



Presentation on Fingerprint Enrollment Devices (FED)

XV Finger Print Conference of Directors, Finger Print Bureux

Bangaluru, Karnataka

4th and 5thFeb. 2013

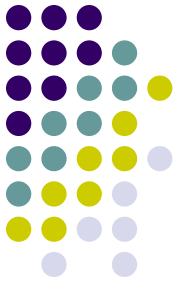
Project Overview



Proposed FED should be fully integrated and compliant with proposed National AFIS (NAFIS) system, i.e. FED should be directly operated from NAFIS application as well as from stand alone application provided by OEM/SI for local operation. Stand alone application includes Capturing, Ten Digit Slip printing in NCRB format, local 1:N search with facility of Capturing and printing of mug-shot taken from web camera and local database storage and retrieval of 10000 persons. The SI/OEM will develop all necessary interfaces and tools for integration with NAFIS, AFIS. All required drivers and API will be procured by SI/OEM.

The SI/OEM has to provide complete data transfer module to the State Data Center which will work independent and stand alone with available connectivity , irrespective of availability of AFIS/NAFIS .

Project Overview



The agencies, which would be selected centrally through this RFP, would supply, implement and maintain Fingerprint Enrolment Devices (FED) based solution. The FEDs would be installed at Police Stations /other designated offices for enrolment of fingerprints as per law and for reading/query and detection of fingerprints. The entire solution would be implemented on the zonal basis, and bidders are required to bid for each zone.

Following is the breakdown of the each zone

1. **North East and Islands: Sikkim, Assam, Arunachal Pradesh, Meghalaya, Mizoram Manipur, Nagaland , Tripura, Andaman and Nicobar Islands, Lakshadweep**
2. **North Zone- Jammu and Kashmir, Punjab, Himachal Pradesh, Uttarakhand, Haryana, Chandigarh, Uttar Pradesh, Delhi**
3. **East Zone – West Bengal, Bihar, Orissa, Jharkhand**
4. **South Zone- Kerala, Karnataka, Tamil Nadu, Andhra Pradesh, Pondicherry**
5. **West Zone- Maharashtra, Gujarat, Goa, Daman and Diu, Dadra and Nagar Haveli, Rajasthan**
6. **Central Zone- Madhya Pradesh, Chhattisgarh**



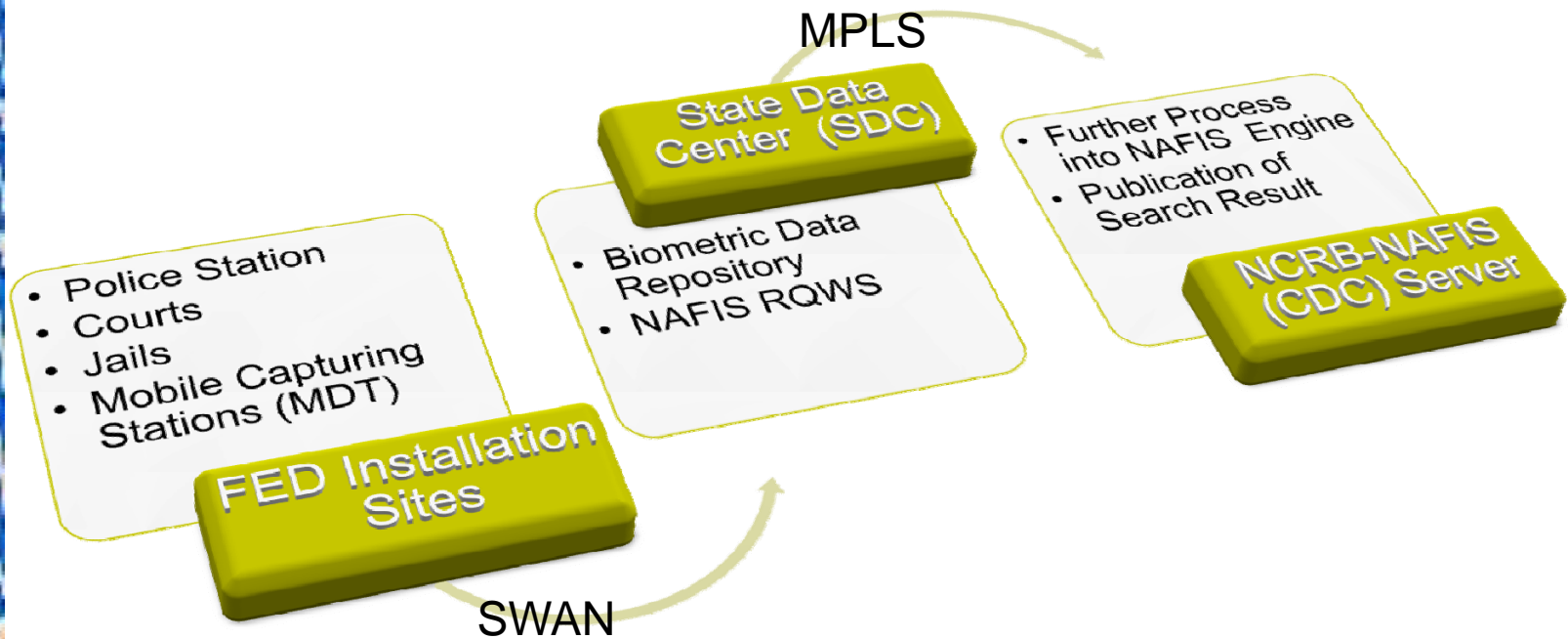
Police Station Setup

Every Police Station will have following setup

- FED-01 Nos.
- Application Software
 - Device Driver for windows and Linux
 - FP Acquisition Software
 - Ten Digit Slip Printing Software
 - CADB in NAFIS Format
 - Web camera for Mug-Shot capturing
 - FP based Local Search 1: N Module for 10000 person



Layout Diagram:





Device warranty:

5 year comprehensive on site.

Device features:

Platen Size:

- Single platen and single prism 3.2 * 3.0 architecture (81 mm *76 mm) uniformly illuminated capture area

Scanning area:

- Plain four fingers up to 3,2" x 3,0"
- Two plain thumbs up to 3,2" x 3,0"
- Rolled finger up to 1,6" x 1,6"



Temperature

Operating: From +0°C to +49 but 50°C preferred

Storage temperature 0 to 60 degree centigrade (preferred)

Humidity

From 10 to 90% (non-condensing)

Weight

Maximum 3.0 Kg, 2 kg will be preferred

The system should be portable for field operation with notebook computer



Dimensions

Smaller than 160mm x 160mm x 160mm

Acquisition Features

- Optical resolution - 500ppi,
- Grey scale - 256 (0 to 255)
- Scanning time 4sec , slap 5sec with segmentation .

Computer Interface

- USB 2.0 or better.
- Power supply through USB 2.0



Quality Standards & Formats

- UL Certified (for product safety) Manufacturer or OEM will be preferred
- ISO 19794-4 : 2005 Section 7 and Annex A certification requirements (IAFIS Appendix F certified). (for storing, recording and transmitting biometrics data) preferred - for FP minutiae,
- FBI IAFIS IQS CJIS-RS-0010 (V7) Appendix F compliance ANSI/NIST-ITL 1-2011(Mandatory Certificate)
- ISO/IEC FCD 19794-4
- ANSI/NIST-ITL 1-2000 or latest Interpol Implementation.
- BioAPI 2.0 (Biometrics Application Programming Interface) or latest preferred



Device /Acquisition Quality Check:

- Calibration and Diagnostic Test: factory calibrated and sealed with self test / diagnostic at device start up
- The system should be able to notify regarding the quality of acquiring FPs prior to the capturing of next acquisition.

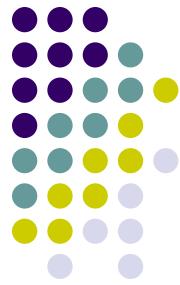
Auto Capture

- Sensing of slap/single finger placement on the scanner and auto capture of prints before going to next acquisition.



Slap Segmentation / Automatic Sequence Checking and Correction:

- Real time and display Automatic segmentation of four- slap and two thumbs fingerprint images in single flat images. Real time display of slap segmentation on acquisition screen. Slanted slaps should be automatically segmented
- System should be able to spot sequence error and should be able to place wrong sequence to correct sequence in 10 digits slip.
- Slap segmentation algorithm should comply with the NIST Standards.



Elimination of Latent/Ghost Prints

- Elimination of latent/ghost prints originated from recent/past scans. This is most important for operating under Indian condition as platen always contain the ghost or latent print.

Rolled Fingerprint Capturing

- Display in real-time, self-adaptive to rolling speed and directions, seamless composite image generation, automatic stop detection and acquisition.



Image Quality Checking

- Dynamic estimation and notification of fingerprint image quality during scanning process; NISTIR7151 compliant
- Real time Quality check and notification of acquiring FP: Quality check such as nail to nail rolling, smudging, non correct placement, poor quality acquisition etc
- Detects deformations of fingerprints due to sliding during acquisition.
- Highest quality image selection during flat fingerprints scanning.



Image Compression

- WSQ Compression - FBI certified software to compress the fingerprint images.
- JPEG2000 Compression for Mug-Shots

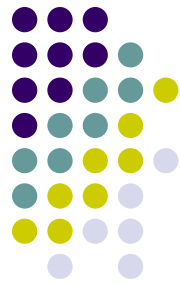
Connectivity

- Should be able to connect NAFIS and State AFIS system through CCTNS WAN system/ SWAN and existing GSM/CDMA network when operating with notebook or handheld devices.
- The Application software should have Remote Biometric Data Submission Module for submitting captured Fingerprints, Mug-Shots & Demographic data to the Central Data Center. (NCRB) as well as State Data Centre.



Mug-Shot Capturing

- System should capture mug shot (JPG 2000 compliant) of the subject, front , left and right. Should be compatible with Face recognition system. Face Acquisition through Minimum 5MP web Camera,



General Features:

- Operator friendly English and one local Indian language (preferred)
- Should have capability of producing and accurately printing ten digit and plain FP slip with mug shot and other demographic data.
- Option for marking amputated and bandaged fingers, it should reflect in the printout of 10 digit slips



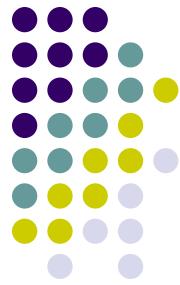
- The application software should have capability to perform search on single finger in local database
(this will help to build local data base of active criminals) , the size of local database should be at least 10000 criminals (ten FP data along with demographic details inclusive of Mug-Shots)
- Option for deletion of record by administrator only but record should remain archived in main database.



- The system should have biometric user access management module, application login and database level for authorized usage
- System should have facility to archive up to 20 slips if duplicate slip is found.
- Various types of customized reports as per NCRB requirements, such as daily activity reports, local data report, searches based on crime types etc.
- Should have power and acquisition status indicator on the device.
- Should have mounting bracket for fixing on table top (preferred)



- Should have mechanism to capture FP in all weather and all types (dry and Wet)
- Should have power and acquisition status indicator on the device.
- Should have mounting bracket for fixing on table top (preferred)
- **Asset Management & reporting capabilities.**



Operating System

Windows and Linux Latest version

Print-out of 10 Digit Slip

Printing of (Through Laser Printer) for Ridge clarity and continuity for Court Presentation.

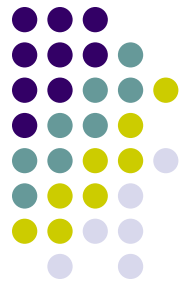
Printing format should be in NCRB Standard Format (search slip & record slip with mug-shot)

Transmission protocol and local database verifications



Concern for FED

- Demographic detail should flow from Police Station to NCRB repository regardless of State AFIS.
- Integration of National FED with existing AFIS of State.
- Creation of small Database at Police Station.
- Minimum 5 Megapixel web cam for Mug shot capturing
- Standardization of Demographic Details
- Standard Operating Procedure for Mug Shot & fingerprint enrollment.
- Promoting more competitions among the vendors.



Add on Features for FED

- Biometric based Log-in security at application level .
- Central Monitoring System for User Activity Control.
- Mobile enrollment using Laptop
- It should act like live enrolling and local matcher device

Performance Evaluation Methodology



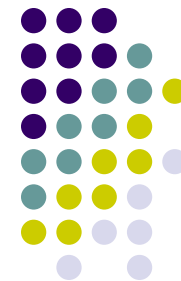
Marks Distribution Plan.

	Marks Distribution Plan	Weightage	
1	General Functionality	30	
2	Technical Functionality	70	

1. General Functionality

S.No.	General Functionalities	Weightage	
		Deployment	Marks
1	Presence of OEM /SI in Finger Print Enrolling Devices in Law enforcement agencies for Criminal Identification.	< =400	20
		<=350-399	18
		<=300-349	16
		<=250-299	14
		<=200-249	12
		<=150-199	10
		<=100-149	8
		< = 50 -99	6
		<=25 - 49	4
		Less than 25	2
zero	0		

Performance Evaluation Methodology



2. Technical Functionality -A

2	Capacity building and Change Management plan	02	
3	Operation and Maintenance capability	02	
4	Educational qualifications, and relevant certifications of Team Member of FED Deployment & Training	02	
5	Comprehensiveness of project plan	02	
6	FED solution implementation approach	02	

Performance Evaluation Methodology



2. Technical Functionality-B

S.No.	Technical Functionality	Weightage
1.	Finger Print acquisition; Printout of Ten Digit FP Slips will be taken at NCRB for evaluation of Quality of Acquisition.	1 marks for each printout (acceptable quality in court of Law duly certified by FP Experts) , total 36 Marks.
2	Automatic transmission of FP & Mug-shot Data to Districts and NCRB	0.25 Marks per accurate transmission , Total 9 Marks
3	Search at Local Database at NCRB of 7 persons. (include untraced subjects)	2.0 marks for each correct Search , Total 14 Marks

Performance Evaluation Methodology

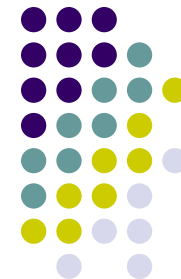


2. Technical Functionality

4	General application Flow	Functions/ Features	Marks
		User friendliness	1.5 Marks
		Report Generation	1.5 Marks

Technical Specifications	<ol style="list-style-type: none">1. Operating Temperature- 50 Deg C- 01 Marks2. Weight Less than 2 Kg -01 marks3. DEVICE/ ACQUISITION QUALITY CHECK- 01 Marks4. AUTO CAPTURE- 01 Marks5. SLAP SEGMENTATION/ AUTOMATIC SEQUENCE CHECKING AND CORRECTION:- 01 Marks6. ELIMINATION OF LATENT/GHOST PRINTS-01 Marks7. IMAGE QUALITY CHECKING-01 Marks8. Mug shot Capturing -01 Marks
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Model RFP for State FED



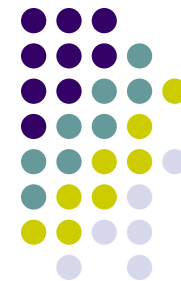
FED (Finger Print Enrollment Devices)	Compliances	
Specifications:	Yes/No	Deviation
<p>Proposed FED should be fully integrated and compliant with proposed National AFIS (NAFIS) system, i.e. FED should be directly operated from NAFIS application as well as from stand alone application provided by OEM/SI for local operation. Stand alone application includes Capturing, Ten Digit Slip printing in NCRB format, local 1:N search with facility of Capturing and printing of mug-shot taken from web camera and local database storage and retrieval of 10000 persons. The SI/OEM will develop all necessary interfaces and tools for integration with NAFIS, AFIS. All required drivers and API will be procured by SI/OEM.</p>		
<p>Platen Size:</p> <ul style="list-style-type: none"> ➤ Single platen and single prism 3.2 * 3.0 architecture (81 mm *76 mm) uniformly illuminated capture area 		
Scanning area:		
<ul style="list-style-type: none"> ➤ Plain four fingers up to 3,2" x 3,0" 		
<ul style="list-style-type: none"> ➤ Two plain thumbs up to 3,2" x 3,0" 		
<ul style="list-style-type: none"> ➤ Rolled finger up to 1,6" x 1,6" 		

Model RFP for State FED



TEMPERATURE		
➤ Operating: From +0°C to +48 but 49°C preferred		
➤ Storage temperature 0 to 60 degree centigrade (preferred)		
HUMIDITY		
➤ From 10 to 90% (non-condensing)		
WEIGHT		
➤ Maximum 3.0 Kg 2 Kg will be preferred.		
➤ The system should be portable for field operation with notebook computer		
DIMENSIONS		
➤ Smaller than 160mm x 160mm x 160mm		
ACQUISITION FEATURES		
➤ Optical resolution - 500ppi,		
➤ Grey scale - 256 (0 to 255)		
➤ Scanning time 4sec , slap 5sec with segmentation .		
COMPUTER INTERFACE		
➤ USB 2.0 or better.		
➤ Power supply through USB 2.0 or latest		
QUALITY STANDARDS AND FORMATS		
➤ UL Certified (for product safety) Manufacturer or OEM will be preferred		

Model RFP for State FED



➤ ISO 19794-4 : 2005 Section 7 and Annex A certification requirements (IAFIS Appendix F certified). (for storing, recording and transmitting biometrics data) preferred -2 for FP minutiae,		
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➤ Calibration and Diagnostic Test: factory calibrated and sealed with self test / diagnostic at device start up		
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AUTO CAPTURE		
➤ Sensing of slap/single finger placement on the scanner and auto capture of prints before going to next acquisition.		
Slap segmentation / AUTOMATIC SEQUENCE CHECKING and correction:		
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ELIMINATION OF LATENT/GHOST PRINTS		
➤	Elimination of latent/ghost prints originated from recent/past scans. This is most important for operating under Indian condition as platen always contain the ghost or latent print.	
ROLLED FINGERPRINT CAPTURING		
➤	Display in real-time, self-adaptive to rolling speed and directions, seamless composite image generation, automatic stop detection and acquisition.	
IMAGE QUALITY CHECKING		
➤	Dynamic estimation and notification of fingerprint image quality during scanning process; NISTIR7151 compliant	
➤	Real time Quality check and notification of acquiring FP: Quality check such as nail to nail rolling, smudging, non correct placement, poor quality acquisition etc	
➤	Detects deformations of fingerprints due to sliding during acquisition.	
➤	Highest quality image selection during flat fingerprints scanning.	
IMAGE COMPRESSION		
➤	WSQ Compression - FBI certified software to compress the fingerprint images.	
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CONNECTIVITY		
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Model RFP for State FED

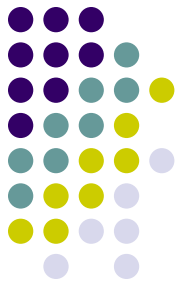


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➤ System should capture mug shot (JPG 2000 compliant) of the subject, front , left and right. Should be compatible with Face recognition system. Face Acquisition through Minimum 2MP web Camera,		
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Model RFP for State FED



➤ Should have mechanism to capture FP in all weather and all types (dry and Wet)		
➤ Should have power and acquisition status indicator on the device.		
➤ Should have mounting bracket for fixing on table top (preferred)		
Operating system		
➤ Windows and Linux Latest version		
Print out of 10 Digit Slip	Opinion of FP Experts	
Ridge clarity and continuity		
NCRB Standard Format (search slip & record slip with mug-shot)		
Transmission check for protocol n printout (to be done from Police stations of Delhi, Gaziabad, Gurgaon, for local database search,)		



Thanks !
Any Question ?