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05-12-2025

CORRIGENDUM-I

Tender No. TENDER/2025-26/181
Date of Publication: 31-10-2025
Date/Time of Closing: 24-11-2025,15.00 hours

Indian Institute of Technology Palakkad Invites TENDER under Two-bid system for the:

SUPPLY, INSTALLATION,TESTING AND COMMISSIONING OF GROUND PENETRATING RADAR AND GNSS

It is hereby conveyed that the Closing Date and Time for the submission of Bids for the Tender cited in the reference have been extended till 18-12-2025, 17.00 hours

Changes in Technical Specifications are as attached in the pdf.

REGISTRAR
IIT PALAKKAD

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ANNEXURE–I

Name of the Item :	Ground Penetrating Radar and GNSS
Quantity:	1
Warranty Period:	1

TECHNICAL SPECIFICATIONS

S. No.	Items	Existing Specification	Modified Specifications
1	Geophysical Utility Inspection Equipment (Ground Penetrating Radar – GPR)	Supply of Geophysical utility inspection equipment (GPR) to detect and mark buried metallic and non-metallic utilities.	Supply of utility detection GPR capable of identifying buried metallic & non-metallic utilities, suitable for urban and mixed-soil conditions.
		Antenna: 250 MHz Ultra-Wide Band (UWB), tunable through inbuilt software; detects utilities up to 8 m depth in varying soil moisture; bandwidth-to-center frequency ratio = 1.	Antenna: UWB antenna of ~250 MHz class (±20 MHz), software-tunable, capable of achieving up to 8 m depth in varying soil moisture; bandwidth-to-center-frequency ratio approx. 1.
		Instrument Weight: Less than 22 kg; floating sensor mounted on a fiberglass cart with integrated odometer and self-calibration for multiple surface types.	Instrument Weight: System weight ≤25 kg; includes floating or low-drag sensor platform with odometer and automatic surface

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			calibration.
		Compliance: IC, FCC, ETSI certified for ultra-wide bandwidth (UWB) devices.	Compliance: Must comply with applicable UWB device regulatory standards (FCC/ETSI/IC or equivalent).
		GPS: Internal GPS receiver and external GPS mountable with single cable for power and data transfer.	
		Display Unit: 8” high-visibility, sunlight-readable LCD touchscreen; 1500 NIT brightness; 800:1 contrast ratio; 8 GB internal memory; USB port; Wi-Fi (IEEE 802.11 b/g/n); GPS/GLONASS; resistive touchscreen; IP65 protection (IEC 60529); built-in speaker; in-situ calibration capability.	Display Unit: Sunlight-readable touchscreen ≥7.5″, brightness ≥1200 NIT, memory ≥8GB, USB port, Wi-Fi, multi-GNSS support, IP65 or higher; includes speaker and field calibration capability.
		Display Input: 11–18 Volts, 4 Amps maximum.	Display Input: Operates within 11–18V DC, max current ≤5A.
		Data Acquisition: Instant start/stop; digital equivalent time sampling; temperature and voltage compensation; odometer backup; crosshair depth measurement; DynaQ for real-time signal-to-noise enhancement.	Data Acquisition: Instant start/stop; digital time sampling; environmental compensation; odometer backup; real-time SNR enhancement algorithms equivalent to DynaQ.
		System Performance: 162 dB (hardware) + $10 \cdot \log_{10}$ factor.	System Performance: Hardware dynamic range ≥160 dB or equivalent to ensure deep utility detection.
		Real-Time Processing: Automatic DynaT for selective visualization of small, medium, and large subsurface targets.	Real-Time Processing: Automated target enhancement to selectively visualize small/medium/large subsurface anomalies.
		Operating Modes: Line Scan and	Operating Modes: Line and grid

		Grid Scan; split-screen “Map View” display.	modes; optional split-screen for map/profile visualization.
		User Interface: Auto-hide buttons in Line Scan mode; display up to 30 m of line data; “No Save Mode” available.	User Interface: UI with auto-hiding controls; ability to display long line profiles (~30 m); optional temporary viewing/no-save mode.
		Calibration: On-screen hyperbola velocity calibration for accurate depth measurement.	Calibration: Hyperbola fitting with on-screen adjustment for accurate depth measurement.
		Filtering: 5-level background subtraction filter to emphasize buried utilities.	Filtering: Multi-level background subtraction (≥3 levels) for utility enhancement.
		Interpretation: Touch-to-interpret and export interpretations in .CSV format.	
		Grid Scan Capability: Supports 5×5 m, 10×10 m, and 15×15 m grids; can collect around obstacles; generates and displays depth slices (including incomplete grids).	Grid Scan Capability: Supports grid sizes ≥5m to ≥15m; capable of data capture around obstacles; auto-generates depth slices from complete/partial grids.
		Mapping & Integration: Real-time GPR line and plan map view; automatic Google Earth KMZ generation with path, flags, interpretations, and screenshots.	Mapping & Integration: Real-time plan view with export to geospatial formats (KMZ/KML/GeoJSON).
		Reporting: Save geo-referenced .jpg screenshots (up to 999 per project, 8991 across 9 projects); ability to email mini-report from display.	Reporting: Ability to save large sets (≥900) of geo-tagged screenshots and generate field summary reports.
		Data Export: Single .GPZ file containing all project lines and grids.	Data Export: Entire project export in a unified proprietary or open format equivalent to .GPZ containing all lines/grids.
		System Size (L×W×H): 100 × 70	System Size (L×W×H): 100 × 70

		× 115 cm.	× 115 cm or lesser
		System Weight: Less than 22 kg.	System Weight: 25 kg or lesser
		GPR Sensor Size: 63 × 41 × 23 cm.	GPR Sensor Size: 65 × 45 × 25 cm or lesser
		GPR Sensor Weight: 5 kg.	GPR Sensor Weight: 5Kg or lesser
		Display Unit Weight: 2.83 kg (6.24 lbs).	Display Unit Weight: 3Kg or lesser
		Display Specifications: 8.0" high-visibility, sunlight-readable LCD touchscreen; adjustable backlight; 1500 NIT brightness; 800:1 contrast ratio.	Display Specifications: Touchscreen ≥7.5″, brightness ≥1200 NIT, adjustable backlight; contrast ≥700:1.
		Receiver Sensitivity: 1.5 microvolts lsb.	Receiver Sensitivity: ≥1.5 microvolts lsb class
		Wireless: Integrated Wi-Fi (IEEE 802.11 b/g/n) and GPS/GLONASS.	Wireless: Integrated Wi-Fi; multi-GNSS support.
		Audio: Built-in 85 dBA speaker with volume control.	Audio: Built-in greater than 80 dBA speaker with volume control.
		Ports: USB for data transfer.	
		Battery: 12 V sealed lead-acid gel type; 9 Ah capacity; 4–6 hours field operation; 1.25 A current; including one spare battery.	Battery: 12V battery, ≥9Ah, ≥4 hours operation; spare battery required.
		Battery Weight: Less than 4 kg (8.8 lbs).	Battery Weight: 5kg or lesser
		Charger: Built-in charger with status indicator; input 100–240 V, 1.5 A, 50/60 Hz; output 12 V @ 3 A.	Charger: AC charger 100–240V; ≥12V, ≥3A output.
		Environmental Protection: Ruggedized and environmentally sealed; IP65 protection.	
		Operating Temperature: −40 °C to +50 °C.	Operating Temperature: −30°C to +50°C or better.
		Relative Humidity: 10–90% (non-condensing).	

		Charger Temperature Range: 0–30 °C.	Charger Temperature Range: 0–30°C or wider.
		Regulatory Compliance: EMC (FCC, CE, IC, ACA, RSM) and Safety (TÜV, CE).	Regulatory Compliance: EMC and safety compliant (CE/FCC/TÜV/IC or equivalent).
		Carrying Cases: At least two, suitable for display, battery, sensor, external GPS, and cables.	Carrying Cases: Minimum two hard cases for all components.
	Software Package (Field + Office)	Comprehensive software suite must be provided for field data acquisition, processing, visualization, and reporting.	
		Data Management: Handles complete GPR Project (.GPZ) organization, including all line and grid data under one project folder with metadata tagging.	Data Management: Project structure supporting full line/grid hierarchy similar to .GPZ.
		Field Data Visualization: View real-time Line Scans with AutoGain; live map-view display showing GPR track and GPS path; real-time flagging and interpretation tagging.	Field Data Visualization: Real-time line view with automatic gain optimization, live map-view display showing GPR track and GPS path; real-time flagging and interpretation tagging or equivalent.
		Post-Processing Tools: Depth-slice generation (automatic and manual); background subtraction filtering; smoothing and gain control; hyperbola fitting; layer-tracking features.	
		Mapping Tools: Integration with Google Earth, displaying survey paths, marked utilities, and screenshots; import site base maps and overlay survey lines.	Mapping Tools: Export to KMZ/KML/GeoJSON; supports base map imports & overlaying survey lines.
		3D and Grid Visualization: 3D preview of grid data; photo slicer function to scroll through depth slices interactively; color-coded layer visualization.	3D Visualization: 3D preview and interactive depth-slice navigation.
		Editing and Optimization: Grid editing; merge/split functions for	

		scans; line scan optimization tools for noise reduction and alignment.	
		Interpretation and Export: Add on-screen interpretations; auto depth annotation; export interpretations to .CSV; export data to other GPR software formats.	
		Reporting: In-built reporting engine allowing creation of survey reports, embedding screenshots, flags, interpretations, and GPS coordinates.	
		Multi-View Display: Supports viewing multiple GPR line scans simultaneously for correlation; side-by-side depth slice and line scan comparison.	
		Additional Capabilities: Add media files (images, videos, notes) to interpretation flags; launch Google Earth directly from software to visualize targets; background image overlay in map view.	
		A minimum of three days of on-campus, onsite training must be provided, covering both hardware and software, including all operational and data processing modules.	
		Minimum of one year warranty should be provided for the GPR instrument supplied for any manufacturing defects.	
2	GNSS Receiver	High-precision multi-frequency GNSS receiver suitable for survey-grade positioning and mapping applications.	
		Number of Channels: 1408 or more for simultaneous multi-constellation tracking.	Number of Channels: Minimum 1400 or more for simultaneous multi-constellation tracking

		RTK Accuracy (Horizontal/Vertical): H: 8 mm + 1 ppm RMS / V: 15 mm + 1 ppm RMS or better.	RTK Accuracy: Horizontal ≤10 mm + 1 ppm; Vertical ≤15 mm + 1 ppm.
		Initialization Time: Less than 10 seconds.	
		Initialization Reliability: Greater than 99.9%.	
		Code Differential GNSS Positioning Accuracy: Horizontal ±0.25 m + 1 ppm RMS / Vertical ±0.5 m + 1 ppm RMS or better.	Code Differential Accuracy: Horizontal ≤0.3 m + 1 ppm; Vertical ≤0.5 m + 1 ppm.
		SBAS Accuracy: 0.5 m (H), 0.85 m (V) or better.	
		Post Processing Kinematic (PPK): Supported for offline processing.	
		PPP (Precise Point Positioning): Supported (B2b-PPP, Galileo E6-HAS).	
		Wi-Fi Connectivity: 2.4 GHz, IEEE 802.11 b/g/n compliant.	
		Bluetooth Connectivity: Version 4.2 / 2.1+EDR, 2.4 GHz frequency band.	
		NFC (Near Field Communication): Supported for quick device touch pairing.	NFC: Supported for quick-pairing or equivalent fast-pairing method.
		UHF Radio Frequency Range: 410–470 MHz, 116 selectable channels.	UHF Radio Frequency: 410–470 MHz with multi-channel support.
		UHF Radio Transmission Power: Adjustable 0.5 W / 1 W / 2 W.	UHF Power: Adjustable levels up to 2W.
		UHF Working Range: 3–5 km typical, up to 8–15 km optimal (line of sight).	UHF Working Range: ≥3 km typical; up to ≥8 km under LOS.
		Internal Battery: 7.2 V / 6900 mAh lithium battery providing up to 24 hours of operation (RTK Rover mode).	Internal Battery: ≥6500 mAh providing ≥20 hours RTK operation.
		Charging: 5 V 2.8 A Type-C USB port; supports external mobile	

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		power banks for extended operation.	
		Weight: ≤ 0.8 kg (including battery).	Weight: 1kg or lesser (including battery)
		Dimensions: 132 mm × 67 mm.	Dimensions: 150 mm × 70 mm or lesser
		Operating Temperature: −30 °C to +70 °C.	Operating Temperature: −30 °C to +70 °C or better.
		Storage Temperature: −40 °C to +80 °C.	Storage Temperature: −40 °C to +80 °C.
		Humidity: 100% non-condensing (fully sealed design).	
		Water and Dust Protection: IP68 rated (dustproof and water-resistant, immersion up to 1 meter).	Water and Dust Protection: IP68 rated
		Shock Resistance: 2 m natural drop onto concrete without functional damage.	Shock Resistance: ≥2 m drop resistance on hard surface.
		Internal Storage: Minimum 16 GB ROM or better for raw and processed data storage.	
		Data Output Rate: Selectable from 1 Hz to 20 Hz.	
		Data Output Format: ASCII format compliant with NMEA-0183 protocol.	Data Output Format: ASCII format
		Static Data Format: Supports GNS and Rinex formats.	Static Data Format: Supports RINEX and equivalent GNSS static data formats.
		Network Mode: Supports VRS, FKP, and MAC; compatible with NTRIP protocol for correction data.	
		RTK Protocols Supported: CMR, RTCM 2.x, and RTCM 3.x.	RTK Protocols Supported: CMR, RTCM 2.x, and RTCM 3.x or equivalent
		Software Capabilities: GNSS data acquisition and control software for configuration, monitoring, and	

		management of satellite tracking; supports real-time data visualization, logging, coordinate conversion, and quality monitoring.	
		Software Export and Post-Processing: Supports export of raw and corrected data to RINEX; compatible with major post-processing platforms; includes in-built PPK/PPP analysis module.	Software Export/Post-Processing: RINEX export; compatible with major PPK/PPP platforms; includes built-in PPK/PPP module.
		Data Communication: Integrated wireless communication module enabling base–rover setup, data streaming via UHF, Wi-Fi, and Bluetooth interfaces.	
		User Interface: Simple, intuitive GUI for satellite tracking, data recording, and correction input configuration; supports multi-language interface and firmware upgrade through USB or Wi-Fi.	
		System Integration: Capable of integration with data collectors, total stations, and field controllers via Bluetooth and network protocols.	
		Training Requirement: A minimum of two days of on-campus, onsite training must be provided, comprehensively covering both hardware and software aspects, including all operational modules.	
		Warranty: Minimum one-year comprehensive warranty for the GNSS instrument against any manufacturing defects.	