



**thsti**

ट्रांसलेशनल स्वास्थ्य विज्ञान  
एवं प्रौद्योगिकी संस्थान

TRANSLATIONAL HEALTH SCIENCE  
AND TECHNOLOGY INSTITUTE

**TENDER NO - THSTI/IT/FBd/CCTV/15-16 DATED 12/12/15.**

**Corrigendum No. - 1**

**Name of Work :** "Supply, installation, testing, commissioning and integration with existing LAN network of IP based CCTV Cameras System, Access Control System and its accessories for Security Surveillance System at NCR-BSC Campus (THSTI & RCB), Faridabad, Haryana"

Sr. No	Tender Part No.	Tender Clause No.	Existing Entry in Tender (FOR)	Amended Entry in Tender (READ)
1	Part A (Notice Inviting Tender)	Clause no. 5.0, sub clause no. 5.4, Submission of online bids ( page 05)	The last date for submission of online bids duly complete in all respect is 08/01/2016 up to 14.30 hrs. The bid should be valid and open for acceptance for a period of 180 days from the date of opening the technical bid.	The last date for submission of online bids duly complete in all respect is 29/01/2016 up to 14.30 hrs. The bid should be valid and open for acceptance for a period of 180 days from the date of opening the technical bid. Once, the contract is awarded to the successful bidder, the contract will remain valid for a period of one year from the date of award of the contract. If any additional items are required by the purchaser within the contract period of one year, the successful bidder will be under obligation to accept such orders placed under this contract.
2	Part D (Special Conditions of Contract)	Clause no. 3.0, Deviation ( page 19)	The deviation in quantities shall be allowed to the extent of $\pm 10$ % on the awarded rates.	Deleted.
3	Part E (Scope of Work, BOQ & Technical Specification)	Scope of work, BOQ & Technical Specification ( page 25 to 39 )	<b>In view of the suggestions received from the prospective bidders during the pre-bid meeting held on 18/12/15, the BOQ/technical specification has been revised by the technical committee. The revised 'Part -E' consisting of 'Scope of work, BOQ and Technical Specification' is attached herewith at Annexure-I. The prospective bidders are requested to go through the revised 'Part - E' carefully before submitting their bids.</b>	

Note : No other correspondence/queries will be entertained by THSTI.

All other terms and conditions of the subject tender document remains the same. **The last date for submission of online bids duly complete in all respect including the amendments issued above is revised as under:**

Closing time and date : **14.30 Hours on 29.01.2016**

Tender will be open at : **15.00 Hours on 29.01.2016**

Store & Purchase Officer  
THSTI

**PART – E (Revised)**

**(SCOPE OF WORK, BOQ & TECHNICAL SPECIFICATION)**

## **SCOPE OF WORK**

**Name of work :** - Design, supply, installation & commissioning of IP based CCTV Cameras System, Door Access Control System and its accessories for Security Surveillance System at NCR-BSC Campus, Faridabad, Haryana.

### **1. Scope of Supply**

- Supply of all components as per BOQ at NCR-BSC campus, Faridabad.

### **2. Scope of Installation, Configuration and Integration**

- Physical installation and powering of all supplied components as per approved layout.
- Complete configuration and integration of all the components on the existing LAN Network.
- Any structure, permanent or temporary, dismantled or destroyed during the execution of the work shall, will be refill/remake or restore to its previous condition by the vendor at its own cost.
- The required UPS power points in the rack shall be provided by THSTI/RCB.

### **4. Scope of Acceptance Testing and Commissioning**

- After installation and configuration of each and every subsystem, integrating various systems and providing various services, tests shall be conducted for system performance as a whole.
- Commissioning shall mean end-to-end commissioning of the complete CCTV/Control Access System with testing of live applications. Test parameters, commitments etc shall be submitted along with implementation plan, which is shall be approved by THSTI.
- In the event, the test parameters, commitments are not submitted or not accepted explicitly in writing/minutes by THSTI, the Test parameters, commitments etc as decided by THSTI will be final and binding.
- Upon Self testing and Commissioning, the system shall be offered for inspection by THSTI.
- The successful Bidder, along with THSTI shall prepare an inspection and acceptance schedule with details of each activity.

#### **4. Scope of Documentation**

- Providing original manuals of all hardware items supplied.
- Implementation plan, to be approved by THSTI before initializing the installation and configuration activity.
- Test parameters, commitments etc for acceptance testing to be enclosed along with implementation plan.
- Operator manual for shutdown/start of the active resources.
- Acceptance test reports, performance test reports of all components.
- Any other Relevant Documentation

#### **5. Scope of Training**

- Training on the design and functioning, operational aspect and maintenance of the complete system.
- The duration of the training shall be one week.
- Course material for the above (one copy each per participant) to be provided.

**Store and Purchase Officer**

**BILL OF QUANTITY( BOQ)**

S. No.	Item	THSTI	RCB
<b>Part- A</b>			
1	IP IR Dome Camera ( <b>Indoor</b> )	27	44
2	Deleted		
3	PTZ Camera (Outdoor)	1	1
4	IP IR Dome Camera ( <b>Outdoor</b> )	2	2
5	Software NVR/Camera Server	1	1
<b>Part – B</b>			
6	NAS/RAID Backup	1	1
7	Workstation	1	1
<b>Part – C</b>			
8	Door Access System		
	a) Door Access Machine	13	13
	b) Push Button	13	13
	c) Alarm Button	03	03
	d) EML(Double leaf lock 600x2lbs)	13	13
<b>Part – D</b>			
9	Monitor	1	1

## TECHNICAL SPECIFICATIONS

### **A. SURVEILLANCE CCTV SYSTEM**

#### **1. Introduction :**

- 1.1. Surveillance CCTV system is required to ensure effective surveillance of an area as well as create tamperproof record for post event analysis. The System shall provide an online display of video images on TFT monitors/Video wall/Large plasma monitors located in Central as well as Local control rooms.
- 1.2. System should facilitate viewing of live and recorded images and controlling of all cameras by the authorized users present in the LAN.
- 1.3. System should provide inter-operability of hardware, OS, software, networking, printing, database connectivity, reporting and communication protocols. System expansion should be possible through off-the-shelf available hardware.
- 1.4. Equipment with better specifications shall be accepted.

#### **Note:**

1. NVR & CAMERA SERVER are synonymous in these specifications.
2. OEM of Camera, IP cameras, NVR, Servers, NAS box/Raid backup device, Workstations, Monitors and Switches shall be ISO firms and the offered products must be CE(European) certified.

#### **2. General Specifications:**

- 2.1. Proposed CCTV system shall be open standard based integrated system with IP network centric functional and management architecture aimed at providing high-speed manual/automatic operation for best performance.
- 2.2. System shall use video signals from various types of indoor/outdoor CCD/CMOS color IP cameras installed at different locations, process them for viewing on workstations/monitors at Central Control Room/local control rooms and simultaneously record at the cameras after compression using MPEG 4 or better standard. Software based controllers shall be used for Pan, Tilt, Zoom and other functions of desired cameras.
- 2.3. System shall have combination of Digital CCD/CMOS Color Video Cameras with individual IP address, with Fixed or P/T/Z Lens, Network Video recorders (NVR/CAMERA SERVER), Network attached storage (NAS) / Raid backup device for recording, Application software, Color Video Monitors, Mouse-Keyboard, Software based PTZ control, Video Matrix Switcher, workstation for System Administration / Management / Maintenance etc.
- 2.4. The NVR/ CAMERA SERVER may be standalone machine of server based. The NVR/ CAMERA SERVER software shall run on common off the shelf available servers (CAMERA SERVER & Database server). Each NVR / CAMERA SERVER shall be able to handle 50 or more cameras.2.3. The NVR/CAMERA SERVER may support for mobile monitoring clients on iOS and Android. The NVR/CAMERA SERVER should be with latest features, user-friendly Windows based interface to view HD video and configure system settings.
- 2.5. Network Video Recorder/CAMERA SERVER shall offer both video stream management and vide stream storage management. Recording frame rate & resolution in respect of individual channel shall be programmable.
- 2.6. System should ensure that once recorded, the video cannot be altered, ensuring the audit trail is intact for evidential purposes.

- 2.7 System shall provide sufficient storage of all the HD quality 1080p/720p camera recordings for a period of 30 days or more using necessary compression techniques for all cameras (extended capacity of cameras i.e. present capacity + 25%).
- 2.8 System shall use IP enabled cameras. The video shall be compressed using MPEG-4 or better standard and streamed over the IP network.
- 2.9 The recording resolution (1080p/720p) and frame rate for each camera shall be user programmable.
- 2.10 The Area under surveillance shall be monitored on 230 V, 50Hz single-phase power supply. Power for all the equipment will be conditioned using on-line UPS with minimum 30 minutes or more back up. If any equipment operates on any voltage other than the supply voltage and supply frequency, necessary conversion/correction device for supply shall be supplied along with the equipment.
- 2.11 All the control equipment's e.g. servers, NVR/CAMER SERVER, NAS/Raid backup device, decoders etc. shall be provided in standard Racks.
- 2.12 All the indoor cameras & control equipment shall be suitable for operation from 10 degree C to 40 degree and relative humidity up to 80% non-condensing. Cameras & other equipment, meant for outdoor installations, shall be suitable work from (-) 10 degree C to (+) 50 degree C with RH up to 90% non-condensing. This temperature range may be achieved with or without heater.

### **3. System requirements:**

- 3.1 IP Camera shall be used for Video image capture.
- 3.2 Outdoor/Indoor cameras shall be either with fixed focal length lens or with Pan/Tilt & Zooms lens as per site requirement. All outdoor /indoor Cameras shall be Day/Night cameras.
- 3.3 Housing of cameras meant for indoor use shall be IP 42 rating whereas outdoor camera housing shall be of IP 66 or better rating. These must be integrated by the camera manufacturer.
- 3.4 System must provide built-in facility of watermarking or Digital certificate to ensure tamperproof recording so that these can be used as evidence at a later date, if so desired. The recordings shall support audit trail feature.
- 3.5 All camera recordings shall have Camera ID & location/area of recording as well as date/time stamp. Camera ID, Location/Area of recording & date/time shall be programmable by the system administrator with User ID & Password.
- 3.6 Facility of camera recording in real-time mode (25FPS)/15/12.5/10 or lower FPS as well as in any desired combination must be available in the system.
- 3.7 Facility of camera recording in CIF, 2CIF, 4 CIF as well as in any combination i.e. any camera can be recorded in any quality – Selective or Group of cameras must be available in the system.
- 3.8 System to have facility of additional camera installation beyond the originally planned capacity.

- 3.9 In order to optimize the memory, while recording, video shall be compressed using MPEG-4 or better standard and streamed over the IP network. Once on the network, video can be viewed on a Control room workstation or on analog monitor using a hardware decoder (MEPG-4/compatible standard Receiver) and shall be recorded on NVR/CAMERA SERVER and shall be backed up on NAS/RAID Backup device.
- 3.10 System shall be triplex i.e. it should provide facility of Viewing, Recording & Relay simultaneously.
- 3.11 The offered system shall have facility to export the desired portion of clipping (from a desired date/time to another desired date/time) on CD or DVD. Viewing of this recording shall be possible on standard PC using standard software like windows media player etc.
- 3.12 PTZ Cameras shall have 64 or more pre-defined positions, to be selected through suitable input alarm.
- 3.13 Redundancy/Fail-over feature is required i.e in case of failure of an NVR/CAMERA SERVER the relevant cameras shall automatically switch over to the redundant NVR/CAMERA SERVER.
- 3.14 System shall have provision of WAN connectivity for remote monitoring.
- 3.15 All devices and components must be compliance with ONVIF, Comply UL,CE(European) and FCC Certifications and conform to all required standards.

#### **4 System Design:**

- 4.1 Each camera shall be IP based, UTP ready, Full HD 1080p/720p should be capable of producing video streams @25 fps for viewing on LAN and on monitors and also recording into the NVR/CAMERA SERVER / CAMERA SERVER s and NAS box /Raid backup device @25 fps or lower frame rate, user selectable as per requirement, for each individual camera.
- 4.2 Cameras shall be Power Over Ethernet (POE) compliant and connected to Layer 2 or Layer 3 switch as per system design using UTP CAT 6 Cable or fiber optic cable and the required connectors as per standards.
- 4.3 Central/Local Control Room will have workstations along with controllers for Camera operation. For monitoring purposes, Video monitors/Plasma monitors/Video wall shall be set up with suitable mounting arrangements, as per user requirements. Facility for viewing and controlling all the cameras at various other locations, as required shall be provided.
- 4.4 Monitoring at Local Control rooms may be restricted to operation of certain cameras only & system administrators should be able to configure the system, accordingly. More than one Local Control rooms may be required in the proposed system with individual configuration.
- 4.5 Each control room may be have one or more Operators simultaneously using the installed Video monitors/Video wall. Operator control on cameras shall be a static basis or rotary basis depending on the policies to be decided at site.
- 4.6 There shall be a Control System with Video Control Software to manage all the video surveillance devices.
- 4.7 Database Server shall keep track of all configurations & events for proper System administration & management of redundancies etc.

- 4.8 Video stream from individual cameras shall be recorded on Server & subsequently archived to NAS box /RAID backup device (System shall have provision to automatically over-write the new information after the period of 30/31 days & necessary script/algorithm must be available in the Application).
- 4.9 Authorized workstations in LAN should be provided with software to view and control the cameras, encoders and retrieve and recorded video images from the NVR/CAMERA SERVER /NAS /Raid backup device seamlessly.

## **5. Video Surveillance Application Software:**

- 5.1 The software shall operate on open architecture for integration with perimeter safety, access control, PA and fire/safety systems based on open standards.
- 5.2 Digital video surveillance control software should be capable to display and manage the entire surveillance system. It should be capable of supporting variety of devices such as cameras, video encoders, video decoders, PTZ controller, NVR, NAS boxes/Raid backup device etc.
- 5.3 The software should be have inbuilt facility to store configuration of encoders / decoders and cameras.
- 5.4 The software should Support flexible 1/2/4 Windows Split screen display mode or scroll mode on the PC monitor or on preview monitor as per the requirement.
- 5.5 The software should be able to control all cameras i.e. PTZ control, Iris control, auto/manual focus, and color balance of camera, Selection of presets, Video tour selection etc.
- 5.6 The software is required to generate reports of stored device configuration. The control software is required to provide alarm and alarm log. The log shall be able to be achieved, printed and displayed using device filter, a device group filter and / or a time window.
- 5.7 The software should have user access authority configuration on per device or per device group basis. The user shall have the facility to request the access of any camera and can control the camera for a reservation period. Control of camera is released after the reservation period.
- 5.8 The system shall provide User activity log (audit trail) with user ID, time stamp and action performed etc.
- 5.9 The administrator should be able to add, edit & delete users with rights. It shall be possible to view ability/rights of each user or the cameras which can be viewed & controlled as per the permission assigned by the administrator.
- 5.10 The users should be on a hierarchical basis (privileges upto 3 levels) as assigned by the administrator. The higher priority person can take control of cameras, which are already being controlled by a lower priority user. There should be minimum 3 hierarchical levels of security for providing user level log in.
- 5.11 It should have recording modes viz., continuous, manual or programmed modes on date, time and camera-wise. All modes should be disabled and enabled using scheduled configuration. It should also be possible to search and replay the recorded images on date, time and camera-wise. It should provide onscreen controls for remote operation of PTZ cameras. It should have the facility for scheduled recording. Different recording speeds (fps) and resolution for each recording mode for each camera should be possible.

- 5.12 It should provide programmable motion detection and recording, to be defined area-wise. System must be able to support video motion detection algorithms to detect and track objects, Learn the scene, Adapt to a changing outdoor environment, Ignore environment changes including rain, hail, wind, swaying trees and gradual light changes.
- 5.13 The setting shall be individually configurable for each alarm and each camera pre-record duration. This shall allow the CAMERA SERVER to capture video prior to the alarm/event, as well as after the alarm/event. Shall be selectable from a list of values ranging between 0 seconds and 5 minutes.
- 5.14 The software for clients should also be working on a browser based system for remote users. This will allow any authorized user to display the video of any desired camera on the monitor with full PTZ and associated controls.
- 5.15 **Retrieval:** The CCTV application should allow retrieval of data instantaneously or any date / time interval chosen through search functionality of the application software. In case data is older than 30 days and available, the retrieval should be possible. The system should also allow for backup of specific data on any drives like CD/DVD/Blue ray Recorders or any other device in a format which can be replayed through a standard PC based software. Log of any such activity should be maintained by the system which can be audited at a later date.
- 5.16 **Backup:** Online backup should be maintained to protect against storage failure.
- 5.17 **Storage:** Data storage should be at a central location. The capacity of the storage should be equal to 30 days of recording of all cameras. The system should follow FIFO on recording.
- 5.18 **Artificial Intelligence:** It shall have image tracking facility. **(Should be quoted as an option)**

## DETAILED TECHNICAL SPECIFICATIONS

### 6.1 PTZ IP IR Camera:

Image Device	Interline transfer 1/4" or better format CCD/CMOS sensor
Focal Length	4.3 mm to 72 mm or better (for Artificial Intelligence Cameras with better focal length i.e. 3.5 mm to 91 mm to be used)
Optical zoom (for Indoor Camera)	18 X or better
Optical zoom (for Outdoor Camera)	26 X or better
Resolution	Full HD 1080p
Illumination (for Indoor Camera)	1.0 Lux (Color), 0.1 Lux (B/W) or better
Illumination (for Outdoor Camera)	1.0 Lux (color), 0.05 Lux (B/W) or better
Pan Travel	360 degree continuous
Tilt Travel	0-90 degree
Manual Tilt Speed	0.5 degree/SEC to 90 degree /SEC
Manual Pan Speed	0.5 degree /SEC to 90 degree/SEC
Preset Tilt Speed	0.5 degree/SEC to 90 degree/SEC
Preset Pan Speed	0.5 degree/SEC to 300 degree/SEC
Preset positions	Min.64
Iris Control	Auto
Focus	Auto

Back Light compensation	Required with black masking or other suitable technology
White balance	Auto
Electronic shutter	Auto
S/N ratio	>= 48 dB
Power Supply	As per OEM's design, however generally AC 230 V @ 50Hz/12V or /POE

## 6.2 Deleted

## 6.3 (Indoor/Outdoor) IP IR Dome color Camera:

Image Device	1/3 " or 1/4 " CCD/CMOS Sensor
Resolution	Full HD 1080p
Min Illumination	0.01 Lux @ F 1.2
S/N Ratio	>=48 dB
Electronic Shutter	Auto
Lens	Built-in Varifocal lens. Auto Iris, Lens f=4-9 mm (approx.)
Backlight compensation	Required
Power Supply	As per OEM's design /POE
Make	Samsung/Hikvision/Panasonic/Honeywell or equivalent

**\*Outdoor Dome Camera: waterproof and other feature as per the site requirement.**

## 6.4 Camera Housing & Mount:

### The Camera mount should be:

- i) Of the same make as that of camera and suitable for the model number offered as specified by the manufacturer and should be an integrated unit.
- ii) Should be compact and indoor/outdoor type as required.
- ii) Should support the weight of camera and accessories such as housing, pan & tilt head in any vertical or horizontal position etc.

## 6.5 Speed Dome Controller/PTZ Controller:

- i) Speed Dome Controller should be software based, LCD display for programming and it should be able to control the speed dome for PAN/TILT/ Zoom.

## B. BACKUP AND WORKSTATION:

### 7. Network attached storage (NAS) / Raid backup device:

7.1 NAS box/RAID backup device shall be used to record video streams based on the configuration assigned by administrator. Workstations & Servers within the LAN should be able to access the recorded video streams. The NAS/RAID backup device should support simultaneously play back and recording at full duplex operation.

7.2 It shall provide Full HD quality recording storage and play back of video images. It should support integration with LAN to provide Centralized Management and shall operate on Windows/Linux OS. Support of user management for security level control and authentication required.

These NAS boxes / RAID backup device should have the followed features and specifications:

Onboard CPU	Dual Intel Xeon R Support up to 2.8 GHz-
Onboard Memory	16 GB DDR 3
HD Drive	16TB or more
Host Interface	Dual Gigabit Ethernet
RAID Support	RAID Levels, 0,1, and 5
Network Transport Protocols	TCP/IP
Network File Protocols	CIFS, NFS, HTTP/HTTPS, FTP, SNMP, SMTP, DHCP And DNS
Drive Status / Space Monitoring	Supported
Operating System (OS)	MS Windows OS (latest version)/ Linux
Power Supply	Hot pluggable Redundant Power Supply

## 8. Workstation Specification:

CPU	Xeon/ i5 or higher
Mother Board	Intel Original Mother Board
Memory	8 GB DDR3
Hard Drives	2x500 GB or more
Keyboards	Keyboard
Mouse	Optical Mouse with scroll
Video Card	In Built 2 Nos for connecting 2 monitors
RAID	Supported
Network Adapter (NIC)	Integrated 10/100/1000 Base - T
Sound Card	In-Built
DVD Writer	DVD+16x, RW+8x -6x, CDW 48x, Blue Ray
Monitor	24" TFT monitor with speaker
USB 2.0 or fire wire card	2 nos. at front panel
Operating System	MS Windows OS or Linux (latest versions) at the time tender

## C. DOOR ACCESS SYSTEM WITH ACCESSORIES:

### 9. Door Access System (Preferably PoE based) :

#### General Specifications:

- 1.1 The Door Access system has to be IP based to be controlled by server based software. Hardware and software of door access controller should integrate with the existing IT infrastructure.
- 1.2 It should be stand-alone controller. There should be direct network connection to the door controller/card reader/finger print reader etc.
- 1.3 Preferably PoE should power all the hardware viz., the door contact, the door lock & finger print/card readers, request to exit sensor etc.
- 1.4 The system should include a camera and should support face recording and be able to record a snapshot of the entrants. Also, the system should be able to buffer events or cache access credentials.

- 1.5 All components should be open standards based, upgradable, scalable and replaceable with any other open standards compliant hardware and software.
- 1.6 Different types of door access control devices should be quoted separately so that the types of devices and quantity may be decided based on the location and requirements.
- 1.7 All devices should be connecting in network and the data should be auto synchronize.
- 1.8 In case the main PC of the system fails, controllers and IP-readers shall accept a connection from a laptop in order to diagnose the problem, change settings or control peripheral devices.
- 1.9 Door access system should have local storage so that, if server contact is lost, the system should remain operational.
- 1.10 The Door access system should preferably have anti-tailgating protection.

## **2. System requirements for software**

- 2.1 The number of cards/users shall be limited only by memory available in hardware.
- 2.2 Minimum 2 type of access per user should be supported i.e card+ finger or PIN (if required).
- 2.3 The software shall support at least 4000 holiday dates and have automatic holiday rescheduling feature.
- 2.4 The software shall have the ability to perform scheduled automatic database maintenance and backup tasks at user selected intervals and ability to configure the amount of history stored in the active database.
- 2.5 The software shall have the ability to produce the following report types: system and alarm event reports, user reports, hardware configuration settings, access level reports, employee time & attendance reports.
- 2.6 The reports shall be available in Adobe PDF and MS Excel formats.
- 2.7 Report filters must be convenient and user friendly: allow operator preview user photos, content of access levels, hardware settings and time zone configuration.
- 2.8 The software shall support an unlimited number of building floor plans or software should be scalable.
- 2.9 Floor plan viewing interface shall have convenient zoom in/out controls by mouse wheel.
- 2.10 The software shall allow operator to conveniently edit floor plans by “dragging and dropping” hardware devices to selected plan areas.
- 2.11 The software shall allow assigning custom icons to each floor plan in order to help operators identify floor plans quickly. The software shall have a wide selection of default icons as well.
- 2.12 The software shall support “full-screen” mode that would take up 100% of the monitor area and prevent operators from starting or accessing any other programs.
- 2.13 All configuration and user changes shall be sent to controller immediately. The software shall display the progress in percent as the changes are being downloaded. The downloading shall be done in background and not affect the normal use of the software in any way.

- 2.14 The floor plans shall display real-time status of system hardware and allow operators to immediately see the effects caused by configuration changes.
- 2.15 Dynamic search function shall be present in all windows of the program: search results shall be narrowed automatically as a key phrase is being entered. I.e. after entering characters “xy” the program shall locate and display all records containing these characters, and after typing in more characters shall refresh the results automatically.
- 2.16 The software shall have the ability to automatically display photos and additional information about users as they enter/exit through doors.
- 2.17 The software shall be available in the official language(s) of the country where it is being installed. If such language is not included in the standard installation, the software shall support user friendly translation method: simply replacing program text directly in the software (“on the fly”), without the need of sending any files to the manufacturer for compiling.
- 2.18 The software shall have a modern interface, attractively designed and convenient to use.
- 2.19 The software shall be adapted for operators who have not received any special training related to management of integrated security systems. Graphical user interface shall be intuitive.
- 2.20 In order to reduce the amount of work done by an operator, the software shall incorporate an option to copy objects: users, doors, floor plans, time schedules, access levels and holidays.
- 2.21 The software shall facilitate integration with other systems of the building.
- 2.22 The software shall have the ability to transfer entry and exit events to HR systems with the purpose of work time calculation.
- 2.23 The software shall store information and provide reports about visitors and appointments.

### **3. System requirements for Hardware**

- 3.1 The hardware shall support open architecture. Communication protocols shall be available to system integrators and software development companies in order to protect end-users from being constrained to a single brand of hardware or software.
- 3.2 The hardware shall support all industry standard readers that output information in Wiegand or Clock/Data formats (up to 128 bits).
- 3.3 There shall be an IP-reader available. The IP-reader shall integrate a contactless card reader and controller in a single body, designed for surface mounting on a wall or a door frame eliminating the need for enclosures.
- 3.4 Each controller and IP-reader shall have a standard RJ-45 network port for communication with software and other controllers.
- 3.5 Controller and IP-reader shall support standard Ethernet 10/100BaseT network and TCP/IP communication protocol.
- 3.6 Systems using Ethernet converters, adapters, or terminal servers that enable network connectivity for legacy controllers by tunneling RS-232/485 serial data over Ethernet shall not be acceptable.

- 3.7 All controllers and IP-readers shall use a 32Bit 100Mhz RISC processor (or better) in order to enable fast execution of advanced functions.
- 3.8 All system parameters including card numbers, PINs, access levels, time schedules, holidays and operations modes shall be stored in controller and IP-reader memory and not affected in case of a power loss.
- 3.9 In case communication with the host PC is interrupted, the controller and IP-reader must have enough memory to store at least 5000 latest events (FIFO buffer).
- 3.10 Operation of controller and IP-reader shall be completely independent of the PC or “Master controller”. Should the PC or the communication link fail, the users should not be affected in any way and all functions should continue working.
- 3.11 Controllers and IP-readers shall have an RS-232/485 communication port that would act as a backup communication channel in case the network connection was interrupted.
- 3.12 Controllers and IP-readers shall have a built-in PoE capability, in order to reduce wiring and provide backup power effectively. PoE feature must comply with the 802.3af standard.
- 3.13 Controllers and IP-readers shall be capable of supplying up to 600mA @ 12VDC to peripheral devices: readers, electric locks, etc.
- 3.14 Controllers and IP-readers shall accept the standard 12VDC power input in case an existing network infrastructure does not support PoE.
- 3.15 In case the main PC of the system fails, controllers and IP-readers shall accept a connection from a laptop in order to diagnose the problem, change settings or control peripheral devices.
- 3.16 In case of an alarm controllers and IP-readers shall initiate communication and provide timely notifications to operators. Hardware that does not initiate communication and needs to be polled frequently will not be acceptable due producing needless traffic on the network and processing load on the PC.

### **DETAILED TECHNICAL SPECIFICATIONS**

S. No.	Description	Specifications
1	Machine (Reader)	User Capacity: 3000 or more Transaction: 1,00,000 or more Built-in USB, RS-232/485, LAN and WLAN communication ports Operating Temp: 0 to 45 degree Celsius Power Supply: 12V DC Card Reader: EM RFID(Proximity), Mifare, HID(Optional) Access Control Interface: 3rd Party electric locks, door sensor, exit/Push Button, Alarm, doorbell. Function: Web-Server, Wi-Fi, GPRS, CDMA Display: Yes (Min 3’’ TFT or better) Supporting Database: Ms-Excel, Text, Ms Access, Ms Sql Server, and Oracle.
2	Deleted	
3	Server Based Access Control Software	The software should include all the features to control all the doors or single door according to the site requirements. The software should operate on IP.

5	Electromagnetic Lock	Double Leaf 600 lbs capacity with Power supply Response should be in ms Antirust Surface treatment LED Indicator/ sound Indicator
6	Alarm button/Fire Exit button with hammer.	Alarm button for emergency exit doors with glass-break and hammer.
8	Exit switches Push to exit.	Stainless steel body with steel button
12	L / U Brackets(Optional)	As per the site requirement

**D. DISPLAY/MONITOR:**

Monitor Display	24 Inches TFT, Non-reflective Screen
Ports	HDMI, VGA, Audio
Power	Standard
Bezel Size	Minimum
Speaker	Inbuilt
Brands	Dell, Samsung, HP, LG