IRIS ID
Advanced Identity Authentication™

National Identity Programs Can Benefit All Nations

By Mohammed Murad

Growing numbers of citizens in African nations from Algeria to Zimbabwe carry national ID cards to obtain social services, to vote, get a passport, register for school or access other public and private services. However, this is not just an African trend. A major international consulting firm estimates nearly half of the world's population carries a chip-based electronic national identity card.

These cards play a critical role in developing nations where many citizens lack identity documents. A national ID card, the size of a credit card, typically includes the holder's photograph and demographic data such as name, date of birth, gender, address and possibly ethnicity and religious affiliation.

However, it is not sufficient for governments to just take the word of a person applying for a card. There has to be a reliable way of authenticating identity. At the very least, authentication helps assure each citizen has a unique identity which cannot be claimed by another person. Accurate identities bind citizens and their countries.

Biometric Technologies

Biometrics, the measurement of a human characteristic, provide the strongest form of authentication. While there are many measurable biometrics, the top three are fingerprint, face and iris recognition.

Fingerprints are the oldest of the biometrics in use. However, manual labor, common to the African continent and many developing countries, can degrade a person's fingerprints over time, making accurate identity authentication difficult, if not impossible.

Facial recognition matches the texture and shape of a person's face to a database photograph. Registration and comparison are both contactless and non-invasive processes. However, it is not recommended for children or even teenagers whose facial structure continues to change or for telling identical twins apart reliably. Also, this technology is generally considered to be less accurate than the other two major technologies.

Iris recognition uses the iris (the colored part of the eye surrounding the pupil) to identify people. Like a snowflake, each iris is different. Even identical twins have dissimilar patterns. The iris is formed by birth and, barring injury, remains unchanged throughout life. This allows even young children to be enrolled in identity programs. The contactless technology is highly accurate; studies have shown iris recognition provides an unmatched false accept rate of 1 in 1.2 million events. Iris recognition software is also highly precise at detecting duplicate registrations.

Another major advantage of iris-based biometrics is the technology's ability to perform one-to-many identification with very high speed and accuracy in a cost-effective manner requiring low-end computer resources. Ten-print fingerprint technology would require significantly greater storage and computer resources to de-duplicate what iris biometrics can perform on a single laptop.

Capturing the Iris

Any good identity authentication technology must be easy to use and readily available for citizens to enroll. An iris enrollment system can be set up in a central location. It involves little more than a camera; software to create digital algorithms that cannot be re-engineered to produce a visual image; and a computer to store the data.

Realistically, not everyone in rural countries will be able to visit a central location to enroll. Iris ID-based technology is easily portable, requiring little more than a laptop computer and an iris scanner comparable in size and shape to a pair of binoculars. There are also handheld units capable of capturing not only an iris but also 2D facial photo and fingerprints from virtually anywhere in the world. The same systems can also authenticate identity as needed.

In the Field

Labs tests are great, but the real test of a technology is how it works with real people involved in nationwide projects. Here is a look at how iris recognition systems have worked in two African nations.

Somaliland used Iris ID solutions to create a voter registration list while removing duplicate names from the voter rolls. The iris-based technology helped ensure a free and fair 2017 presidential election, so crucial for this autonomous state to gain the international recognition it seeks.

Before the election, international consultants recommended Somaliland's National Elections Commission (NEC) conduct a trial of the Iris ID system. It not only correctly identified those enrolled, but also accurately recognized all 457 instances of duplicates seeded into a base of 1,062 registrations. The experts estimate as many as 30,000 duplicates were identified during the actual countrywide registration process.

A big challenge in developing a registration roster was reaching more than 1.2 million potential voters, many living in very remote areas. Expecting citizens to come to one of a few central registration centers was unrealistic. So, members of the NEC traveled to remote districts with 350 portable registration kits consisting of a laptop computer, handheld iris scanner, webcam for facial photos, a flash and tripod. Each kit provided local/regional district enrollment and de-duplication of up to 200,000 identities before they needed to send the data to a central server. This gave the local teams assurance duplicate entries would be eliminated and voter ID cards could be delivered with confidence in the rolls.

The inherent ability of iris technology's high-speed matching and low processing power requirements enabled the NEC to perform de-duplication in the field. With duplicates quickly eliminated, election officials were able to deliver voter registration cards in a timely manner. The use of laptops for the registration process – made possible by the small iris templates – increased the speed, portability and convenience of the project and also reduced costs.

The resulting election was a success. A 60-member team of international observers, representing 27 countries, certified the vote as free and fair – to a large extent due to the world's first use of iris-recognition for voter registration.

Ghana's Yonkofa Project links medical professionals and clinics to provide healthcare services in the vastly underserved western part of the country. Many young citizens lack government identification, share similar names and/or have uncertain birthdays. Proper medical attention is complicated as these young people receive treatment/vaccinations at multiple clinics, leading to redundant, although incomplete, medical records. This system helps ensure children are getting necessary vaccinations without concern of over and under dosage.
The use of portable iris-based systems allows patients to register at the most remote clinics. A permanent identity record is created for each patient eliminating duplicate records. Healthcare providers can now accurately identify citizens. Patient health is improved and the project saves money by not having to repeat tests due to incomplete records. And the system works equally well for young children and adults.

Other Uses

Iris-based technology is increasingly used for time and attendance applications. Workers need only their irises to "clock-in" and "clock-out." The solution works well for seasonal and other manual labor activities where employees might work for a few days, leave and return a week later. Once enrolled in the system, employees are immediately recognized days or months later. An iris-based system also eliminates a process known as "buddy punching" in which an employee clocks-in for an absent worker. It is a well-documented that most organizations lose revenue due to time and attendance frauds and reporting errors. Iris ID time and attendance solutions easily integrate with leading payroll systems and human resources software.

In cities, office towers look to iris systems to identify tenants at entries. Iris ID technology integrates with leading enterprise access control software. This enables building owners to tie into elevator control software so that once employees are approved for entry, they look to a display board to know which car will take them to their office floor.

The Results

Iris-based identity authentication technology is ideal for Africa, from its remote, agrarian-based regions to the continent's bustling cities. A simple-to-use system helps ensure the success of national identification programs. Fraud is reduced – an important factor in countries where funding for services is in short supply. The new Africa also benefits from the accuracy, speed, convenience and added security of iris-based ID systems.

The cost of biometric technology continues to drop, bringing it within the reach of the poorest nations. And systems for enrolling people have become increasingly portable, making it possible to all include all citizens.

When choosing a biometric system, consider Iris ID for its many uses, broad integrations with other systems and its proven track record in Africa and throughout the rest of the world. For more information, visit the Iris ID website.