Making sure people are who they say they are can be complex, awkward, and expensive. That’s true for law enforcement, border control, healthcare, and campus or building security. In fact, it’s true for any organization that must reliably authenticate people. PINs, access cards, and guards can create long delays and are vulnerable to fraud, theft, and human error. Maintaining, enforcing, and growing these systems require significant budget and resources.

Yet, this is how business and government are authenticating people and protecting secure facilities today: at travel hubs, at the gate to the company parking lot, at the turnstile to a football game... everywhere. Even though the risk of theft and error is high, cards and codes are simple for companies to manage and convenient for people to use.

Some organizations have turned to biometric identification, usually fingerprints, instead. Biometric characteristics—the “things you are” such as fingerprints, voice, and iris patterns—are far more reliable than passwords and tokens (“things you know” and “things you have”). And the most reliable biometric is iris recognition. Impossible to change and almost as difficult to duplicate, human iris patterns are certain and enduring—more than fingerprints, voice, face, or gait.

Adoption of iris recognition is only beginning to gain momentum. Although universally recognized as the most accurate biometric, iris recognition technology has been neither the easiest for the organization to implement nor the most convenient for the user. Until now.

The Cost of Codes and Cards

Tokens, pass cards and PINs—what people have and what people know—are easily lost, forgotten, stolen, or shared. Estimates vary, but simply resetting or replacing passwords and cards can cost between $150 and $200 per employee or customer per year. That increases with two-factor authentication. Add to that the more serious risks of theft, fraud, unauthorized sharing, and error; it’s clear they are methods whose time has passed.
A Technology Whose Time Has Come

Iris recognition has matured from possible to practical. Today’s iris biometric systems deliver it all: reliability, convenience, and simplicity.

**Gone:** intrusive, encroaching close-up cameras
Now, iris scans are done with cameras well outside the individual’s “personal space.”

**Gone:** the inconvenience of standing still for a scan
Today irises are scanned while people are in motion, whether they’re walking through an airport or being transported to an emergency room.

**Gone:** the need to remove headgear and eyewear
Iris capture delivers accurate results through eyeglasses, contact lenses, and even sunglasses.

**Gone:** the need for near-ideal environmental conditions
Iris recognition today is reliable under all lighting conditions, indoors or out.

Here’s a sampling of how industries and organizations of all kinds, around the world are using it:

- Amsterdam’s Schiphol and other airports use iris recognition to provide self-service passport control.
- Law enforcement agencies across the U.S. use it to identify people.
- Hospitals and mandatory drug testing labs use it to ensure patient identity.
- Countries such as India are implementing nationwide iris identification initiatives.
- Enterprises such as Google use iris recognition to control physical access.

Tomorrow, iris recognition will be the norm for security, for convenience, and for efficiency. Organizations like yours will use it to strengthen security, cut costs, and make identification easier and more comfortable.

This white paper presents snapshots of how a range of organizations will authenticate people when iris recognition becomes the standard.
Benefits of Iris Recognition

- Eliminate delays and inconvenience.
- Operate indoors or outdoors, under any lighting.
- Tighten security.
- Maximize accuracy of identification.
- Facilitate self-service.
- Heighten safety.
- Lower operational costs.

Law Enforcement

The FBI reports that of the almost 55,000 police officers assaulted in 2011 performing routine duties, nearly a third occurred during disturbance calls. Identifying people from a distance adds a layer of safety for officers who patrol our streets and supervise institutions. Today, iris recognition alleviates these problems for police departments across the country (such as the Oakland, California and Penobscot County, Maine police departments), and in prisons (such as York County Jail and Lancaster County Jail in Pennsylvania).

Here’s a look at what tomorrow will bring.

Keep Officers Safe on the Street

During routine traffic stops or when handling disturbance calls, officers may have to identify and approach belligerent or intoxicated people. Officers will perform a quick iris scan to identify individuals from a distance, providing a critical layer of safety. Wireless, lightweight, and portable, the iris scanner is operated with one hand, leaving the other hand free for fast reaction. Shared databases—similar to the Automated Fingerprint Identification System (AFIS)—will grow to create broad collaboration across enforcement agencies, giving officers in the field rapid understanding of their situation.

Benefits to Law Enforcement

- Lower risk to officers and law enforcement staff.
- Identify suspects in less than one second.
- Reduce risk of detaining or releasing the wrong person.

Speed Up Booking at the Station

Arrestees will pass through an iris scanning station or pause for a second in front of a handheld camera. Identification of repeat offenders will be immediate, as will retrieving their complete history. False IDs and aliases will be eliminated, along with the need to come into close contact with prisoners already enrolled in the iris database network during booking. Non-enrolled prisoners will be authenticated through traditional methods, and then permanently enrolled in the database. Additionally, the chances an innocent person will be booked due to mistaken identity will be significantly reduced.

Prevent Errors in Prisons

Every year, scores of prisoners are released because of mistaken identity—putting criminals on the streets because of human error. (It’s an international issue: the UK Ministry of Justice reports that between 1995 and 2012, one prisoner per week was released by mistake, often for simply having the same name as another inmate). Using iris recognition, prisoners will be immediately identified as they move through the prison from intake to release, ensuring accuracy and officer safety. Errors will be eliminated, including sending the wrong inmates to the infirmary, an outside hospital, or the visitor center. Iris recognition will also support the critical functions of monitoring officers and staff, identifying and screening visitors, and protecting secure areas.

Healthcare

Quality of care rests on being sure the right treatments and medications are given to the right patients. The Institute of Medicine estimates that half of hospital deaths each year due to medical error are from patient misidentification. Today, hospitals such as Hugh Chatham Memorial Hospital and some of HCA Healthcare’s facilities use iris recognition to authenticate patients, physicians, and staff.

Here’s a look at what tomorrow will bring.

Benefits to Healthcare Providers and Institutions

- Identify patients without contamination.
- Reduce cost of access control.
- Maximize security for patients, including children and infants.

Improve Patient Care

New, ambulatory patients will enroll in the iris recognition database during admission. Previously enrolled patients will identify themselves at any of the networked scanning stations throughout the facility. Non-ambulatory and emergency patients—and those who don’t know who they are, such as dementia patients—will be identified or enrolled without interrupting the critical time to treatment.

Even before the patient reaches the ER, iris recognition is providing critical information. As the ambulance travels, EMTs and paramedics can identify patients, gather their medical history, and start procedures and medication right away.

Lower Administration Cost

Pedestal- and wall-mounted devices, or freestanding walk-through kiosks, will protect unauthorized access to buildings, labs, and secure storerooms. Iris recognition will be integrated into the facility’s time and attendance system. Security staff will be more efficiently deployed, since they won’t have to spend their shift signing people in and watching the door. Visitor access will be well managed, because a patient’s visitors will be identified and tracked. And those areas of the hospital that must be especially secure—ICUs, maternity floors, and rooms with patients from prisons, to name a few—will be fully protected.

Avoid Malpractice Risk

Decrease hospital and physician malpractice risk, slashing the nearly $50 billion in malpractice costs each year³.

Insurance companies and public health agencies will offer people the option of enrolling in an iris database—eliminating the chance of fraud or theft. Malpractice litigation will plummet as treatment and medications are definitely given to the right patient, by the correct doctor. Medicines and supplies are totally secure, as iris scanners replace key and pin-code locks on automated medication dispensers to eliminate unauthorized access.

³ http://content.healthaffairs.org/content/29/9/1569.full
Benefits to Banks and Business

- Eliminate long lines through turnstiles and gates.
- Get employees to the office without hassle or stress.
- Track employees and contractors through the building.
- Automate access control: no additional guards required.
- Provide secure and safe environment for employees.

Consumer Banking

In 2012, identity theft cost banks more than $21 billion. And it’s not just the banks that suffer: identity fraud also damages victims’ credit.

Today, banks such as Cairo Amman Bank in Egypt and Texas-based Bank United guard against ID theft with iris recognition technology.

Here’s a look at what tomorrow will bring.

Eliminate Risk Outside the Branch

Customers will use their iris scan at the ATM and for mobile banking as iris cameras become a regular feature of smartphones and ATM kiosks. Iris recognition at the ATM will eliminate the inconvenience and anxiety of using and protecting ATM cards and PINs. On smartphones and devices it will add an unbreakable layer of protection against unauthorized access. Once in place, iris recognition will provide the level of identity verification needed for banks to increase self-service options, such as allowing customers to withdraw larger sums from ATMs and make larger mobile deposits.

Increase Self-Service

Bank staff will be used more efficiently—to assist customers at the window and to sell services at the desk. Photo IDs or ATM cards for identification will be abandoned in favor of a quick glance into the iris recognition camera. That same quick glance will instantly identify safe deposit box owners, eliminating teller involvement. Secure self-service kiosks will allow customers to perform a range of financial transactions simply and quickly—such as opening a new account or tracking their transaction history.
**Simplify Vault Security**

Physical access will be simplified and monitored effectively, while providing the highest level of security. Each trip to the vault or other secure area will be authenticated by iris scan. Because the iris recognition system is integrated with the bank’s back-end security system, each visit will be precisely documented and time-stamped. The bank’s need to accompany customers to their safe deposit boxes is eliminated, freeing staff for other services while reducing bank exposure to fraud.

For the customer, protection of their assets is heightened with the certainty that only they can access their valuables. And their trip to the vault is now completely private.

**Enterprise**

The practice of clocking in for other people can cost companies up to 5% of their entire payroll. Today, companies such as Union Pacific Railroad track employee time in the blink of an eye.

Here’s a look at what tomorrow will bring.

**Clock Employee Time and Attendance**

Iris scanning and authentication will make time and attendance always true and accurate: techniques such as “buddy punching” will be eliminated. Employees will simply look at the scanner at any entryway, and in one second the door, gate, or turnstile will unlock. The time stamp and other relevant information will then be sent directly to the company’s time and attendance system.

**Automate Perimeter Security**

In place of a guard station—and someone inside it—employee entrances to parking facilities will be fully controlled by a drive-through scanning station. In a few seconds, the station will capture the iris image through eyeglasses, contact lenses, or sunglasses. And it will eliminate long waits in line while people fumble for access cards or badges, drop them on the ground, or discover they’ve simply forgotten them.

Control Access to Information

Intellectual property and critical physical and IT infrastructure will be protected as well. Iris recognition will control access to secure areas and will also authenticate people trying to access secure computer systems and data. Integrated with a corporate database, it will trigger the authorization process, ensuring that people can’t violate access or acceptable-use policies.

Conclusion

It is happening right now. Iris recognition is transforming the way we authenticate identity, guard physical structures, protect assets, and automate security.
How SRI Fits In

Everything described here is available today. The Iris on the Move® (IOM) product suite from SRI Sarnoff makes iris recognition practical, affordable, and viable. There’s an IOM solution for any amount of traffic in any kind of environment—from a driver pulled over for speeding, to computer server cages and secure storerooms, to the busiest border crossings in the world.

All IOM products offer easy-to-use, non-contact, accurate scanning of moving subjects, and high levels of self-service. They deliver reliable and efficient identity authentication for business and government alike.

About SRI International

SRI International is a nonprofit research and innovation center headquartered in Silicon Valley. Government and business clients worldwide come to SRI for pioneering solutions in biomedical sciences and health, chemistry and materials, computing, education, economic development, energy, security and defense, robotics, sensing, and more. We provide research, laboratory and advisory services, technology development and licenses, deployable systems, products, and venture opportunities. Our innovations have created new industries and marketplace value, and lasting benefits to society.

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