

**Government of India  
Bhabha Atomic Research Centre  
Rare Earths Development Section,  
Materials Processing and Corrosion Engineering Division,  
Materials Group, South Site, Trombay, Mumbai 400085**

Tel: 25594942  
03.08.2017

Ref: MP&CED/REDS/RV/2017/1481

**Sub: Fabrication, Supply Installation & Commissioning of Personnel Access Control Gate Systems at REDS, BARC, Trombay.**

**Tender No: BARC/MP&CED/REDS/RV/2017/1481  
Due Date: 31.08.2017**

Dear Sir,

Quotations are invited in sealed envelope for and on behalf of the President of India for the following fabrication work. Please send us your lowest quotation for the following site works at REDS, S-30 Building, South Site, Trombay, BARC, Mumbai 400085 as per the scope of work given below.

**Annexure – I**

**Scope of Work**

1. Vendor shall fabricate, supply, install and customize the Personnel Access Control systems including related cabling work as per the enclosed detailed specifications & location.
2. The scope of work includes Fabrication of a Dual Lane Full Height Stainless Steel Turnstile gate embedded with 13.56 MHz. Smart RFID card readers, SS grill to cover the side areas, related wiring and PC based Server with related accessories as per the detailed technical specifications & sketch given below including installation & commissioning of the entire system.
3. Vendor will also quote separately for non-comprehensive AMC charges for the period of two years to carry out the scheduled preventive maintenance at site, at least once in a month and will attend to any fault reported to them within the shortest response time after warranty period.
4. Vendor will provide operational manuals of all the sub-systems & training to BARC security & technical personnel of the electronic surveillance systems.

**Deliverables:** Related accessories as per the requirements indicated below.

<b>Sr. No.</b>	<b>Item Description</b>	<b>Qty.</b>	<b>Locations</b>
1.	Full Height Dual lane Stainless Steel Turnstile Gate with 13.56 MHz. contactless Smart RFID card readers including side grills up to ceiling (as per the schematic shown in the scope of work)	One Set	Personnel Entry Gate of REDS, BARC, Trombay
2.	2MP, IR 30 mtrs. Bullet Cameras	2 Nos.	--- Do ---
3.	4 Ch. NVR with 4 TB surveillance HDD	One set	Admin. Office of REDS
4.	28" LED (24X7) Monitor with HDMI cord	One	--- Do ---
5.	PC server with software	One Set	--- Do ---
6.	Supply of related Cables, connectors Accessories, mounts etc.	Lot	REDS Gate
7.	Installation & Commissioning of Entry portal items and documentation training	Total job	REDS building, BARC

**Important Note:**

1. Please note, since the work involves work inside BARC, only those firms having valid Police Verification Certificate (PVC) for their employees to be deputed to quote. Please confirm this in your quotation. You shall obtain clearance from BARC security for all staff who may be deputed for site work at REDS, BARC. This is mandatory and the responsibility of obtaining such a clearance is within your scope of work.

**Please note the following:**

1. Please address your offer to **Smt. R. Vijayalakshmi, SO/G, REDS, MP&CED, South Site, BARC, Trombay, Mumbai 400085 on or before 31<sup>st</sup> August 2017.**

The quotations are to be sent in a sealed envelope with the following information marked on top of the envelope: **“Quotations for Fabrication, Supply Installation & Commissioning of Personnel Access Control Systems at REDS, BARC, Trombay”**

2. Offers sent by telegram, telex, fax or email will **not** be considered.
3. All taxes should be mentioned clearly.
4. Quotation should be in the printed letter head / quotation format which should consist of GST, PAN, Number of the firm, Service Registration Number, etc.

5. Quotation shall be signed by the proprietor or authorised person and affix company seal.
6. Computer generated quotation form will not be accepted.
7. Income tax @2%, surcharge on IT as applicable and educational cess @3% (on IT & surcharge) will be deducted at source from your bill.
8. Completion period per visit should be mentioned with all possible consideration.
9. Payment will be made within one month from date of completion of the job and receipt of proper documents.

(Smt. R. Vijayalakshmi)  
Scientific Officer (G),  
REDS, South Site,  
MP&CED,  
BARC, Trombay,  
Mumbai 400085.

## Technical Specifications

### 1. Full Height Dual lane Stainless Steel Turnstile Gate with 13.56 MHz. contactless Smart RFID card readers

#### 1.1 Full Height Dual lane Turnstile Gate

Sr. No.	Specification	Desired
1.	Height	Height of Turnstile expected 2212 MM.+/- 5% Height of Passage clearance 2000 MM+/-5%
2.	Number of Lane/ passage	Two
3.	Type	90 degree stop
4.	Technology	<ul style="list-style-type: none"> <li>• Solenoid operation with ratchet mechanism to prevent reverse rotation</li> <li>• 4 X 90 degree Stop Rotor</li> </ul>
5.	Walkway / Passage Clearance	530 MM (W) x 2000 MM (H) +/- 5%
6.	Dimension	Height: 2200 MM +/- 5% Length: 2200 MM +/- 5% Width : 1500 MM +/- 5%
7.	Power	230 VAC +/- 10% single phase
8.	Frequency	50 Hz
9.	Duty cycle	100%
10.	Power consumption	75 Watt per lane approx.
11.	Material of construction	304 Stainless Steel Rotor & Bars: 316 Stainless Steel
12.	Internals	Head Mechanism parts: Casting Zinc plated for corrosion resistance.
13.	Power OFF	Free to rotate in either directions in both directions or either direction
14.	Weight	300-350 KG (approx)
15.	Temperature range:	5 to 55 degree C
16.	Humidity	90% non-condensing
17.	Operation	Bi-directional
18.	Passage control	Passage to be controlled in one or either direction
19.	Locking	Mechanism to prevent the turnstile rotating in the opposite direction (reverse rotation) once it has traveled 25-30 degree past the rest position
20.	Self centering mechanism	With hydraulic damping to ensure head always rotates quietly and smoothly to the neutral position

21.	Action lock	Positive action lock which prevents two passage at one time
22.	Fail safe & Fail lock variants in the event of removal of power supply	Rotor of each Turnstile should be fail safe in case of power failure i.e Rotor should rotate free in both the direction. Provision should be available using key operated switch to make turnstile fail lock mode in either side. This should be achieved without opening turnstile top box due to security reason. In case fail lock turnstile rotor should be locked in one or both directions. Two separate Key operated switch should be provided for either side.
23.	Through Put rate	Up to 15 Persons per minute per Lane (with access control)
24.	Integration	With any access control device like Smart Card Reader and / or Finger Print Reader (biometrics) based Access Control System should be possible.
25.	Output(Rotation Detection Switch)	Should be Available for further interface like unused entry alarm
26.	Installation	To be fixed on Concrete Floor by means of Anchor bolts, to be supplied with the Turnstile
27.	Frame of full height turnstile	CAGE type frame structure with separate stator required for each lane.
28.	Rotor	4X90 degree rotor with 10 Arms per rotor of 31 mm diameter.

### 1.1 Specifications of M/s. Philips Mifare based Contactless RF Smart Card Reader without Keypad to be installed on Turnstile Gate

**Read Range:** 50 to 100 mm

**Display:** Alphanumeric LED / LCD display for displaying real time clock, error messages, card number etc.

**Status indicator:** LED & beeper for indicating card acceptance / rejection or any other error.

**Environment:** Operating temperature: 0 to 60 degree C. Humidity: 0 – 95% non-condensing.

**Reader Hardware:**

- It should be based on **High Speed, 32-bit ARM controller with** in-built Real Time Clock with continuous display of time.
- It should Support for MiFare Application Directory (MAD) & Support for two applications.
- Internal ISO7816 Secure Access module for key diversification.

- It should provide at least 4 additional (optically isolated) inputs in addition to connecting various barrier signals like 10°, 45° position, door remain open, manual over ride etc.
- It should provide at least 2 (relay contact) outputs, which are event controlled.
- LED indication: for indicating access status.
- Audio Indication: Programmable Melodies for different card events.
- It should be equipped with RS232 /Isolated RS485 interface and Internal 10/100base-T Ethernet connectivity
- It should have sufficient memory to store & process all information within itself so that if the communication between Access controller & Host fails, the reader continues to operate normally without degradation of system performance.
- All reader parameters should be stored in battery backed RAM or non-volatile EEPROM.
- Hardware test (self diagnostic) facility by commands from host.
- Operating modes:, PIN+Mifare, Mifare only
- Tamper detection and Tamper alarm
- Operating Temperature: -10 to +50 Deg. C, RH 0-95%(Non-condensing)

**Reader Firmware should support:**

- Communication with external multiple host computers on LAN.
- IAP & ISP programming: Firmware should be upgradable on field over Ethernet LAN / RS232.
- ANTIPASSBACK feature for access control.
- Facility to store up to 10000 user access conditions in non-volatile memory, to facilitate door access.
- Facility to log upto 32000 transaction events.
- Facility to set list of users with shift, time for access control.
- Provides real time application data to host application.
- Built in self diagnostics features.

**External power supply unit for card readers:**

- Input : 160-230 VAC @ 50Hz single Phase ; Output : 10-14 V DC @ 0.5 A (2 Outputs)
- Output Ripple: < 100 mV, Load Regulation : < 2%

- Visual Indication LED for mains power ON
- Enclosure: Metallic, powder coated : Size: 155 x 115 x 35 mm MAX.
- Weight: 400 gms Max, Ingress Protection : IP54.
- Operating Temperature : 5-55 Deg. C, Humidity: 0-95% RH (Non-condensing)

**Note:**

- The card reader should not cause EMI interference to the sensitive electronic equipments in proximity to it.
- Card read & processing time should not be more than 1 Sec.
- Interference of Wireless set or other RF source on the reader performance should be clearly specified.
- Optional features, facilities, hardware / software if any should also be explained in details and quoted.

**2. 1/3" CMOS, 3 MP, 2.7-12 mm MFZ, 24 IR LEDs, PoE, H.264 TDN IR Indoor/Outdoor Network Bullet Camera,**

**Desired features:**

- 3 MP (20 fps) and Full HD 1080p (25/30 fps) image with 1/3" 3 MP sensor, no distortion of image in 16:9 display.
- True Day/Night capability, vivid color pictures by day and clear black-and-white pictures at night with ICR
- Should be excellent low-light performance with 3D Noise Reduction, saving storage and bandwidth together with H.264 High Profile codec
- IR LEDs should provide up to 100 ft (30 m) of illumination in dimly lit or nighttime scenes
- Smart IR technology for even distribution of IR
- Waterproof (IP66) camera housing for outdoor installations
- 2.7-12 mm F1.4 motorized focus/zoom lens
- Configurable motion detection
- Built-in PoE (Power over Ethernet) and 12 V DC inputs where PoE power is unavailable
- Remote configuration, motorized zoom adjustments and auto focus
- Should support up to 128 GB micro SDHC (Class 10) card for local video storage when network is interrupted
- Onvif Profile S compliant

## SPECIFICATIONS

<b>Camera</b>		
Image Sensor	1/3" 3 megapixel progressive scan CMOS	
Effective Pixels	2304 (H) x 1296 (V)	
Electronic Shutter Speed	Auto/Manual, 1/3(4)-1/100000 s	
Min. Illumination	0.1 lux, F1.4 (Color); 0 lux (IR LEDs on)	
S/N Ratio	More than 50 dB	
<b>Camera Features</b>		
IR Distance	Up to 100 ft (30 m), depending on scene reflectance	
Day/Night	Auto(ICR)/Color/BW	
Backlight Compensation	BLC/HLC/DWDR	
White Balance	Auto/Manual	
Gain Control	Auto/Manual	
Noise Reduction	3D	
Privacy Masking	Up to 4 areas	
<b>Lens</b>		
Focal Length	2.7-12 mm	
Max. Aperture	F1.4	
Focus Control	Auto	
Horizontal Angle of View	86°-28°	
Lens Type	Motorized focus/zoom	
<b>Video</b>		
Compression	H.264 (Main/High/Baseline Profile)/MJPEG	
Resolution	3 MP (2304x1296), 1080p (1920x1080), 720p (1280x720), D1 (704x576/704x480), CIF (352x288/352x240)	
Frame Rate	Main Stream	3 MP (1-20 fps), 1080p (1-25/30 fps)
	Sub Stream	D1, CIF (1-25/30 fps)
Bit Rate	H.264: 4-8192 kbps	
Corridor Mode	Support required	
<b>Network</b>		
Ethernet	RJ-45 (10/100Base-T)	
Protocol	IPv4/IPv6, HTTP, HTTPS, TCP/IP, UDP, UPnP, ICMP, IGMP, RTSP, RTP, SMTP, NTP, DHCP, DNS, PPPoE, DDNS, FTP, IP Filter, QoS	
Compatibility	ONVIF Profile S, CGI	
Max. User Access	20 users	
Mobile App	HonView Touch for iPhone, iPad, Android Phone and Tablet	

<b>Auxiliary Interface</b>	
Memory Slot	Micro SD (128 GB)
<b>General</b>	
Power Supply	PoE (802.3af), 12 V DC
Power Consumption	8.5 W max. (IR LEDs on)
Working Environment	-22°F to 140°F (-30°C to 60°C); 10% to 100% RH, condensing
Ingress Protection	IP66
Dimensions	8.46" x 3.56" (214.8 x 90.4 mm)approx.
Regulatory	FCC, Part 15B, Class B

### 3. 4 Channel Embedded NVR

#### Desired NVR Features

- H.264/MJPEG dual codec decoding
- HDMI/VGA simultaneous video output
- Immediately Detect and Respond to Events such as motion in the scene, alarm inputs, a network failure and/or tampering. Automated responses include:
  - Sending a notification through email, FTP and/or HTTP.
  - Uploading still images at the time of the event through email and/or FTP
  - Recording a video clip of the event so it is ready to distribute to authorities.
  - Enabling a visual or auditory notification (a flashing light, bell or siren)

#### NVR SPECIFICATIONS

<b>System</b>	
Main Processor	Dual-core embedded processor
Operating System	Embedded LINUX
<b>Video</b>	
IP Camera Inputs	4 channels
Bi-directional Audio	1 channel input; 1 channel output; BNC
<b>Display</b>	
Interface	1 HDMI; 1 VGA
Resolution	1920 x 1080; 1280 x 1024; 1280 x 720; 1024x768
Display Split	1/4
OSD	Camera title; Time; Video loss; Camera lock; Motion detection; Recording
<b>Recording</b>	
Compression	H.264 / MJPEG

Resolution	1080p (1920 x 1080); 720p (1280 x 720); D1 (704 x 576 / 704 x 480); SXGA (800 x 600); 1.3 MP (1280 x 1024)
Recording Rate	100/120 fps @ 1080p, (100 fps @ 1080p for PAL)
Bit Rate	256 to 8192 Kbps 8-/16-channel NVRs: 1 to 8192 Kbps
Recording Mode	Manual; Schedule (Regular [Continuous], Motion Detection, Alarm, Motion Detection+Alarm); Stop
Recording Interval	1 to 120 minutes (default: 60 minutes); Pre-recording: 1 to 30 seconds.
<b>Video Detection and Alarms</b>	
Trigger Events	Recording; Tour; Alarm; Email; FTP; Buzzer; Screen Tips
Video Detection	Motion Detection; Motion Detection Zones (396: 22 x 18); Video Loss and Camera Blank
Alarm Input	16 channels
Relay Output	3 channels
<b>Playback and Backup</b>	
Sync Playback	1/4
Search Mode	Time/Date; Alarm; Motion Detection; Exact Search (accurate to a second)
Playback Function	Play; Pause; Stop; Rewind; Fast play; Slow play; Full Screen; Backup
Backup Mode	USB Device; Network
Compatibility	
<b>Network</b>	
Operating System	Windows® XP; Windows Vista; Windows 7
Protocols to be Supported	HTTP; TCP/IP; IPv4/IPv6; UPnP; RTSP; UDP; SMTP; NTP; DHCP; DNS; IP filter; PPPoE; DDNS; FTP; Alarm server; IP search
Maximum Number of Users	>=20 users
Smart Phone Compatibility	IOS; Android™
<b>Storage</b>	
Internal Storage	2 SATA ports; up to 8 TB; RAID (redundancy)
<b>Connectors</b>	
Ethernet	1 x RJ-45 port (10/100/1000 Mbps)
PoE	4 ports (IEEE802.3af)
USB	2 ports (1 on rear panel); USB 2.0
RS232	1 port, for PC communication and keyboard

RS485	1 port, for PTZ control
<b>Electrical</b>	
Power Supply (NVR)	12 V DC; 5 A
Power Supply (PoE)	48 V DC
Power Consumption (NVR)	20 W (without HDD) approx.
Power Consumption (PoE)	15 W each
<b>Environmental</b>	
Operating Temperature	14°F to 131°F (-10°C to 55°C)
Storage Temperature	-4°F to 158°F (-20°C to 70°C)
Humidity	10% to 90%
<b>Physical</b>	
Dimensions	14.8 x 11.2 x 2.1 inches (375 x 285 x 52.6 mm)
Weight (without HDD)	5.07 pounds (2.3 kg)
<b>Physical</b>	
Emissions	FCC Part 15B, CE EN55022
Immunity	CE EN50130-4
Safety	EU: EN60950-1 North America UL listed to UL/CSA 60950-1
<b>System Integration</b>	Open IP Integration ONVIF support

#### 4. 28 inch HD Ready LED (24X7) Monitor Full Features & Specifications

##### Display

Screen Size	28 inch Diagonal Minimum (IPS panel design) suitable for 24/7 operation
Screen Resolution	1920 x 1080
HD	Full HD
Screen Type	LED

Video Feature Details Cine Motion, Noise Reduction, 3D Comb Filter, Selectable Picture Modes (User, Cinema, Sports, Vivid, Hi-bright, Photo, etc), and Live Color

Supported Video Formats	3GP, MP4, WebM, ASF, AVI, VOB, PS, MPEG-1, WMV, VRO
Audio Features	

Number of Speakers	1
Speaker Output (RMS)	8W
Sound Technology	Dolby Digital
SPDIF (Digital Output)	required
Audio Feature Details	S-Master Digital Amplifier, USB Play
Sound Mode	Music, Standard, Sports, Cinema, Game
Supported Audio Formats	MPEG, MPEG2PS, MPEG2TS
Internet Features & Ports	
<b>Connectivity</b>	MHL
HDMI	2
USB	1
Headphone Jack	1
Composite In	Yes
Component In	Yes
RF Connectivity Input	Yes
<b>General Specifications</b>	
Dimensions (mm)	640 x 400 x 80 approx.
Weight with Stand	3.9kg approx.
Remote	Standard Remote
Power Consumption (In Use)	45W approx.

## 5. PC server with software

### Processor:

- a) Intel® 6th Gen Core™ i5 (6500) or better with Intel Virtualization Technology (VT-x) support
- b) **Motherboard:** H110 chipset or better, compatible motherboard with Intel Virtualization Technology (VT-x) support, make Intel/Asus/Digilite/OEM. Built-in-sound. (Vendors to provide detailed specifications)
- c) **Main Memory:** 8 GB DDR4 2133 MHz or higher speeds with 16 GB expandability, make Transcend/ Kingston/OEM for offered motherboard
- d) **I/O Ports:** 6 or more USB ports (2.0/3.0), 2 USB ports on cabinet front, Integrated 10/100/1000 Mbps Gigabit LAN, VGA/DVI/HDMI/DP 2 or more PCI/PCI Express (Minimum 1 PCI Express)
- e) **Bus Architecture HDD Controller Power supply:** Minimum 4 SATA ports 3.0 Gbps or higher speed **SMPS** sufficient for existing H/w, fully populated disk drive bays, memory slots and additional 2 PCI/PCI-e cards of total 30W, make-VIP/Enhance/FSP/OEM (min.250 W)
- f) **LED Monitor:** LED- 24" or higher, VGA/DVI/HDMI/DP, 1920 x 1080 / 60 Hz. make View-sonic / Samsung / LG / Philips / AOC / OEM

- g) **Key board:** Enhanced Multimedia Keyboard- make Logitech/TVS-E/Microsoft/OEM
- h) **Mouse:** Optical Mouse with Scroll wheel - Logitech/ Microsoft /OEM
- i) **DVD drive:** 16x or higher speed internal SATA DVD Writer.
- j) **Hard Disk:** 4 TB. SATA hard drive (7200RPM) or higher internal 500 GB or higher.
- k) **Ethernet card:** Additional copper gigabit LAN card
- l) **Speakers:** USB/5VDC speakers, Output Power (RMS) 2.5W x2, make Intex/ Logitech / Creative/OEM
- m) **Cabinet:** Cabinet with 3 or more drive bays, 2 front USB ports, 1 Mic. + 1 Head Phone, with ISI mark Power Cord 3X0.75SQMM, 1100 V.
- n) **Operating System:** Preloaded genuine Windows 10 Professional-64 bit (OEM) latest version with Recovery DVD
- o) **Word Processing S/W:** Preloaded genuine MS Office Home & Business 2013 OEM/ FPP(64 bit)
- p) **Additional S/W:**
  - a. Acrobat® Reader®
  - b. Flash® Player
  - c. Skype
  - d. PC-Doctor for WinPE
  - e. SUN JRE
  - f. InterVideo WinDVD
  - g. Rescue and Recovery
  - h. Password Manager
  - i. Power Manager
  - j. Toolbox etc.
- q) **OS Compatibility:** Microsoft Windows 10 and Ubuntu
- r) **Accessories:** Mouse pad with palm rest and dust cover for PC
- s) **Warranty:** 3 years comprehensive on-site warranty

## 6. Supply of related Cables, connectors Accessories, mounts etc.

Power supply cables, interconnecting cords, All accessories related to mounting, wiring, fixtures etc. required for installation of the total system is responsibility of the contractor.

## **7. Installation & Commissioning of Entry portal items and documentation training**

Total installation of the Personnel Access Control Port items listed above including software loading, commissioning, documentation and training is the scope of the contract.