years</b></li> </ol>
9	Video mixer	<u>SITC OF Video mixer:</u> <ol style="list-style-type: none"> <li>1. Video Input: 8x SDI 4x HDMI</li> <li>2. Computer Graphical Interface: 4 via HDMI</li> <li>3. Video Output: 5 x SDI and 1 x HDMI assignable</li> <li>4. Audio Input: 4 x Balanced XLR</li> <li>5. Audio Output: 2 x Balanced XLR Embedded Audio</li> <li>6. Support Input: Up to 16 channels</li> <li>7. Output: 4 channels Audio Delay</li> <li>8. Calibration Up to 16 frames A+V Switching: Yes</li> <li>9. USK :4</li> <li>10. DSK :2 x DSK supporting Luma key &amp; Linear key (Key / Fill)</li> <li>11. Picture: In Picture 8 (4 x PIP, 4 x Flex Source)</li> <li>12. Built-in Monitor Display: 17.3" HD TFT LED backlit, 1920x1080 pix Streaming Video Encode H.264 / AVC, Main/ High Profile Configurable Bit-rate up to 10Mbps Streaming Audio</li> <li>13. Encode: AAC-LC Configurable bitrate rangingfrom 32Kbps to 384Kbps</li> <li>14. Sampling rate: 48 KHz, 16 bit Streaming Control Web browser UI for configuration and control Socket commands</li> <li>15. Recording File System FAT, exFAT,NTFS</li> <li>16. Recording File Format: MP4 Recording</li> </ol>

10.	VIDEO WALL MATRIX	<p><u>SITC OF VIDEO WALL :</u></p> <ol style="list-style-type: none"> <li>1. Multi Colour</li> <li>2. Video wall display with supply &amp; Video wall controller</li> <li>3. Pixel Pitch :PH6;</li> <li>4. Drive Method :1/8Scan ;</li> <li>5. Frame Frequency :60 HZ;</li> <li>6. Unit Pixel : Single LED;</li> <li>7. Brightness : 6500 cd/m2;</li> <li>8. Gray Scale : upto 16 Bit/2.81 billion ;</li> <li>9. Optimum Viewing Angle (V X H) : 140 X 120 ;</li> <li>10. Input Voltage : 220 vAC ;</li> <li>11. Operating Temperature : 0 to 50 degree centigrade;</li> <li>12. Cabinetbox: Die cast Almunium</li> <li>13. Compatible/suitable for outdoor Installation in open air conditions ;</li> <li>14. Supported Format: Text,Video,Image ;</li> <li>15. Data Entry : LAN,USB, C type Port</li> <li>16. Cabinet Box : IP 65 black Matt Powder Coated back and rear</li> <li>17. Lingustics : Any Language</li> <li>18. Computer System : core i7,8 GB RAM, 1TB HDD , LAN ,8GB Nvidia Graphics;</li> <li>19. Inputs include CVBS×2, VGA=2, DVI×2, HDMI×2 , DP ×2 and SDI×2.</li> <li>20. Support input resolution up to 1920×1200@60Hz;</li> <li>21. HDMI/external audio input;</li> <li>22. 10bit/8bit HD video source;</li> <li>23. The loading capacity: 2.3 million pixels;</li> <li>24. Support multiple controller montage for loading huge screen Support point-by-point correction technology</li> <li>25. Touch Track facility to be there</li> <li>26. Input images can be zoomed point-to-point according to thescreen resolution</li> </ol>
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		<p>27. Stabilizer;• Low &amp; High Voltage Cut-off Protection</p> <ul style="list-style-type: none"> <li>• Working Range: 90V - 280V</li> <li>• Capacity: 22AMP</li> <li>• Single phase,10 KVA</li> <li>• Performs in wide Input voltage range</li> <li>• Primary switching technology</li> <li>• Mains turn-on delay</li> <li>• High power efficiency</li> <li>• Inrush current with stand capability</li> </ul> <p>28. 1.6 mm CRCA sheet canopy with 5mm thick 40mm width angles for structure, standing rail with Standing protection and ladder.</p> <p>29. Height of the structure From Ground – 7 feet Frequency: 2.4 GHZ</p> <p>30. Throughput: 100+ Mbps</p> <p>31. Range: 2 KM</p> <p>32. Physical - 6.82 mm Pixel Density</p> <p>33. Physical - 132 x 176=23232 Pix / tile</p> <p>34. Physical - 21500 Pix / Sq. Mtr. Pixel</p> <p>35. LED Encapsulation Type SMD 2727</p> <p>36. LED Life 100000 Hours</p> <p>37. Brightness 7500 nits (cd/m2)</p> <p>38. Viewing Angle 150 x 140</p> <p>39. Input Voltage 100-240V AC, 50/60Hz</p> <p>40. Power Input Voltage 100- 240V AC, 50/60Hz</p> <p>41. Power Consumption-Max. 594 Watts /</p> <p>42. Tile Typical Power Consumption-Average 216 Watts / Tile</p> <p>43. Tile Physical Dimension Depth: 150 mm Area 1.08 Sq.- Mtr. Height 1200 mm Width 900 mm Weight 29 kg, 63.8 lbs. (Approx.)</p> <p>44. Environmental Conditions</p> <p>45. Temperature Range Operating -5° to 50°C</p> <p>46. Humidity Operating 10 to 90%</p> <p>47. Data Processing Up to 16 Bit Colors Up to 65536</p> <p>48. Refresh ≥3840Hz</p> <p>49. Contrast 5000:1</p> <p>50. Weight Excluding Structure (Approx.) 522 Kgs</p> <p>51. Aspect Ratio 3:2</p> <p><b>52. Diagonal Size (In Inch) 120 inch</b></p> <p>53. In put Power 420 V, 3 Phase, 50 Hz, Neutral, ground (preferred), 240 V Single Phase, Neutral, ground Max Power consumption 10.692 KW Typical average Power consumption 3.888 KW</p> <p>54. File formats JPEG, MPEG, BMP, SWF, GIF, DAT</p> <p>55. Supported Networking Through LAN/WAN</p>
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11	Electrical DB	<u>SITC OF Electrical DB :</u> Power distribution box: 18KVA, 3 Phase, IP66 Rates Power, Input 420V AC (Phase to Phase), Output – 230V AC (Phase to Neutral)
12.	Digital signage	<u>SITC OF Digital signage :</u> 1. Panel Size 43" KIOSK with molding structure 2. Resolution 3840 x 2160 dots (UHD) 3. Brightness: 400 nits or higher 4. Contrast Ratio(type) 1200:1 or higher 5. Respond Time(type) < 8ms or better 6. Viewing Angel(Min.) 178° / 178° 7. Display Type: Portrait 8. Aspect Ratio 9:16 9. System Configuration: Inbuilt OS Android/WebOS/Tizen latest version 10. Memory: 16GB or more 11. Data Interface: WIFI 2.4G IEE802.11b/g/n 2T*2R 12. LAN: RJ45*1 13. USB (Host): USB 2.0*1 USB3.0*1 14. AV Interface 15. INPUT: HDMI 2.0*2, VGA*1 VGA 16. Audio in 17. Output: Headphone Jack*1 18. Speaker: Speaker8W x2 19. Control Remote: Control IR RS23 RS232*1 (RJ45) 20. Language: English 21. Content Management feature 22. Installed in metallic frame with safety lock 23. Environment Temperature: -5 – 40 degree Celsius 24. Humidity Working : 20 - 80% (without condensation) 25. Voltage: AC 90V-264V@50HZ 26. Power Consumption: (Max / Avg in Watt) ≤120W Standby <0.5W (standby mode) 27. Dimension: 968.2*559*60.9 mm Bezel width (T/L/R/B)T/L/R:11.9mm,B:14.9mm
13.	60kVA Online UPS	Supply, Installation, commissioning and Testing of 3In-3out Online Ups 60 KVA standalone/rack mountable working on, IGBT based double conversion digitally controlled microprocessor system, with with SNMP card & LCD display with Two year warrantyThree Rating in KVA (KVA) 60.0 KVA Technology IGBT-PWM without inbuilt isolation transformer Input Power Three phase 300 V - 450V sinewave,50Hz Output power 3 Phase 400V +/-1% with alternative user setable setting of 380V +/-1% 50 Hz Backup time (Minutes) 1 hour Minimum VAH (VAH) 38400 Warranty for UPS (Years) 2 Degree of Protection IP20 20% Overload limit for minimum 10 minutes:Yes Overall Efficiency (%) >=90% 50% Overload limit for minimum 1 minutes Yes GENERIC <u>Rating in KVA (KVA) 60.0 KVA</u> <u>Technology IGBT-PWM with inbuilt isolation transformer</u> Input Power Three phase 300 V - 450V sinewave,50Hz Output power 3 Phase 400V +/-1% with alternative user setable setting of 380V +/-1% 50 Hz Backup time (Minutes) 15 Minimum VAH (VAH) 38400 Warranty for UPS (Years) 1

		<p>Movable trolley for Batteries With trolley &amp; rack  Warranty for battery 1  Degree of Protection IP20  Cabling 5 meters for input and out put Without  Paralleling kit for synchronizing Without  Installation and Commissioning Yes</p> <p><b>CONSTRUCTIONAL</b>  Minimum thickness of M.S. Sheet Enclosure duly painted (mm)1.0  Type of Battery SMF-VRLA conforming to JISC:8702(Pt.I,II&amp;III)</p> <p><b>FUNCTIONAL</b>  Maximum overshoot and Under shoot of output rated voltage 4  Voltage Regulation from no load to full load (%) &lt; / = 3%  20% Overload limit for minimum 10 minutes Yes  Overall Efficiency (%) &gt;/=90%  Total Harmonic Distortion(THD) (%) Maximum 3%  50% Overload limit for minimum 1 minutes Yes</p> <p><b>PROTECTION</b>  Protection for under voltage at battery terminal at 10.5V per 12 V battery. Yes  Protection of Over voltage,Short Circuit &amp; over load at UPS output terminal Yes</p> <p><b>METERING AND INDICATIONS</b>  Digital Metering in UPS for AC Input Voltage,Output AC Voltage,Current,Frequency,Battery Voltage and Current Yes  Indicators for mains presence, Battery charging and discharging,Output Over Load, Low Battery Voltage Yes</p> <p><b>REPORTS AND CERTIFICATION</b>  Damp Heat : in accordance with IS:9000(part 5/sec.2)1981 at Temperature of 40 degree C,two cycles of (12+12) hours each 2007) Yes  Dry Heat Test : in accordance with IS:9000 (part 3/sec.5)1977 (reaffirmed 2007) at 55 degree C for 16 hrs Yes  Cold Test : in accordance with IS:9000 (Part 2/Sec.4)1977 (Reaffirmed 2007) at -10 degree C for 4 hrs. Yes  Availability of the Type Test Report from Central Govt. /NABL/ILAC Accredited lab covering all technical requirements. Yes</p> <p><b>Specifications:</b></p> <ol style="list-style-type: none"> <li>1. Technology: IGBT-PWM</li> <li>2. AC Input Voltage :360V AC~450V AC ± 5V AC, Three Phase</li> <li>3. Output Voltage :400V AC Phase to Phase ± 3% on 100% unbalance load.</li> <li>4. Voltage Regulation ± 1%</li> <li>5. Frequency 50Hz ±0.05Hz( Crystal Controlled )</li> <li>6. Waveform Pure Sine wave</li> <li>7. Efficiency &gt; 92 % for 360V DC</li> <li>8. 20% overload limit for min 10 minutes.</li> </ol> <p>Note: (1.The job includes termination and connection of all input &amp; output cables with proper thimbles/lugs complete in all respects.)  (2. the ups should provided with in-built isolation transformer)</p>
14.	Batteries	<p>SITC OF SMF 12V 100Ah batteries for backup approx. 45-60 mins at 85% load  Note: including suitable size of battery bank rack</p>
15.	Rack	<p>SITC OF Rack, Interlink, DC Cable and UV Coil Breaker</p>
16.	Parallel cable	<p>P/L OF Parallel Cables  As per required specification and size</p>

17.	OFC cable in PLB Duct.	P/L of underground 12 core Optical Fibre Cable in PLB Duct at a depth of 3 to 4 meters. Complete in all respects.
18.	STP CABLE	P/F of Shielded Twisted Pair (STP) cat 6e armoured cable in iron conduit. Complete in all respects.
19.	Power cable	P/L of 4 core 10 sq mm multi stranded armoured copper cable in PLB (permanently lubricated ) Duct of 40mm dia. Complete in all respects.
20.	Power cable	P/L of 3 core 2.5 sq mm multi stranded armoured copper cable in recessed/surface in suitable size of high grade PVC conduit pipes. Complete in all respects.
21.	Power cable	P/L of 3 core 4 sq mm multi stranded armoured copper cable in recessed/surface in suitable size of high grade PVC conduit pipes. Complete in all respects.
22.	Power cable	Supplying and laying of one XLPE insulated & PVC sheathed aluminum conductor armoured power cable of 1.1kv grade of following size in the existing RCC/HUME/STONEWARE/METAL or direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required. Including DWC HDPE pipe as per IS14930 (Part-II) complete with fitting and accessories in ground at the depth of 75cm laying of cable including excavation and refilling the trench etc as required. Complete in all respects. 3.5×185 sq mm cable
23	Bus bar panel	Supplying, installation, testing & commissioning of factory assembled Dust & Vermin Proof wall / floor mounted LT cubical type compartmentalized panel of 400A TPN Aluminum Busbar panel (CPRI Approved) fabricated out of 2 mm thick MS sheet, 300mm Deep with locking arrangement, cable alleys, bus bar chamber etc powder coated self supported suitable for 3 phase 4 wire, AC supply, i/c supplying & fixing following accessories as detailed below, i/c bus bars connections / inter connections to MCCB compartments , arrangement for cable entry, supports, end terminations, 2 Nos. earthing stud inter connection with 25mm x 5mm GI strip (externally), painting, etc. complete as required. The compartmentalized panel consisting of 3 Nos of outgoing compartments for 200 A MCCBs with a minimum space of 250 mm between each outgoing compartments.
24	TPN MCCB	P/F OF 250 Amps. 4P MCCB of breaking capacity 36 kA (Cat No: LV525343) with thermal magnetic release ICU= Ics= 100%, necessary spreader terminals and phase barriers on incoming & outgoing side complete as required (for out going).
25.	TPN MCCB	P/F OF 160 Amps. 4P MCCB of breaking capacity 25 kA (Cat No: LV510317) with thermal magnetic release ICU=Ics=100%, necessary spreader terminals and phase barriers on incoming & outgoing side complete as required (for out going).
26.	TPN MCCB	P/F OF 63 A Amps. 4P MCCB of breaking capacity 25 KA (Cat No: LV510305) with thermal magnetic release ICU=Ics=100%, necessary spreader terminals and phase barriers on incoming & outgoing side complete as required (for out going).
27.	3 phase 415 vlt Digital Volt meter and 3phase ammeter	Supply and Installation of 3 phase 415 Volt Digital voltmeter and 3-phase Ammeter with separate indicators for each phase mounted on top of the front side of panel including all connections.
28.	Extended Rotatory Handel Pannel	Supply and Installation of Extended rotatory handle panel mounted for MCCBs with clear indication of ON/OFF /Trip Indication and having IP 54 degree of protection. (For 100/160/250A MCCBs)
29.	EARTHING	P/F of Maintenance free Chemical Earthing using copper Electrode of size 76 mm dia, 03 meter long connected with 50X6 mm Copper internal strip complete with excavation, civil works, cast iron cover with back fill compound along with 60 kg bag of Back fill compound/SOR Compound (highly

		conductive, non corrosive moisture retaining chemical) complete. The voltage between Neutral & Earth not to exceed 0 volts & IR value less than 1 ohm. The earth resistance shall be as per IS 3043. Copper strip of size 32 mm X 5 mm be connected to main Distribution board
30.	Earthing strip	Supplying and laying 25 mm X 5 mm copper strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of brass nut bolt & spring washer spaced at 50mm)
31.	Earthing bus	Providing and fixing Earth Bus of 50 mm X 5 mm copper strip on surface for connections etc. as required
32.	MCB double pole	Supplying and fixing 63 A rating, 415 V, 16kA “C”curve, Four Pole Miniature Circuit Breaker suitable for Heavy inductive load ,in the MCB DB complete with connections, testing and commissioning etc. as required.
33.	MCB four pole	Supplying and fixing 63 A rating, 240/415 V, 16kA “C”curve, four Pole miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.
34.	MCB double pole, MCB single pole	Supplying and fixing 5 A to 32 A rating, 240/415 V, 10 kA, “C”curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.
		a) Single Pole
		b) Double pole
35.	Power panel	Supplying and fixing following way, horizontal type three pole and neutral, sheet steel, MCB distribution board, 415 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required.(But without MCB/RCCB/Isolator)
		a) 8 way Double Door
		b)12 way Double Door
36.	Electric Distribution board	P/F of Electric board point with earth wire in 4 mm multi stranded PVC copper wire in 1" 2mm PVC pipe/ channel to be laid underground to be recessed in the wall with following accessories of modular series to be fitted on metallic box of suitable size (recess type). Complete in all respects including resurfacing of room plaster. 1. I/O box RJ45 connector                      2 No. 2. 15 Amp Socket FT                              2No. 3. 5 Amp, 5-pin Socket                            2No. 4. Indicator    1No. 5. Fuse     1No.
37.	Power cable	P/F Wiring for light point / fan point /exhaust point / call bell point with 1.5 sq. mm FRLS PVC insulated Copper Conductor Single Core Cable in surface / recessed medium class PVC Conduit with Modular Switch, Modular Plate, Suitable GI box & earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc as required.
		a) Group C
38.	Led lights	P/F of 2 ft*2ft LED luminaries with URG <19 recess mounted with high lumen output with durable housing with Al heat sink with Diffuser to give glare free light with removable driver.
39.	Led lights	P/F of high lumen LED 6500k (4ft ft) wall mounted LED batten, extruded aluminum heat sink provided for efficient heat dissipation & integrated electronic driver complete in all respects. Complete in all respects.

Commercial Terms:

1. Technical specifications have been added in buyer added ATC.
2. 80 % of the payment will be released after receipt of material as per specifications in good condition and remaining 20% shall be released after successful installation and commissioning and furnishing of 3% of performance security deposit of the total value in the form of bank guarantee for the warranty period.
3. Delivery period for the supply of items shall be 70 days in place of 45 days.