Unique Identification Authority of India (UIDAI)
Planning Commission, Government of India

Reference Number: K-11020/49/2012-UIDAI (Auth)

Limited Tender
For
Procurement of POS Terminal with Best Finger Detection Client (BFD)

September 20, 2012

Last Date for Receipt of Tender: 11-10-2012, 15.00Hrs.

Opening of Tender: 11-10-2012, 15.30Hrs.

Unique Identification Authority of India
Planning Commission, Govt of India
3rd Floor, Tower II, Jeevan Bhariti Building,
Connaught Circus, New Delhi-110 001

To,

    M/s ………………………….…….……

        ……….………………….…………

        ……….………………….…………

        …………………………….

        …………………………….

No: -   Dated: 20-09-2012

Sub: <u>Limited tender for "procurement of POS Terminal with Best Finger Detection Client (BFD)"</u>

ON BEHALF OF PRESIDENT OF INDIA, Unique Identification Authority of India, Planning Commission, Govt. of India, invites the Wax/Tape sealed tenders under two-bid system (Technical Bid & Commercial Bid) from experienced and reputed Biometric Device venders to supply "Biometric POS terminals along with Best Finger Detection Client". The bids will be received in the office of ADG (Authentication) , 9th Floor, Jeevan Bhariti Building, Connaught Circus, New Delhi-110 001 up to 15:00 hrs. of 11-10-2012 and Technical Bids will be opened on same date at 15:30 hrs. in the presence of bidders or their authorized representatives.

The schedule rate is given below: -

Sl No	Name of Work	Quantity Required	Estimated Cost (for 10 devices)	EMD	Quoted Rate* per set
1.	Supply of Biometric POS terminals along with UIDAI Best Finger Detection Client.	130 Nos.	Rs. 21,00,000/- (Rupees Twenty One Lakhs Only)	Rs. 52,500/- (Rupees Fifty Two Thousand Five Hundred Only)	(a) In Figure Rs............................... .... (b) In words (Rs)........................... ....

'*' Rates will be composite i.e. Inclusive of all taxes, octories, transport etc.

Signature of Bidder with Seal

Signature of Bidder with Seal

A. Terms & Conditions

1. **Wax sealed Tender (complete signed and sealed tender document) should be addressed to ADG(Authentication) , 9th Floor, Jeevan Bhariti Building, Connaught Circus, New Delhi-110 001.** The envelope should bear the words at the top **"Limited tender for procurement of POS Terminal with Best Finger Detection Client (BFD)".**

2. The bids will be received in the office of **ADG(Authentication) , 9th Floor, Jeevan Bhariti Building, Connaught Circus, New Delhi-110 001 up to 15:00 hrs. of 11-10-2012 and Technical bids will be opened on same date at 15:30 hrs. in the presence of bidders or their authorized representatives.**

3. **The intending tenderer have to deposit EMD of Rs. 52,500/- (Rupees Fifty Two Thousand Five Hundred Only) by A/C payee Demand Draft in favour of *"PAO, UIDAI, New Delhi"* payable at New Delhi. The tender without EMD will be rejected straight way.**

4. **The Bidder must put his signature and seal in all pages of document and must fill Specifications offered in para-C (Device Hardware Requirement) of tender document at page No.9-11. Without this, bid will not be considered.**

5. The tenderers are advised not to mutilate or erase in figures, the tender on this A/C are liable to be rejected.

6. No interest shall be payable by UIDAI on EMD.

7. EMD of the tenderer shall be forfeited, if he withdraws his offer before finalization of tender or deny to sign contract/ agreement if his offer is accepted and approved by competent authority.

8. The EMD of the successful tenderer will be returned after submission of Performance Bank Guarantee which detail is given in the payment terms (clause 21.2) .

9. Performance Bank Guarantee of the successful tenderer will be refund after six months of completion of contract period (including warranty period).

10. The Sales tax if any as applicable will be deducted from the supplier's bill.

11. The Income Tax as applicable will be deducted from the supplier's bill.

12. Supply of devices may be made within a period of four weeks from issue of work order.

Signature of Bidder with Seal

13. In case of supply of sub standard items, this office has full authority to reject the approved tender and discontinue the transaction and the SD/ PBG will be forfeited.

14. If the supplier fails to complete the supply of devices within stipulated period a penalty of @ 2.5% per week subject to maximum of the 10% of total cost will be imposed. However in case of any natural calamity, disturbances in Town or any other reason to prove genuine cause of delay in work, Director General, UIDAI or any other officer nominated by him shall be empowered to grant extension in stipulated period.

15. Bill may be submitted to Authentication Division, UIDAI HQ in duplicate. Payments will be made subject to availability of funds after deduction of Income Tax & other taxes as applicable.

16. The supplier will be bound to follow instruction issued by the UIDAI Office on the subject matter from time to time as per requirement of the department.

17. UIDAI has right to cancel any or all tenders without assigning any reason what so ever.

18. **The tenderer will have to provide Sale Tax Registration, Service Tax Registration, and Income Tax PAN No.**

19. **The rates in words & figures should be quoted on the prescribed tender form (page Nos. 3 of document) only. Quoting the rates on other documents will not be entertained.**

20. Court case, if any, shall be entertained in Delhi jurisdiction only.

21. Payment Terms:

21.1 Payment shall be made only after completion of supply, installation commissioning and acceptance of the Goods above, to the entire satisfaction of UIDAI or any other agency nominated by UIDAI.

21.2 The UIDAI may however, consider making advance payments which shall be subject to the following conditions:

i) An advance payment equivalent to 75% of the total value of the Goods and Services against proof of delivery and installation of system subject to the Vendor furnishing a bank guarantee on stamp paper of requisite value of an equivalent amount from any of the Nationalised/Scheduled Bank to indemnify Purchaser to the extent of any loss or damage sustained, in case the acceptance tests carried out on the Goods at the time of commissioning are not satisfactory.

ii) Balance 25% payment within 30 days of satisfactory commissioning and acceptance of the Goods/Services. In case the commissioning and acceptance of

Signature of Bidder with Seal

the Goods/Services is delayed or put off beyond 90 days of the receipt of the equipment at UIDAI's site due to express written instructions of the UIDAI, this amount may be released to the Vendor on his furnishing a necessary Bank Guarantee for an equivalent amount.

iii) No payment shall, however, accrue until after the Performance Guarantee Bond in the form of a Bank Guarantee (BG), which shall be equal to 10 % of the value of the order and valid up to date of expiry of warranty period, has been furnished. This BG shall be submitted by the selected Vendor within 10 days of issue of the firm purchase order by this office.

iv) It should be noted that installation, commissioning and acceptance, have to be duly certified by the committee approved by the DG, UIDAI for release of payments as per 21.1 and 21.2 above.

22. The items supplied would be under **Three Years Comprehensive Warranty (Software & Hardware) and free on-site support service from the date of installation and acceptance, including free provision of spare part as and when necessary.** The vendor should fulfill the following condition during the warranty period:

(a) Any failure in the system or a subsystem thereof should be rectified within maximum period of 24 hours of lodging complaint.

(b) If any of the system/subsystem is down beyond 24 hours, penalty will be charged per hour per system/subsystem at the rate of Rs.1000/-(Rupees One Thousand Only.)

23. Vendor shall provide the CD of complete System software and source code of BFD client and Authentication client along with documentation and operating manual.

24. Submission of Bids:

a) Sealing and Marking of Bids

1. The Bidders shall seal the envelopes in separate inner envelopes, duly marking the envelopes as "Envelope No.1 – Technical Evaluation" and "Envelope No.2 Commercial Evaluation" along with the RFP name and reference number. Bidder shall then place these envelopes in an outer envelope. All inner envelopes and outer envelope should be addressed to:

ADG, Authentication

Unique Identification Authority of India (UIDAI),

Planning Commission, Govt. of India (GoI),

9th Floor, Tower I, Jeevan Bharati Building,

Connaught Circus, New Delhi – 110001.

2. Demand Draft of EMD should be placed in outer envelope along with inner envelopes.

Signature of Bidder with Seal

3. All inner envelopes shall indicate the name and address of the Bidder.
4. If the outer and inner envelopes are not sealed and marked, the Tendering Authority will assume no responsibility for the Bid's misplacement or premature opening.
5. Telex, cable or facsimile bids will be rejected.

25. Consignee Details :

Selected vendor has to submit devices along with copy of CD (source code, document and software etc.) to ADG in-charge of various UIDAI offices as listed below:

Sl No	Name of UIDAI Offices /Regional Offices	Quantity of devices to be supplied
1.	Regional Office, Hyderabad	15 Nos.
2.	Regional Office, Bangalore	15 Nos.
3.	Regional Office, Mumbai	15 Nos.
4.	Regional Office, Hyderabad	15 Nos.
5.	Regional Office, Lucknow	10 Nos.
6.	Regional Office, Chandigarh	15 Nos.
7.	Regional Office, Guwahati	15 Nos.
8.	Regional Office, Ranchi	05 Nos.
9.	Regional Office, Delhi	15 Nos.
10.	UIDAI HQ, New Delhi	10 Nos.
11.	UIDAI, Tech Centre, Bangalore	05 Nos.

Name and Address of consignees of each location will be intimated in the Purchase Order.

26. Selected vendor has to give training of operation and maintenance of device and application without any extra charges to each RO Offices/Offices mentioned above.

27. Opening of Bids:

Technical bids of bidder will be opened by Bid Opening Committee in the presence of bidder's representatives. As a part of Technical evaluation, each bidder has to give demonstration of all proposed device showing required capabilities of devices. Commercial bids will be opened only of those bidders who will qualify in the Technical bids. Date for demonstration of devices and opening date of Commercial bids will be intimated separately.

28. Evaluation of Bids:

Technical bids of the bidders will be evaluated by evaluation committee based upon criteria defined in the RFP document. Commercial bids of only those bidders who will qualify in the Technical bids. Commercial bids will be evaluated based upon price quoted by bidders. Finally the work will be awarded to L-1 bidder (Technically qualified and lowest quoted in Commercial bid).

Name & Signature of Bidder

Signature of Bidder with Seal

B. Requirement

The following provides an overview of the requirement.

The Unique Identification Authority of India (UIDAI) through its Regional Offices (ROs) proposes to perform Best Finger Detection (BFD) of Aadhaar Holders. To conduct the BFD, UIDAI would require to procure devices and required client application to perform Best Finger Detection (BFD). Alongside the BFD application, UIDAI also requires the authentication client application which may be used for Aadhaar authentication. The selected bidder will need to further integrate its authentication and BFD client applications with the identified Authentication User Agency's (AUA's) server application.

At this stage the BFD and Authentication is proposed to be conducted for various purposes/pilots/studies through each of the ROs (as mentioned on page 7) in the states/districts/VTC under their purview.

Brief introduction to BFD and Aadhaar authentication is provided in the paragraphs below.

Best Finger

When authenticating a resident using any single finger or two finger as part of fusion authentication, the accuracy or the chances of being matched would be different due to differences in quality across all his/her fingers. This variation may also be present due to the manner in which the resident normally interacts with a typical fingerprint scanner and the different fingers may inherently have different amount of identifying information depending on the size of the finger and the commonness of the pattern it carries. It may thus be useful to appraise each resident of finger providing the best accuracy and successful matching results. We shall refer to this finger with best accuracy as the best finger. Resident may possess one or more best fingers. This knowledge allows the resident to provide his/her best finger(s) during authentication thereby increasing the chances of successful match.

For more details refer to Aadhaar Best Finger Detection (BFD) API 1.6 published by UIDAI at http://uidai.gov.in/images/FrontPageUpdates/aadhaar_bfd_api_1_6.pdf

Aadhaar Authentication

Aadhaar authentication is the process wherein Aadhaar Number, along with other attributes, including biometrics, are submitted online to the UIDAI's CIDR for its verification on the basis of information or data or documents available with it.

For more details refer to Aadhaar Authentication API 1.6 published by UIDAI at http://uidai.gov.in/images/FrontPageUpdates/aadhaar_authentication_api_1_6.pdf

C. Device hardware requirements

The following table specifies minimal hardware requirements.

Terminal specifications

Component	Minimum Requirement	Specifications Offered
Form Factor	Handheld or Table top	
Biometric Scanner	Refer Biometric scanner specifications	
Communication Protocol	Support for HTTPS between device and Authentication User Agency's server	
Connectivity	Device must have capability of all of the GPRS or Edge, Ethernet, CDMA, 3G technologies.	
Processor	X 86, ARM 9 or equivalent processor based system. Vendor may provide higher processing capability.	
Memory RAM	Device should have sufficient memory to hander all the technical requirement of BFD and Authentication application.	
Security	Support for application to authenticate and perform Best Finger Detection as per UIDAI's Aadhaar Authentication API 1.6 and UIDAI's Aadhaar Best Finger Detection (BFD) API 1.6 Support for Encryption/Encoding capabilities as per UIDAI's Aadhaar Authentication API 1.6 and UIDAI's Aadhaar Best Finger Detection (BFD) API 1.6	
Storage (non-volatile)	Minimum of 2 GB of Non volatile/fast memory	
Display	QVGA – 320 x 240 pixels or higher. Readability under direct Sunlight conditions is required.	
User Interface	Graphical icon based and local language support	

External Interfaces	1 LAN and at least 1 USB2.0	
Location Tracking	Mechanism to automatically detect lat/long either through GPS (Industry standard 16 channel NMEA compliant GPS support) or cell phone tower tracking	
Printer	Inbuilt and capable of printing BFD output. Multilingual printing capability. Receipt and other printer items must be legible for at least two months from date of printing Bidder should supply sufficient quantity of printing stationary (paper) to print a minimum of 5000 BFD outputs with each device.	
Key pad	16 key alpha numeric pad or higher	
Speaker	Voice confirmation of the transaction is required	
Battery life	Minimum 8 hours	
Power Adaptor	AC/DC Adaptor with surge protection	
Certification	CE mark compliance for EMI, EMC	
Environment	Operating temp: 0°C to 50°C Storage not including battery: (0°C to 55°C)	
Ruggedness	Protection from Rain, Dust, Liquid, 1.0 m or higher drop safety	
OS	Multi-tasking OS support	
User Accessories	Carry case, holster, hand or wrist strap	
Warranty and Support	3 year warranty and on-field support (at least NBD)	

Biometric scanner specifications

1. All the parameters of Biometric Sensor /Extractor should as per latest STQC specification of Biometric Authentication devices.

2. Sensor / Extractor should be Certified/ Provisionally Certified by STQC.

Signature of Bidder with Seal

Software/Application specifications and scope of services

Component	Minimum Requirement	Specifications Offered
Best Finger Detection client	BFD client application conforming to Aadhaar Best Finger Detection (BFD) API 1.6. BFD application should have capability of displaying NFIQ score of each finger. Voice enablement of BFD output in English and Hindi BFD output print on receipt should indicate best finger(s) pictorially	
Authentication Client	Authentication client application conforming to UIDAI's Aadhaar Authentication API 1.6 . Authentication client should support all the authentication factors as prescribed in Aadhaar Authentication API 1.6. Application should at least support single finger and 2-finger fusion authentication Voice enablement of Authentication output in English and Hindi	
Integration	BFD and Authentication client application integration with AUA server application	
Warranty and Support	3 year warranty and on-field support on software/applications including software updates and upgrades to comply with UIDAI APIs for Authentication and BFD, if revised, during this period.	

D. Functional device requirements

The minimal functional device requirements are listed below.

Processing Speed

1. The device must be able to perform authentication and best finger detection transactions promptly. Internal operations do not include data entry or back-end processing of transaction instructions, but do include operations such as encryption and decryption of messages, preparing packets for transfer on the network, etc.

Role based access

2. The device must provide different logins for operators, service agents, and super-users. These may be authenticated using AADHAAR authentication as well.
3. No transactions may be performed on the device without the operator logging in.

Unique device number

4. Each device will have a unique terminal ID.

Reporting

5. The device must allow operators to generate end of day reports for authentication transactions done during the day. The reporting guidelines can be updated subsequently by UIDAI.

Security

6. The device must not transmit any confidential data unencrypted on the network.
7. Security requirements specified by UIDAI for AADHAAR data must be followed to secure the biometric and other AADHAAR authentication data.
8. The device must automatically log out the operator and lock itself after a period of inactivity.

UIDAI standards for biometrics and authentication

9. Biometric hardware must meet minimal standards as described in this document in the hardware requirements section
10. The terminal must be capable of following UIDAI authentication as described in the Aadhaar Authentication API 1.6 released by UIDAI.
11. The terminal must be capable of conducting two finger authentication (fusion authentication) transactions in the same session.
12. Terminal must support best finger detection software as per Aadhaar Best Finger Detection (BFD) API 1.6 released by UIDAI.

Signature of Bidder with Seal

13. The authentication and BFD process must comply with authentication policies of UIDAI, and updated from time to time with-in the software/application warranty and support period.

Signature of Bidder with Seal

E. Software/Application implementation guidelines

The guidelines for Authentication and Best finger development client applications are listed below.

Two finger authentication

Aadhaar authentication API

Authentication transactions should be conducted in accordance to the Aadhaar authentication policy[1] and Aadhaar Authentication API Specification[2] published on UIDAI website, for biometric and non-biometric (eg. OTP[3], demographic, etc.) authentication methods.

Single finger and two finger authentication

In accordance with the API, authentication application on the device can package single finger or two finger minutiae records in the same transaction. Syntax for packing single or two finger minutiae records is elaborated in the Aadhaar Authentication API Specification.

Application is expected to implement two finger authentications as part of the fingerprint authentication module.

In the event of online Aadhaar authentication transaction, flow of events for carrying out two finger authentication is as follows.

- After capturing the first best finger, the minutiae record is sent to UIDAI. A copy of the minutiae record for the first finger is retained in memory (not in disk). This is single finger authentication.
- If the authentication transaction is successful, then the minutiae record is deleted from memory and application proceeds to next stage post authentication.
- If the authentication transaction is unsuccessful, then resident is requested to provide second best finger and minutiae record from first finger (retrieved from memory) as well as minutiae record from second best finger is submitted for two-finger authentication.
- During multiple attempts, simplified two finger scheme can be implemented which is detailed below. By retaining the last captured fingerprint minutiae in memory, application can only request one best finger and form two finger authentication requests. Sample capture flow process is indicated below.

    - Capture 1 – 1st best finger – single finger auth transaction
    - If fail, Capture 2 – 2nd best finger – two finger auth transaction (using capture 1 and 2)
    - If fail, Capture 3 – 1st best finger – two finger auth transaction (using capture 2 and 3)
    - If fail, Capture 4 – 2nd best finger – two finger auth transaction (using capture 3 and 4)

---

[1] http://uidai.gov.in/operating-model-overview.html
[2] http://uidai.gov.in/images/FrontPageUpdates/aadhaar_authentication_api_1_6.pdf
[3] http://uidai.gov.in/images/FrontPageUpdates/aadhaar_otp_request_api_1_5.pdf

Signature of Bidder with Seal

- This flow helps resident to achieve authentication in minimal number of captures.
- In case of connectivity issues, two fingers can be captured at once and two finger authentication transactions can be carried out in buffered mode.

This completes one attempt of two finger authentication cycle. If the two finger authentication is unsuccessful, the same process can be repeated in order to enable successful authentication.

Best finger detection

The Best Finger for a resident is the one that, when selected for authentication, provides the highest chance of successful authentication for that resident. The best finger to be used for authentication depends on the intrinsic qualities of the finger (ex. ridge formation, how worn out they are, cracked, etc.), as well as the quality of images captured during enrolment process and the authentication transaction.

Best Finger API

A separate API[4] (application programming interface) was developed and deployed on the client authentication device for the detection of the best finger. When BFD feature is implemented on an authentication device, residents can determine their best fingers, prior to authentication.

BFD Implementation

Best finger is expected to determine after analyzing all ten fingers of resident. Recent studies have indicated that for most of residents, some fingers have higher chances of being best fingers as compared others. In view of the above findings, and in order to simplify best finger detection process, staged approach is being suggested. This simplification saves time and effort for residents as well as operators.

Best finger detection can be done in two stages. The two stages should be two different modes in the BFD application.

1. In Stage 1, only six fingers are captured from both hands of the resident and if best fingers are detected among six fingers, resident proceeds to conduct authentication thereon using the best fingers.
2. In Stage 2, However, if best fingers are not determined among the six fingers, resident proceeds to provide all ten fingers and best finger detection process responds with best fingers among all the ten fingers of the resident.

In case, best fingers are not detected even after providing all 10 fingers, resident can attempt the process again or follow the error codes to take appropriate action as per the AUA guidance.

---

[4] http://uidai.gov.in/images/FrontPageUpdates/aadhaar_bfd_api_1_6.pdf

Signature of Bidder with Seal

BFD finger capture process

The following section outlines, the process of finger captures in order to determine best fingers. The same is outlined in figure 1 and 2.

1. Capture one finger at a time in order specified in figure 1.
   a. One at a time, capture six fingers. Ensure labelling is properly done. As a best practice following order is suggested   Left middle, Left index, Left thumb, Right Thumb, Right index, Right middle fingers in that order (refer figure 2)

2. If AUA chooses to do full BFD (stage2) in one go, sequence of fingers to be captured in indicated in figure 3. As a best practice following order is suggested Left little, Left Ring, Left middle, Left index, Left thumb, Right Thumb, Right index, Right middle, Right ring and Right little fingers in that order (refer figure 2)
3. Once the best attempt is captured for all fingers, application forms the input XML for the BFD API as specified the api specification document.
4. Application invokes the BFD API through AUA server (similar to authentication).
5. Based on the response, provide a printed receipt to the resident indicating the best fingers of the resident.

| Figure 1. BFD Stage1 (1-6 fingers) | Figure 2. BFD Stage2 finger picture sequence |

Signature of Bidder with Seal