

A Helping Hand

Biometric authentication refers to technologies that measure and analyze human physical and behavioral characteristics for recognition and identification purposes. Such authentication is no longer just for security.

■ SUBMITTED BY IDENTIMETRICS

When most people come across the term "biometrics," they think of high-end security, perhaps as a technology that governments use for passports and border control, banks to combat identity theft and police to find criminals. But this high-cost, high-security, supposedly futuristic technology--which was an impossible dream for use in consumer applications just a few years ago--is actually here. It is adaptable, affordable and ready for action.

Biometrics for Schools

Wood County Schools are located in West Virginia--19 elementary schools and eight secondary schools with over 13,750 students. Food Services employs 110 cooks and nine warehouse and administrative staff serving over 1.8 million meals per year. Beverly Blough, Director of Food Services, is responsible for following all U.S. federal laws for the Child Nutrition Program. One of the requirements is accurate student identification for reimbursement. The organization previously used student ID cards and nine-digit PINs, but this method was simply not working.

On some days, more than 80 percent of students would show up for lunch without their cards. This meant that cashiers had to type in every nine-digit student ID number. Lines backed up, mistakes were made while keying in strings of numbers and irritated parents called and claimed that their children had been charged for items that they had not eaten. At the end of the day, the school district had to bear those costs. "With all the lost, stolen and damaged cards, sometimes I thought Food Service was in the card business rather than serving meals to students. We obviously needed a better solution," said Blough.

"We decided that finger-scanning biometrics was the solution. Students would never forget their fingers. We found several cafeteria applications that utilized finger-scanning biometric devices, but all required us to spend thousands of dollars and replace our already

existing and working software," Blough added.

Four hundred and fifty miles away in Hammonton, New Jersey, Jane Cora, Supervisor of Food Services, was experiencing the same headaches. "We wanted something that students could not forget, lose, damage or steal, but it had to be cost-effective and compatible with our existing cafeteria software. We also needed biometrics that worked with four, five and six-year-old children without any difficulties."

In another part of the U.S., Edgefield County, South Carolina, Greg Thompson, Principal of Strom Thurmond High School, had yet another requirement. He wanted to use finger-scanning biometrics as a complete student identification system throughout his school, beginning with the cafeteria, then migrating to the library and, finally, in each classroom for period-by-period attendance so that he would know where his students were at all times.

They all decided to go with identiMetrics, a forerunner in finger-scanning biometrics for schools. "Biometric, finger-scanning identification was well accepted by the board, superintendent, principals, teachers, parents and the community," said Thompson. "They all understood our need to correctly identify students and realized the time and money it was costing each day to administer the card program. Initially, there were questions regarding privacy, but identiMetrics' identiFi platform does not take an actual fingerprint, just unique identifying points. Everyone felt comfortable with the fact that fingerprints cannot be recreated. Students only need to be enrolled once, and we can roll out our finger-scanning identification program to different areas of the school. Now, students always have their ID with them," he added.

A Biometric Primer

Biometrics uses automated methods to recognize people based on certain intrinsic traits, which include face, fingerprint, hand geometry, handwriting, iris, retina, vein or voice--anything that is a part of a human being. To date, even human smells have been studied. Believe it or not, biometrics is not a new technology. Ancient Egyptians used bodily characteristics to identify workers to make sure that they did not claim more provisions than they were entitled to--much like governments today which are looking to adopt biometrics to lessen benefit fraud. And Chinese merchants in the 14th century used palm prints and foot prints to identify children.

All biometric features have strengths and weaknesses; the key is finding the right technology for the right application. Fingerprint recognition is, by far, the most developed technology, accounting for 85 percent of the current biometric market. It is trusted, accurate, easy-to-use, and the most cost-effective and useful for most business implementations.

Biometrics is catching on for the following reasons:

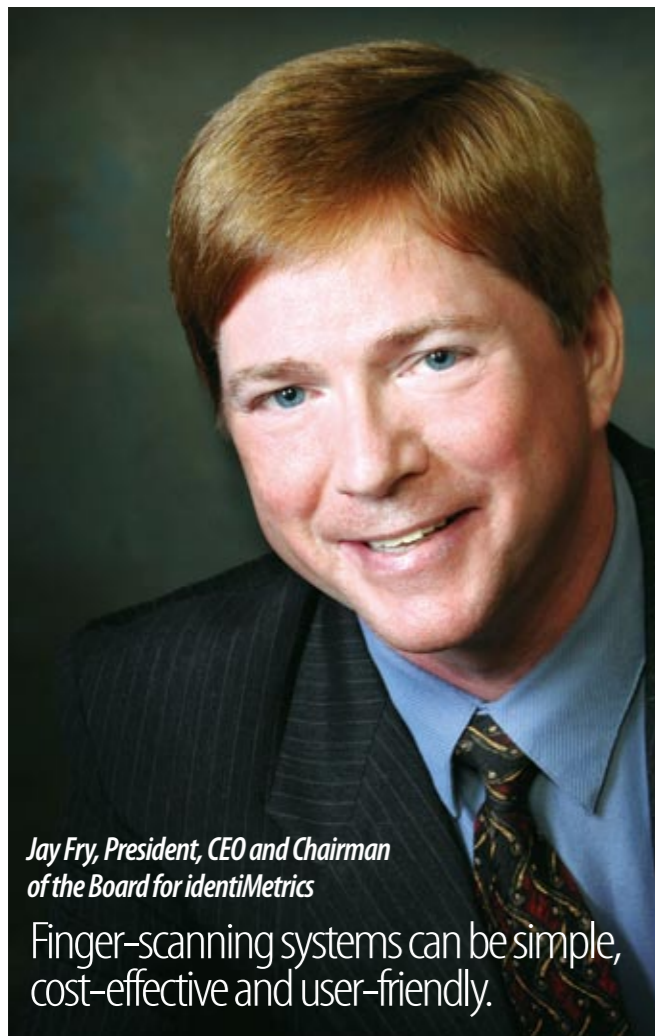
- After the Sept.-11 terrorist attacks, there have been very few technologies that undergo an overnight change, but that is

precisely what happened to biometrics after that fateful day. The government sector and widespread security concerns have catapulted biometric interest and use.

- One other reason is proliferation of identity theft. It is estimated that about US\$2 trillion will be lost, between 2005 and 2007, due to financial fraud. People are beginning to understand that biometrics actually protects their privacy.
- Adaptations of biometrics-enabled technologies help lower transaction fees and increase return on investment. Retail leaders are continually seeking ways to increase bottom lines, and they are seriously looking at biometric systems to save processing costs and improve operations.
- Just as with computers and plasma TVs, earlier models were often expensive and feature-poor. Over time, biometric technologies have improved greatly, and costs have come down considerably.
- Another benefit brought about by biometrics is lower cost of ownership; price is no longer an obstacle in the buying decision, especially with certain biometric technologies such as finger scanning. Today, finger-scanning biometrics can actually be priced competitively with barcode readers, swipe-card readers and PIN pads from a total cost-of-ownership perspective.
- Last, but not least, is growing consumer awareness. Recently, biometrics has been introduced and advertised in a variety of areas in the consumer marketplace. Laptop computers, grocery stores and automobiles, for example, are using finger scanners to identify people. The more familiar people are with biometrics, the more they feel comfortable and like the convenience of just having a finger for identification. In fact, a growing number of people believe that finger scanning is a more secure form of identity than passports, credit cards, photo IDs, birth certificates and signatures combined. When biometrics is introduced on cell phones in the U.S. in the next year and a half, it is expected that acceptance of biometrics will explode. Experts are seeing 29-percent annual growth in the global biometric market, which is expected to reach \$3.4 billion in 2007.

Privacy Issues

Biometric technologies no longer conjure up the Orwellian fears that they used to. Of course, some people still grumble at the mention of systems that scan fingerprints because of misunderstood privacy fears, but overall acceptance of biometrics has risen substantially over the past few years. In fact, people now realize that biometrics actually protects their privacy and that in many biometric applications, including the one identiMetrics employs, their fingerprints are not stored anywhere and their fingerprints can never be recreated from the digital template. Minutiae-based systems, like that of identiMetrics, use flat images of only two fingers to create templates. Flat images reveal the center of the finger and require only a minimum of unique identifying points in order to make a match. The purpose is to identify a person already enrolled in the software. Fingerprints can never be recreated. As a result, identiMetrics has found that 100 percent of customers that have used its software in a pilot setting buy it.



Jay Fry, President, CEO and Chairman of the Board for identiMetrics

Finger-scanning systems can be simple, cost-effective and user-friendly.

Today's Solutions

Many functions in organizations require identification. The most common kinds of identification currently in use are smart, swipe, barcode or picture ID cards, with or without PINs. Each of these methods creates its own issues and delays that are a drain on time and resources of IT departments. Cards are regularly forgotten, lost, mutilated and shared; PINs are easily forgotten, swapped or stolen. Visual identification is a poor solution, especially with today's considerable security concerns and reporting issues. By using biometrics for identification, problems and costs associated with current methods can be avoided, and new standards of accountability can be put in place.

Why would an organization use biometrics? Quite simply, to save time and money and to improve operations. Biometric technologies can also provide benefits in terms of convenience, safety and security.

How is finger-scanning biometrics being used in everyday applications? In some grocery stores, customers use finger scanning to pay for purchases rather than using cards, checks or cash, making transactions both secure and highly convenient. Finger scanning can also be used to replace those pesky loyalty cards--another convenience for customers.

Biometrics can be used to identify employees and help improve operations. In time and attendance, it helps eliminate buddy punching. Biometrics can help cut down on cash drawer pilferage, an expensive headache for the retail industry. Hotels can use finger scanning to positively identify guests in restaurants, shops and spas. Fitness clubs can use finger scanning to eliminate inconvenience of cards. High-stake testing, orchestra attendance, shops on cruise ships and hospital pharmacies are other possibilities--the list is almost endless.

Practical Ways to Implement Biometrics

One should start by making small improvements in operations. End-users need to identify and assess pain--where organizations could use finger scanning instead of cards and PINs to save time and money. Then they have to communicate, educate and train the people involved. This is usually the weakest link in implementing any new disruptive technology, and implementing biometrics is no different. Through experience, identiMetrics has found that once biometrics is being used successfully in one part of an organization, the idea migrates and is embraced in other areas as well.

Choosing Biometric Solutions

It is really important not to be short-sighted here. Users should choose a biometric identification platform that can eventually be used throughout the entire organization. This scalability means that people need be enrolled only once to be identified in a variety of areas in the organization. Some biometric technologies work well with 10 people or fewer in a stand-alone environment, but fail miserably as the number of users increases in a networked environment. A more robust biometric technology might cost a bit

more, but is worth it in the long run.

Customers also need to make sure that it can be integrated with software applications that are already in place if they do not want to replace them. Many biometric technologies will work with only a specific application, and they have to buy that application for it to function. Other biometric technologies, like identiMetrics', can be easily integrated into existing applications that are still functional.

Some additional questions that should be asked include:

- Will biometrics be used for high or low security applications?
- How many people in the organization will be using biometrics?
- How many locations will be covered?
- Are the host applications centralized or decentralized?
- Will biometrics be implemented for operations or customer use or eventually both?
- What are the physical conditions where the biometric solution will be implemented?

Pitfalls to Heed

There are several practical things to be aware of when choosing a biometric solution. Biometrics is a highly complex technology; but implementation and use can be simple. Users only need to make sure that it works every time.

Some fingers are just hard to read. Most biometric companies focus on adults with easily readable fingers and employ biometrics for mass implementations. On the other hand, there are companies that focus on hard-to-read fingers and the fingers of young children.

Those interested should also ask about performance accuracy. There are basically four metrics, namely false acceptance, false rejection, failure to enroll and failure to acquire rates. In particular, false acceptance rates are the biggest concern. With identiMetrics' technology, for instance, false acceptance is one in 200 million, certainly an acceptable limit for most organizations.

Remember to shop around and compare, but not just on price. Check up on customer support and roll-out experience. Once again, make sure that the technology works in a practical setting and not just in a vendor's lab. Make sure that biometrics can be used with all applications that require identification--users should be enrolled only once to work with all. Most importantly, understand your organization and the people that need to make things work. Internal policies, politics, budgets, sponsorships and inter-departmental issues can be challenging as well.

Cost-effective biometric technologies are here today with many practical uses. They are a perfect solution for organizations that are dissatisfied with current employee or customer identification systems, such as PINs and swipe cards. Biometrics, and in particular finger-scanning systems, provides irrefutable proof of identification. Unlike other complicated and expensive government systems in the past, finger-scanning systems can be simple, cost-effective and user-friendly. Biometrics has been adopted by a variety of organizations--in particular, schools--to make things work more quickly, safely, economically and reliably. If children can do it, anyone can. **AS**