



CSU Fresno
Dept. of Criminology
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*The Vascular (Veines)
Recognition System*

The demands of government and private industry for more accurate, user friendly, and cost effective identity verification systems, has resulted in a multitude of developments in the area of biometrics. The most common basis for automated identity verification using the biometric of fingerprints is still the cheapest and widely used, but new technology is replacing the fingerprint based verification systems in many areas by using other biometric information such as:

- Iris recognition
- Facial recognition
- Vascular recognition (finger or palm)

Particularly financial institutions have been exploring a more accurate identification system for ATM user recognition and while finger print recognition systems at ATMs are not commonly found in the U.S., such systems are in operation in the Far East. Fingerprint readers, however, are not always able to accurately read and compare a fingerprint scan with prints in the database or embedded in a Chip on a so-called „Smart Card.“

Callouses on fingers and other physical characteristics of the fingers of some persons result in either a False Acceptance Rate (FAR) or a False Rejection Rate (FRR), which in the latter case would entail the use of a back up system using a PIN number. Out of one hundred persons being screened using a fingerprint based verification system, the fingerprints of two persons would on average not be scanned/read properly.

Particularly with access controls, such issues can result in an unwelcomed slow down of the identity verification process during entry into secured areas or buildings. It is generally felt that a scan should take no longer than 1-3 minutes or the process is

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The justice process begins with police!

Vascular Recognition...

not considered adequate when large numbers of employees or persons are being screened in a short period of time.

In an effort to develop better technology for identity verification, Hitachi has developed a finger vein comparison system. Veines are unique and there is no record of anyone successfully „faking“ or being able to use fraudulent vein data in the use of the Hitachi biometric recognition system.

In Japan, 70% of all financial institutions use the finger vein recognitions sytem at ATMs. While fingerprint recognition technology has been around much longer, the use of fingerprint verification and also facial recognition is not publicly acceptable in Japan since such methods are associated with police and crime.

Below is an ATM in Nagasaki, Japan with a finger vein verification system:



The finger vein data is stored in an encrypted data chip on a bank card. The customer simply inserts his/her smart card, places the right index finger over the reader, and the system then compares the stored data with the scanned vein information.



Dr. Schweizer at a biometric ATM



Articles in the technical literature indicate that vein recognition systems are error free but the debate about which system or method is better, Iris, Vascular, or Facial Recognition, continues.

Another technological innovation is the palm recognition system by Fujitsu, which also scans vascular data using infrared light, but the person's palm does not have to touch the scanner.

Vascular or vein recognition systems have shown that they are much more accurate than the fingerprint based recognition systems, but those are still the cheapest and are widely used in Asia outside of Japan. Newer technology is also reducing some of the problems reading fingerprints of people with unusual finger characteristics that do not easily lend themselves to be scanned.

BIOMETRIC RECOGNITION SYSTEMS...

Iris recognition is another tool that is used in some sectors and initial problems with false readings due to an Iris photo being placed in front of the scanner are no longer an issue. Newer scanners have the ability to determine if the eye is "pulsating," i.e. if there is blood flowing through it. A person's iris characteristics are unchangeable and remain that way until about five minutes after death.



FINGERPRINT SUFFICES

Beginning earlier this year, the Punjab National Bank (PNB) has been installing fingerprint verification systems at its ATMs in the community of Gautam Budh Nagar. Since a large part of the population there is poor and cannot read, the use of fingerprint based identity verification allows them to obtain money from ATMs simply by using a fingerprint reader and following audio based instructions.

The Biometric Smart Card (BSC)

The use of a BSC was implemented in India in the economically depressed areas of Andhra Pradesh and Bihar as early as 2006. The data chip in the biometric smart card contains a person's full name, identification number, names of parents, date, time and place of birth, blood type, identifying marks or characteristics, height, weight, address, digital photo, and their entire set of fingerprints.

The cards were scanned when laborers reported for work and at the end of the work day as a secure method of insuring that the right person was credited with working and that the pay was not given to a „phantom“ worker that only existed on a worker list. This method of identity verification resulted in a sharp drop in the incidence of corruption and the verification system worked flawlessly.

The smart card also functions as an identity card and can be very effective in preventing voter fraud, along with ensuring that money is received by persons eligible to receive it.



An excellent website to read about a great variety of technological innovations world wide is at www.Engadget.com

DOWNTOWN DEGREE PROGRAMS INFORMATION TABLE AT FRESNO CITY HALL ANNEX LOBBY FRESNO & M STREET Friday, 16 July 2010 1530-1830

New B.S. program classes begin on 1 and 4 August 2010

CRIM 153-Psychology of Crime

will be offered in August and can be taken by County correctional staff even if they are not in the downtown program.

New graduate M.S. program cohort begins 14 January 2011

Both programs are offered in cooperation with the City and County of Fresno and the Division of Continuing and Global Education at California State University, Fresno and are taught at the Fresno City

OFF CAMPUS DEGREE PROGRAMS...

Hall/PD Annex second floor training room at Fresno and M Street.

WHO IS ELIGIBLE:

Any current government employee

ELIGIBILITY ON A SPACE AVAILABLE BASIS:

- Any government employee recently laid off due to budget problems
- Spouses of current government employees

Dr. Schweizer will be at the information table on 16 July to discuss or review your academic needs and also provide you with information on the requirements for the off campus B.S. and M.S. degree programs.



An innovative approach to combating gang crime

Japanese businesses who cooperate with police and agree to deny service to gang members or members of organized crime, are given a decal that indicates their cooperation and which they place at the entrance of their business.

Japanese police also have significant flexibility in their investigations involving organized crime. A relative recently recognized a photo of a Boryokudan robbery suspect shown in a TV newscast as a customer of his business. He called police and detectives came by and presented him with some delicious pastries to show their appreciation.



This blue decal on the entrance door to a business in Kurokawa, Japan shows the Japanese police logo and states that it assists police by not allowing gang (Boryokudan) members to frequent the business. Such gang members are typically identifiable based on tattoos and hair/clothing styles.*

***There are apparently no civil rights Lawyers in Japan.**

As a way to remind vehicle occupants to wear their seat belts, Japanese police make friendly loudspeaker announcements from the vehicle below to please wear seatbelts.

