Indian Institute of Technology Kanpur
Kanpur 208016

Call for Expression of Interest for Augmentation of

Institute Automation System

25 March 2021

EOI No.: NOA/IITK/2021/1435

1. Description of the required automation system

IIT Kanpur is involved in cutting edge research as well as in teaching engineering and science curriculum. At present we have approximately 7000 students, 400 faculty, and 2000 permanent, contractual, and project staff. Our campus is fully residential with a large number of amenities. Management of all the institute-wide processes is impossible without an effective and friendly automation system . At present an automation system consisting of in house developed software modules and outsourced modules are being utilized to automate and integrate various offices and units of the institute. The main objective of this call of Expression of Interest is to further augment and integrate the existing automation system with the latest technologies and processes.

The units to be automated or augmented include offices of Director (DIRO), Deputy Director (DD), Dean of Academic Affairs (DOAA), Dean of Faculty Affairs (DOFA), Dean of Student Affairs (DOSA), Dean of Resource and Alumni Affairs (DORA), Dean of Research and Development (DORD), Dean of Infrastructure and Planning, Registrar, Personnel Management, Finance and Accounting, Stores and Purchase, Audit, Library, Institute Works Department (IWD), Student Hostels, Student Gymkhana, Council of Wardens (COW), Estate Office, Identity Card Cell (ID Cell), Health Centre, Guest House, DAK and Dispatch System, Online Leave System, Security, Pension, Recruitment, Transport, Horticulture, Legal, Placement, Survey and all departments.

The major tasks are

1) **Administrative** modules such as finance, accrual based accounting, HR, payroll, income tax, pension and fund, all dean's offices, facility management, department offices, audit and legal activities, materials management, stores & purchase, asset management, etc.

2) **Academic** modules such as student information systems, classroom and learning management systems such as content management systems, course registration and grade submission, class-room management and time tabling, document management systems, examination scheduling, student admissions, scholarships, student hostels, student gymkhana, council of wardens (COW), festivals and student related events, convocation, awards & medals, faculty publications, quality improvement program (QIP), related activities, fees related information, etc.

3) **Research Project Management** systems for sponsored and institute projects that involve purchases, audit, accrual based accounting, project staff hiring, income tax, payroll, pension, QIP scholarship, fellowship, project management and monitoring, intellectual property rights (IPR), memorandum of understanding (MOU), patents, etc.

4) **External connect** systems that provide links to outside the institute including alumni

relations, placement, donations, summer internships, etc.

5) **Institute services management** systems involving health centre, student gymkhana, guest house, institute works department (IWD), identity card cell (ID cell), security, attendance system for students and employees, transport, no-dues, smart card based applications, etc. The system should allow online booking, queries, and complaint management.

6) **E-payment** gateways where payment can be made through various modes such as credit/debit cards, SBI I-collect, Internet banking, etc.

In addition, we are looking for the following features in the automation. Note that some of the features may be optional, and/or they can be taken from other available softwares/applications. The vendors are expected to provide ideas how to achieve these objectives, even if they do not have some of these applications (refer to checklist).

1) **Efficient class management**: (a) online examination, (b) mechanized attendance taking using biometrics or similar tools, (c) clicker-like solution for large classes, (d) interfacing with smart classrooms, e.g., saving the blackboard screenshots, (e) online course feedback, (f) classroom booking, (g) timetabling of courses, (h) classroom allocation for courses.

2) **Information and discussion portal**: (a) forums for student, faculty, staff, campus community, and alumni; (b) lost-and-found boards; (c) announcements of seminars (including M.Tech., Ph.D. defenses) and major events; (d) online surveys; and other similar tasks.

3) **Library automation**: Search and index facilities, barcode/RFID features for borrowing books, e-book borrowing, online recommendation and purchases of books by faculty and staff, inter-library loan, stock reconciliation, etc.

4) **Easy report generation**: Concerned personnel should be able to generate dynamic reports easily using the database by ticking various fields in different formats such as rich text format, spreadsheet, comma-separated-value, pdf, text, etc. The data access, however, must be protected, and only the appropriate personnel with authority should be able to access the relevant data.

5) **Process engineering**: Minor modification in the processes should be easily implementable.

6) **No duplication of data:** data flow from various modules should be seamless and the updated data must be visible to all the concerned personnel.

7) **Data security**: only the concerned authority or user should see the relevant data; access

permission at all levels; role based authentication and access at various level such as application, module, form and fields.

8) The automation system should run **efficiently and seamlessly** on all platforms (Windows, Linux, Mac, etc.). For users, UI should work on common browsers like Internet Explorer, Firefox, Chrome, Safari, etc.

9) The number of students, faculty, and staff could double over the years. The software should be **scalable** for such expansion.

10) Automation software should provide relevant services on **mobile and handheld devices**.

11) The vendor should provide complete database schema and access to raw data, so that in the event IITK decides to change the automation software in part or whole, the existing data can be easily and seamlessly ported to the new software.

12) The vendor would be required to share the source code, data base, etc so that the in house would be able to make changes or add modules later as when required. The system would be implemented module wise and details of the architecture, data base, etc would need to be shared with the in house automation team.

13) Biometrics and smart-id features should be included for the appropriate modules. Digital signatures should also be implemented.

14) We should go paperless as much as possible. The document delivery system should include barcode/RFID features to enable tracking.

15) We would need to port all our existing digital databases to the new system. This includes student and faculty data, research projects, accounts, etc. The porting to the new system should be smooth and error free. Most of our data is in a digital format.

16) Remote access in a secure and authenticated way when the faculty and students are away from the institute.

17) Information security and data integrity. If any ready-made software is to be used, then it should have proper certification about the quality. The passwords and valuable data should be encrypted.

18) Feedback/acknowledgments through email/sms/mobile app.

19) Regular backup and recovery of the complete database and application software. Complete protection against data losses.

20) The system should be available 24x7.

We are open about the platforms on which the software is to be written. However, we have the following requirements:

1) The integration among various modules must be clean and seamless.
2) The software should be written in a generic platform so that its life and continuity is guaranteed. Even though we do not specify the platforms at present, the committee reserves its rights to reject very specific platforms.
3) For cost effectiveness, the vendors are encouraged to use available open source softwares (e.g., accounting, class management system, library). However, the responsibility of integration with our aforementioned features lies with the vendor.

While the automation system will work through the institute physical infrastructure, their installation and maintenance is out of scope of the automation. These items include equipment for the offices, classroom, laboratories, library, such as smart access equipment, projectors, PCs, laptops, video conferencing. In addition, the following items are also out of the purview of automation:

1) Internet & Wi-Fi, Network and web service, Email service.
2) Institute Web
3) Computing systems including HPC clusters.

The above scope is not intended to be exhaustive but indicative. Any other additional activity, which IITK deems to be beneficial, can be added to the scope of activities at a later time.

2. Model of engagement

IITK would need the vendor to use a managed services model for the above systems for a period of five years from date of go-live. In particular, the vendor must provide automation software installation, commissioning, hardware and software maintenance, regular backup module, and complete support for the **five years** after go-live by a dedicated onsite team and also hand over module wise the relevant source code etc. Bug fixing, feature enhancement and higher-level support may be provided through offsite backend. IITK expects the complete automation to go live in 18 months after the order has been awarded.

Managed services will also include providing software licenses, hardware, bug fixing, enhancements, upgrades, functional and technical training of IITK personnel, and other related activities. The vendor will take the end-to-end ownership as a single point contact to ensure smooth functioning of the IT operations by providing requisite resources.

3. Tendering and selection process

To select a vendor for the development, roll--out, and maintenance of the automation system, we have two-phases of tendering process. In the first phase (pre-bid), we invite vendors for the Expression of Interest (EOI) to showcase their likely solutions for our automation requirements; vendors should also present their past experiences and technical capabilities. An empowered committee will select a set of suitable vendors for the next phase based on their technical solution, experiences, and financial stability.

The selected set of vendors would then be invited to participate in technical and financial bids for the next phase. We will provide our detailed requirements to this set of vendors. Final selection among these vendors will be based on their technical solution and financial bid.

The EOI process will have the following detailed steps and tentative timeline.

Activity	Date of completion
Release of EOI	March 25th , 2021
Questions submitted over one consolidated email from each vendor	April 2nd , 2021
Answers to consolidated questions provided to all vendors	April 9th , 2021
Submission of EOI response	April, 23rd 2021, 5:00 PM
Inform vendors shortlisted for pre-bid presentation	April 30th , 2021
Pre-bid presentations	May 7th , 2021

IITK reserves the right to make any changes deemed suitable in the above process depending on the need. While IITK will attempt to follow the above timeline, it reserves the rights to change the dates if required; the changed schedule will be posted on the website.

The vendors are requested to send their detailed EOI response in sealed envelope superscribed EOI for: , EOI No., Date of Closing of EOI to the following address upto 23rd April 2021 05:00 PM.

> Dean of Digital Infrastructure and
> Automation
> Computer Centre
> Indian Institute of Technology Kanpur
> Kanpur– 208016
> Email: ddia@iitk.ac.in

The vendors must focus on the solution to our automation requirements of augmenting our existing automation system . In particular, they must provide the following information:

1) Solutions to the major tasks described in Sec. 1, i.e., administrative, teaching modules, research project management system, external connect, and institute service management system.

2) Address the desired features 1-20 of Sec.1.

3) Automation software to be developed by the vendor must be compatible with our existing automation systems. Our existing automation platforms are based on the following technology stacks.

   a) Development Framework and IDE used: The development is based on J2EE, JavaScript, Ajax, Jquery, Bootstrap, Jasper using Spring MVC and Apache Netbeans IDE 12.2

   b) Web Server: The existing software is deployed on Apache-Tomcat. on Linux (RHEL/CentOs).

   c) Database Server: The existing software is deployed using MySql as a back-end Database Server.

4) Usage of existing open source software, if any.

5) Solutions to integrate the required modules seamlessly.

The vendors must also present their past work on automation to academic institutions like old IITs (see Forms B and C). The companies that are selected for the pre-bid presentations should present their previous experiences, solution for our requirements, and implementation and integration approach. We will specify the duration of presentation in a later communication to the vendors.

The selections at the pre-bid stage for the next stage would be based on the feedback provided by the vendor, and on the pre-bid presentations. The selected vendors would be invited to bid for the final technical and financial tender.

4. Eligibility criteria for pre-bid

The eligibility criteria for pre-bid EOI process are as follows:

1) The vendor should have at least **five years of similar works experience** in development for automation software.

2) For the financial and operational stability, the vendor should have a yearly turnover of at least **thirty crores** over the last **three financial** years through automation work. The balance sheet

shall be submitted.

3) The vendor should have a successful track record, and should have at least one implementation in post-graduate institutions/universities comparable to IITs in stature, system requirements, etc., in India or abroad. The required experience certificate to be attached with the bid.

4) The vendor should have a support office in India.

5) The EMD of Rs. 15 Lakhs in favor of "the Director, IIT Kanpur" payable at "Kanpur" in the form of Demand Draft has to be submitted in original along with the hard copy of the EOI documents. Only those vendors who submit EMD shall only be considered to be eligible. The EMD amount is required to ensure the seriousness of the vendor in participating and providing solutions for the automation system.

6) In the second stage of limited tender inquiry a performance guarantee of 3% of the total contract value would be required as a performance guarantee.

7) GST registration certificate should be provided.

The vendors should satisfy all the above criteria.

5. Selection criteria for pre-bid

The pre-bid selection would be based on

1) Technical competence of the company.
2) Proposed solutions are compatible with our existing automation system technologies.
3) Experience in writing automation software for post-graduate institutions/universities comparable to Indian Institutes to Technology (IITs) in stature, system requirements, etc., in India or abroad.
4) Experience in integration of various modules mentioned in Section 1 and other relevant legacy and third-party modules.
5) Track record of the company.
6) Financial and operational stability of the company.
7) Innovative solutions proposed by the vendor.
8) Ability to showcase existing or potential capabilities during the pre-bid presentation.
9) Plan to train, hand over source code, data base, manuals, details of architecture etc. module by module to IIT Kanpur and also to train the local automation staff in running the modules.

Through out the entire vendor selection process, the following will apply:

1) Even though a vendor/service provider may satisfy the specified requirements, bids/applications shall be liable to disqualification if:
    a. Misleading or false representations have been made or information deliberately suppressed in the forms and enclosures required in the pre-qualification document.
    b. The party has a record of poor performance such as abandoning work, not completing the contract, etc.
2) IITK reserves the right to accept or reject any bid at any stage and to annul the entire vendor selection process, as well as reject all bids at any time, without assigning any reason or incurring any liability to the applicants.
3) Any effort, on the part of the vendor/service provider or his agent, to influence or to pressurize IITK shall result in rejection of the application. Canvassing of any kind is strictly prohibited.

While the above criteria are indicative, IITK may choose to change criteria if needed based on additional information obtained from the vendors or otherwise. IITK also reserves the right to restrict the short-listing of firms to any number deemed suitable by it.

Through the above process, a set of vendors will be selected for the next tendering phase where we

request for technical and financial bids.

Note the following:

(1) To safeguard against a bidder's withdrawing or altering its bid during the financial and technical bidding, an Ernest money /Bid Security/EMD shall be forfeited.

(2) To ensure due performance of the contract, a performance security 3% of Contract Value is to be obtained from the bidder who has been awarded the contract.

6. Contacts from IIT Kanpur

The following will be the contacts for the vendors for this EOI

Dean of Digital Infrastructure and Automation
Computer Centre
Indian Institute of Technology Kanpur
Kanpur– 208016,
INDIA

Detailed information and instructions for bidders

1. DEFINITIONS

In this document the following words and expressions have the meaning hereby assigned to them.

    a) Employer: Means Indian Institute of Technology Kanpur (IITK) acting through its Director.

    b) Bidder: Means the individual, proprietary firm, firm in partnership, limited company private or public or corporation.

    c) "IITK" means IIT Kanpur.

    d) "Year" means "Financial Year" unless stated otherwise.

2. APPLICATION PROCESS

    a) If the bidder is an individual, the application must be signed above the full typed name and current address of the bidder.

    b) If the bidder is a proprietary firm, the application must be signed by the proprietor above his/her full typed name and the full name of the firm with its current address.

    c) If the bidder is a firm in partnership, the application must be signed by all the partners of the firm above their full typed names and current addresses, or alternatively by a partner holding power of attorney for the firm. In the latter case a certified copy of the power of attorney must accompany the application. In both the cases, however, a certified copy of the partnership deed and current addresses of all the partners of the firm must accompany the application.

    d) If the bidder is a limited company or a corporation, the application must be signed by a duly authorized person holding power of attorney for signing the application; in this case, a copy of the power of attorney must be provided. The bidder must also furnish a copy of the Memorandum of Articles of Association duly attested by a Public Notary.

3. INSTRUCTIONS

    a) All information called for, in the enclosed forms, must be furnished. If for any reason, information is furnished on a separate sheet, it must be mentioned in the relevant column of the forms. For forms A to F, even if no information is to be provided in a column, a "nil" or "no such case" entry must be made in that column. If any particulars/queries are not

applicable in case of the bidder, it must be stated as "not applicable". The bidders are cautioned that by not providing complete information called for in the application forms, or not giving it in clear terms, or making any change in the prescribed forms, or deliberately suppressing the information may result in the bidder being summarily disqualified.

Bids made by email, telegram or telex and those received late will not be entertained. However, one soft copy in CD/DVD of the entire bid in PDF format must be provided in addition to the typed bid along with bid documents.

b) The application should be in a typed form. The bidder should sign each page of the application.

c) Any information attached in A4 size sheets must be endorsed with the seal and signature of the bidder(s) along with the date of submission.

d) Overwriting should be avoided. Corrections, if any, must be made by neatly crossing out, initialing, dating, and rewriting. Pages of the pre-qualification document are numbered. Additional sheets, if added by the bidder, must also be numbered by the bidder. The complete application must be submitted as a package with a signed letter of transmittal.

e) The entire bid must be answered in MS Word, and then ported to PDF format. No additional presentation (e.g. .ppt) or spreadsheet (e.g., .xls) must be embedded in the documents. Pasted pictures not preferred. However, if pasted pictures are provided, they should be of readable font size.

f) References, information and certificates from the respective clients certifying suitability, technical know-how or capability of the bidder must be signed by the authorized person or equivalent.

g) The bidder may furnish any additional information, which the bidder thinks is necessary to establish its capabilities to successfully complete the envisaged work. The bidder is, however, advised not to furnish superfluous information. No information shall be entertained after submission of EOI document unless IITK calls for it.

Any information furnished by the bidder found to be incorrect, either immediately or at a later date, shall render the bidder liable to be debarred from participation in this work as well as in future works.

4. LETTER OF TRANSMITTAL

The bidder must submit letter of transmittal attached with response to Request for Proposal document.

5. FINANCIAL INFORMATION

Bidder must furnish the annual financial statements for the last five years in Form A.

6. EXPERIENCE IN WORKS HIGHLIGHTING EXPERIENCE IN SIMILAR WORKS

a) Bidder must furnish the following:
   i. List of all works of similar class successfully completed during the last five years (Form B).
   ii. List of all the projects under execution & awarded (Form C).
b) Particulars of completed works and performance of the bidder duly authenticated/certified by an authorized officer or equivalent should be furnished separately for each work completed or in progress (Form D).

7. ORGANIZATIONAL INFORMATION (Forms 'E' and 'F')

Bidder is required to submit the following information in respect of its organization (Form E):

a) Name and postal address including email, telephone, fax & telex numbers etc.
b) Copies of original documents defining the legal status, place of registration and principal places of business.
c) Names and title of Directors and Officers who shall be concerned with the work, with designation of individuals authorized to act for the organization.
d) Information on any litigation in which the bidder was involved during the last five years, including any current litigation.
e) Authorization for employer to seek detailed references.
f) Number of technical and administrative employees in parent company and/or subsidiary company and how these employees will be involved in this work (Form F).
g) Check list

8. FORMAT OF RESPONSE

a) Each plan must start from a fresh page and each page must be numbered.

b) The plans must be written in font size of 10pt on separate A4 single spaced pages, with all margins equal to 25 mm.

c) Each page must be signed and endorsed with the seal and signature of the bidder(s) along with the date of submission.

Applicant must furnish annual financial statements for the last five years in Form A.

F O R M 'A'

FINANCIAL INFORMATION

I. **Financial Analysis** – Details to be furnished duly supported by figures in balance sheet/profit and loss account for the last five years duly certified by the Chartered Accountant, as submitted by the applicant to the Income Tax Department (copies to be attached).

Particulars	Financial Year					
	15-16	16-17	17-18	18-19	19-20	20-21 (Unaudited)
(i) Gross Annual turnover (In Lakhs)						
(ii) Profit/Loss						

a) Current Income Tax clearance Certificate/Profit & Loss account

Signature of Chartered Accountant with seal   Signature of Applicant(s)

F O R M 'B'

DETAILS OF CONSULTANCY WORKS OF SIMILAR NATURE OF ASSIGNMENT COMPLETED DURING THE LAST FIVE YEARS ENDING 31.03.14

SIMILAR NATURE OF ASSIGNMENT COMPLETED 1		
Sr. No.	**Description**	**Project Detail**
1.	Name of work/project and Location	
2.	Mention the project objectives, details of solution implemented and benefits accrued to the customer organization	
3.	Name & Address of Employer/organization	
4.	Cost of work in Rs.	
5.	Complexity of the task (modules, etc.)	
6.	Complexity of the database (size, etc.)	
7.	Date of commencement as per contract	
8.	Stipulated date of Completion	
9.	Actual date of completion	
10.	Litigation/arbitration pending/in progress with details*	
11.	Name and address/email and telephone number of officer to whom reference may be made.	
12.	Remarks	

* Indicate gross amount claimed and amount awarded by the Arbitrator

* For each work separate sheet be prepared as per proforma given in form B.

Signature of Applicant(s) with date & seal

Sr. No.	Description	Project Detail
	F O R M 'C' **ASSIGNMENT / PROJECTS UNDER EXECUTION OR AWARDED**	
1.	Name of work/project and Location	
2.	Mention the project objectives, details of solution being implemented and benefits likely to accrue to the customer organization	
3.	Name & Address of Employer/organization	
4.	Cost of work in Rs.	
5.	Complexity of the task (modules, etc.)	
6.	Complexity of the database (size, etc.)	
7.	Date of commencement as per contract	
8.	Stipulated date of Completion	
9.	Up to date percentage progress of work	
10.	Slow progress if any and reasons thereof	
11.	Name and address/email and telephone number of officer to whom reference may be made.	
12.	Remarks	

* For each work separate sheet be prepared as per proforma given in form C

Signature of Applicant(s) with date & seal

F O R M   D-1

PERFORMANCE REPORT OF WORKS REFERRED TO IN FORM 'B' & 'C'

1) Name of work/Project & Location

2) Agreement No.

3) Estimated Cost

4) Tendered Cost

5) Date of start

6) Date of completion

      i.   Stipulated date of completion

     ii.   Actual date of completion

7) Amount of compensation levied for delayed completion, if any.

8) Performance Report

1.	Quality of work	Very Good/Good/Fair/Poor
2.	Financial soundness	Very Good/Good/Fair/Poor
3.	Technical Proficiency	Very Good/Good/Fair/Poor
4.	Resourcefulness	Very Good/Good/Fair/Poor
5.	General Behavior	Very Good/Good/Fair/Poor

Date: Authorized Signature

Note: - Certificate for each project completed/under execution shall be obtained as per "FORM D" and given in separate sheets. At this location, images of these certificates can be scanned and pasted in the softcopy of this document.

PROFORMA 'D2'

DETAILS OF TECHNICAL & ADMINISTRATIVE PERSONNEL TO BE EMPLOYED FOR THE WORK

S. No	Designation	Strength	Allotted for this project	Name	Qualification	Professional Experience and details of work carried out	How these would be involved in this work	Remarks
1	2	3	4	5	6	7	8	9

Signature of Bidders

Form 'D 3'

PROFORMA ON ISO CERTIFICATION, IF ANY

1.   Year of Certification

2.   Name and Address of Certifying Agency

3.   Name of Management Representative

4.   Validity of Certificate

Note: Attested copy of certificate (attested by Government Officer or Notary Public) to be enclosed.

SIGNATURE OF BIDDER

WITH SEAL

F O R M 'E'
STRUCTURE & ORGANIZATION

1.	Name & Address of the applicant:		
2.	Telephone NO. Telex No. Fax No.		

3.	Legal status of the applicant (attach copies of original document defining the legal status)
	
	   i. An individual
	
	   ii. A proprietary firm
	
	   iii. A firm in partnership		

4.	Particulars of registration with various Government bodies (attach attested photocopy)	Organization/Place of registration	Registration No.
5.	Name and Titles of Director & Officers with designation to be concerned with this work:		
6.	Designation of individuals authorized to act for the organization		
7.	Was the applicant ever required to suspend assignment for a period of more than six months continuously after you commenced the assignment? If so, give the name of the project and reasons of suspension of work.		
8.	Has the applicant or any constituent partner in case of partnership firm, ever abandoned the awarded work before its completion? If so, give name of the		

	project and reasons for abandonment.	
9.	Has the applicant, or any constituent partner in case of partnership firm, ever been debarred / black listed for tendering in any organization at any time? If so, give details.	
10.	Has the applicant or any firm's partner in case of partnership firm, ever been convicted by a court of law? If so, give details	
11.	Any other information considered necessary but not included above.	

Signature of Applicant(s) with date & seal

F O R M 'F'

DETAILS OF PROPOSED ASSOCIATE SERVICE

Sr. No.	Proposed Associate For	Name & Address Of Associate Proposed	Years of Experience	Years of Associate With The Prime Firms
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				

CHECKLIST

	Checklist – General	
1.	Your proposal for implementation of our automation requirements	☐
2.	Form A-F in given format	☐
3.	Document is in pdf only	☐
4.	If any other information (not called for in Form A-F) is furnished, it is in A4 size sheets, endorsed with seal and signature of the bidder along with date of submission on every page	☐
5.	All corrections are neatly crossed out, rewritten, initialed and dated	☐
6.	Pages of the documents are numbered	☐
7.	CD/DVD of the entire application	☐
8.	Each page of the application is signed	☐
9.	There are no .ppt or .xls files embedded or attached.	☐
10.	References, information & certificates from clients are signed by authorized person or equivalent. (if available)	☐

	Checklist - Features	As-Is Deployment	Customized Deployment	New Development
1.	Administrative	☐	☐	☐
2.	Academic Modules	☐	☐	☐
3.	Research Project Management system	☐	☐	☐
4.	External connect	☐	☐	☐
5.	Institute services management	☐	☐	☐
6.	E-Payment	☐	☐	☐
7.	Efficient class management	☐	☐	☐
8.	Information and Discussion Portal	☐	☐	☐
9.	Library automation	☐	☐	☐
10..	Interface with hand held devices/mobile	☐	☐	☐
11.	Biometric and smart card interface	☐	☐	☐
12.	Barcode/RFID Interface	☐	☐	☐
13	Digital Signature	☐	☐	☐