DIRECTOR GENERAL BORDER SECURITY FORCE
(PROVISIONING DIRECTORATE (Mod Cell)

Expression of Interest

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The Sub-group of Technical Experts on Surveillance Equipments constituted by MHA vide their letter No. IV-1017/18/2001-Prov-I dated 05 Jul 2002 held its meeting at BSF Headquarters on 21st Aug 2015, 27th Nov 2015, 25th Jan 2016, 27th April 2016, 07th June 2016, 05th Aug 2016 and 13th Oct 2016 to revise the QRs of **'X-Ray Baggage Scanning Simulator System (OTS)'.**

After detailed deliberations the referred Sub-group has revised the QRs of **'X-Ray Baggage Scanning Simulator System (OTS)'** which are as under:-

Draft QRs/TECHNICAL SPECIFICATION OF X-RAY BAGGAGE SCANNING SIMULATOR SYSTEM (OTS)

Sl. No.	Draft QR/ Technical Specification
	General Feature:- It should be a computer based programme specially designed for the training of civil aviation security personnel. The programme should be focused on making the security personnel efficient to detect and identify the threat objects at the checkpoints. The system should simulate similar environment as if security personnel are checking the baggage with the help of X-Ray machine.
1.	**Essential Features:-** The system should consist of 2 parts- Theory and simulator. It should have a comprehensive and interactive training package for training, testing and recording the performance of the screeners. It should have provision of Basic Training, Recurrent Training, Certification Test, Performance Test and item library of at least 5000 images of a right mix of threat bags, suspicious bags and clear bags. These images should form a part of the package.
2.	The system should have the capability to be installed on a single standalone workstation, a classroom over a dedicated local area network (LAN), over a wide area network (WAN) and at any remote work station through internet. The system should provide all the users (trainee, trainer and administrator) their own unique and secure logons. The system should be able to support a class of minimum 20 screeners and one instructor and should be upgradeable for up to 200 screeners in future. The up-gradation of up to 200 workstations can be either in the existing location or at remote locations

		connected through LAN / WAN / Internet.	
3.		The system should be provided with all the hardware components required for the purpose with following broad specifications.	
	CPU	Core i5-3220 (3.30 Ghz/ 3MB cache/2 Cores/ 55W) or better	
	Chip Set	Intel H 61 Express Chipset or better	
	Bus Architecture	Integrated Graphics with minimum of 64 MB RAM, 2PCl, 1 PCI express x 1 and 1 PCI Express x 16 or better	
	Memory	4 GB DDR3 RAM with 4GB Expandability or better	
	Hard Disk Drive	500 GB SATA HDD or better	
	Monitor	20" wide LED colour Monitor	
	Keyboard	PS2 keyboard with 104 keys	
	Mouse	Optical	
	Bays	4 Nos (2 Nos 5.25 inches for optical Media Drives and 2 Nos 3.5 inches for Hard Disk Drives	
	Ports	6 USB Ports (with at least 2 in front), 1 serial audio ports for microphone and head phone in front & 1 HDMI port	
	Head Phones	Covering the ear but not of ear plug type	
	Cabinet	Mini Tower	
	DVD ROM Drive	8X or better	
	Networking facility	10/100/1000 on board integrated network port with remote booting facility, remote system installation, remote wake up.	
	Operating system	Windows 7 Professional or Windows 8.1	
	Power management	Screen Blinking, Hard Disk and system Idle Mode in Power On, Set up Password, Power supply SMPS surge protected	
	Preloaded software	Antivirus latest version	
	Printer	Laser Printer-color, paper size-A4, DPI-600x600, Speed-20 ppm BW, C-Port, 1 USB Memory 16 MB, Network card 10/100, simplex	
	UPS	Online UPS, 3.0 KVA, Single Phase AC Input and single phase AC output with back up time of 120 minutes	
4.	**Specification of Server**		
	CPU	Inter Xeon 4CE3-1220 69W 3.1 Ghz/1600Mhz/8MB	
	Mother board	Intel E3-1220 series or equivalent OEM Motherboard	
	Slots	3 PCI/PCI Express	
	Memory	8GB DDR 3 RAM and expandable up to 16 GB	
	Hard disk drive	500GB 3.5 in SFF HS 15K6Gbps SAS HDD or better	
	RAID Controller	P212 Raid Controller with 256 Cache (Raid 0-1-5)	
	Monitor	20" wide LED colour Monitor	
	Video Controller	To support XGA resolution	
	Keyboard	PS2 keyboard with 104 keys	
	Mouse	Optical	
	Bays	4 Bays (Minimum 2 internal)	
	Ports	4 USB Port, 1 serial Port	
	Operating System	Windows 2012 server, Red Hat enterprise Linux 5/ Novell (SUSE Linux Enterprise 11) or Latest Version	

	DVD ROM	8x or better DVD ROM Drive
	Network Management	Dual LAN (10/100/1000) Network card with asset tracking and security management
	Power management	Screen blanking, Hard Disk and system Idle Mode in power on, set up password, power supply surge protected
	Anti Virus	Latest Version.

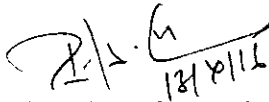| 5	The system should be designed to train the security personnel on all such brands of X-Ray machines in use in India and being used internationally.
6.	The system should provide images of threat and non-threat objects.
7.	The system should have the feature of ongoing training i.e., the trainee should be able to start from where he had left.
8.	The system should have the ongoing certification process to check the ability level of the screener to identity threat images.
9.	The system should be able to assimilate locally captured pictures of baggage being used in India or found in any other training content in both the theory and the simulator version of the system. The hardware and software required for the purpose should also be provided with the supply / installation.
10.	The system should be able to educate the screener from 0% level to an approved level within 40 teaching hours. It should also have the flexibility for meeting the training requirement of various categories of screeners based on their competence level i.e. from novice to experts.
11.	It should have various tests designed to test the level of trainees as follows: Induction: Suitable for completely novice screeners. Training suitable for bringing trainees from low levels to expert level and for recurrent training. Test: For assessing and certifying trainees.
12	The interfaces must include the following image processing functions • Colour • Black & White • Inverse • Organic • Inorganic • Zoom • Manufacturers' principal image enhancement tools such as crystal clear, SEN, edge enhance etc. It must be possible to combine the various functions e.g. organic/SEN/zoom in the same manner as the actual X-ray equipment being emulated. Control of the X-ray interface must be with the mouse operation and capable of functioning with touch screen equipment where it is provided.
13	The system should allow viewing of images from different angles.
14.	Instructor should be able to insert and withdraw images from the image library as and when desired (including during conducting test).
15	Instructor should be able to alter the classification of any item in the database and to choose the expected action required by the student.
16.	The system should allow the trainer to build the lessons in a progressively difficult manner.The system will be capable of delivering different lessons for different X-Ray equipment to different groups of students simultaneously.
17.	System should not allow any unauthorized tempering by incorporating acces

	restrictions.
18.	The system should automatically conduct the training and assessment and keep a separate record of each student. These records should be retrievable. The system will be capable of adaptive training. This will involve automatic reviewing individual trainee performance and the generation of new lessons which respond to any identified deficiencies. The lessons/courses must be configurable the following ways: • Instant feedback on/off • Review at end of lesson on/off • Adaptive training on/off • Clear button on/off • Search button on/off • Hold button on/off • Correctly identify image disposal • Correctly suspect object location • Correctly identify class of object of interest • Required pass mark (percent) • Model of X-ray equipment to be simulated • Require trainee to achieve pass mark before moving to next lesson in course
19.	The system should be able to generate reports in various analytical forms, course wise, session wise, bag wise, group wise and threat recognition wise etc.
20.	The images should be both coloured and black & white.
21.	The images should include items like bombs, I.E.Ds, knives, blades, scissors, explosives (organic, inorganic), ammunitions, detonators, liquid explosives, torch lighters, lighters etc and such other items prescribed as prohibited for carry on (cabin) baggage under Indian regulations.'
22.	The images should consist of actually scanned bags and not from images of individually scanned items assembled to merely re-assemble a real bag. The system should, however, also separately incorporate the feature of Threat Image Protection (TIP) for training of students on this aspect.
23.	The system should display X-Ray images at the same resolution as that of an X-Ray machine.
24	The system should evaluate student according to correct location of the position of threat objects, correct naming and total time taken for identification.
25.	The system should have provision to programme the time limit by the administrator for detection of threat objects.
26.	The system (both theory and simulator) should have multilingual content i.e., Hindi & English.
27.	The system should have the training module enabling data collection and analysis of student results to make decision of the following points:- a. Requirement of further training in various categories of threat objects, establishing norms, per bag. b. X-Ray interpretation skills. c. Processing time and operational speed. d. Establishing performance standards.
28.	The system should have the feature of projection of theory and simulator

	sessions through a LCD/ Multimedia projector in a class room.
29	The software should not be programmed to shutdown automatically if the purchaser desires not to renew the licence of the software or AMC for the hardware with the suppliers.
30	In addition to producing images manually, the system must be capable of generating a series of training images rapidly in an automated process where content of the images produced is controlled in terms of the ratios of clear/search/hold objects, difficulty of component objects and the clutter level (number of objects relative to size of container).
31	Every objects in the library must be capable of having its disposal (clear, search, hold/threat) changed by the system administrator. Any such change must change the objects disposal in existing lessons and previously built training images.
	Other features
33	The system should have been certified by accredited aviation security agency of the country of origin of equipment.
34.	The firm should give the evidence of executing similar projects with International Aviation Security clients of high repute.
35.	Installation & 5 year maintenance of the entire system should be provided free of cost.
36	No license fee for the software should be required to be paid by the purchaser for the entire warranty period of five years.
37	On installation, free of cost training should be provided by the supplier to 10 instructors per location for a period of 5 working days of 8 hours duration each.
38	The system upgrades should be provided free of cost as and when the supplier upgrades it and provide training to that effect for 5 years. Product updates including minor bug fixes, enhancements and additional equipment interfaces. Product updates in response to changes in Microsoft operating system, Product upgrades as new releases of the product become available. Additions to the object in library will be provided at least 12 month intervals these additional objects will include new gadgets, new electronic items, new threats etc.

Note- All firms are requested to provide the following.

1. Original Brochure of product by OEM.
2. Detail literature about the product.
3. Comprehensive comments for incorporation in the specifications.

The Sub-group has decided to upload the QRs on MHA and BSF website for 15 days to invite the views/ comments/ suggestions of prospective bidders to make the QRs more broad based.

(Rishipal Singh)
Dy Commandant (Mod)