

Biometric ID System Helps Clinic in New Guinea Efficiently Manage Services and Medical Records

Fulcrum Biometrics created a customized patient identification solution for the New Tribes Mission Medical Clinic using the Fulcrum Biometric Framework (FbF®). The new system helps the clinic operate more efficiently and keep accurate records for patients who use the clinic's medical services.

A medical clinic based in Papua New Guinea faced unique challenges in accurately identifying their repeat patients. In a culture where name changes are frequent and people often have no form of ID, biometrics provides a fast, reliable form of identification.

Fulcrum Biometrics worked with the New Tribes Mission Medical Clinic to create a customized biometric application that enables the clinic to accurately identify people who come into the clinic for services and ensure that their medical records are properly documented and updated. The new system, which is based on Fulcrum's FbF® Demographica application and customized using the FbF® modular development framework, uses fingerprints for identification and facial recognition for additional confirmation.



Founded in 1994 in Papua New Guinea (PNG), the New Tribes Mission (NTM) Medical Clinic serves several thousand local citizens as well as

roughly a thousand missionaries and other expatriates living in the area. In a country that is known for having a limited and highly fragmented healthcare system, the NTM clinic serves a vital role in providing medical care through office visits, minor procedures, laboratory, radiology, sonography and pharmacy services.

Since its inception, the NTM clinic had been struggling to keep accurate medical records for the local citizens who were using their services. PNG has at least 840 different indigenous languages among a population of about 6.4 million people. Many of NTM's patients have no form of identification and are not able to read, write or sign their names. In addition, individuals often change their names and multiple family members may have the same name. This posed some serious issues for both delivery of care and for medical recordkeeping, as clinic personnel were under the constant risk of misidentifying patients or mixing up medical histories.

The new FbF Demographica biometric identification system provides NTM with a fast, accurate and easy way to register patients in the clinic and ensure that each individual's medical records are always associated with his or her proper identity, even if there is a name change.

Overview

Organization: New Tribes Mission Medical Clinic

Need: A solution that would enable clinic personnel to quickly and accurately identify local residents coming in for healthcare services and maintain accurate medical records, even if the patient cannot sign his or her name and/or the patient's name changes over time.

Solution: Fulcrum Biometrics worked with the New Tribes Mission Medical Clinic to develop a customized application that is fast, accurate and easy to use for both clinic personnel and people seeking medical services.

Benefits:

- **Easy to use:** Biometrics enable the NTM staff to spend less time discerning the identity of an individual when his or her name has changed and spend more time providing health services to the patient. For patients, the system is fast and easy to use, providing a way to "sign" for services even if the patient doesn't know how to write.
- **Fast customization:** The modular Fulcrum Biometric Framework (FbF) enabled Fulcrum to quickly customize the FbF Demographica application to meet the unique needs of the busy medical clinic.
- **Flexibility:** The system can be easily expanded to include other biometric modalities and the web-based controls enable remote deployment and updating of the system.

Fulcrum Biometric Framework (FbF®) Case Study

Fast, accurate biometric identification helps medical clinic staff spend more time with patients and feel confident that medical records are properly assigned and tracked over time.

Because many local residents have no official form of ID, in the past, each time an individual came into the clinic, he or she was required to provide a name, family name and line and other basic information that would help clinic staff establish that patient's identity for the creation and maintenance of accurate medical records. Filling out and signing lengthy medical forms was not an option for many patients who could not read or write, so clinic staff were required to conduct sometimes lengthy interviews just to establish a person's proper identity and determine if they had been to the clinic for services in the past. Because of frequent name changes and multiple family members having the same or similar names, the accurate identification of each patient had become a difficult and time-consuming task for both the staff and the patients. The risks of patient misidentification were ever-present, adding additional stress to an already challenging environment for providing health services.

Now, with the new FbF Demographica-based identification solution, each time a new individual comes into the clinic the patient is registered in the system by providing his or her name and contact information, date of birth (if known), village, family line and employer as well as providing four fingerprint scans and having a photo taken. This identification information is permanently attached to the patient's medical records.

On each subsequent visit to the clinic, the patient signs in by scanning four fingerprints. The system immediately pulls up the patient's identification record with the patient's photograph and the receptionist verifies that the right person has been identified by the system.



Biometrics give peace-of-mind.

The new system is much easier and less stressful for the patients to use, and it has been well received by both NTM clinic staff and the local population. Not only has the system dramatically reduced the time required to ensure accurate identification of patients, in so-doing, it has also provided peace-of-mind for both patients and the healthcare professionals who serve them, with the knowledge that no matter what name the patient is using, the patient's medical records are accurately tied to his or her unique, personal identity through biometrics.

The Fulcrum Biometric Framework ties it all together with rapid customization and easy hardware integration.

FbF®

The Fulcrum Biometric Framework Includes:

- **FbF Demographica:** a custom application logic system for industry specific solutions (e.g. attendance, access control and patient identification in healthcare settings).
- **FbF bioServer:** a multi-biometric identification/matching server that is scalable through clustering and provides for a number of fault tolerant options.
- **FbF Listener:** a client side device manager and template generator that securely communicates to FbF Biometric Controls.
- **FbF Biometric Controls:** a collection of browser-independent biometric controls that talk to FbF Demographica, FbF bioServer and FbF Device Listener.

The Fulcrum Biometric Framework (FbF) modular approach to software development enabled Fulcrum to quickly develop and provide a highly customized application for NTM that was easy to augment and upgrade as the clinic requested new features. Fulcrum Biometrics worked with NTM to determine their unique needs and the technologies that would help them best address those needs while keeping development time and costs low.

The application is browser-based and operates on a standard desktop PC running a Windows OS. A Logitech Web camera is used to capture face images and a [Lumidigm M-Series](#) multi-spectral fingerprint reader is used for capturing and identifying fingerprints. Because many local residents live and work in challenging physical conditions, their fingerprints can become damaged or worn over time. The [Lumidigm M-Series](#) is particularly useful in scanning difficult-to-read fingerprints because it reads not only the surface print but also the subsurface print.

The core FbF technologies used in the development of NTM's biometric software application are consistently ranked among the highest-performing biometric identification systems available. The customized application is based on FbF Demographica – multi-biometric identification software that is integrated with FbF bioServer, a multi-biometric image repository and identification engine. Another piece of the solution stack is the FbF Listener, which makes a variety of biometric capture devices readily available for use by FbF Demographica and FbF bioServer. This enables the [Lumidigm M-Series](#) fingerprint reader and Logitech camera to work seamlessly with the client and server side applications.

Although the biometric identification currently takes place using only finger scans, with pictures used solely for confirmation, the flexibility inherent in FbF provides NTM with the option to implement a full multi-biometric system using facial recognition along with fingerprint biometrics and/or any other combination of those modalities along with iris and palm print modalities. A series of web-

based controls and web services allow developers to remotely update and expand applications built using FbF, providing secure, rapid deployment of web-enabled solutions as needed in the future.

“Working together with the Fulcrum development team was fabulous. They responded very quickly to our feedback and provided an excellent software application!”

– Norbert Huebner, Electrical Engineer
New Tribes Mission Medical Clinic

Fulcrum Biometric Framework (FbF®) Case Study



About New Tribes Mission

Founded in the USA in 1942, New Tribes Mission (NTM) is an international, non-denominational Christian mission organization that works with people in some of the remotest areas of the world. NTM provides practical help, including medical care, community development, literacy education and Bible study.

About Fulcrum Biometrics

Founded in 2002, Fulcrum Biometrics is a leading provider, distributor and integrator of biometric identification technologies and devices for commercial, civil and military customers in more than 88 countries worldwide. Fulcrum's offerings include industry-leading biometric software development tools, fingerprint scanners and other biometric sensors as well as custom software development for multiple platforms, custom integration and implementation of identity management applications and access control systems. Fulcrum is the developer of the Fulcrum Biometric Framework (FbF®), a rapid biometric application deployment suite which includes the FbF bioServer, FbF Live Scan, FbF mobileOne, FbF Demographica, FbF Listener, FbF Client Library and FbF mobileOne iOS Library.