

Sri Lanka Foreign Employment Passport Tracking & AFIS System

System integrator Cenmetrix developed the CenAFIS solution for the Sri Lanka Bureau of Foreign Employment. The Automated Fingerprint ID System (AFIS) is based on MegaMatcher fingerprint matching technology.

The Sri Lanka Bureau of Foreign Employment needed a secure and reliable way to manage and track passports for Sri Lankan citizens working abroad. System integrator Cenmetrix used MegaMatcher AFIS technology to develop their CenAFIS solution, which combines fingerprint matching with passport scanning to detect fraudulent passports. Airports in Sri Lanka and Sri Lankan embassies around the world are now using the CenAFIS system.



There are currently more than 1.8 million Sri Lankan citizens working overseas and roughly 300,000 more go overseas for employment every year. The Sri Lankan Bureau of Foreign Employment is charged with keeping accurate records of all Sri Lankan citizens working abroad.

With such a large and rapidly growing expatriate population, the Bureau wanted a more robust system to ensure that all citizens working overseas are properly identified. They hired Cenmetrix to develop a system that would not only track passports but add an extra measure of identification using fingerprint biometrics.

Using the MegaMatcher Software Development Kit (SDK) and fingerprint matching algorithm from Neurotechnology, Cenmetrix developed CenAFIS, an Automated Fingerprint ID System that is used in tandem with a passport scanner. All individuals planning to work overseas are enrolled in the system and the information is fed into a central database that can be accessed using the CenAFIS system at airports and Sri Lankan embassies around the world. Since CenAFIS came online in 2012, more than 100,000 people have been enrolled in the system, with 350 to 450 new enrollments per working day.

Background

- ◆ **The customer:** The Sri Lanka Bureau of Foreign Employment.
- ◆ **The need:** The bureau needed a way to accurately identify Sri Lankan citizens working in different countries around the world. They wanted a system that would keep accurate records of who is working abroad and eliminate the use of fraudulent passports.
- ◆ **The integrator:** Cenmetrix is Sri Lanka's first total biometrics solutions company. Since 2003 Cenmetrix has been developing biometric fingerprint technology and software for the USA and Australia markets and the company installed its first biometric system in Sri Lanka in 2005. Cenmetrix now has more than 300 clients in Sri Lanka and has done more than 2,000 hardware and software installations island-wide.
- ◆ **The solution:** The CenAFIS solution is based on Neurotechnology's MegaMatcher AFIS technology for fast, highly accurate fingerprint matching.

“Working with Neurotechnology’s MegaMatcher SDK made the development of the CenAFIS software for this project a very smooth and easy task. The continuous support given by Neurotechnology helped us deliver and deploy this solution in record time. This project was a historical significance for us and Sri Lanka, as it was the first time such a large scale biometric Automated Fingerprint Identification System (AFIS) was developed and successfully deployed in Sri Lanka.”

Farhard Hussain
Co-Founder/ Director, Cenmetrix (Pvt) Ltd

The Fast, Easy System Offers Convenience and Ensures Reliable Identification

Before the CenAFIS system was implemented there were no fingerprint or passport identification systems in use in Sri Lanka. Because this was the first time such a large scale, biometric AFIS system was to be deployed in Sri Lanka, the stakes for the project were very high – both for The Bureau of Foreign Employment and for their system integrator Cenmetrix.

After reviewing a number of different AFIS technologies on the market, Cenmetrix selected MegaMatcher for the development of the CenAFIS system because of MegaMatcher’s strong track record of many successful AFIS implementations around the world and because of the high reliability of the MegaMatcher algorithm.

With the introduction of the CenAFIS system, what was formerly an entirely manual process was completely automated. The system information and data processing are now done in real time, vastly reducing the redundancies of a manual process and allowing the entire process to run more speedily and more efficiently.

How the CenAFIS System Works:

When a Sri Lankan citizen is planning to work overseas, he or she is required to notify the Sri Lanka Bureau of Foreign Employment and be enrolled in the CenAFIS system. The person’s fingerprints and passport are scanned into the system using the CenAFIS software and the scanned data is fed into a central database.

Before departure, most Sri Lankans working abroad will open a Non-Resident Foreign Currency (NFRC) bank account through which they can send money back to Sri Lanka. Using the details of the enrollment data and scanned passport, the CenAFIS system prints a bank-issued ID card, using the card design template of that individual’s bank, with the person’s name, photo and card expiration date. The card is then printed with the cardholder’s bank number and bank information on the magnetic stripe so that it can function as both an ID card and as an ATM/debit card (usually Visa or MasterCard, depending on the bank issuing the card) that allows overseas workers to quickly and easily send money back to their families in Sri Lanka from most any ATM.

When the overseas worker is leaving the country at the airport, his or her fingerprint details are scanned using a Suprema RealScan G10 Live Fingerprint Scanner for authentication. The passport is also scanned with a Suprema RealPass F Passport Scanner for verification. The passport scanner is able to read the security of the passport and display IR (Infra-Red) and UV (Ultra Violet) pictures of the passport to check the authenticity of the passport and detect any fraudulent passports. The fingerprint and passport data are used to compare the identity of the individual with the central

database to ensure the validity of the person's identity. The system also checks against a watch list of passports that have been flagged by the Employment Bureau for past employment violations or potential threats.

The MegaMatcher-based identification system is very fast. When a request is made, identification information is displayed within five seconds.

Sri Lankan embassies around the world also have the CenAFIS system and the Suprema fingerprint and passport scanners, making it easier for foreign workers to identify themselves when they require embassy services abroad.

**Suprema RealPass F
Passport Scanners**



Passport details captured

**Suprema RealScan
G10 Live Fingerprint Scanners**



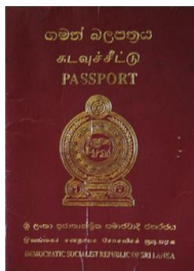
Biometric features captured

Data is fed into
MegaMatcher-based
CenAFIS software



CenAFIS Software

**CenAFIS System
at Work**



Credit card
is printed

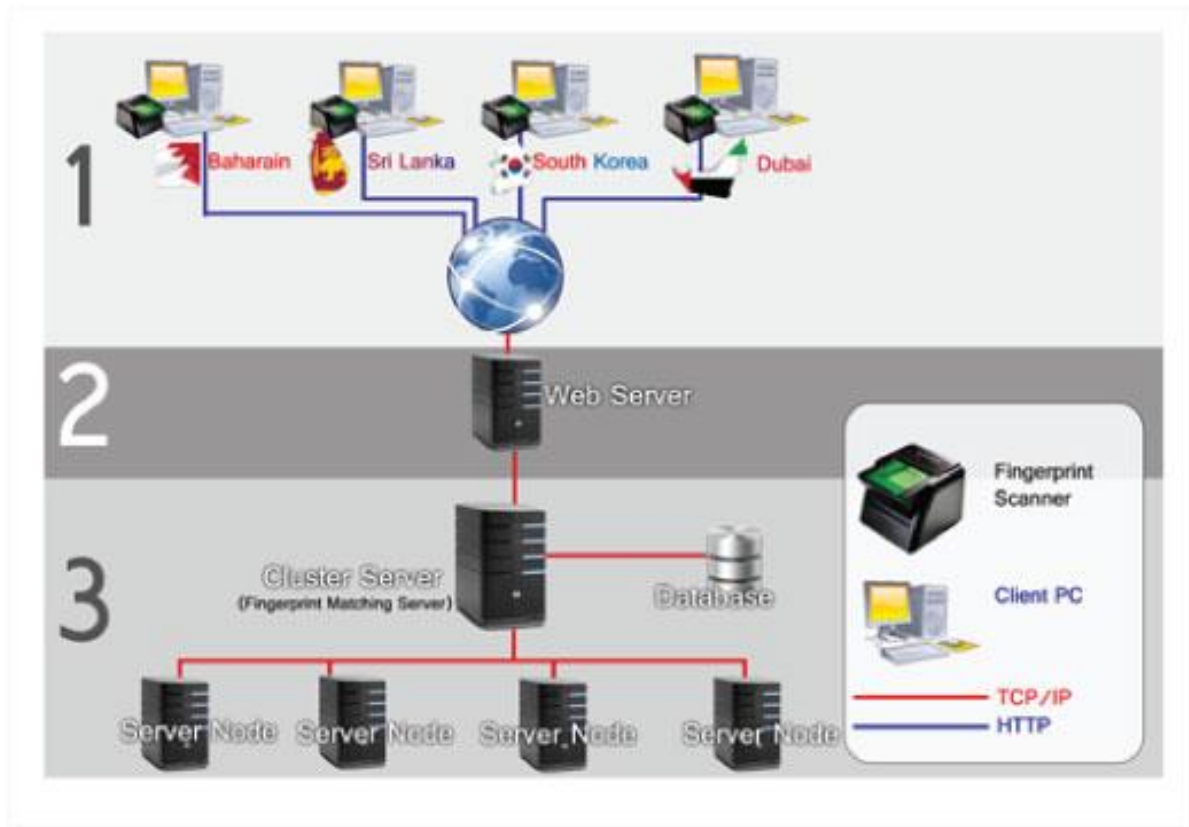


ID Card Printers



Distributed Computing Enables Global Access to the CenAFIS System

The CenAFIS system uses a service-oriented architecture (SOA) that is deployed using the Windows Communication Foundation (WCF) to support distributed computing. All CenAFIS identification data is stored in a central database and WCF services are hosted on an IIS server that has a fixed public IP. Fingerprint identification information is directly connected to the server via predefined sockets. A X.509 certificate is used to communicate with this central service for all additional services.



CenAFIS System Details:

The CenAFIS system includes:

- CenAFIS application
- AFIS (Automated Fingerprint Identification System) based on MegaMatcher biometric identification technology and the Suprema Live Fingerprint Reader hardware.
- Passport Scanning with the Suprema Passport Scanner
- ID Card Printing with Fagoo P550 printers

The CenAFIS system runs on an HP ML310 server running Windows Server 2008 R2 and SQL Server 2008 R2.

Key Benefits of MegaMatcher Technology:

- ◆ **Accuracy** – MegaMatcher provides the very high degree of accuracy required for national-level citizen identification. The MegaMatcher biometric fingerprint algorithm is NIST MINEX-compliant and has received some of the highest ratings for accuracy in international tests.
- ◆ **Speed** – The MegaMatcher matching engine is able to match up to 144,000 fingerprints per second, 840,000 faces per second or 880,000 irises per second on a single PC; several PCs can be connected together to form a cluster for higher performance.
- ◆ **Open technology** – MegaMatcher provides the interoperability and flexibility required to work with a wide range of scanners, databases and operating systems.
- ◆ **Scalability** – MegaMatcher software is robust and fault tolerant for effective management of very large workloads. The system is scalable for future expansion and development, and, if desired, the multi-biometric capabilities enable the use of fingerprint, face, iris, palmprint or voiceprint biometrics in any combination.
- ◆ **Effective price/performance ratio** – MegaMatcher comes with free tech support, a lifetime guarantee and free software updates for the life of the system.
- ◆ **Easy to buy and implement** – Neurotechnology allows potential customers to test the system before purchase and provides constant support before, during and after the sale.

About Neurotechnology Biometric Technologies

MegaMatcher SDK is designed for the development of large-scale automated fingerprint identification systems (AFIS) and multi-biometric identification systems using any combination of fingerprint, facial, iris, voice or palmprint biometrics. The identification algorithms in MegaMatcher were designed from the ground up to work alone or in combination to provide very fast 1:N (1 to many) matching with even higher reliability than AFIS or any other single biometric.

MegaMatcher's matching algorithm can match up to 840,000 faces per second, 144,000 fingerprint matches per second or 880,000 irises per second on a single processor (based on Intel Core2 Q9400 processor running at 2.67 GHz). With Neurotechnology's fault-tolerant, scalable MegaMatcher Cluster Server cluster software, these numbers can be multiplied across multiple PCs.

MegaMatcher Accelerator is a combined hardware/software solution based on MegaMatcher technology that is designed for use in very large applications where high volume and high speed are essential. A single **MegaMatcher Accelerator** system or an Accelerator cluster can be used. Each single MegaMatcher Accelerator Extended system can store 50 million irises, 40 million fingerprints or 10 million faces and matches 200 million irises, 100 million fingerprints or 100 million faces per second.

MegaMatcher supports most biometric industry standards. The iris engine in MegaMatcher is NIST IREX-proven, and because the MegaMatcher fingerprint recognition algorithm is NIST MINEX-compliant, it is suitable for use in US Government Personal Identity Verification program fingerprint recognition applications. MegaMatcher's latent fingerprint template editing capabilities also allow it to be used in forensic AFIS applications.

For More Information:

About Cenmetrix

Cenmetrix is a total solutions systems integrator specializing in biometric technology, security access control applications and asset tracking / management. Cenmetrix focuses on biometric hardware & software technology for attendance and security access control. Biometric hardware technology includes fingerprint, face recognition, palm recognition and iris recognition. With a deep understanding of biometric technology, the Cenmetrix R & D team is able to develop customized hardware and software solutions for their customers. Cenmetrix also focuses on RFID (Radio Frequency ID) technology systems, ideally used for tracking of assets, asset management, vehicle tracking, etc. Other products in the company's portfolio include time attendance and payroll software, passport scanners, biometric AFIS live finger scanners, & Card printers. For more information, go to:

<http://www.cenmetrix.lk>

About Neurotechnology

Neurotechnology is a provider of high-precision biometric fingerprint, face, iris, palmprint and voice identification algorithms, object recognition technology and software development products. More than 2500 system integrators, security companies and hardware providers integrate Neurotechnology's algorithms into their products, with millions of customer installations worldwide.

For more information about pricing, product capabilities and specifications as well as other products from Neurotechnology, go to: www.neurotechnology.com.

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