

Biometric Identification Management:

Practical Solutions for
Accountability & Security
in Schools

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Biometric technology has become an accepted method of identification. Specifically, finger scanning biometric identification has proven to be a better, faster, safer and more cost-effective solution than other methods of identification such as swipe cards and PINs.

Biometrics can provide an ideal solution for school administrators in their effort to identify students, provide accurate and auditable student records and provide a safer and more secure environment for students, teachers and staff.

The following discussion provides information for school administrators who are evaluating biometric solutions for student identification and security.

Purpose

One of the many challenges facing schools today is accurately identifying students. The bottom line is that schools receive federal and state money based on accurate and auditable records. In addition, schools need to provide a safe and secure environment for everyone on campus. Now more than ever, accurate student identification is key to the efficient operation of a school.

Over the past few decades, schools have been implementing all kinds of new technologies to both enhance learning and improve operations. Smart boards, laptops and real-time internet resources are just a part of a student's everyday experience. And schools world-wide have been implementing biometrics in order to streamline operations, increase teaching time and enhance security.



A Biometrics Primer

When most people think of biometrics, they think about high security technology - a technology that the government uses for passports and border control, that banks use to combat identity theft, that police use to find criminals, that we see in the movies. But the high cost, high security, futuristic biometric technology unthinkable in a school environment just a few years ago, is here - and it's practical and affordable and being used in schools all over the world.

Biometrics are automated methods of recognizing a person based on a physiological or behavioral characteristic. They include facial recognition, fingerprint, hand geometry, handwriting, iris, vein and voice – anything that's a part of you.

Biometrics are practical and affordable and used in schools all over the world.

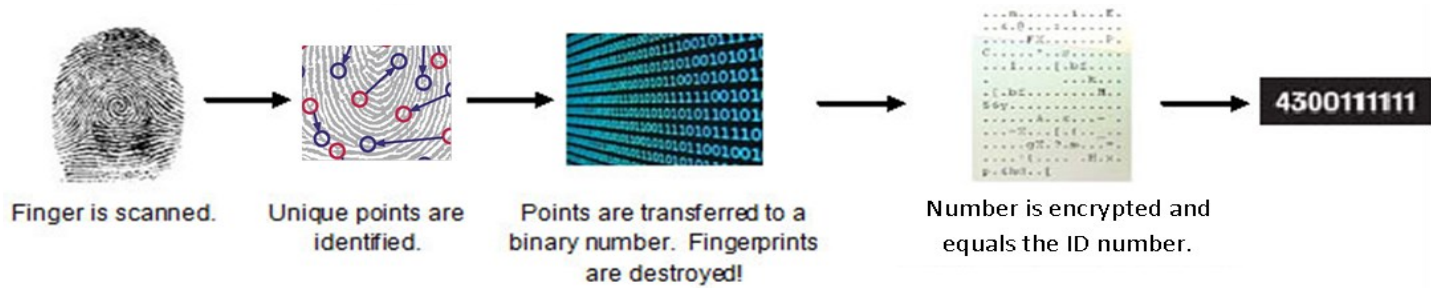
Believe it or not, biometrics is not a new technology. The ancient Egyptians used bodily characteristics to identify workers to make sure they didn't claim more provisions than they were entitled - just like governments today are using biometrics to lessen fraud. Chinese merchants in the fourteenth century used palm prints and foot prints to identify children. Fingerprint recognition is by far the most developed technology today. It's trusted, cost-effective and easy to use. All biometrics have their strengths and weaknesses. The key is finding the right technology for the right application.

How does it work?

Fingerprint identification is the oldest method that has been successfully used in numerous applications. Each of our ten fingerprints is different from one another and from those of every other person. Even identical twins have unique fingerprints. That makes them ideal for personal identification. A fingerprint is made of a series of ridges and furrows on the surface of the finger. The uniqueness of a fingerprint is determined by the pattern of ridges and furrows as well as the minutiae points. Minutiae points are local ridge characteristics that occur when a ridge splits apart or a ridge ends.

There are several significant differences between finger printing law enforcement applications and finger scanning identification software. Finger printing captures rolled images of all ten fingers. Rolled images capture unique identifying points on the entire finger surface in order to collect the maximum number of unique identifying points. The purpose is to identify suspects based on fingerprint images directly taken from a crime scene. Finger scanning uses 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.

Here's how finger scanning works:



When the person returns to be identified, the biometric software again scans the finger. The software now compares the new template with the other templates in the database. When a matching template is found, the person is identified.

This identification and matching process takes under one second to complete. At no time is a fingerprint image ever stored and no fingerprints can be recreated from the template.

Why Biometrics in Schools?

Many areas in a school require identification. The most common kinds of identification currently in use are picture ID cards, PINs, and, of course, visual identification. Each of these methods creates its own issues and is a drain on the time and resources of IT departments.

Cards are regularly forgotten, lost, mutilated and shared; PINs are easily forgotten, swapped or stolen. Also, visual identification is a poor solution, especially with today's considerable security concerns and reporting issues. By using biometrics for identification, the problems and costs associated with the current methods can be avoided and new standards of accountability can be put into place.

Practical Applications in Schools

Why would a school use biometrics? To simplify the school day, to save time and money and improve operations. Biometric technology can also provide benefits in terms of convenience, safety and security. A typical first installation in a school is in the cafeteria where accurate records are critical for reimbursement from the federal government's \$14 billion National School Lunch Program and School Breakfast Program. With a biometric platform like *identiMetrics Biometric ID Management™*, schools can then use the same biometric database to identify students to other applications such as those used for attendance, in the nurse's office, in the library or media center and on the bus. Once biometrics is being used

successfully in one part of a school, the idea is often embraced in other areas as well. Schools even use it for student identification at athletic events and dances to keep out other students who don't belong.



School Access: A controlled environment is critical to a school's success. Access to the school must be permitted only to authorized persons. Students, teachers, staff and recurring visitors can be accurately time-stamped and identified using biometric technology and attendance or check-in applications. Administrators will have an irrefutable record of the date and time of each person's entry into the building. Biometric systems can assure administrators that those entering their schools actually belong there.

Attendance: School administrators are being held accountable by federal and state governmental funding sources for accurate and auditable attendance records since certain funding is provided based on the number of students who attend the school each day. Schools that have made errors in attendance reporting have been required to pay back hundreds of thousands of dollars to the governmental funding sources. Biometric technology provides administrators with irrefutable proof of student attendance for accurate and auditable reporting. In addition, administrators can be provided with period-by-period attendance records in real-time, quickly identifying students who are not in the appropriate classrooms. Also, teachers of large classes, such as band, orchestra, chorus, study hall and physical education can use the entire classroom period for instruction instead of using valuable time to take attendance.

Cafeteria: Most cafeteria debit systems use swipe cards or PINs. Schools are now using biometrics to eliminate the expense and problems associated with these systems and to

ensure accurate reporting. Biometrics are also being used in vending machines to increase reimbursements and decrease costs. By implementing a biometric system with the cafeteria application, accurate reporting for students entitled to free or reduced meals are provided anonymously, with the important result of increasing participation by eliminating embarrassment. In addition, student accounts are secure, eliminating the time and expense for administration and parents investigating and paying for student account breaches.

Library: School libraries store thousands of dollars of schools' assets such as books, periodicals, recordings and pieces of art. Librarians can use biometrics to replace library cards eliminating the sharing of library cards with students who have overdue materials.

Biometrics simplify the school day , save time & money and improve operations

Nurse's Office: School nurses are charged with dispensing medication to students everyday. In many schools, nurses change duties or teachers and substitutes dispense medication when the school nurse is unavailable. Biometrics provides an irrefutable record of medication dispensing and reduces the risk of potential life threatening errors.

Transportation: School students get lost or get off at wrong schools and bus stops each day, especially young students. New bus drivers are hired throughout the school year due to turnover or their routes are changed. This makes it difficult for them to get to know the students well enough to visually identify them and where they belong. School districts have implemented biometrics on buses in order to help the driver know if the student is on the correct bus, goes to the correct school and gets off at the correct stop. Parents know in real time exactly when and where their child got off the bus. In case of an emergency, school administrators know in real time who is still on the bus.

Staff Time and Attendance: Biometric time & attendance solutions eliminate errors by creating accountability and transparency. Hidden costs of payroll are dramatically reduced. Productivity and efficiency is significantly improved. Biometrics eliminates "buddy punching," dramatically reduces the time it takes to fill out, submit & approve timesheets and reduces overpayments by creating accountability. Employees know that they are being monitored and cannot get away with long breaks and early departures. Biometrics also improves scheduling

for better workforce utilization by eliminating unnecessary overtime costs caused by an unbalanced distribution of work.

Other Applications: Biometrics can assist large schools in hallway monitoring. This technology can also be applied to off-site student identification for field trips and outdoor events. Emergency identification as a result of a fire or other disaster is a critical use of this technology.

Practical Ways of Implementing Biometrics

What area in your school would be the first place where the use of biometrics will simplify your school day? Is it in the cafeteria eliminating the cards and PINs and making your audits easier and your accounts secure? Is it at the front door for attendance so you know who is entering your school and that your attendance records are accurate? Start by making improvements in one area of the school. You want to increase productivity, record-keeping and of, course, safety.

Communicate, educate and train the people who will be involved. This is usually the weak link in implementing any new technology and implementing biometrics is no different. You will find that once biometrics is being used successfully in one part of the school, the idea migrates and is embraced in other areas as well.

Choosing the Right Biometric Solution

It is really important to not be short sighted here. Choose a biometric identification system that can eventually be used throughout your entire school. This means that students should be enrolled only once to be identified in a variety of areas in the school – the cafeteria, the front door, the classroom for attendance, the nurse’s office, the library, the bus and the attendance office for late students.

Make sure that it can scale. Some biometric technologies work great with a handful of students in a standalone environment, but fail miserably as the number of students increase in a networked environment. A more robust biometric technology will be worth it in the long run.

Make sure that it can integrate with the software applications you already have in place. Many biometric technologies will only work with a specific application. You need to buy that

application for it to work and reenroll your students with each application you use. Other biometric technologies, like identiMetrics Biometric ID Management, work as a platform and can easily be integrated into applications that you already have using one common database; the students are only enrolled once.



Make sure that it works! The fingers of young children are difficult for many biometric technologies to scan. Most biometric companies have only focused on adults for employing biometrics in mass implementations. identiMetrics has successfully developed biometric technology to scan the fingers of very young children – a must in any school setting. You want your biometric system to work with all of your students...every time.

Ask about performance accuracy. There are basically four metrics: false acceptance rate, false rejection rate, failure to enroll rate and failure to acquire rate. In particular, false acceptance rates are what you should be most concerned about - that means when you place your finger on the scanner, someone else is identified. identiMetrics, for instance, has a false acceptance rate of 1 in 200 million, certainly an acceptable limit for schools.

Compare, but not just on price. Check up on customer support and roll-out experience, especially experience in schools. Once again, make sure the technology works in a practical setting and not just in a vendor lab.

Communication, communication and communication! Make sure everyone – parents, teachers, students, administrators, the school board and the media have up to date and accurate information about biometrics. identiMetrics has a complete roll out process that includes sample letters to parents, biometric FAQs, best practices, privacy recommendations and other important information to make the whole process run smoothly and easily.

Privacy Recommendations

Overall acceptance of biometrics has risen substantially over the past few years due to the after-math of 9/11, the proliferation of identity theft, technology improvements, biometric security and payment features on smartphones, and a better understanding of biometrics in general. Most people now recognize that biometric technology actually protects their privacy. However, there are still some who are fearful of “someone stealing my fingerprints.”

Unfortunately, the inability to separate myths from facts has resulted in legislators in several states banning or restricting the use of biometrics in schools because of the fear of something happening in the future, misunderstood information about the politically charged issues with Common Core, vague and confusing definitions of biometrics, and lumping biofeedback and high stakes testing with the use of biometrics for practical student identification purposes.



Rather than banning technology that facilitates daily administrative tasks and provides safeguards for children, we recommend that lawmakers focus on transparency so parents know how the technology is being used, what data is collected and what safeguards are in place to protect students’ privacy. Banning technology is a huge step backward and takes away the freedom of choice for communities and their school administrators. Whether it’s banning books or banning technology, we believe that a blanket prohibition by politicians based on conjured up fears is irrational and irresponsible.

Here are some general student privacy recommendations:

- Schools should notify parents prior to collecting biometric information.
- Parents should be allowed to opt their child out of the biometric identification program. An opt-out policy gives the parents a choice and also creates an environment for school administrators to make decisions and be able to implement them in an efficient manner.

- Schools need to remove all biometric information within 30 days of the person leaving the district.
- Biometric information should be used only for identification or fraud prevention.
- Schools should not allow the sale, lease, or disclosure of any biometric information to any other person or entity.

Case Studies

Wood County West Virginia. Beverly E. Blough MS, RD, LD, Director of Food Service of Wood County, West Virginia, was a pioneer in implementing biometric technology in her schools. Beverly was responsible for serving over 1.8 million meals a year as well as following all U.S. federal laws for the Child Nutrition Program. One of the requirements is accurate student identification for reimbursement. They were using student ID cards and a 9-digit PIN. On some days, more than 80% of students would show up for lunch without their cards. This meant that the cook had to type in every 9-digit student ID number. Lines backed up, mistakes were made keying in the numbers and each month irritated parents called claiming their children did not eat the meals they were charged for. The school district then had to bear those costs.

“With all of 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 Beverly. “We decided that finger scanning biometrics was the solution. Students would never forget their fingers,” she added.

Hilo, Hawaii. 4000 miles away in Hilo, Hawaii, David Dinkle, Vice Principal at Waiakea Elementary School, was experiencing the same headaches. “We wanted something that students could not forget, lose, damage or steal. But it had to be compatible with our existing cafeteria software and it had to be cost-effective. We also needed biometrics that worked with 4, 5 and 6 year old children without any difficulties.”

According to David, “In food service, seconds count. Our goal is to make sure every student has a nutritious and enjoyable lunch with plenty of time for recess. We also have to make sure that our students’ accounts are accurate and secure. identiMetrics Biometric ID Management™ as part of our cafeteria point-of-sale is doing just that. Our food service operation has really improved. In fact, the cafeteria is empty for about 10 minutes before the

next lunch. Our students are zipping through the lunch lines super quickly...identiMetrics works!”

Biometrics are practical and affordable and used at schools all over the world.

Newark New Jersey. In another part of the United States, Newark, New Jersey, Lady Liberty Charter School, had yet another requirement. Almost all of their students are in the free and reduced lunch program. In order to receive their reimbursement, they required a reporting system that worked with PowerSchool where there would be no question regarding the accuracy of the records for the Department of Agriculture. Biometrics was the perfect solution.

Manheim Pennsylvania. And in neighboring Pennsylvania, Manheim Central School District had concerns with the security of students’ accounts. Students shared their cards. They also forgot their cards, especially in the middle school where they weren’t permitted to carry their backpacks to class and often didn’t have pockets in their clothing so they didn’t have any place to keep the cards. Misplaced or lost cards had to be paid for by parents.

Their goal was simple: find a way to guarantee the security of the students’ accounts. “When I put money in my bank, I know that my money is safe. I wanted the same level of security with our system.” The administration realized that the real privacy concern was lost and compromised cards and that biometrics was the best way to protect the privacy of their students’ accounts.

Summary

As we move forward into the 21st century, schools are faced with a myriad of problems never encountered in previous decades. Security has become a significant concern. It is now crucial that school administrators know who is in their schools and where the students are at all times. Accurate and auditable attendance and reporting is vital in not only securing, but also maintaining, essential governmental funding. Accurate identification of students is now critical in all aspects of the day-to-day management and administration of our schools.

Biometric identification offers a cost-effective, reliable, easy and efficient way for school

administrators to know for certain who is in their schools, where the students are each period of the day, and that they receive the services they require and deserve. By utilizing biometrics for identification and security, the problems and costs associated with the current expensive or inaccurate methods of identification are avoided. Biometrics is the missing component that provides the irrefutable accuracy that has long been needed in our schools.

Cost-effective biometric technology is here today with practical uses for schools. At identiMetrics, the leader in the development, integration and marketing of biometric student identity management solutions for schools, we provide finger scanning identification systems to schools and school districts worldwide, to make things work faster, safer, more reliably and efficiently. It's just smart business!

About identiMetrics

identiMetrics Biometric ID Management™ is for school administrators and managers who are interested in simplifying identification management for students and staff. Our award-winning biometric technology was developed by educators specifically for K12 schools. identiMetrics Biometric ID Management simplifies the school day with efficient, accurate, and hassle-free accounting. From your seasoned staff down to the kindergarten students, identiMetrics™ is 100% accurate, safe and secure. As for our customer support and services - our only option is excellence. identiMetrics Biometric -ID Management works with all of the leading education software with one common biometric database in the cafeteria, for attendance, library, time clock, for dances and athletic events - everywhere when accurately identifying students and staff is required. identiMetrics is a proud signatory of the Student Privacy Pledge.



For more information visit www.identimetrics.net

Jay Fry Ed.D. is the President, CEO and co-founder of identiMetrics. Jay has a wealth of experience, having been a Teacher, a College Dean and the Principal and Senior Administrator for a public school district in the Chicago area where he planned and opened a school for about 1,000 students. He also served as that district's technology coordinator, playing a significant role in the development of educational and technology policies and instruction. As a published author and an accomplished musician, Jay is also a two-time Fulbright Scholar, holds a list of professional and honorary accomplishments and received his Doctorate in Educational Administration from the University of Illinois.

Anne Marie Dunphy is the Chief Financial Officer and co-founder of identiMetrics. Anne Marie brings a diverse background of professional expertise to identiMetrics, including Investment Banking and Technology Management, and has served in executive positions for several financial institutions and private companies. Anne Marie owned and operated a successful chain of childcare centers in the Philadelphia area and started her career as a teacher. She received her MBA in Finance & Marketing from Villanova University.

Since co-founding identiMetrics in 2002, both Jay and Anne Marie have had numerous articles published and have made many presentations using their expertise in biometrics in education.

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