GOVERNMENT OF INDIA
(Ministry of Home Affairs)
DIRECTORATE GENERAL
CENTRAL RESERVE POLICE FORCE
EAST BLOCK-7, SEC-1, R.K. PURAM, NEW DELHI-110066
(Tele/Fax No-011-26107493, Email-Id: comncell@crpf.gov.in)

No. B.V-7-C/2023-24-C(3DLS)   Dated, the ۷۱ August'2023

Subject:- REQUEST FOR COMMENTS OF STAKEHOLDERS/OEM/FIRMS ON QRs (QUALITY REQUIREMENT) & TDs of "3D LASER SCANING AND IMAGING SYSTEM"

1.   The QRs/TDs "3D Laser Scanning And Imaging System" is attached as **Appendix 'A'**. The OEMs/Vendors are requested to forward information of the product, which they can offer and also forward correct specifications of their system against each parameter. Only complied or not complied remarks will not be accepted. The firms are also requested to furnish the following details:-

- Whether you are OEM/Vendor?
- If vendor details of OEM.
- Authorization certificate from OEM.

2.   The required information/details may please be forwarded at the following addresses by **5th September'2023**.

Communication & IT Directorate.

Directorate General CRPF

Level-4, East Block-7, Sec-1, R.K.Puram

New Delhi-110066

Email: comncell@crpf.gov.in

3.   An early response is requested.

{Sunil Kumar Singh, DC(Comn)}
For DIG (Equipment)
Directorate General, C R P F

DRAFT QRs/TDs OF
3D LASER SCANNING AND IMAGING SYSTEM

S.No	Specifications	Trial directives
1.	System must provide automatic 3D Scanning with 360 degree horizontal by 300 degree or better vertical field of view	Firm will submit OEM Certificate
2.	Ranging Accuracy **3mm** or better at 10 mtr With user selectable resolution settings	Firm will submit OEM Certificate
3.	**Option-1**:- (a) System must capture objects at a minimum range of 0.65 mtr or lesser and upto 70 mtr or better from axis of scanner (Radial Range). (b) System must support 165 Mega pixels or better panoramic image full dome capture with HDR Image option for up to 5X exposure. (c) Data Acquisition rate must be minimum 5,00000 points per second or better. **Option-2**:- (a) System must capture objects at minimum range of 0.65 mtr to 300 mtr or better from axis of scanner (Radial Range) (b) System must support 165 Mega pixels or better panoramic image full dome capture with HDR Image option for up to 5X exposure. (c) Data Acquisition rate must be minimum 10,00000 points per second or better at 300 meter. (As per user requirement)	(a) BOO will check practically. (b) & (c) Firm will submit OEM certificate.
4.	System must use Waveform Digitization Technology for better results and provide encrypted security (Digital Hashing) to all raw scans in scanner.	Firm will submit OEM certificate.
5.	System must support at least IP54 rating for dust and water protection.	Firm will submit certificate of any Govt Lab, NABL or ILAC accredited Laboratory.
6.	System must provide onsite registration, real time viewing &navigation of image and point cloud data.	BOO will check practically
7.	System must operate on portable single battery with minimum 4 Hrs of operation per battery or better ,and also provide spare battery with suitable battery charger	BOO will check practically
8.	System have scan time roughly 5 minutes per position that should include 165 Mega pixels or better panoramic image	BOO will check practically

S.No	Specifications	Trial directives
9.	System must support universal external memory like standard SDXC card, Micro SD card of standard 3.0 pen drive or better	Firm will submit OEM certificate
10.	System must provide data manipulation, visualisation and modelling capabilities such as creation of 2D drawing and creation of CAD objects and VR viewing capabilities using VR headset.	BOO will check practically
11.	System must support data registration, computation, Security planning, analysis and modelling , web publication, animation and 3D modelling and VR viewing	BOO will check practically
12.	System must allow publication of point cloud into web-based format for online collaboration, support Hyperlink, measurement, markup inside web browser. System should be simple to use and install and should not require server installation.	BOO will check practically
13.	System must come with centralised storage for high speed point cloud rendering with administrative privileges which allow a user to grant access to a particular project.	BOO will check practically
14.	System must be portable and easy to deploy preferably not more than 6kg	BOO will check practically
15.	Capture instrument should support remote operation through Wi-Fi(802.11n protocol) between laptop and instrument.	BOO will check practically.
16.	The scanner shall be supplied with a light weight carbon Fibre Tripod, capable of handling minimum 18kg of payload weight.	BOO will check practically.
17.	The transportation box of the equipment (with all accessories) should be waterproof with **IP 65 or better**	Firm will submit certificate of any Govt Lab or NABL or ILAC accredited Laboratory
18.	Software system must be able to handle unlimited size of point cloud database.	Firm will submit OEM certificate.
19.	Software system must be client server based to allow a single storage of and dissemination of point cloud data.	BOO will check practically.
20.	System must provide sophisticated crash & post event reconstruction Tools	BOO will check practically.
21.	System must provide 2D, 3D and VR viewing capability in synchronized views & must provide visualisation tool like VR/ 3D Goggle.	BOO will check practically..
22.	System must provide minimum three registration methods and algorithms that can be used independently or in conjunction, namely:- (a) Cloud-to-cloud matching. (b) Known targets and 3) Automatic Visual Registration Tools.	BOO will check practically & Firm will also submit OEM certificate.

S.No	Specifications	Trial directives
23.	System must provide Audit Logs for Evidence Integrity.	BOO will check practically.
24.	System must be compatible with Major point cloud handling and publishing software's and should be able to conduct two way communications.	BOO will check practically.
25.	System must provide the ability to register and superimpose internal images automatically and external images (3D Cubic Map and single camera image) on scanned data for photo-realistic presentation.	BOO will check practically.
26.	Provide various scene investigation tools like Bullet Trajectory, camera planner, Security Ring, Security Halo, Animation for reconstruction, Point Cloud overlay on images for measurement and analysis, view point analysis, wizard for creating finished diagrams, sketching mode.	BOO will check practically.
27.	Should support extraction of 2D drawings from 3D models and scanned data.	BOO will check practically.
28.	Should have direct import of each format i.e XYZ, E5 7, LAS, LAZ , LS, PTS, PTX, DXF, FBX, OBJ, ASC, FWS, ISPROJ, TXT, DXF & DWG format.	BOO will check practically & Firm will also submit OEM certificate.
29.	Should have direct export of each format i.e ASC, LAS, OBJ export each format i.e XYZ, IGES, LAS, LAZ, POD, BSF, DXF, RCP, PTS,E57, DXF, DWG, PLY &XML format	BOO will check practically & Firm will also submit OEM certificate.
30.	Must provide 3D limit box to reduce point density	BOO will check practically.
31.	Must provide automatic and manual point density control.	BOO will check practically.
32.	Must provide cloud to cloud registration capabilities	BOO will check practically.
33.	Must support Dynamic level of detail management, displaying different levels of scanned data & 3D model for fast visualization	BOO will check practically.
34.	Take measurement on scanned data, 3D models; slope distances; volumes and surface areas	BOO will check practically.
35.	Must support visualization on mobile/tablet in both mode - online and offline	BOO will check practically.
36.	Must have internal Height Sensor, GPS, GLONASS with inbuilt Compass to provide scan orientation and must support integration with Industrial GIS Platforms	BOO will check practically & Firm will also submit OEM certificate.
37.	Must support integration with3D modelling software like sketch up Pro, Auto CAD, Autodesk, Maya,3DS Max, Blender, Modo, Archi CAD Solidworks, V-Ray,	BOO will check practically & Firm will also submit OEM certificate.

	etc	

S.No	Specifications	Trial directives
38.	Must support visualization with or without server	BOO will check practically & Firm will also submit OEM certificate.
39.	Operating temperature for equipment -20ºC to + 55 ºC	Firm will submit certificate of any Govt Lab or NABL or ILAC accredited Laboratory.
40.	Must be able to create a web share of the captured/processed data to be reviewed at any remote location on any normal configuration of Laptop online and offline without any software installation	BOO will check practically.
41.	Laser Class-1 must comply IEC 60825-1:2014	Firm will submit certificate of any Govt Lab or NABL or ILAC accredited Laboratory
42.	Laser used to scan should be human safe	
43.	Software application must support Integrated Virtual reality mode for better visualization	BOO will check practically.
44.	Point cloud processing software should support all formats of standard point cloud data outputs like e57, PTS and XyZ	BOO will check practically.
45.	Output created by Software should be supported by3D Formatting tools likesketch up Pro, Auto CAD, Autodesk, Maya,3DS Max, Blender, Modo, Archi CAD Solidworks, V-Ray, Mental Ray. Cinema 4D & Houdini etc	BOO will check practically.
46.	Application should support registration of multiple captures/ scans/images automatically	BOO will check practically.
47.	Service / Support of the equipment should be provided on PAN India basis.	Firm will submit OEM certificate.
48.	Training: The bidder shall arrange to provide Onsite training for Anti - Terrorism, VVIP Security Planning, Indoor and outdoor Crime scene scanning and shall essentially conduct a workshop for the same. Firm will provide operating and technical manual	Firm will submit under taking certificate.
49.	OEM Should essentially have a local office in India.	Firm will submit OEM certificate.
50.	Warranty-03 Years or More	Firm will submit OEM certificate.
51.	After sale support- Minimum 05 Years after warranty	Firm will submit OEM certificate.
52.	System must provide device/computer for processing and storage of recce data. This system may be a computing device/laptop. This computing device for data processing must have following specs:-	BOO will check practically.

| | | (a) SSD – 1 TB or better
(b) Processor – i9 with 10 core or better
(c) RAM   - 64 GB or better
(d) OS   - Window 11 or latest version
(e) Graphic card:- In built Nvidia's RTX 4090 or better
(f) MS office:- Office latest version
(g) NAS :- 200 TB with redundancy feature.
(h) Computing device should be compatible with 3D Laser scanning equipment) | |