सत्यमेव जयते

On-boarding Manual for Training Centers to Install Aadhaar-enabled Biometric Attendance System

Preface

As part of “PMKVY 2.0”, it has been decided to implement common Biometric Attendance System (BAS) in the Training Centers . The proposed system would enable a student to register attendance by simply presenting his/her biometric (finger print/Iris). This event will be authenticated online after one to one match with the bio-metric attributes stored in the UIDAI data base against the student’s Aadhaar number.

For implementing this project, the Training Centers need to follow a structured approach in coordinating with different stakeholders. The purpose of this document is to serve as handbook for the Training Centers that are implementing Bio-metric Attendance System for their students.

Targeted Audience

This document is intended for the Training Centers that would like to implement Bio-metric Attendance System for PMKVY 2.0.

Contents

1. Background

As part of PMKVY 2.0, it has been decided to implement common Biometric Attendance System (BAS) in the Training Centers. The proposed system would enable an student to register attendance by presenting his/her biometric (finger print/Iris) which will be authenticated online by doing one to one match with the bio-metric stored in the UIDAI data base against the student's Aadhaar number.

It is proposed that Training Centers shall use the common biometric attendance portal, which is hosted at NIC data center and shall procure/maintain biometric attendance terminals and desktop fingerprint scanning devices/IRIS devices in a decentralized manner, through Open tenders, DGS&D rate contract & NICSI empanelled vendors. The Training Centers shall also procure the required Wi-Fi Access points for enabling network connectivity in the biometric attendance terminals through DGS&D rate contract.

1.1. Need for BAS

The management of attendance of the students is a complex but necessary task. Traditionally, attendance has been managed through registers where students mark their attendance upon arrival in the Centers. However, supervision of this system is difficult and is also liable to incorrect information being entered into the system.

Several Training Centers have implemented electronic attendance systems in recent times, where the manual entries into the registers have been replaced by electronic-attendance marked through smart-cards or biometric systems. These systems have allowed easy compilation and scrutiny of attendance data leading to better supervision and monitoring. However, such systems are often stand-alone systems and do not permit easy sharing of attendance data across various levels within the system, except with the officials authorized for monitoring the attendance information. Such systems are also often implemented independently by various Training Centers leading to duplication of cost and effort.

Therefore, it would be more appropriate to develop and implement a centralized system for monitoring attendance in various Training Centers. Such system should leverage on existing identity infrastructure created by Aadhaar which will result in cost, efficiency and scalability advantages.

1.2. *Challenges faced in currently implemented Attendance System*

The currently implemented attendance monitoring systems face the following challenges:

- Largely manual – register based systems
- Electronic systems are implemented in silos, not easy to monitor/ share information across various levels
- Card-based systems are liable to misuse or wrong entries by handing over cards to colleagues
- Compilation and monitoring of attendance data in standalone systems is difficult
- Unavailability of attendance details in the public domain

1.3. Proposed Solution

It is proposed to implement a common biometric based attendance system across PMKVY 2.0 Training Centers. This system is envisaged to have the following features:

- Cloud-based attendance software installed and operated from NIC National Data Centre.
- Dedicated secure connectivity will be provided between National Data Center and UIDAI Data Center by NIC for authentication
- Centers using the system will install biometric enabled terminals / devices to mark attendance; the number and location of required devices will be assessed by the centers; the centers concerned will be responsible for day-to-day maintenance of the devices
- Connectivity of terminals / devices will be established through Wi-Fi/GPRS
- Customized reporting formats for various levels of students will be developed by UIDAI/NIC
- Facility for centralized compilation and publication of attendance data in public domain will be provided as per requirements

2. About Biometric Attendance System (BAS)

Training Centers are operating across different locations. The major challenge is to enable and manage the attendance of the candidates across various locations.

Presently, various Training Centers have deployed proprietary biometric attendance solutions, which lack uniformity in technical architecture due to which these solutions are difficult to scale up and integrate with each other.

Aadhaar based biometric Authentication for the purpose of attendance would ensure that the attendance of all the students will be visible in real time on the common attendance portal ensuring transparency and accountability to bring efficiency.

2.1. Salient Features of cloud based BAS solution

Following features are envisaged for Common Bio-metric attendance System:

- This Biometric Attendance System is based on Aadhaar Authentication (Fingerprint and Iris Based Authentication).
- It is an attendance system with real time monitoring
- The system has comprehensive MIS
- This is a lightweight system which does not requires any special hardware or algorithm
- It is compatible with multiple platforms (Windows, Android, etc.) and form factors (Laptop, Desktop and Tablets, etc.)
- Robust System- Self sustained for small power cuts as it uses tablets at the front end.
- Time taken to Record Attendance is as low as 1-2 Seconds on Wi-Fi and 8-11 Seconds on GPRS (SIM)

- System is tightly integrated with the communication channel of SMS. A user gets SMS's from the systems at various levels like after registration, on non-marking of attendance and other conditions to empower the users of the system.
- The System has an in-built leave management system wherein an student can be marked *"on leave"* so that the system recognizes him/her as on leave and does not send a late attendance SMS.
- The system maintenance is largely automated. Examples are: centralized monitoring of devices – through a dash-board, push-based updating of software on devices and PCs over the air, automatic fall back on SIM based connectivity once the Wi-Fi connectivity goes down and centralized scheduling of shut-down of devices during out of office hours. The efforts are on to make the system even smarter in future.

2.2. Why BAS? Merits of the System

Hardware: The system is simple to deploy due to no hardware lock in or vendor dependency. The hardware used for this system is neither specially manufactured nor is based on a technology patented by a particular company. This means that this system can be installed on any tablet working on android operating system or any desktop personnel computer or even a laptop working on windows platform .The system requires one STQC certified Fingerprint/Iris Scanner Device that follows the specifications of the UIDAI has to be attached to the host device.

Software: The client software for the biometric attendance system has been made in house by DEITY and is readily available. There are two separate versions of software available for desktop PCs running windows and android based tablets. All the supported biometric devices are integrated into the application. The software is a simple client application with no special algorithms. Modification and incorporation of additional features in the software is easy.

Connectivity: The system uses multiple internet connectivity channels and has an inbuilt fallback mechanism. The biometric device works on any available connectivity that is supported by the device on which the application is installed. The Tablet application uses Wi-Fi as well as GPRS with an auto switch mechanism to determine the best connectivity option. The desktop application can be used over Wi-Fi, Ethernet or Data Card connectivity option and Android tablet application can be used over Wi-Fi, GPRS/WCDMA options.

Accessibility: In order to make this system portable, it has been designed on a central architecture. Every client system is connected to the server in real time, the student data resides on the central server and the changes are also made in the database of the central server for any transaction at any client at any location. This means that students are not restricted to mark attendance from a designated center or a location. There is a strong client management and analysis system inbuilt which is capable of analyzing the transaction data of the clients for any anomalies.

Scalability: The system has been built with scalability in mind. Therefore any new center, student or client can be on-boarded easily. The system can support practically unlimited number of clients.

Security: There is a proper mechanism of registration of any new client or any piece of hardware in the system before allowing it to be active to ensure safety of the system. Aadhaar authentication is highly secure system of biometric authentication, which adds to the security of the system. As the system uses this service, the sensitive biometric data resides in the secure Central Identities Data Repository of UIDAI. The biometric data captured locally by client is securely communicated to the UIDAI server for authentication and not stored in the system at any point of time.

Ease of Use: This is an extremely user friendly system where the students can do online self-registration, update of their profile and details. The registered students also get SMS Alerts on events of importance. This system can also monitor the health of attendance terminals centrally which makes is easier for the implementers to do maintenance work.

2.3. High level Architecture

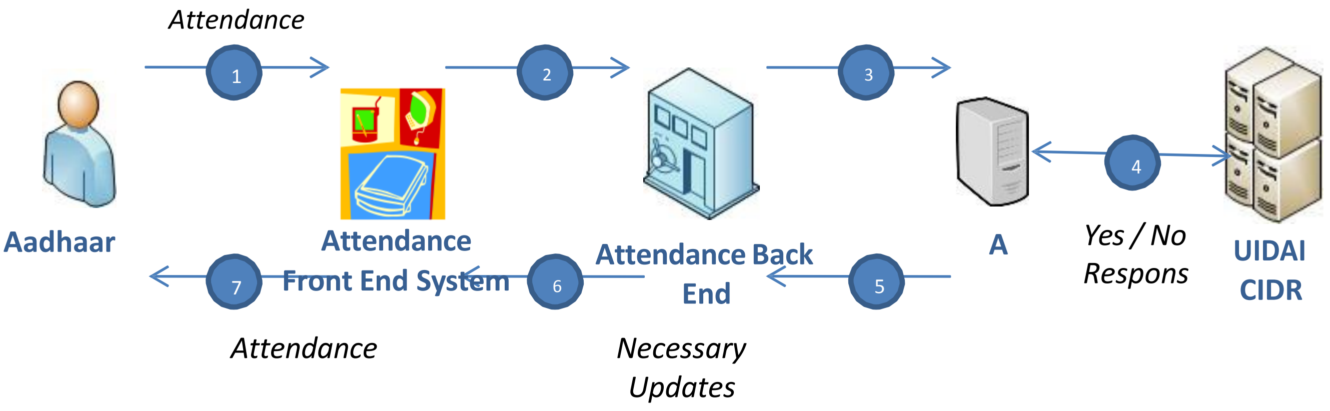
At a high level the overall solution would have two main components

A. Front End System

The Front End System (FES) or the attendance system would be a device having hardware and client attendance application. The client attendance module in the idle state would wait for user to enter his/her attendance id through touch screen in case of tablet based client or keyboard input in case of desktop based client. This attendance id would usually be first 6 digits or last 6 digits of the Aadhaar number of the student. Once the attendance id is captured, the application would prompt user to provide the biometric data required for Aadhaar online authentication. It would then create the request in accordance with the Aadhaar Authentication API and send the request to the backend application at UIDAI Central Identity Data Repository (CIDR).

B. Back End System

The Back End System or attendance server would create Aadhaar Authentication request, submit the request and receive the response in accordance with Aadhaar Authentication API requirements. It will mark in/out attendance, attendance system activation/de-activation and generate reports for the same. The picture below represents a high level schematic diagram of the Biometric attendance system.



Schematic diagram of BAS System

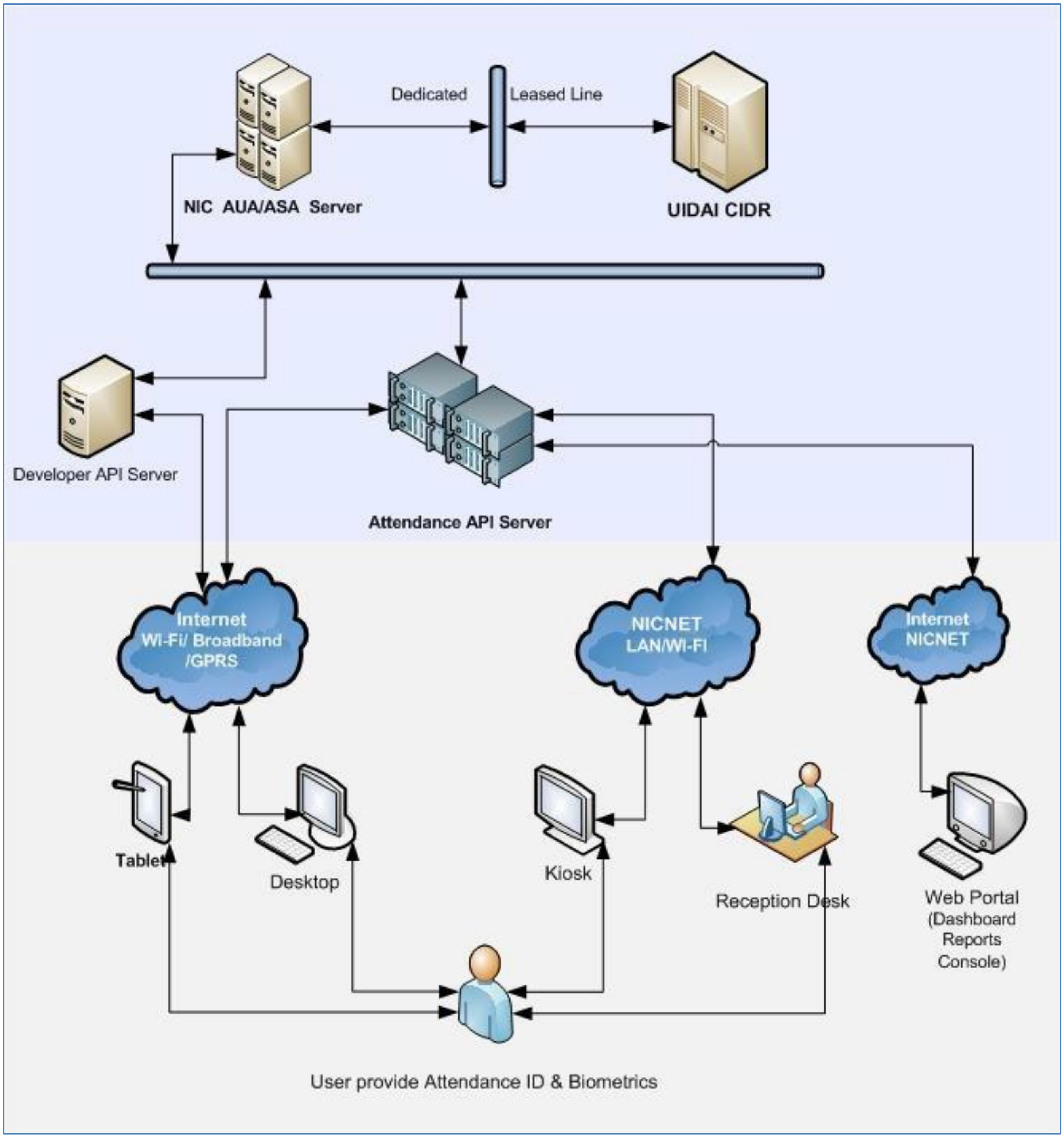


Figure 1: BAS Application Overview

2.4. Comparison with Traditional bio-metric attendance systems

Aadhaar based attendance system has an edge over the other traditional biometric attendance systems in many respects. The traditional biometric systems are not designed for scale as the machines generally store the biometric fingerprints locally. These systems have to be connected with LAN cables of the institutions network and cannot be monitored from global locations due to the dependency on the institutions connectivity ecosystems. The cost involved in these traditional biometric systems are also quite high and one terminal which can store 3000 to 10000 biometric fingerprints costs around Rs. 13000 to Rs. 25000.The traditional systems use terminals which authenticate biometric attributes locally and then push data to a server. Another challenge is to get registered in these systems as the user along with demographic details has to get all fingers enrolled as well which can happen on these terminals only.

Comparatively, this Aadhaar Enabled Biometric Attendance System needs only Aadhaar number, basic demographic details and a photograph of the user at the time of user registrations. This can be done by the student himself/herself by on simple web based system. The biometric details are already available with the UIDAI which are then used for authentication. Moreover, this system ensures unique users as the user registration is stored on a central attendance server and Aadhaar ensures de-duplication through its 1: N check mechanism. In this system, the Management Information System is accessible from any global location to anyone which is very useful in bringing transparency and accountability to the entire system. This is a highly adaptable system with minimum cost requirements. Any agencies which work in the public sector can easily get incorporated in the system by setting up handheld devices which are nothing but a combination of an android tablet, a fingerprint scanner enclosed in a frame. This setup costs extremely less and the management information system does not require any resources or manual intervention. This makes it a highly cost effective system.

3. Current Status

Following activities have been completed during Phase I

- A common biometric attendance portal viz. skill.attendance.gov.in has been developed. The attendance portal is hosted in NIC data center. These centralized back-end servers are common which will be used by all Training Centers for biometric attendance system.
- UIDAI team has developed back-end portal software and client side attendance software.

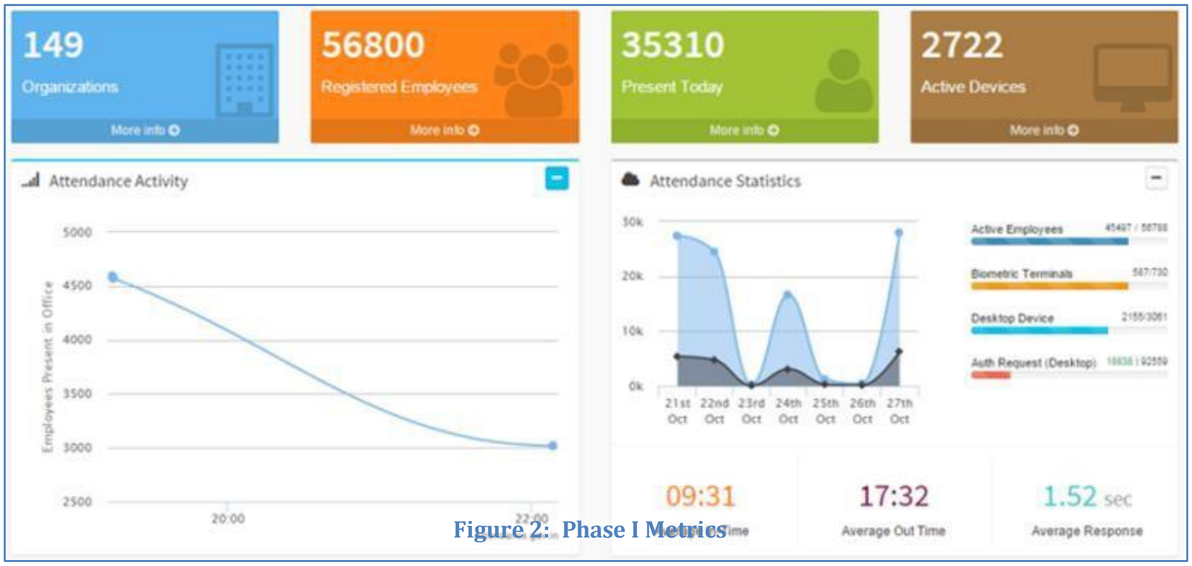


Figure 2: Phase I Metrics

4. Way forward: Proposed plan of Action

It is proposed that

- Training Centers shall register on skill.attendance.gov.in portal for the implementation of biometric attendance system. All the Training Centers shall use the common back-end infrastructure installed at NIC data centers.
- First step towards using bio-metric attendance system will be to appoint a nodal officer by each Training Center and register all their students on-line at skill.attendance.gov.in. This will undergo two steps of verification, first the Aadhaar verification by UIDAI and second verification by the appointed nodal officer. After that, the student will be able to mark his/her attendance from biometric terminal to be installed at the user location.
- The Training Centers shall procure the wall mounted biometric attendance terminals and desktop finger print devices in a decentralized manner from the rate contract which will be finalized by DGS&D and alternatively, they could also procure these devices through NICSI.
- The Training Centers shall provide connectivity from various telecom service providers for connecting the bio-metric attendance terminals (GPRS/Wi-Fi using NICNET/Broadband/existing Internet) in a decentralized manner.
- Training Centers shall make suitable provision for getting Client 'API' installed on the software provided for wall mounted and desktop finger print devices.

The Training Centers shall be responsible for maintaining the devices installed in their premises and will be responsible for smooth day-to-day functioning of the Bio-metric Attendance terminals.

5. On-boarding guidelines

Training Centers interested in using BAS are required to follow process guidelines for smooth switchover to the modern and futuristic BAS.

5.1. Identification of Nodal Officer

To facilitate the implementation and thereafter operate the Biometric attendance system, it is desired that the Ministry/Department shall nominate a Nodal Officer not below the rank of Joint Secretary for acting as a Single Point of Contact (SPoC) for driving the Bio-metric attendance initiative. The Nodal Officer shall be responsible for:

- Monitoring and co-coordinating with the stakeholders for smooth functioning of the Bio-metric attendance system
- Providing update facility for biometric updating in case of poor bio-metric capture during enrolment process and in cases where there are failures in detecting the fingerprints by organizing Aadhaar camps.
- Organizing special Aadhaar Enrolment Camps (AECs), if considerable numbers of students are not able to register on the portal due to non-availability of Aadhaar numbers.
- Aadhaar number generation for the enrolments done in the AECs
- e-Aadhaar access
- Best Finger Detection and other Aadhaar related issues

The agencies may use the format placed at Appendix 'A' for capturing the details of the Training Center as well as Nodal Officer.

5.2. Registration of Organization

The Training Centers are required to register online (once) on the portal for using skill.attendance.gov.in by giving number of students and their existing website name. Once the registration of the Training Center is complete, the Training Center will be listed in the portal for the enrolment of the students and generation of various types of reports pertaining to the Training Center. The steps for on-boarding Training Center in the attendance portal can be found in Appendix 'B'.

5.3. Registration of Students

Once the Training Center is registered with the attendance portal, students of the Training Center are required to do online registration on skill.attendance.gov.in portal for enabling them to mark attendance. The students need to fill an online form using the link 'Student Registration' on the attendance portal. Once the details are filled, the student data goes to the quality check team of UIDAI/Nodal Officer of the Training Center for verification. After the approval from the nodal officer, the student becomes active in the attendance portal and can mark its attendance through the devices installed. The details are required for on boarding of students in the attendance portal can be found in Appendix 'C'.

5.4. Aadhaar Enrolment

One of the mandatory requirements for registering on the common bio-metric attendance system is a valid Aadhaar Number of the students for enabling him/her to mark attendance. In order to facilitate the BAS implementation, UIDAI can organize Aadhaar Enrolment Camps (AECs) for all such students, who do not possess Aadhaar numbers. UIDAI shall also extend its support for the students who have already enrolled but have not yet received their Aadhaar, or have lost their Aadhaar, or for those who need to update their Aadhaar data.

5.5. E-Aadhaar access

To enable downloading of the Aadhaar for the students who have enrolled but have not yet received their Aadhaar, or have lost their Aadhaar or did not received Aadhaar due to any reason whatsoever, UIDAI may provide access to e-Aadhaar facility to HoDs of the NIC deputed in various Ministries/Departments. The Training Centers can get in touch with their respective HoDs of NIC to get the student's Aadhaar downloaded.

5.6. Best Finger Detection (BFD)

In order to increase the chances of the Aadhaar Authentication while marking attendance, UIDAI has also extended the facility of Best Finger Detection (BFD). Those students, who are facing frequent authentication failures while marking attendance, can get their best finger identified from the device. After identification of the Best Finger, the student can use the identified best finger for marking attendance with an increased chance of success for Aadhaar Authentication.

5.7. Biometric Terminals (Devices)

As illustrated in the high level overview of the system it is mandatory to have devices aka biometric terminals installed for the purpose of attendance punching. These devices act as an interface for the end user to punch his attendance in the system, which in turn interacts with various API's to record the event in the central database.

The Biometric terminals may typically use the following components:
(Specification mentioned in Appendix 'D')

a. Tablet – machines with the capability to run the BAS client software.
b. Desktop – PC or laptops running Windows 7/8 can also be used to run the BAS software.
c. Fingerprint reader – these refer to the biometric fingerprint reader devices which capture the fingerprints of the user.
d. Iris scanner – these are used to capture the IRIS image of the user and do iris authentication

The biometric terminals can be setup using either of the above combinations, typical setup used is:

i. **Tablet** setup - the wall mounted devices used in phase I are Android OS running tablets, with either finger print reader or iris scanner together housed in a cabinet to present an integrated device feel. The BAS software for android is readily available for download from the portal. Since network connectivity is mandatory for working these tablet devices are connected through Wi-Fi access points and are also equipped with a 2G sim card for GPRS connectivity for network failover support.

ii. **Desktop** setup - normal PCs on which the BAS windows version application can be run and the finger print or iris scanner are attached through usb ports are also being used to mark the attendance. The PCs are generally connected through the Office LAN network and alternatively dialup or broad band connections can be used for network connectivity. The fingerprint and iris scanners are readily available with drivers for windows platform, use of Office PCs can be the shortest route to get started with BAS as the requirement would be procurement of biometric scanner devices.

5.8. Procurement of Devices

The Training Centers who need additional devices, can procure the wall mounted biometric attendance terminals, desktop finger print and iris scanning devices through the following methods:

a. NICSI - devices are readily available for procurement through the empanelled vendors
b. DGS&D - rate contracts have been finalized

DGS&D has been requested to empanel more vendors for supplying the devices required for installing bio-metric attendance system using common back-end infrastructure at NIC data centers.

The Training Centers will have the option of selection of following devices for implementing BAS.

1. **Integrated Attendance Device (IAD) – Type 1:** These are Android Tablet based devices integrated with Single STQC certified Fingerprint (FP) scanner. Both the Tablet and FP device are then housed in rugged casing so that the Integrated Attendance Device could be suitably mounted on the wall as single unit. The specification of the Type-1 devices is mentioned at serial 1 of the table provided in appendix 'D'.

2. **Integrated Attendance Device (IAD) – Type 2:** These are the devices manufactured as a Single Unit with a capability of punching attendance number as well as scanning fingerprint for recording attendance. The specification of the Type-2 devices is mentioned at serial 2 of the table provided in appendix 'D'.

Note: the Bio-metric attendance system is to be implement using wall mounted devices for the students at large. However, for senior level officers or in a section, there is provision of installing Bio-metric attendance system using USB based finger print scanning device/IRIS with a Windows 7/8 Desktop PC.

It is estimated that for every 50 students, one wall mounted bio-metric attendance terminal would be sufficient and for every 20 students one finger print scanning device on a desktop would be sufficient. Therefore, the total requirement of wall mounted biometric terminals as well as desktop devices could be estimated based on total number of students in the department. However, depending upon the on-ground circumstances, the Training Centers can procure additional number of devices, if required, for smooth implementing BAS. The indicative specifications of the devices required for the installation of the BAS can be found in Appendix 'D'.

5.9. Procurement of Connectivity

Biometric attendance terminals installed at client locations would need Wi-Fi connectivity through Internet/NICNET for communicating with the back-end attendance servers, which are installed at NIC data centers. The Training Centers would need to procure connectivity (GPRS/Wi-Fi using NICNET/Broadband/Internet) from suitable service providers.

A minimum 1mbps of bandwidth connectivity would be required for proper functioning of Biometric attendance terminals.

The agencies may use the format placed at Appendix 'E' for capturing the connectivity requirements.

5.10. Site Identification and Preparation

The wall mounted biometric terminals arête be preferably placed at the entry/exit points with 24 hours security for enabling easy access to the students for marking attendance. The Training Centers registering shall ensure the locations identified for installing biometric attendance terminals should have the following: -

- 220V/5A Electrical points
- Suitable security within the premises
- Protection from environmental conditions like rain, sun, etc.
- LAN point for connecting Wi-Fi access devices
- Good data connectivity through GPRS/3G as a backup connectivity

The agencies may use the format placed at Appendix 'F' for capturing the site requirements.

5.11. Installation of Devices

The Training Centers shall take up the installation, commissioning and maintenance of the Biometric attendance terminals in their premises with the help of vendors who are empanelled with DG S&D. UIDAI, NIC and DeitY shall extend all technical support for integrating back-end infrastructure.

5.12. Operations & Maintenance

The Training Centers shall be responsible for maintenance of the devices installed in their premises. The agencies will also be responsible for taking suitable on-site warranty support for smooth functioning of BAS.

Organization Type	[ ] State PSU [ ] NGO [ ] Trust [ ] Others
Organization Name	
Address	
District	
State	
IT Coordinator Name/Mobile	
IT Coordinator e-Mail	
Website	
No. Of Employees	
Office Timings	

Nodal Officer Name	
Aadhaar No.	
Designation	
Mobile	
E-Mail	

[ ] We agree to abide by the policy decisions of Govt. of India for availing the software services and infrastructural facilities provided for Aadhaar Enabled Biometric Attendance System. We agree to pay for the above, according to the policy in force, failing which, the services may be withdrawn.

Name & Designation (with stamp)

Head of Sponsoring Govt. Dept.

Date:

Name & Designation (with stamp)

HOD with Signature & Seal

Date

Appendix 'A' – Application format for Organization On-boarding

Appendix 'B' – Steps for on-boarding an Organization in the attendance portal

1. Select the 'Organization Registration' link in the attendance portal

2. Fill the downloaded form with the required information and get it signed by the Head of the organization/department, with the organization stamp/seal.

3. Scan the filled, signed & stamped form and save it in ".jpg" format of max file size 200 Kb. The scanned file has to be uploaded in the online form in the attendance portal.

4. Steps to fill the online form in the attendance portal

    - Select the name of your organization. If the organization name does not show than please get in touch with the Attendance help desk.
    - Enter the communication address of the organization
    - Select the state (as applicable)
    - Enter the Mobile number of IT coordinator
    - Enter the email address of IT coordinator
    - Enter the name of the nodal officer
    - Provide the Aadhaar number of the nodal officer
    - Enter the designation of the nodal officer
    - Enter the Mobile number of the nodal officer
    - Select the scanned file which you need to upload with the form

5. Review the form for any changes before submission.

Note:

a. After submitting the form, a One Time Password (OTP) will be sent to the nodal officer email and mobile, to verify the form data submitted.

b. After your request is processed, you will receive an email with your account details.

c. If your Training Center does not feature in the list, please get in touch with the Attendance helpdesk at **helpdesk-attendance@gov.in**.

Appendix 'C' – Details required for registration of candidates in Attendance portal

1. Enter Full Name.

2. Enter Date of Birth (format DD-MM-YYYY)

3. Select Gender.

4. Please provide 12 digit Aadhaar number

5. Enter Email. And 10 digit Mobile Number.

6. Select the name of Organization. If the organization does not list, please get in touch with Organization's Nodal Officer to get your organization listed.

7. Select Student Type

8. Enter the name of Division/Unit within the Organization (you can choose from suggestions)

9. Select Designation

10. Select office location.(e.g. your office building name)

11. Upload scanned/digital picture in ".jpg" format of max file size 150KB.

12. Please enter the captcha code.

13. Please review the form before submission.

Note:

a. If Training Center does not feature in the Training Center list, please get in touch with your Nodal officer for getting the Training Center on-boarded in the Attendance system.

b. If any of the pre-requisite information is not available in the form (select options only), please get in touch with the concerned officer in your department to get the details updated.

For any other assistance please get in touch with the Attendance Helpdesk at helpdesk-attendance@gov.in.

Appendix 'D' – Indicative specifications of the Devices to be used in BAS

S.NO.	ITEM	SPECIFICATIONS
1.	**Integrated Attendance Device Type 1 -** **Integrated Android Tablet and Single Fingerprint Scanner Device Housed in Rugged Casing**	• Specifications of Android Tablet same as those given for Item No. 3 • Specifications for Single Fingerprint Scanner Device same as those given for Item No. 4 (STQC Certificate for the integrated bio-metric device must be submitted) • Android Tablet and Single Fingerprint Scanner should be integrated in a rugged casing. **The Rugged Casing should comply with the following:** • The casing should be made of inflexible, solid material and can be of polycarbonate / thick plastic / acrylic / other tough material. • It should be of black color and should have a glossy / matte finish • Acrylic casings must have a thickness of at least 5 mm. • Casing should be durable and should be able to withstand rough daily operational usage. • The casing should not suffer any damage or disfiguration on being dropped from a height of up to 2 meters • Tablet should be vertically oriented in the casing. This is important because the attendance application to be deployed is designed to run in vertical mode only. • The casing should be designed to cover/hide the android task bar of the tablet. This is required to prevent misuse of any other functionality of the tablet. • The casing should have provision to access the power/reset button of the tablet. The access should be easy but controlled. The vendor thus should make arrangements to provide an external tool to perform the power on/off and/or reset function of the tablet through the casing. • The fingerprint scanner should be ergonomically placed to support ease of usage for biometric attendance in standing posture of the users.
2.	**Integrated Attendance Device Type 2 -** **Integrated Attendance Device**	An integrated device for recoding biometric attendance with STQC certified fingerprint sensor meeting following configurations / requirements • Display – At least 4 inch display with a minimum of 800x480 pixel resolution, 16 M Colors • Processor- 1.0 GHz or above

S.NO.	ITEM	SPECIFICATIONS
	Manufactured as a Single Unit	• RAM- 512 MB or above • Hard Key / Soft Key Numeric key pad • Internal Storage- 4GB or above • Expandable storage through micro SD, minimum 8 GB • USB Port- Minimum one available USB host port to support application loading / configurations / full functional keyboard • Device must come with connector cables to allow connection of the device to Micro USB and Standard USB ports • Internal Speakers • GSM SIM card slot • Inbuilt replaceable battery with min. battery backup of up to 120 minutes • Charging / operation on AC 100 -240 volt range with inbuilt surge protection **Biometric sensor/extractor** • STQC certified fingerprint sensor/extractor for Aadhaar authentication (STQC Certificate for the integrated bio-metric device must be submitted) • SDK for fingerprint device • The fingerprint scanner should be ergonomically placed to support ease of usage for biometric attendance in standing posture of the users **Connectivity Requirements** • Mandatory Edge / 3G mobile data support • Wi-Fi IEEE 802.11b/g/n OR LAN (Ethernet) interface OR Both • Strength, safety and operating environment • Should be able to withstand 1 m drop test • Operating temp: 0°C to 50°C • Storage not including battery: 0°C to 55°C • CE certification/ RoHS certification • SAR values within acceptable range **Operating system / software requirements** • Android 4.0 Operating System or above • Sample application to test fingerprint sensor/extractor • Vendor has to provide all necessary technical support for integration of their device drivers with the attendance software and associated UIDAI applications.
3.	**Android Tablet with 7 inch**	• Processor- 1.0 GHz or above • RAM- 512 MB or above

S.NO.	ITEM	SPECIFICATIONS
	screen	• Internal Storage- 4GB or above • Expandable storage through micro SD, minimum 8 GB • USB Port- Minimum one Micro USB port and an optional additional USB Port • USB port should provide power supply to biometric device and support USB OTG. • Front facing Camera with VGA resolution • Internal Speakers • 7''Capacitive touch screen and minimum 800x480 pixel resolution or above, 16 M Colors • GSM SIM card slot • Min. Battery backup up to 120 minutes • SAR values within acceptable range • Separate charging non-usb port with AC adapter 200-240 volt range • Micro USB host cable • Connectivity Requirements • Mandatory Edge / 3G mobile data support • Wi-Fi IEEE 802.11b/g/n OR LAN (Ethernet) interface OR Both • Software Requirements • Android 4.0 Operating System or Above • Safety and other standards compliance – CE certification/ RoHS certification • Full featured Web Browser • Application to be deployed on android tablet will require rooted Android OS • Vendor has to provide all necessary technical support for integration of their device drivers with the attendance software and associated UIDAI attendance applications.
4.	**Single Fingerprint Scanner Device for use with Android Tablet**	• STQC certified Single Finger-print biometric device for Aadhaar Authentication with driver, in-built template extractor software/SDK (mandatorily with license, if required) (STQC Certificate for the device must be submitted) • API/SDK for Android (4.0 and above) platform. • Device should be plug and play with any android (4.0 and above) tablet without need of any additional license to be deployed. • The device should have integrated micro USB or standard USB type connector. • Device must come with connector cables to allow connection of the device to Micro USB and Standard USB ports

S.NO.	ITEM	SPECIFICATIONS
		• Vendor has to provide all necessary technical support for integration of their device drivers with the attendance software and associated UIDAI applications.
5.	**Fingerprint Scanner Device for use with Desktop**	• STQC certified single finger-print biometric device for Aadhaar Authentication and extractor software/SDK (STQC Certificate must be submitted) • API/SDK for Windows (7.0 and above) platform. • Device should be plug and play with any Windows (7.0 and above) without need of any additional license to be deployed. • The device should have integrated USB 2.0 type connector. • Device must come with connector cables to allow connection of the device to Micro USB and Standard USB ports • Vendor has to provide all necessary technical support for integration of their device drivers with the attendance software and associated UIDAI applications.
6.	**Iris Authentication Device for use with Desktop**	• STQC certified Iris authentication device for Aadhaar Authentication and extractor software/SDK (STQC Certificate must be submitted) • API/SDK for Windows (7.0 and above) platform and Android (4.0 or above) Operating System • Device should be plug and play with any Windows (7.0 and above) and Android (4.0 and above) without need of any additional license to be deployed • The device should have integrated USB 2.0 type connector. • Device must come with connector cables to allow connection of the device to Micro USB and Standard USB ports • Sample application for Windows and Android platform to test Iris sensor/extractor • Vendor has to provide all necessary technical support for integration of their device drivers with the attendance software and associated UIDAI applications.

Appendix 'E' – Format for Connectivity Requirement

S. No	Training Center / Location Name	Address or the location identifier (such as entry /exit number/floor etc.) where the device would be installed (2)	Is LAN point available at the point where device is to be installed (Yes / No) (3)	If (3) is No then Can Wi-Fi be placed using nearby LAN point in the location (Yes / No) (4)	If (4) is 'No' then a LAN I/O point is required to be installed (Yes/No) (5)
1					
2					
3					

Appendix 'F' – Format for Site Requirements

S. No	Training Center / Location Name	Address or the location identifier (such as entry /exit number /floor etc.) where the device would be installed (2)	Do electrical power point available at the point where device is to be installed (Yes / No) (3)	If (4) is 'No' then an electrical point (220V/5A)point is required to be installed (Yes/No) (5)
1				
2				
3				