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Technical Specification

Name of Work: Supply, Delivery, Installation and Commissioning of Laboratory Equipment (AR/VR, IoT, Computer Lab, Power Infrastructure)

S.N	Particulars	Specification	Bidders Offered
1	**Standalone VR/MR Headset**		
	Brand, Model		
	Type	Standalone 6-DoF HMD, inside-out tracking.	
	Display	Min 2064x2208 px/eye, refresh min 75 Hz	
	Processor/Memory	Snapdragon XR2 Gen 2 or better min 8 GB LPDDR5 RAM, min 512 GB storage.	
	Features	Color passthrough, 2x 6-DoF controllers.	
	Connectivity	Wi-Fi 6, BT 5.x, USB-C link.	
	Dev Support	OpenXR, Unity, Unreal Engine.	
	Accessories	Carrying case, 5m USB-C link cable, spare face covers.	
2	**Branded VR/AR Development Workstation with Monitor**		
	Brand, Model		
	Processor	Intel core Ultra 7 265 (30 MB cahce, 20 cores, 20 threads, 1.8GHz to 5.3GHz, 65 W) or better	
	Memory	32 GB DDR5, 5600 MT/s, non-ECC	
	Storage	1 TB performance SSD, Gen 5, SED ready	
	Graphics	Factory Installed- NVIDIA RTX 5070 12GB GDDR7	
	Power/Case	Min 750 W, 80+ Bronze, high airflow.	
	Ports/Net	Min 6 USB, DP 1.4, HDMI 2.1, 2.5 GbE LAN, Wi-Fi 6 + BT.	
	Monitor	27" HD IPS or better	
	OS	Factory Installed, Windows 11 Pro, wired same brand Keyboard + mouse.	
	Warranty	3 years Rapid Parts Exchange Service.	
	Compliance	Official Manufacturers Authorization/ Warranty Letter Required.	
3	**AR-Capable Tablet with Protective Case**		
	Brand,Model		
	Certification	ARKit/ARCore, Unity AR Foundation & WebXR.	
	Display	Min 10.86-inch, min 2360x1640 res.	
	Processor	8-core CPU, 9 Core GPU, 16- core neural engine	
	Memory/Storage	Min 12 GB Unified Memory, 128 GB storage	
	Camera/Sensors	Min 12 MP rear camera, 12MP front camera.	
	Connectivity/Battery	Wi-Fi 6, BT 5.x, USB-C, min 7,000 mAh.	
	Accessories	Protective case & tempered glass protector.	
4	**Development Environment Set-up and Starter Demos**		
	Brand,Model		
	Pre-install/configure	Unity Hub (AR Foundation, XR Interaction Toolkit), Blender, Git, VS Code, Python 3.x, Android Studio.	
	Deploy 3 starter demos	(a) VR training scene, (b) AR object-placement app, (c) WebXR page.	
5	**VR Play-Area and Storage Accessories**		

	Floor boundary marking kit for play area (min 2.5m x 2.5m per user). Wall/bench-top charging & storage rack for headsets/controllers with surge-protected PDU strip. Reference model: Custom VR Play-Area Kit & Storage Station		
6	**IoT Development Kit Set**		
	Brand,Model		
	SBC	ARM Cortex-A76 (2.4 GHz), 8 GB RAM, Wi-Fi, BT, GbE, 27W PSU, cooling case, 64GB MicroSD with Linux.	
	ESP32 (2x)	Dual-core, Wi-Fi+BLE, 4MB Flash.	
	Arduino UNO (1x)	With USB.	
	Sensors	Temp/humidity, soil, ultrasonic, PIR, IMU, GPS, OLED, relay, motors, RFID, 5MP Camera.	
	Accessories	830-pt breadboard, wires, components box.	
7	**LoRaWAN Gateway with End Nodes**		
	Brand, Model		
	Gateway (1x)	Indoor 8-ch LoRaWAN 1.0.3+ (Class A/B/C) in NTA band (433 MHz), Ethernet + Wi-Fi, ChirpStack packet forwarder, PoE/DC.	
	End Nodes (6x)	LoRa MCUs with antenna, battery, temp/humidity & soil moisture sensors.	
8	**Digital Storage Oscilloscope**		
	Brand,Model		
	General Specification	Bandwidth min 100 MHz, min 2 ch, sampling min 1 GSa/s, memory depth min 64 Mpts, 7" color display, I2C/SPI/UART decode, Plug & Play USB interface. Automatic Measurement of Waveform Parameters. Waveform recording functions.	
	Waveform capture rate	5000 wfms/s	
	Rise Time	<3.5ns	
	Vertical resolution	8bit	
	Input impedance	1MΩ±2% ,18±3pF	
9	**Programmable DC Bench Power Supply**		
	Single output, 0-30 V / 0-5 A (150 W), res 10 mV / 1 mA, OVP/OCP protection, USB interface.		
10	**Digital Multimeter**		
	True-RMS, min 6,000 counts, auto-ranging, AC/DC V/I, resistance, cap, freq, temp, CAT III 600 V.		
11	**Soldering Stations & SMD Hot-Air Rework Station**		
	Brand, Model	Reference model: Hakko FX-888D (2x) + Quick 861DW (1x) Package	
	Soldering Station (1x)	Digital temp control, min 60 W, 200-450 °C, ESD-safe, 3 spare tips.	
	Hot-Air Rework (1x)	Min 600 W, temp 100-450 °C, adjustable airflow, nozzles.	
12	**FDM 3D Printer**		
	Build: Min 256mm*256mm*256mm, Hotend: Max 260 °C, Hot bed : 110C, auto levelling, direct-drive, PLA/PETG/TPU, Wi-Fi, Max Speed 600 mm/s.		
13	**ESD Bench Tool Kit**		

	ESD mat with wrist strap & ground cord, precision driver set, strippers, cutters, pliers, crimpers, ESD tweezers, LED magnifier lamp, desoldering pump, solder wire, heat-shrink.		
14	**Electronic Component Starter Stock**		
	Resistors, capacitors, LEDs, diodes, transistors, ICs (555, op-amps, logic, regulators), buttons, headers, perfboards in labeled storage boxes.		
15	**Branded Desktop Computer with Monitor**		
	Brand, Model		
	Processor	Min 14-Core vPro Processor Intel(R) Core (TM) i5-14500 vPro(R) (14 cores, upto 5 GHz) or better	
	Memory	Min 16 GB DDR5 RAM, 4800 MT/s.	
	Hard Drive	Min 512 GB M.2 PCIe NVMe SSD.	
	Operating System	Factory Installed Windows 11 Pro.	
	Graphics	Integrated High-Definition Graphics.	
	Connectivity	Wi-Fi 6 (802.11ax, 2x2, MU-MIMO), Bluetooth.	
	Keyboard & Mouse	Same brand Standard USB Wired Keyboard with AI Hotkey (US English) & USB Optical Mouse.	
	Power Supply	Min 180W Power Supply.	
	Monitor	Same Brand 24 inch	
	Warranty	Min 3-Year Rapid Parts Exchange Service.	
	Compliance	Official Manufacturer's Authorization Form (MAF) required.	
16	**Managed PoE+ Switch**		
	24x GbE RJ45 (min 24 PoE+ 802.3at, budget min 250W) + 2x 1G SFP, Layer 2+ managed, Switching Capacity: 56Gbps min, rackmount.		
17	**Wi-Fi 6 Access Point**		
	Dual-band Wi-Fi 6, Maximum wireless data rate: 1800Mbps min, PoE powered		
18	**Gateway / Firewall Router**		
	Min 6 GbE ports, Dual-WAN failover, RouterOS supported, VLAN, DHCP, VPN (WireGuard/IPsec), content filter.		
19	**Structured Cabling and Network Rack**		
	Cat6 cabling for 20 nodes, 12U wall-mount rack with fans/PDU, 24-port patch panel, patch cords, trunking, Fluke certification report.		
20	**Online UPS (1 x 6 kVA + 1 x 1 kVA)**		
	True online double-conversion, 230V ± 1%, backup min 15 mins @ 80% load with SMF battery bank, LCD display, USB/SNMP. 1x 6 kVA for desktops + 1x 1 kVA for server/rack.		