ALL INDIA INSTITUTE OF MEDICAL SCIENCES
ANSARI NAGAR, NEW DLHI-29
STORE SECTION(CNC)

Dated: 25.04.2025

TENDER CORRIGENDUM

The Tender No. 104/CNC/NS/2024-25/St. with Tender ID: 2025_AIMSD_848153_1 was published in CPP Portal (e-Procurement) on dated 07.02.2025 for the purchase of **"Surgical Navagation System(Buyback-01no.)-01no"** for department of Neurosurgery, CNC, AIIMS. As per schedule the pre-bid meeting was held on 14/02/2025 wherein various bidders (M/s. Medtronic.com, M/s. Brainlab India Pvt. Ltd.) has attended the meeting and discussed their issues before the TSEC. Upon the request of potential vendors & recommendation of TSEC, few amendments have been carried in the published specification. The bid submission End date, Opening date are also being extended as under:-

Description	Existing	Amended as
Bid Submission End Date & Time	29-04-2025 at 04.00 pm	16-05-2025 at 02.00 pm
Bid Opening Date & Time	30-04-2025 at 04.00 pm	17-05-2025 at 02.00 pm

Item Name: Revised Technical Specification (After pre-bid meeting) for purchase of Surgical Navagation System (Buyback-01No.) **Quantity: 01No.**	
REVISED SPECIFICATIONS	
High End Navigation System for Neurosurgical Use	
Mandatory Requirements	
1	High End Navigation System
a)	The system should be wireless based on Passive Marker Technology.
b)	**The Navigation platform should have High resolution touch screen monitor of a minimum 27 inch or greater and advanced technology will be given preference.**
c)	**Display should be of medical grade and of high resolution. It will be preferable to have good display quality with 4k UHD resolutions (3840 x 2160 pixels).**
d)	**System should have Mobile camera cart with telescopic stand and Articulating joints for Infrared camera alignment. The Infrared camera should be extremely flexible in terms of providing for various adjustments to allow for various positions with camera height (100-250 cm) to allow flexible patient positioning & registration.**
e)	System should have connection panel for plug & play connectivity e.g. with surgical microscopes, fluoroscopes, endoscopes, ultrasound etc. via state-of-the-art digital and analog video inputs supporting up to full HD resolution: 4 x 3G-SDI Video-In/DVI Video-In/ Display Port
f)	**Direct/Fast patient data transfer from/to with USB 3.0**
g)	**The system should have fast simultaneous access to e.g. PACS/hospital network via LAN network with existing PACS or future PACS, which is in use by the Department of Neurosurgery. The responsibility the vendor supplying the navigation machine.**
h)	System should have high-performance computer (Intel® Core™ i9-10900X X-series 10-core Processor 3.7/4.7 GHz, 32 GB RAM memory and 1 TB SSD or better specification). **The processing speed should be good enough to match the requirements of the user department.**
i)	The navigation system should use passive markers without batteries. No disposal of hazardous materials is required after the use of the system.
j)	All requisite applications should be on the Navigation System and can be controlled with touch and/or with mouse and should not require any additional computer.
k)	Navigation system should have a smart software home button to ensure interchangeability between multiple windows at any given point of time as per surgeon discretion. Any changes made on attached window gets automatically updated into navigation window
l)	It should have Digital Recording capabilities inbuilt into the navigation system without requiring any other devices thus keeping the OT clutter free.
2	**Cranial Navigation Software**
a)	System should be capable of performing wide range of cranial procedures with Optical tracking technology**. Electromagnetic navigation technology should be quoted as optional and price of it along with all the accessories required for each case must be quoted separately. If the user**

	departments will require, then they will procure this in future, as EM navigation is used in very cases.
b)	The system should have marker based point registration with an accuracy prediction system.
c)	The system should have marker less surface based registration with accuracy prediction system.
d)	System should have skin sensitive registration to avoid issues like skin shift inaccuracies specially for difficult patient positioning like prone positioning surgeries. With skin sensitive device, point acquisition will be precise as points will not be acquired in air.
e)	The system should incorporate rescue points to recover navigation registration during surgery in case of registration accuracy loss during surgery.
f)	**If the option of touchless registration exists with the supplied system then preference will be given. Cost of this must be quoted separately and it should be supplied with the system.Touchless** laser based registration device must also be supplied. No physical contact should be there with patients and device during registration to avoid errors due to skin shift.
h)	The probe should have the capability to show images at -20mm to 180mm in front of it (Tool Tip Extension).
i)	The system should integrate the existing rigid instruments based on 3D geometry of instruments of various companies, with respect to their diameters, length & vector. Ex 3rd party Biopsy Needles & Stylets. For Navigation purposes, full 3D views of these integrated instruments should be available. 4 instruments simultaneously can be visualized with different colors
j)	The system should be able to have options like Zoom-in, Zoom-out, different layouts, different viewing options, taking screen shots etc.
k)	System should be provided with 10 pieces of pre-calibrated stylet for shunt placement surgeries
3A	**Advanced 3D Contouring Software**
a)	Should be a Quick and easy interactive 3D contouring tool for outlining of pathologies and anatomical structures in medical images
b)	Software should offer an Instant volume generation by outlining on just two orthogonal slices using multi-modal "Side by Side" or axial, coronal and sagittal view configurations
c)	It should offer Intelligent contour propagation with ambient edge detection supporting various CT, MR or PET sequence
d)	Should also have Slice-by-slice contour review using Gallery View layout
e)	Should have Automatic creation of "Volumetric Report" PDF files per object with representative screenshots and details on geometrical measurements like volume, RECIST and Macdonald criteria
f)	It should have fast contour adaptation and should have Intuitive user interface with both mouse and touch control compatibility
3B	**Advanced Image Fusion Software**
a)	Software should offer fast and precise fusion based on mutual information algorithm and helps enables to exploit all anatomical & functional data sets simultaneously
b)	Software should offer fusion of numerous modalities including CT, MRI (T1, T2, FLAIR, MRA), PET, SPECT
c)	It should have automatic pair selection with instantaneous pre-alignment and fusion. A possibility of manual fine-adjustments in all dimensions should also be provided
d)	It should have a definition of a "Region of Interest" in all dimensions to exclude areas from fusion
e)	Software should offer Color overlay in amber-blue and Spyglass functionality for reviews
f)	It should have the ability to fuse a series of image datasets from different modalities and points of time
3 C	**DTI SOFTWARE:**
a)	DTI software should facilitate the processing of diffusion imaging, providing detailed information about eloquent white matter structures using both deterministic DTI and probabilistic CSD-based tractography algorithms.
b)	Software should support multiples views like Brain Projection View, 3D-view, ACS-view, Interactive Tracking, ROI Templates. The Brain projection views should be available while visualization of fiber tracts
c)	Software should have Fiber tracking ROI templates for specific cranial white matter tracts, based on universal atlas. Templates to be included: Arcuate Fasciculus left, CST Motor Right, CST Motor Left, DRT Left, DRT Right, Full Brain, Hand Motor Right, Hand Motor Left, Optic Radiation Left, Optic Radiation Right. It should also have feature of user defined Fiber templates
d)	It should have Fully automated DICOM DTI Data Preprocessing including De-noising, Motion- and Eddy Current Correction
e)	It should have Region-of-interest based tracking of DTI data

f)	Software should have capability for conversion of results into 3D objects for use and export to Navigation.
g)	It should have intuitive user interface for manual adjustment of tracking parameters and instant update of fiber tracking results
h)	It should have Automatic calculation of colored fractional anisotropy (FA) and anisotropic diffusion coefficient (ADC) maps
i)	It should support of DICOM DTI data from Siemens, Philips, GE and other manufacturers using standard DICOM MR diffusion information (at least 6 and up to 256 directions)
j)	Software should provide multicolor output to fibertracts according to their diffusion direction, i.e. separate fiber color for each tract from (1) "Left-Right", (2) "Anterior-Posterior", (3) "Head-Foot".
k)	Software should be provided with manual adjustment of parameters which are fiber angulation adjustment, minimum FA threshold, minimum fiber length to track the particular (or interested) fiber tracts with more precision
l)	Software should be provided with live fiber tracking functions for more interactive and real time.
3D	**Distortion Correction Cranial**:
a)	Software should have more accurate anatomical co-registrations through local deformations based on multi-ROI rigid fusions Image Fusion with distortion correction possibilities for cranial MR data sets. There should be direct comparison corrected with conventional results through toggling
b)	Software should ensure inherent distortions of the short DTI MR sequences are corrected based on higher resolution MR scan to provide DTI data for fiber tracking with improved anatomic precision, ultimately resulting in fibers being more accurately visualized.
c)	Should have Adaptation of distorted MR against reference MR (e.g. DTI to T1) as well as MR to CT
d)	Should support Generation of an adapted, artificial DICOM data set co-registered to the reference data set
e)	It should have Automatic content update like objects and landmarks according to the new registration field
f)	Should Supports automatic and interactive segmentation on new data sets
g)	It should have Colored deformation grid highlights local deformations for detailed inspection
h)	Software should have Amber-blue color overlay and spyglass functionality complement the verification tools
3E	Software for BOLD MRI MAPPING
a)	Software for BOLD MRI mapping showing motoric & speech functional areas of brain should be provided
b)	It should have Automatic import of DICOM BOLD MRI data
c)	It should do Pre-processing of data incl. motion correction, slice time correction and smoothing
d)	Software should provide flexible definition of different functional paradigms
e)	It should support block-designed paradigms for motoric and speech areas
f)	It should provide automatic detection of functional activations
g)	It should provide a time series view for verification of signal to paradigm correlation. **This is an optional feature. If there is any extra cost involvedthen must be quoted separately.**
h)	It should provide Interactive selection and display of functional areas and regions of interest
i)	It should have capability for conversion into 3D objects for use with other applications including navigation
j)	It should have brain surface (Cerebrum) segmentation for enhanced orientation in 3D view
k)	It should support BOLD MRI data from Siemens (incl. Mosaic DICOM image format), GE and Philips (incl. Enriched DICOM) MR scanners
4	**Ultrasound Integration**
a)	**The user department has BK5000 ultrasound machine. The future navigation software must be integratable with the machine and allow for real-time digital ultrasound integration.** The Navigation software should have compatibility with 3D digital Ultrasound which should have color map & Doppler capabilities. Integration of Navigation with Ultrasound should be digital so that there is no attenuation of signal during transmission. Software should have capability for digital integration with the BK ultrasound machine of the Department of Neurosurgery. The responsibility to get this integration done will be with the vendor supplying the navigation machine.
b)	Ultrasound navigation software should be provided with plug and play facility i.e. there is no need to Integrate or calibrate ultrasound probe with navigation software each time during surgery.
c)	Ultrasound navigation software should have ultrasound inline view (real-time ultrasound data superimposed over pre-operative e.g. CT, MRI data) which enables the clinician to diagnose the brainshift intra-operatively at any point during the course of surgery. Also, ultrasound Inline view should facilitate to view pre-operative plans such as fiber bundles, tumor contouring etc.
d)	Software should be able to acquire 3D Ultrasound volumetric data (ACS) intra-operatively and further should be able to navigate on this acquired real-time 3D Ultrasound data.

e)	Software should be able to merge two recently acquired 3-D ultrasound datasets and then, overlay the same on any available imaging data to navigate with enlarged volume of real-time ultrasound data.
f)	Software should be capable of viewing the resection progress i.e. software should have facility to view two most recent 3D ultrasound datasets superimposed over the CT/MR data in axial, coronal & sagittal views.
g)	Software should have the adjustment for Increased transparency view for projecting underlying MRI
	With ULTRASOUND image overaly TO MRI automated rigid fusion between the preop MRI image and the intraoperative 3D ultrasound image, allowing you to update the registration and navigate on the most up-to-date patient anatomy. It Should Provides functionality for an automated rigid US-MR fusion with a sufficient accuracy to update the US-MR registration
h)	Software should have threshold adjustment view for highlighting echogenic structures.
5	Instruments for Cranial Optical Navigation:
a)	Reference frames: Unsterile:1, Sterile:1. The cost must be quoted upfront for each frame.
c)	Navigation Pointers: 3; Unsterile 1 and Sterile 1. The cost must be quoted upfront for each navigation pointer.
d)	Touchless Laser Navigation Pointer: 1. The cost must be quoted upfront for laser pointer.
e)	Surgical instrument integration with diameter, length and instrument trajectory using instrument adapters (S, M, L, XL clamps and ML, L, XL arrays) - 1 Set. The cost must be quoted upfront for each item.
f)	Calibrated Adapter for Cylindrical Instruments. The cost must be quoted upfront
g)	Navigable stylet for Ventricular catheter for Shunt Placement: 2 The cost must be quoted upfront for each stylet.
h)	Fiducial Markers- 100 Pcs. The cost must be quoted upfront for a pack of 50 fiducial.
i)	180 Glions/ Marker spheres. - The cost must be quoted upfront for a pack of 50 Glions/marker spheres.
j)	All sterilisable instrument sets must be supplied with auto-clavable instrument tray. The tray must be customised for the instruments so that instruments are not damaged. There should be slots for each item and must have protective rubberised material to avoid any damage to instruments.
6.	**Integrated Biopsy Solution must be provided with the system. The system should include a frameless biopsy system with navigable needles:** **1. It should have Fine-adjustment for navigated frameless biopsies, shunt placements & endoscopic examination guided by the navigation system.** **2. It Should allow precise online tracking according to the pre-planned trajectory** **3. Should adapt to fit cylindrical instruments, including biopsy needles and endoscopes, of 1.8-2.0mm,2.0-2.5mm,2.5-3.0mm,3.0-4.0mm and 4.0-5.0mm,5.0-6.0mm,6.0-7.0mm,7.0-8.0mm(1.8mm - 8.0mm)and up to 300g; Holds instruments with a length of up to 35 cm.** **4. Software wizard should be user friendly and allow the surgeons to easily perform the biopsy with the desired accuracy.** **1. It will be preferable to have a system that allows the integration of recalibrated biopsy needles as well as autoclavable& reusable biopsy needles available in the Hospital.** **2. 10 Biopsy needles must be supplied with the system.**

1.	General Terms & Conditions
a)	The system should have a 2years warranty followed by the annual CMC with spares for 3 to 10.
b)	The principal must certify that spares and support shall be available for the next 10 years.
c)	Demonstration of the navigation system is a must to the satisfaction of the user. The demonstration is to be held in the neurosurgery OT of C.N.Center. The machine must be provided for 15 days or more so that it can be evaluated by all the faculty members. Neuronavigation system during the demonstration will be assessed for - 1. Accuracy and Precision - Fiducial Registration Error (FRE): Measurement of the error between the physical fiducial markers and their digital representation. - Target Registration Error (TRE): Accuracy in reaching target points within the brain. - Overall System Accuracy: Assessment of the system's ability to maintain accuracy throughout the procedure. 2. Ease of Use and User Interface - User Interface Intuitiveness: Evaluation of the ease of navigation and user-friendliness of the

	interface. - Customization Options: Availability of customizable settings for different surgical procedures. - Learning Curve: Assessment of the time required for the surgical team to become proficient in using the system. 3. System Integration - Imaging Modality Compatibility: Compatibility with different imaging modalities (CT, MRI, DTI, BOLD etc.). - Seamless Integration with Operating Room Equipment: Integration (compatible) with microscopes, endoscopes, C-arm, and other relevant equipment. - Data Import/Export: Efficiency in importing/exporting patient data and imaging for preoperative planning and postoperative analysis. 4. Real-Time Tracking and Feedback - Tracking Accuracy: Assessment of the system's ability to accurately track instruments and anatomy in real-time. - Latency: Evaluation of any delay between instrument movement and system response. - Feedback Mechanisms: Availability of visual, tactile, or auditory feedback during procedures.E.g. overshooting a target while doing biopsy. 5. Workflow and Procedure Planning - Preoperative Planning Tools: Quality and variety of tools available for preoperative planning (segmentation, trajectory planning, etc.). - Intraoperative Workflow: Evaluation of the system's support for intraoperative adjustments and decision-making. - Procedure Documentation: Capability to document and record procedures for training and review. - Ergonomics of the cart and camera arm etc. - Quality of cart, camera arm etc. and their sturdiness. 6. Safety and Reliability - Error Handling and Alerts: Assessment of the system's mechanisms for detecting and alerting errors. - Sterility and Hygiene Compliance: Compliance with sterilization standards and ease of maintaining sterility. 7. Support and Service - Training and Support: Availability of training programs and technical support. - Service and Maintenance: Evaluation of the service and maintenance plans offered by the vendor. - Warranty and Upgrades: Assessment of warranty coverage and options for future software/hardware upgrades. 8. Demonstration Scenarios - Case Complexity: Variety of cases demonstrated (simple to complex). - Clinical Relevance: Demonstration's relevance to typical and challenging neurosurgical cases. - Integration of the machine with existing ultrasound in the neurosurgery operation theater and its user friendliness will also be assessed.
d)	Proper training for OT technical staff should be provided.
e)	Service engineer should be made available as and when required within 24 Hours for onsite support in Neurosurgery OT of the C.N.Center of AIIMS. The service team should be based in Delhi/NCR region. The vendor should have a good service and application backup along with instruments to provide an effective troubleshooting and support.
f)	The cost of all spares and consumables -Brain biopsy needle, Jamshidi needle, reflective/marker spheres, navigation arms, navigation pointers, batteries etc should be quoted upfront and should be valid for 10 years. In case the cost is not quoted upfront and the part is required after consumption or after damage then the company will be bound to supply it free of cost.
g)	Manufacturer or their subsidiary or authorized dealer who is quoting should be present in India Having Selling experience of more than 5 years with at least 5 installations in government institutes/hospitals.
h)	In no case the instrument should remain in non-working condition for more than 7 days, beyond which a penalty as per the rules of the institute will be levied
i)	All technical bids comparative statements to the tender specifications must be enclosed along with reference no.,paragraph no. from the original catalog of the instrument.
j)	The L1 bidder will be calculated based on the cost of machine and software for the mandatory requirement plus the cost of 100 fiducials/glions/markers and cost of 10 biopsy needles.

k)	The company is obligated to provide the latest version of the aforementioned software, including any upgrades or newer versions, to the Department of Neurosurgery at AIIMS at no additional cost during the period of use of the above machine i.e. 2 + 8 years.
l)	Machine must have USFDA/CE/Equivalent Indian certification for neurosurgical use.

The items given below are optional. The cost of each software or hardware should be quoted upfront in the tender. In case the need and requirement are there, the department can purchase these at the later date.

	Optional Advance upgrade software on Navigation System
1	The system can be used as a standalone navigation system and also as per clinical requirement can be added with Robotic Positioning Arm as per brief given below.
2. A	**Robotic Positioning for Cranial and Spine with ROBOTIC ALIGNMENT MODULE**
a)	Should have articulated arm with seven joints enabling seven degrees of freedom
b)	Should have kinematic design with human arm dimensions suitable for efficient draping
c)	Should have fully integrated computer unit and is ready to use within seconds due to a short booting time.
d)	Should be O.R. table mount with a stabilization brace which gets attached to the contralateral OR table rail to increase stability
e)	Should have lightweight design (Less than 20 Kgs) for effortless setup and use
f)	Should have seven LED rings display joint status
g)	Should have manual retraction from surgical site in case of emergency
h)	Should have automatic locking of individual arm joints once target position is reached
i)	Interface software between the robotic arm system and the navigation system, handles communication, serving interface of the arm and attached modules. Automatic detection of arm system via network connection, Selection of movement control modes (touch strip settings),Locking of arm to avoid unintended movement
j)	Alignment Software should provide Visual guidance for alignment to closest trajectory
k)	There should be warning and display of deviation if there is any unintended movement
l)	Instruments allowing the ability to perform transpedicular drilling with the robot/articulated Arm should also be supplied
m)	Alignment Software should also have Visual guidance for return to previously stored end position
n)	It should have automatic locking of individual arm joints once target position is reached
o)	Should have no positional shift after loss of power
p)	One set of MIS instruments should be provided.
q)	System should integrate the existing rigid instruments based on 3D geometry of instruments of various companies, their diameters and length.
r)	Disposable drapes for sterile use of the Robot should be provided (20 pcs)
s)	One stop emergency power off button
2. B	**ROBOTIC ALIGNMENT MODULE**
a)	The robotic module should be able to align a working channel to a preplanned trajectory made possible by additional four degrees of freedom which are motorized.
b)	**The module should portable and light weigh less than 1.5KG with the working space: +/- 10 mm and +/- 10°.**
c)	portable and light weight design - less than 1.4 kg
d)	It has multiple buttons to control navigation workflow steps with the Module
e)	Power and data supply are handled by the Arm System, no additional cables are needed
2 C	**CRANIAL Robotic Alignment SOFTWARE**
a)	Robotic alignment software for Cranial provides visual guidance towards region of interest with a dedicated drill guide and helps keeping incisions small. Special biopsy anchor for the skull adds stability to the setup and pre-calibrated biopsy needle with guide tube facilitate seamless performance
b)	Surgeons can select pre-planned/active trajectory from sterile field and Bone-ruler enables measurements of the skull thickness at the current trajectory

c)	Real-time tracking of robotic instruments (and biopsy needles) allows uninterrupted verification of effector accuracy. Deviation monitoring with adjustable threshold warns user in case of deviations from planned trajectory
2. D	**CRANIAL INSTRUMENTS**
a)	**Device for instant intraoperative calibration of length, diameter and vector of a rigid instrument (if required for the third party Instruments).**
b)	Depth stop for Cranial biopsy drill bit
c)	Pre-calibrated marker geometry tracking array cranial for cranial robotics
d)	Sterilization tray for safe, efficient sterilization (autoclaving) and storage of the cranial biopsy accessories for robotics
2. E	**CRANIAL DISPOSABLES (10 cases)**
a)	**Disposable biopsy needle (5 PCS x 2)**
b)	Disposable kit with Robotic alignment module and a sterile drape (5 qty x 2)
c)	Biopsy guide tube cranial for robotics (10 qty)
d)	**Biopsy bone anchor Cranial for Robotics**
e)	Drill bit Cranial 3.4mm/3.8mm (10 qty)
2. F	**CRANIAL SEEG Alignment SOFTWARE**
a)	Should have the Image-guided surgery software for placement of SEEG anchor bolts with Robotic Arm
b)	Should have the Graphical guidance for easy positioning of the Robotic Alignment Module.
c)	Real-time tracking of instruments mounted on robotic arm (and SEEG needles) allows uninterrupted verification of instrument accuracy.
d)	Deviation monitoring with an adjustable threshold warns user in case of deviations from planned trajectory.
f)	Switching between active trajectories with the buttons of the Robotic Alignment Module.
g)	Bone-ruler enables measurements of the skull thickness at the current trajectory.
2. G	**SEEG instruments (10 cases)**
a)	Cranial Instrument Holder and Tracking Array with 7.5 mm guiding diameter
b)	SEEG Drill kit PMT 2.1 MM/2.4mm / DIXI/ AD-TECH (10 CASES)
2. H	SPINE Robotic Alignment SOFTWARE
a)	Robotic alignment software for Spine provides visual guidance towards region of interest with real-time tracking of instruments including trocar for drilling preparation and drill guide. Automatic alignment to planned screw trajectory after arm positioning. The drill guide teeth designed for forceless anchoring on the bone and length suitable for various patient anatomies
b)	Seamless workflow with navigation-ready instruments including tissue protecting trocar for minimally-invasive spine surgery. It provides stable procedure support when locked in place after alignment and with sharp teeth anchoring on the bone. Vendor-neutral compatibility with multiple implant sets.
2. I	**SPINE INSTRUMENTS**
a)	Instruments such as drill guide tube and drill bit of sizes 2.4mm, 2.6mm, 3.2mm should be provided. (3 sets)
c)	Pre-calibrated marker geometry tracking array spine for spine robotics
d)	Preparation trocar 6mm with depth array for spine robotics
f)	Drill guide depth control setting of maximum drill depth
g)	Sterilization tray for safe, efficient sterilization (autoclaving) and storage of the spinal drilling accessories for robotics
2. J	**SPINE DISPOSABLES**
2.68	Disposable kit with Robotic alignment module and a sterile drape (5 qty x 2) x 5 = 50 qty.
	Advanced Planning Softwares (Optional)
3A	**STEREOTAXY SOFTWARE WITH LEAD LOCALISATION:**
a)	The System should allow Stereotactic localization of MR/CT images and Intuitive definition of AC, PC and mid-sagittal-plane for Stereotaxy planning.
b)	It should support Definition of the trajectory (Target and Entry) in AC/PC relative Coordinates

	(Distances and Angles)
c)	Target and Entry should be displayed in AC/PC and DICOM image coordinates
d)	Should have Automatic localization of the 3D object/shape of the implanted lead from the post-operative CT dataset
e)	It should allow automatic localization of the 3D object/shape of the implanted lead from the post-operative CT dataset. This localized lead can be linked to the 3D Basal Ganglia segmentation in the planning for visualization of the contact point by the user so that further neurological programming can be performed
f)	It should have Automatic Patient specific Multimodal 3D segmentation of Basal Ganglia and integration of the same with Stereotaxy planning is a must.
g)	It should allow Multi-modal image based trajectory planning in stereotactically unlocalized images prior to surgery
h)	Should have Automatic calculation & PDF print out of specific arc settings
i)	It should have Flexible 3D shapes for case-specific trajectory visualization (e.g. DBS leads, sEEG electrodes, shunts,)
j)	Should overlay a model of microelectrodes and DBS leads onto surgical plans providing visualization of lead and contacts relative to the target and surgical plans
k)	Should have Manual editing of detected lead position
l)	Stereotactic software should be fully integrated with MR Cranial Distortion Correction software
m)	Stereotaxy software should have Combined visualization of supplemental information such as Fibertracks, Nuclei and Leads
n)	All Software for DBS and sEEG should be from the same brand which supplies the navigation system
0)	It should Support the below mentioned stereotactic frames, localizers, and ring and arc configurations to meet specific procedure needs: Integra® CRW® - CT and Luminant localizers Elekta™ Leksell®- CT and MR localizers(G frame and Vantage) Inomed® ZD - Rev R, and Rev U localizers
p)	Should Support various mounting orientations for supported frames (e.g. lateral-left, lateral-right, sagittal-anterior, sagittal-posterior)
q)	Should have adjustment of planned trajectory entry point in 3D skin reconstruction view of volumetric data
r)	It should have different viewing layouts to plan, verify the trajectories and then compare the preoperative and intraoperative imaging data (bimodal view)
s)	Should have software generated pre-defined margin for safe planning of trajectories
3B	**Automatic Patient Specific Multi-modal Segmentation of Cranial Objects**
a)	Automatic segmentation of patient specific anatomical brain structures on MR and CT- data sets
b)	Thorough Anatomical Mapping based on Synthetic Tissue Model
c)	Patient specific segmentation of Cranial objects
d)	Segmentation should be based on multiple types of MRI (T1, T2,FLAIR) images of the same patient
e)	Teaching tool for visualization and identification of patient's Brain anatomy in diagnostic images
f)	A customizable list of objects to be segmented depending on workflow and clinical protocol.
g)	The list of segmented objects should include Amygdala, Brainstem, Capsula Externa, Capsula Interna, Central Sulcus,Caudatus, Cerebellum, Cerebrum, Cochlea,CSF,Chiasm, Corpus Callosum, Geniculate body, Globus Pallidus,Gray Matter, Hippocampus, Hypothalamus, Left Amygdala, Left Capsula Externa, Left Capsula Interna, Left Caudatus, Left Globus Pallidus,Left Hippocampus, Left Lens, Left Optic Nerve, Left Optic Tract, Left Putamen, Left Thalamus, Optic Nerve and tract, Pineal Gland, Pituitary Gland, Putamen, Right Amygdala, Right Capsula Externa, Right Capsula Interna, Right Caudatus, Right Globus Pallidus, Right Hippocampus, Right Lens, Right Optic Nerve and Tract, Right Putamen, Right Thalamus, Temporal lobe, Thalamus, Ventricles, Vessel, White Matter, whole Brain, Facial Nerve, Precentral Gyrus, Postcentral Gyrus, Skin, Trigeminal Nerve, Vestibucochlear Nerve, Eyes
h)	It should offer Immediate data processing upon patient selection
3C	**Automatic 3D Basal Ganglia Segmentation**
a)	It should be Automatic MR-based multimodal segmentation of 3D structures in the basal ganglia region
b)	It should be based on Anatomical Mapping based on Synthetic Tissue Model and it should do Immediate data processing upon patient selection

c)	The list of segmented objects should include Globus pallidus internal &external, Nucleus rubber,Substantia Nigra compacta & Reticulata,Subtalamic Nucleus, Ventral Tegmental Area, Ventral Intermediate Nucleus, Zona Incerta
3D	**Software for Surgical AVM planning & Navigation <u>(If applicable)</u>**
a)	Software should provide AVM resection planning in Frameless workflow
b)	It should provide view layouts with 2D-DSA angiographies fused to 3D angiographies, combining vascular flow information with anatomical information
c)	It should provide "Angio + ACS" view and "Angio + MIP" view for very clear AVM outlining & planning
d)	It should have Frameless co-registration of 2D angiography data and 3D vascular image sets
e)	It should provide support of multiple 2D DSA acquisitions: frontal, lateral and oblique angles to support the outlining from different perspectives
f)	It should have manual selection of 2D and 3D fusion pairs enabled
g)	It should have a selection of ROI (Left/Right, Basilar Artery) to support the co-registration
h)	It should have colored visualization of blood contrast flow for better recognition of early and late contrast phase
i)	It should provide further usage of co-registration in navigation workflow.
j)	It should have quick and easy interactive 3D contouring tool for outlining of cranial vascular structures
k)	It should have side-by-side outlining on 2D DSA images and fused 3D image series
l)	It should provide delineation of clinical target under consideration of dynamic contrast flow
m)	It should provide visualization of 2D DSA projection as Color Intensity Projections
n)	It should have proposal of nidus object
o)	It should have capability for seamless outlining and fine-tuning of objects with Smart Brush, 2D and 3D Brush in 3D image data and in DSA projections
p)	It should have dedicated view layouts with selection of various fused 2D DSA pairs
q)	It should have capability for creation of multiple nidus objects for staging and follow-up
r)	It should have further usage of vascular objects in navigation
0	**Spine & Trauma Navigation:**
a)	The system should be provided with Sterile-wireless user interface communication device or a sterile remote for acquiring the points independently. **<u>Sterile wired or wireless communication device is also acceptable.</u>**
b)	System should offer a simple patient registration with few defined anatomical landmarks on an operating bone and rest all registration landmarks should be randomly acquired
c)	System should support the patient registration based on pre-planned anatomical landmarks on 3D model of patient CT images and guide the surgeon to acquire the same during registration for small bony anatomies like cervical spine. Also, software should be able to identify that planned landmarks are on the bone for acquired registration.
d)	System should also guide the surgeon on deviation from the planned trajectory of the screw. Real-time information on angle and distance to target should be provided by the system
e)	Software should be offer Simultaneous navigation on multiple fused datasets
f)	Software should be able to co-register the CT and MR imaging data and navigable with MRI images during spine tumor navigation procedures
g)	Software should be able to view the planned trajectory of the screw at various depths.
h)	Real-time tracking and 2D/3D visualization of a pointer and of up to 4 instruments simultaneously in various views.
i)	System should be implant independent wherein screws from any implant company can be used for navigation.
j)	The system should be an open platform allowing the use of instruments from any implant company. The instrument calibration should use a calibration matrix to calibrate any rigid instrument for its length, diameter and vector and 3D simulation or the instrument or the screw should be displayed on the navigation screen while navigating with the calibrated instrument or screw.
k)	**<u>Software should have a feature to select rescue points in case the reference frame moves accidently</u>**
l)	Software should offer auto pilot view for the Screw navigation
m)	Software should offer a cine view which plays through the slices on which planned screws perpendicularly intersects

n)	Software should provide a variety of navigation view options like Inline view, Probe's eye views, 3D view, DRR view, Cropped DRR view, Autopilot view, Spot View for planning and safe placement of the screws
o)	**Planning Software to automatically labels vertebrae for 2D and 3D datasets (CT, CBCT), and alternatively manual labelling and correction of labelling, suggests measurements on 2D images (AP / LAT), e.g. kyphosis angle and proposes screws from cervical to sacrum incl. Pedicle and Lateral Mass screws on CT and CBCT. Also support of anatomical variations within the Spine e.g., L6, T13. Automatic rod visualization and rod length estimation, Different screw visualization options, Automatic report for planned screws & measurements**
p)	It should have Digital Recording capabilities inbuilt into the navigation system without requiring any other devices thus keeping the OT clutter free.
q)	It should be able to locally record the procedure in digital HD quality of any display content (e.g. navigation software, microscope or endoscope video).
4 B	**Automated Screw Planning Software:**
a)	Software should be capable of Manual planning of any type of screws on CT, XT and MR imaging modalities
b)	Automatic Screw planning of thoracic and lumbar pedicle screws on CT in which software proposes, plans and places the screw diameter, length automatically based on anatomy
c)	Software should be able to visualize rods and rod length estimation automatically for proposed pedicle screws
d)	Software should be capable of showing different screw visualization options i.e. detailed shapes or standard trajectories
e)	Planning Software to automatically labels vertebrae for 2D and 3D datasets (CT, CBCT, MR), and alternatively manual labeling and correction of labeling, suggests measurements on 2D images (AP / LAT), e.g. kyphosis angle and proposes screws from cervical to sacrum incl. Pedicle and Lateral Mass screws on CT, CBCT and MR. Also support of anatomical variations within the Spine e.g., L6, T13. Automatic rod visualization and rod length estimation, Different screw visualization options, Automatic report for planned screws & measurements
4C	**Software of Segmentation Spine**
a)	Automatic segmentation of anatomical vertebrae, spinal cord and spinal canal on CT data sets
b)	Objects are created for each anatomical structure, which can be visualized in spine planning, navigation and augmented reality applications
c)	Thorough Anatomical Mapping based on Synthetic Tissue Model
d)	Automatic body part detection like :Spinal Canal, Spinal Cord, Vertebra C01, Vertebra C02, Vertebra C03, Vertebra C04, Vertebra C05, Vertebra C06, Vertebra C07, Vertebra L01, Vertebra L02, Vertebra L03, Vertebra L04, Vertebra L05, Vertebra S, Vertebra T01, Vertebra T02, Vertebra T03, Vertebra T04, Vertebra T05, Vertebra T06, Vertebra T07, Vertebra T08, Vertebra T09, Vertebra T10, Vertebra T11, Vertebra T12
e)	Customizable list of objects to be segmented depending on workflow and clinical protocol
f)	Immediate data processing upon patient selection configurable
5	**Instrument for Spine Optical Navigation:**
a)	Basic spine referencing set
b)	Precaliberated awl, pedicle probes -lumber and thoracic.
c)	Accessory Package for Minimial Invasive Spine Surgeries
d)	90 Glions/Marker spheres
6	**Video Documentation Software**
7	**MICROSCOPE INTEGRATION:**
a)	Navigation System should be capable of Integration with Navigation Ready latest Microscope from Leica / Zeiss / Haag Streit. These features should be available with the vendor currently and the vendor should provide an authorization from the manufacturer confirming that these features are currently released and available, however the department can decide to purchase these features at a later date
b)	The system should have Multicolor HUD which allows to allocate different colors to different organs in contouring.

c)	Microscope integration to provide Compensation for anatomy shift by matching vessels (Maximum Intensity Projection) or planned objects with anatomy seen. This integration should have the capability for the Microscope to Autotrack pointer & autofocus accordingly. These Augmented structures include anatomical objects like vessels, fiber tracts, trajectories and points. Visualization of these augmented planned structures injected as semi-transparent volumes into ocular
e)	Should allow to Tag region of interest with 'Set Pin' / 'Delete Pin' and help Move to stored Pin in six degrees of freedom. It should help to stay on Pin in six degrees of freedom and follow navigated instrument tips. It should also Align with navigated instrument's axis in six degrees of freedom
f)	The Navigation system should have the software that allows microscope Automatic follow and focus to navigated instruments' tip (i.e. tool tracking with smart autofocus)
g)	The Navigation software should have the Augmented Reality feature with Robotic Movement (6DOF) functionality for the Robotic Visualization System with available microscope model at department (ZEISS KINEVO 900)

OTHER TERMS & CONDITIONS

1.	The Original Equipment Manufacturer (OEM) provide an undertaking affirming their responsibility to ensure continuous service delivery throughout the warranty and CAMC periods, even in the event of a change in the authorized distributor /vendor for any season.
2.	Accessories & Consumable: The price list of all spares parts, accessories, consumable items (required to use on machine) should be quoted separately in the Financial bid section (PDF) and the quoted rates will be valid till the warranty & CAMC period (i.e. 10 years) from the date of installation of equipment. If, the price of any spares, consumables/accessories/ parts not quoted by the firm in the price bid and will be required in future to run the system, the same must be supplied by the firm at free of cost without any further term & conditions.
3.	**Buy-back offer:** The existing S7 Navigation Machine (Sr. No. N01056088) Model-Stealth Station S7, Make: Medtronic Trading NL BV, Netherland installed in 2012 is to be sold under buy-back basis. The reserve price of this equipment is Rs.4,25,000/-. The vendors are advised to see this equipment's with prior permission of HOD, Neurosurgery and must quote their buy-back price (must not be less than Reserve price) in the price bid section & BOQ. The buy-back price will be considered (minus) for ranking purposes.
4.	The product or its earlier model should have been marketed in India during last for at least 2 years. The parent company should certify that the quoted product is not going to be out of the assembly line for at least 10 years from the date of quotation. The parent company should give an undertaking to provide the spares/accessories/consumables required to run the equipment, during the warranty & CAMC period, as and when required basis. If the equipment is software based and new software is introduced within five years, all the updates will be provided by the OEM/Supplier free of cost.
5.	Compliance Statement: The vendor must provide, in tabular form, a comparative chart of the required technical specification and technical specification of the quoted product. The vendor must give the relevant page number and paragraph number in their literature regarding that technical information in the technical bid. Merely stating "complies" or meets requirement" will lead to assumption that the quoted product does not have the required feature.

6.	Important Conditions: • The bidder must quote rates of equipment with **02 (two) years onsite Comprehensive warranty (Including all spares, all accessories, batteries, all 3rd party items and labor)** from the date of Installation of equipment. Further bidder must quote rates of **Comprehensive Annual Maintenance Contract (CAMC) Including all spares, all accessories, batteries, all 3rd party items and labor, for 3rd to 10th years,** after expiry of two years comprehensive warranty. In case, bidder not quoted rates for CAMC, it will be treated included and must be provide 10 years comprehensive warranty within quoted rates of equipment. No CAMC proposal will be considered later on. **Note: -The cost of equipment and Software for the mandatory requirement + Cost of 100 fiducials/glions/markers + 10 biopsy needles + CAMC (NPV) –buyback value (inclusive of GST), will be considered for ranking (L-1) purpose.** • The L-1 bidder must submit copies of previous supply order placed by AIIMS, New Delhi or any other Govt./reputed Pvt. Hospitals/Organizations within one week of receiving the information for ascertaining the price reasonability of quoted equipment/instruments.
7.	The principal firm must certify that spares, consumables, accessories & support shall be available for the next 10 years.
8.	It will be the responsibility of the vendor to submit a proposal of CAMC at least 6 months before expiry of warranty period and previous CAMC.
9.	If desired by the TSEC, Demonstration of quoted product would be mandatory at AIIMS, New Delhi premises. Only seven days will be given for the preparation of the demo unit, and no further extension will be provided. All bidders are advised to keep their quoted product ready for demonstration. None attending the demo meeting/non-demonstration of quoted product, the bid will be summarily rejected. The machine must be provided for 15 days or more so that it can be evaluated by all the faculty members, failing which your bid will be disqualified/rejected.
10.	Proper training to Technical/related officials for the proper use of the equipment, must be provided by the company/vendor at free of cost.

All remaining terms & conditions of floated bid will remain same. The bidder must see the above amendment and quote their product accordingly.

for 26/4/2025

Stores Officer (CNC)