



ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड

**Bharat Heavy Electricals Limited**

(A Government of India Undertaking)

**ELECTRONICS DIVISION**

**P.B.No 2606, Mysore Road,**

**Bangalore - 560 026**

*An ISO9001, ISO14001 & OHSAS 18001 Company*

**NOTICE INVITING TENDERS**

<b>SL</b>	<b>PARTICULARS</b>	<b>DETAILS</b>
1	TENDER NUMBER	<b>EDN/515/1415/ARBCS dtd 18.08.2014</b>
2	NAME OF WORK	<b>SUPPLY INSTALLATION, COMMISSIONING AND MAINTENANCE OF ATTENDANCE RECORDING AND ACCESS CONTROL SYSTEM (BIOMETRIC) ON LEASE RENTAL BASIS</b>
3	LEASE RENTAL PERIOD	<b>7 (Seven) Years</b>
4	ESTIMATED VALUE OF EQUIPMENT TO BE SUPPLIED	<b>Rs.45 lakhs</b>
5	EARNEST MONEY DEPOSIT	<b>Rs.1,00,000/-</b>
6	LAST DATE AND TIME FOR THE SUBMISSION OF DULY FILLED IN TENDER DOCUMENT	<b>12.09.2014 at 1.00 pm</b>
7	PLACE OF SUBMISSION OF TENDER DOCUMENT ALONGWITH EMD	<b>Tender box identified as "HRM"</b>
8	DATE AND TIME FOR TENDER OPENING	<b>12.09.2014 at 1.30 pm</b>
9	ELIGIBILITY CRITERIA	<b>PLEASE REFER FORMAT 'A'</b>

CONTRACTOR

FOR BHEL

NOTE: The Tenderer shall return the duly filled in Tender document after affixing signature on all the pages.

ISSUED TO CONTRACTOR:

### Eligibility Criteria (FORMAT A)

SL	PARTICULARS	DETAILS
1	<p>Qualification / Evaluation Criteria for Bidders:</p> <p>Bidders shall have successfully executed jobs of similar nature with any Govt. organizations /PSU / Public Limited Company/ Private limited companies of during <b>last 7 years</b> ending 31<sup>st</sup> July 2014 as per the following:</p> <ul style="list-style-type: none"> <li>a. Three similar completed works costing not less than the amount equal to 18 lakhs.</li> <li><b>or</b></li> <li>b. Two similar completed works costing not less than the amount equal to 22.5 lakhs.</li> <li><b>or</b></li> <li>c. One similar completed work costing not less than 36 lakhs.</li> </ul> <p><b>Similar work is defined by supply and installation of Biometric Access control system in any industry/company involved in manufacturing process.</b></p>	
2	Performance / Commissioning Certificate for the above	
3	The bidder shall have a minimum average turnover of Rs 13.5 Lakhs per year for the last three consecutive years ending 31 <sup>st</sup> March of 2014. The Bidder shall submit Audited Balance Sheet and profit and loss account of the company for the last three consecutive years(2011-12, 2012-13, 2013-14) for proof of turnover	
4	The bidder shall either be a manufacturer or an authorized dealer /channel partner only for the original manufacturer and	

	should submit documentary evidence for the same.	
5	The product shall be manufactured by a firm whose quality system is in compliance with I.S/ISO 9001 & IS 14001/ conforming to equivalent international standards.	
6	Bidder should have valid registration under CST / VAT, Excise/ Service Tax Acts. The corresponding documentary proof to be furnished.	
7	Bidder must have an established or shall give undertaking to set up service center with trained service personnel at Bangalore, in case of order placed.	



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ISSUED TO CONTRACTOR:

### **Scope of Supply :**

The scope of supply consists of design, supply, installation & commissioning of an access control system for Electronics System Division, a unit of BHEL, located at Electronic City, Bangalore.

The system will provide an integrated solution for time and attendance management and will consist of the following:

- 22 nos. of Readers (Contactless smart card & biometric) with 20 nos. of stainless steel turnstiles will be installed near the front gate. Fixing of the turnstiles and readers is in the vendor's scope.
- 2 nos. of readers (Contactless smart card & biometric) without turnstiles will be provided at the specified location at the time of installation.
- All necessary networking required for the installation is in the scope of the vendor. The networking will involve only CAT6 cabling as Fiber Optic cabling between the buildings will be provided by BHEL. Switches required will be provided by BHEL. Cabling from access control system to switches is in the scope of the vendor.
- UPS, Servers & software required for the management of the time & canteen records online will be supplied by the vendor.
- BHEL will provide a shelter for the 20 nos. of Turnstiles and 20 nos. of Readers. The vendor can inspect the site before quoting.
- The detail Bill of Material to be supplied is as given in specification sheet EDN:HR:ACAR:2014. The detail specifications for the equipment are provided in PART III.



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ISSUED TO CONTRACTOR:

Ref:EDN/515/1415/ARBCS

**PRICE BID FORMAT**

**Bill of material along with the specifications**

Sl.No.	Item Description	Detailed specification under clause	Unit	Quantity required	Unit Price (In Rupees)	Taxes (if any)	Unit price (with taxes)
1	Stainless steel tripod turnstiles	SP01	nos	20			
2	Readers	SP02	nos	22			
3	Enrollment kit	SP03	nos	1			
4	Contactless Smart cards	SP04	nos	2500			
5	Networking	SP05	Lumpsum	1 lot			
6	UPS	SP06	nos	2			
7	Server & backup	SP07	nos	1			
8	Official/Personal switch & display	SP08	nos	2			
9	Time and Attendance Management Software	SP09	SET	1			

Note : L1 will be determined on total price and not on individual prices.

I agree for the BHEL payment terms and conditions.



CONTRACTOR (Seal and Signature)

FOR BHEL

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ISSUED TO CONTRACTOR:



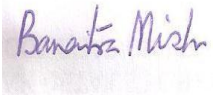

## SPECIFICATION FOR SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM

EDN:HR:ACAR:2014

REV NO 00

Page 1 of 17

### REVISION HISTORY SHEET

REV NO.	DATE	NATURE OF CHANGE	REASONS	CHANGED BY	APPROVED BY
00	18/08/2014	NEW		BANAMITRA MISHRA	K PARTHIBAN
					

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## SPECIFICATION FOR SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM

EDN:HR:ACAR:2014

REV NO 00

Page 2 of 17

### Bill of material along with the specifications

Sl.No.	Item Description	Detailed specification under clause	Unit	Quantity required
1	Stainless steel tripod turnstiles	SP01	nos	20
2	Readers	SP02	nos	22
3	Enrollment kit	SP03	nos	1
4	Contactless Smart cards	SP04	nos	2500
5	Networking	SP05	Lumpsum	1 lot
6	UPS	SP06	nos	2
7	Server & backup	SP07	nos	1
8	Official/Personal switch & display	SP08	nos	2
9	Time and Attendance Management Software	SP09	SET	1

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PREPARED BY:

BANAMITRA MISHRA

APPROVED BY :

K.PARTHIBAN

ISSUED BY:

HUMAN RESOURCES  
MANAGEMENT

DATE :

18/08/2014



## SPECIFICATION FOR SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM

EDN:HR:ACAR:2014

REV NO 00

Page 3 of 17

*Banaraj Mishra**[Signature]*

### 1. Technical Specifications:

#### SP01 -Stainless steel tripod turnstiles

	Specifications	Requirements	Vendor Compliance
1	Tripod Turnstile	Three Cylindrical Arms of polished Stainless Steel of 32 mm diameter.	
2	Hydraulic/ Motorised smooth Mechanism	Yes	
3	Locking mechanism	Solenoid	
4	Housing	Stainless Steel	
5	Mechanism to have Rotating Speed Adjustable / Configurable	Yes	
6	Allows only one user to enter at a time.	Only One User	
7	Turnstile Operates at input Voltage	230V AC 10 % 50 Hz single phase	
8	All the parts and accessories should be of metal preferably the tong should be stainless steel ( should not be plastic or glass )	Yes	
9	The tripod arms should not have the sharp ends to catch clothing.	Yes	
10	Rotation :	Rotate 120 Deg and Stop	
11	Operation	Bi Directional	
12	Should be integrate able with the Bio metric Access/smart card Reader	Yes	
13	Fail Safe Mode:	In case of power failure or switched off , tripod arms will be free to rotate in either directions.	
14	Installation	By anchor bolt on the floor surface ( included in the vendor scope)	
15	Dust proof body covering the mechanical system ensuring long life.	Yes	
16	The gates are electrically insulated to avoid electrical shock.	Yes	





## SPECIFICATION FOR SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM

EDN:HR:ACAR:2014

REV NO 00

Page 4 of 17

17	Walkway	500 mm +50mm	
18	Protection level	IP54	
19	All internal components	Rust free alloys	
20	Approximate dimension of the casework	Stainless steel 420x250x1030 mm	
21	Acceptable makes/Brands	Shivananda Electronics or Godrej, or L3	

**End of SP01 -Stainless steel tripod turnstiles**

### SP02 – Readers

	Specifications	Requirements	Vendor Compliance
1	Access Mode	Finger Print reader with integrated contactless Smart Card reader (Mi fare)	
2	Built in Smart Card Reader	Yes	
3	Finger Print Sensor, resolution	Optical Type, 500dpi	
4	Finger Print Sensor Scan Area	15mm x 15 mm Min	
5	Sensor surface	Hardened & coated to make it resistant to wear and tear and scratch proof.	
6	Housing for finger print sensor	The finger print sensor must be covered suitably around the sensor so that it is not directly open to dust.	
7	Finger print sensor	Should angle so that the users should comfortably place their fingers.	
8	Color LCD display	Color LCD display screen of min. 3.5 inch, capable of displaying alpha-numeric text and images with photo IDs function enabling user friendly photo display. Display to be configurable by admin for each user.	
9	CPU	32 bit processor	



## SPECIFICATION FOR SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM

EDN:HR:ACAR:2014

REV NO 00

Page 5 of 17

10	External Control Required	Only In/Out Mode Switch for deciding the direction of the access movement.	
11	Housing Design	Rugged enclosure to provide reliable performance and resistance to vandalism. Preferably polycarbonate casing.	
12	Should Send the signal to the access system/turnstile wrt to the input given.	Yes	
3	Verification/ Identification Time	=< 2 Sec	
14	False Rejection Ratio	0.1%	
15	False Acceptance Ratio	0.001%	
16	Enrollment time	<= 4 sec	
17	Finger Print Displacement	+/- 30 Deg wrt finger guide to be provided	
18	Configurable percentage of fingerprint matching	Yes	
19	Card Read Range	Up to 7 cm	
20	Communication Ports	USB Port and TCP IP Port	
21	Communication Interface	On board 10/100 MBPS Ethernet or higher	
22	Finger Print Template Storage	10,000 or Higher	
23	Transactions Event Storage	1,00,000 or Higher, Should Over write, First In, First Out	
24	Audio / Beeper on Finger Swipe for Access	70 db min, Audio be distinguishable voice message or should be 2 distinguishable beeps for access granted / denied (Multi tone buzzer)	
25	LED indicator	Red/Green- bipolar LED display to be provided.	
26	Operating Temperature Range	10 deg C to 45 deg C	
27	Operating humidity	20% to 80%	
28	Rechargeable Battery backup	Min. 5 hours rechargeable	
29	Fingers per employee on the controller memory	5	
30	Fingers per employee on the card memory	2	



## SPECIFICATION FOR SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM

EDN:HR:ACAR:2014

REV NO 00

Page 6 of 17

31	Change of IP address of the reader	Should be possible from the device itself without need for PC or lap top.	
32	Facility to trigger third party devices like siren	Yes	
33	Communication Software Automatic Download to the Server, Real time update of transactions.	Must be an integral part of the reader, Push technology is to be used, Transactions to be transferred to server as and when they occur. No manual intervention of any type must be required.	
34	Admin Password for Enrollment and configuring	Yes must be provided	
35	IN or OUT position of the switch to provide signal for direction of the turnstile operation.	Yes	
36	Display Configurable by the admin	Yes, Each user to be configurable.	
37	Finger Print Templates upload to Reader.	Should be upload able to the reader from the server using TCP/IP port or USB port.	
38	In case of Loss of Power/absence of network connectivity for 5 hours, there should be no Data Loss.	Yes	
39	Mean time to repair	< 24 hours	
40	Personal & official punches will be recorded for one system reader as per specification SPO7	Yes	
41	Synchronization of time displays with readers, server and digital clocks	Time Displayed in the readers will be synchronized with the server time and the two IP based digital Clock displays already existing at EDN. These Clocks have network connectivity.	
42	Size and Dimensions	Preferably 210 X 160 X 70mm or smaller.	
43	Operation Modes	Biometric only, card only, biometric + card modes must be possible and configurable for each user in the system.	



## SPECIFICATION FOR SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM

EDN:HR:ACAR:2014

REV NO 00

Page 7 of 17

44	Others	1) Any No of INs & OUTs per day shall be allowed. 2) For every IN Punch, there shall be an OUT Punch. 2 INs or 2 OUTs should not be allowed. Already Punched should appear if 2 INs or 2 outs are attempted. 4) If an expired Card or wrong Finger print is used, ACCESS DENIED should be displayed & a BEEP should sound. 5) Continuous 3 to 4 failed IN or OUT should Alert with an Alarm.	
45	Mounting of the readers	20 nos. of Readers will mounted on the turnstiles in the entrance area and 3 nos. of readers in the canteen area they will be wall mounted.	
End of SP02 -Stainless steel tripod turnstiles			

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### SP03 - Enrollment kit

	Specifications	Requirements	Vendor
1	Access Mode	Finger/contactless smart card	
2	Finger Print Sensor	Optical Type	
3	Verification/ Identification Time	< 2 Sec	
4	False Rejection Ratio	0.1%	
5	False Acceptance Ratio	0.001%	
6	Enrollment time	4 sec	
7	Finger Print Displacement	+/- 30 Deg wrt	
8	Configurable percentage of fingerprint matching	Yes	
9	Card Read Range	Up to 7 cm	
10	Finger Print Template Storage	10000 or Higher	



## SPECIFICATION FOR SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM

EDN:HR:ACAR:2014

REV NO 00

Page 8 of 17

11	Download to the Server using the communication port and the corresponding software.	Automatic	
12	Admin Password for Enrollment and configuring	Available	
13	Reader shall use technology that allows accurate fingerprint comparison on subjects with dirty(greasy or Oily) hands	Yes	
14	Finger Print Templates should be unloadable to the reader from the server using TCPIP port.	Yes	
End of SP03 - Enrollment kit			

### SP04 - Contactless Smart cards

	Specifications	Requirements	Vendor
1	Card type	Contactless smart cards (Mi Fare cards) that employ a radio frequency between card and reader without physical insertion of the card.	
2	Communication frequency	13.56 MHz	
3	Standard	ISO 14443 standard	
4	Memory capacity	4 KB	
5	Quantity	1000 cards	
6	Printing on card	The name of the Company, employee, his photo and staff number will be printed on the card. The card will have a band of various colors based on grade levels. The exact matter and format for printing of the cards will be provided by BHEL. The photographs will be provided by BHEL.	
7	Distance range	Up to 7 cm	



## SPECIFICATION FOR SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM

EDN:HR:ACAR:2014

REV NO 00

Page 9 of 17

8	Card memory	The card memory to store the biometric data, name, staff number of the employee.	
9	Finger selection /Exceptions	Vendor to identify employees whose fingerprints are not identifiable by the Biometric Reader and such persons will be configured to allow access with only Contactless smart card.	
<b>End of SP04 - Contactless Smart cards</b>			

*[Handwritten Signature]*

### SP05- Networking

	Specifications	Requirements	Vendor
1	All network cables to be of CAT 5e	Yes	
2	Cable lengths	Cabling from switches to readers at gate 400 m approx.	
3	PVC 1 " pipe /casing & capping : to house the CAT 5 e cable wherever the networking is above the ground.	400 m approx.( within the swiping shelter / canteen area and reception area)	
4	GI Pipe 1 ": to house the CAT 5 e cable wherever the networking is below the ground/on ground in open areas.	100 m approx. (Swiping shelter Gate area to switch at reception area.)	
5	Switches	To be provided by BHEL	
6	CAT 5e I/O terminals with Face plate and Back Box	To connect the respective readers as required.	
7	UTP cable laying through casing/piping wherever required.	Yes	
<b>End of SP05- Networking</b>			

### SP06 - UPS Systems

#### (a)For the server

	Specifications	Requirements	Vendor
1	Suitable for Server	1 no.	
2	Back up time	1 hour	



## SPECIFICATION FOR SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM

EDN:HR:ACAR:2014

REV NO 00

Page 10 of 17

3	Compliance :	IEC-60950-1: 2001 / IS 13252:1992 / UL	
4	Battery type	Maintenance Free	
5	Battery Make :	Exide/ AMCO /Standard	
6	UPS makes	APC, Emerson, Eaton, Powerware	
7	1 year warranty includes battery replacement.	Yes	

### (b)For the Readers:

	Specifications	Requirements	Vendor Compliance
1	Suitable to Support Readers at the gate (7 nos.)	1 no.	
2	Back up time	=2 Hrs	
3	Compliance :	IEC-60950-1: 2001 / IS 13252:1992 / UL	
4	Battery Makes	Exide, AMCO , STANDARD	
5	UPS makes	APC, Emerson, Eaton, Powerware	
6	Battery type	Maintenance Free	
7	One year warranty includes battery replacement		

**End of SP06 - UPS Systems**

### SP07-Server & backup

	Specifications	Requirements	Vendor
1.	Processor	2 Way 2U Rack server, Intel Xeon Dual core processor, 2GHz or higher.	
2.	Memory	4 GB RAM expandable to 8 GB or higher	
3.	Hard disk	3 x 72 GB SAS, 2.5" Hot swap HDD, 8 Bays Standard, RAID 5.	



## SPECIFICATION FOR SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM

EDN:HR:ACAR:2014

REV NO 00

Page 11 of 17

4.	Monitor, Keyboard, mouse	15" LCD TFT Monitor, 104 keys keyboard, 2 Button OEM Scroll Mouse.	
5.	Operating System	Windows 2008 Server or Higher Or Red hat Linux latest version as required for the time and attendance software being supplied by you.	
6.	NIC Ethernet Cards	2 nos.	
7.	DVD Writer	8x or higher	
8.	Server Makes	HP, IBM, Dell	
9.	24 U Rack	The server is to be mounted in a 24 U rack with internal fans rack and internal vertical power strip.	
10.	Makes for Rack	Acer, HP, IBM, APW, NetRack, HCL	
11.	USB backup device	1 TB external USB hard disk	
12.	Makes for USB hard disk	Transcend, Seagate, Maxtor	
13.	Database	Oracle 10G or higher	
<b>End of SP07-Server &amp; backup</b>			

### SP08 - Official And Personal Switch & display

	Specifications	Requirements	Vendor
1	Toggle Switch	1 No. Cable toggle switch with two options only Official or Personal Exit	
2	LED Display	Displaying the Official / Personal as per the Switch Settings	
3	Display Size	4 " X 12 "	
4	Location of switch & displa	Security Office at gate	





## SPECIFICATION FOR SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM

EDN:HR:ACAR:2014

REV NO 00

Page 12 of 17

5		Out of the total 7 readers with turnstiles, 1 reader will be dedicated for personal/official out punch and will be provided with separate official / personal display depending on the toggle switch input stationed at the security office. Based on the toggle position the reader screen will indicate official/personal in its LED display and this data will be captured by the reader and must be available in the database for computation.	
6	Employees forgetting to bring smart cards	For the entry employees forgetting to bring smart cards, The switch will be put in personal position by the security and then this reader shall allow entry of the employee with biometric verification only. It will also be recorded in the system that the employee has not brought his	
<b>SP08 - Official And Personal Switch &amp; display</b>			

### SP09 - Time and Attendance software

	Specifications	Requirements	Vendor
1.	Operating system	Windows 2008 Server or Higher or Red hat Linux latest version as required for the time and attendance software being supplied by you.	
2.	Backend database	ORACLE 10G or Higher	
3.	Front End/ Input screens	All input & output screens must be web based accessible in Internet explorer & Mozilla Firefox.	
4.		Should be seamlessly integrated with the access	



## SPECIFICATION FOR SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM

EDN:HR:ACAR:2014

REV NO 00

Page 13 of 17

5.		Should be multiuser software	
6.	Softwares	Any software required for the time and attendance management software being supplied by the vendor must be supplied by the vendor. BHEL will not provide any supporting software. Antivirus for the server will be provided	
7.		Company defined attendance policies must be configurable for	
8.		Admin must be able to mark employee attendance manually if the employee	
9.	Shift definition	Unlimited shifts to be possible, night shift, flexi shift, Time shift and auto shift should be	
10.	Bus/Route numbers	Facility to enter bus numbers for a group of persons.	
11.	Route timings	Facility to enter Route timings for a bus.	
12.	Facility to enter OOD, tours and OT	Yes	
13.	File upload	Facility to upload leave from excel or text file provided through SAP-ESS	
14.	Dash Board for HOD/admin	HOD to be able to view the attendance details of his subordinates in dashboard.	
15.	Addition of no. employees	Unlimited Employee addition should be possible.	
16.	.Integration	Seamless Integration with payroll software should be possible	
17.	User defined grace periods/entry/exit	User defined grace periods for making late and early must be possible.	
18.	Provision for back up data	Provision to take regular backup of the data should be	
19.	Up loading data as per BHEL format	Facility to upload attendance data to local EDN system as per their format.	



## SPECIFICATION FOR SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM

EDN:HR:ACAR:2014

REV NO 00

Page 14 of 17

20.	Various reports customisation	Standard Reports shall be viewable by the administrator to analyse and investigate the unit operation.	
21.	Maintenance of log	The unit shall maintain a running log that can be downloaded to a computer at administrator's discretion.	
22.	Event capture	The log shall capture all events and the results of each. Event (positive or failed ID)	
23.	Screens to be provided For Updating and corrections in the database to be possible with authorization logins/admin login.	IN /OUT timings, Personal and Official Gate Pass Entry, OOD Entries, Leave, Compensatory Offs, Holidays, Updating and Corrections for the earlier months must be possible.	
24.	<p><b><u>Reports for the following to be provided:</u></b></p> <p>The reports must be available for daily monthly and for a period inputs</p>	<ol style="list-style-type: none"> <li>1. Reports for attendance based on different selection criteria's like Date, time, Staff Nos, Cadre, department,.</li> <li>2. Reports for displaying overtime.</li> <li>3. Reports for displaying nonproductive hours.</li> <li>4. Reports for use of the Canteen for lunch and breakfast.</li> <li>5. Monthly Attendance for each Employee for salary Purpose.</li> <li>6. For Supplementary payments purpose including the Overtime, Differential Attendance and</li> <li>7. Number of employees present grade wise and total.</li> <li>8. Reports for bus punctuality, route wise</li> <li>9. Reports of late and early punches.</li> <li>10. Reports for OODs/OT personal &amp; official</li> </ol>	



## SPECIFICATION FOR SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM

EDN:HR:ACAR:2014

REV NO 00

Page 15 of 17

25.	<b><u>Uploads to system</u></b>	<ol style="list-style-type: none"><li>1. Provision is to be provided for entry of leave/OOD by administrator.</li><li>2. Option to upload leave data as provided by SAP ESS.</li><li>3. Uploads of holidays in a year</li></ol>	
26.	<b><u>Excel and Pdf outputs :</u></b>	<ol style="list-style-type: none"><li>1. All reports must be available as Excel and Pdf outputs also.</li><li>2. All reports must have print option also.</li><li>3. Excel output for upload to payroll system must be possible.</li><li>4. Payroll system output formats will be provided in BHEL. Two formats are required one for present</li></ol>	
<b>End of SP09 - Time and Attendance software</b>			

### SP10 - Installation & Commissioning

Sl. no	Requirements	Vendor Compliance
1.	<b><u>Turnkey project</u></b> : This is a turnkey project and it is the responsibility of the vendor to design the system, supply, install and commission the system for satisfactory functioning.	
2.	Vendor shall install the Biometric Reader along with the Tripod Turnstile Mechanism	
3.	<b><u>Newness Certificate</u></b> : All Equipment supplied and installed should be NEW and conforming to the contract technical specifications. The certificate of newness is to be furnished.	
4.	<b><u>Communication between components</u></b> : Vendor to ensure that communication between readers, turnstiles and server is seamless.	
5.	The system should be designed and looped in such a way that an employee can log in / out from any of the 7 nos. access gates.	
6.	<b><u>The Official / Personal toggle Switch &amp; the reader</u></b> is to be installed at Security Centre at front gate, location will be provided by BHEL.	



## SPECIFICATION FOR SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM

EDN:HR:ACAR:2014

REV NO 00

Page 16 of 17

7.	<b><u>Change over from the old System:</u></b> The switching over from the old system to the new system shall be done smoothly without any interruption and loss of data. All the attendance data from the old system will be ported to the new system before the start of the changeover. Changeover can be done department wise if required.	
8.	The vendor must ensure that existing siren works with respect to the server timings and ensure that shift intimations take place through the same.	
9.	Existing IP based Digital clock displays( 2 nos.) must be integrated with the system.	
10.	<b>Enrolment of finger prints of all the employees initially to be done by the vendor and training to be provided to HR persons for future enrollments.</b> <b>During enrollment minimum of two fingers prints per person one for each hand to be enrolled.</b>	
11.	The Enrollment of the Employees will be done at BHEL-ESD, Electronics City, Bangalore.	
12.	<b><u>Warranty:</u></b> Supplier / System Integrator should provide minimum warranty of one year for the entire system supplied including workmen ship and should replace at free of cost.	
13.	<b><u>Training:</u></b> Supplier / System Integrator should train BHEL Engineers / Personnel for operation of all the systems and software including enrollment.	
14.	All tools, instrument required for installation & commissioning is to be brought by Supplier / System Integrator only.	
15.	All safety and Security norms to be adhered by Supplier / System Integrator.	
16.	The software should be customized to the rules and regulation of BHEL as per the specifications attached. Any clarification can be sought during the development and customization stage.	
17.	The Supplier / System Integrator should ensure compatibility of their attendance system software with SAP.	
18.	The software should have capabilities to block the specific employee / restrict the gates for the specific group on the need basis.	
19.	The system has to be installed and commissioned within 4weeks from the date of the purchase order.	



**SPECIFICATION FOR  
SUPPLY AND INSTALLATION OF  
ACCESS CONTROL SYSTEM**

EDN:HR:ACAR:2014

REV NO 00

Page 17 of 17

**End of SP10 - Installation & Commissioning**

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*W. Parthasarathy*

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