

Biometrics – pointing a finger towards the world essay



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Gone are the days when adventure simply meant getting past the cool tough looking security guard. Nowadays, spies don't just forge signatures or wear wigs or black gloves or black knitted stockings on their heads to get what they are after. Nope! The real excitement now comes from having to outwit computers by forging fingerprints, creating real face masks like the one Mrs.

Doubtfire used to wear, etc. These are all due to a new breakthrough in security systems called biometrics. Biometric technology involves using sensor devices that capture digital representations of human physiological characteristics that are unique in every individual. These include features like a fingerprint, iris or retina patterns, shape and veins of a hand, voice patterns or even the typical way one makes or writes a signature. The highly technical computer creates digital representations of these body parts or voice or signatures that are measured based on certain features that make each individual unique.

The data collected are called biometric data and these are transformed using some algorithm to produce a template. These templates are stored in a centralized security file that can only be accessed again if there is need for verification. So, to be able to pass the security check, a person has to present again the body part or voice or write down his signature on sensor devices that will transform the biometric data they uniquely have into new templates. These new templates will be compared to the one in the central data base to verify the identity of the subject.

If the match is found, then, hooray! The person is authentically the same one that is authorized to either enter the highly secured room or gain access to the strictly protected information. Because the algorithmic transformation is impossible to reverse, no one can successfully copy biometric data simply by accessing the template from the central database. This simply means that no one can reproduce another template based on the patterns that are already in the data base. This is why Charlie??? s Angels had to use different methods of getting their targets??? fingerprints and iris scans instead of just tampering with the central security systems. Sometimes, to make things a bit more complicated for wise criminals to crack, the templates are stored on a chipcard instead of a central data base.

All the user has to do is present the chipcard and their body part to the security system which in turn will verify the legitimacy of the user. This means passwords are passe. You don??? t need to memorize pin codes that you just keep on forgetting or losing to some unscrupulous person. So, how unique are you? Go Stick Your Finger A scientist once called fingerprinting as the “ bedrock forensic identifier of the 20th century” Aside from your shoe size that they say cannot change throughout your adult life (unless of course you get amputated), fingerprints are our natural built in IDs.

You start developing fingerprints on your 17th week in mommy??? s womb. From then on, you are marked forever. Science and law have based so much of their cases on the belief that fingerprints are permanent throughout our lives. Fingerprint biometric security system is advantageous because it is easy to do and fast.

However, the premise that fingerprints never change have recently been doubted due to some experiments that prove that as much as twelve percent of the user population may have worn, chemically changed or unscannable fingerprints. (Hawkins, 2002, p. 0)Fingerprint scanning to receive welfare benefits is already being used in four counties in California, including Los Angeles. In Spain, people are able get their pension, health and other social benefits if they can produce their social security card and after a fingerprint scan. With A Blink Of An Eye In Iris Scanning approximately 260 identifiable characteristics are used to make a template. These include contraction furrows, striations, pits, collagenous fibers, filaments, crypts (darkened areas on the iris), serpentine vasculature, rings, and freckles.

These very small but unique characteristics make the iris six times more credible compared to the distinct fingerprint. On the other hand, blood vessel patterns on the retina are also unique enough to use for biometrics. When the eye is focusing, it aligns itself to the object. This makes it is easier for the camera to take an image. These biometric systems are preferred by many because it does not require any interaction with a machine.

Images of the eye can be taken from up to 12 inches away from a camera. However, comparisons of template records can be slower because it may take up to ten seconds to process. A biometrics company called Eye Ticket has already tried its iris systems at the Frankfurt and Charlotte/Douglas, N. C. , airports. This was also the system they preferred to use in Sydney, Australia during the 2000 Olympics.

Frequent fliers of Virgin Atlantic and British Airways have also been using iris scanning. This biometric system was acquired and implemented through their membership into the iris program. This was done to hasten Heathrow's customs and immigration processing. This is also true at Schipol Airport in Amsterdam where the enrollees of the ??? Privium Club??? (frequent flyers), airport police and the immigration service use iris scans.

Face Off The advantage of using facial biometrics is that video cameras can capture images from longer distances. Just like the other biometric systems, the challenge facing its developers right now is on how to create larger sizes of data bases. Also, multimedia video technology and great software need to be developed to cope with the needs of the facial recognition system. As far as 2004, facial recognition is already being implemented in more than 100 casinos in the United States alone.

Last February 2004, it was used in the Super Bowl XXXV to help authorities screen felons from the large 10, 000 football audience. Be Vocal Voice biometrics gets its needed data from the stream of speech verbalized by an individual. Although this biometric system is being developed, it still presents many challenges. One down side is that it can perform poorly depending on the background, channel noise, extreme hoarseness, fatigue and vocal stress.

Its worse technological disadvantage is that biometrics cannot identify what a person is actually saying. Banco Santander International in Canada is using voice biometrics or diaphonics. The company now allows its customers and employees to reset their passwords over the telephone. According to Agustin

Abalo, Senior Vice-President with biometrics, ??? We needed a solution for recording calls on our VOIP network and we also wanted a better way for our employees to reset passwords. ??? (Diaphonics.

com, 2006) Give Me A Hand Hand geometry biometrics is fairly simple. A user can easily place his palm on a metal surface scanner. This scanner has what are called guidance pegs to so that the device can easily make a template of the hand??? s attributes. In just about 5 seconds, the device can already verify the identification of the user. One disadvantage to his biometric system is that the human hand isn't unique like fingerprints or the iris. Most of the time, an individual??? s hand does not hold enough unique characteristics that could be used for identification.

It also cannot detect whether the hand is alive or not. A fake hand, with enough controlled pressure can fool the system. It is best used if combined with other types of biometric systems. This system is already being implemented by the U.

S. Federal Bureau of Prisons. Prisoners, staff and visitors need to hand scan before they could enter the premises. The information is inputted in a database while the individual is issued a magnetic swipe card. This card must be carried at all times. The prisoners obviously have no choice but to enroll since this is their only way to access places such as the cafeteria.

Sign Up?? Dynamic signature verification or DSV is another term that refers to signature biometrics. It focuses not on our finished signature but on how we sign our names. The characteristics that are measured and analyzed by

DSV include how long it takes the person to sign the digital pad, the <https://assignbuster.com/biometrics-pointing-a-finger-towards-the-world-essay/>

quickness and flow felt while making the signature, the amount of pressure he exerts, and the frequency of lifts made by the pen. Because signature verification does not refer to a certain image, even if the forger is able to copy the signature well, DSV will be able to detect it through the way it was written. Mostly used in banks, DSV is considered practical because it also reduces system administration costs, paper usage and expenses, and time in authenticating.

Ok in the US and the UK The terrorist attack of the Al Qaida or what we call 9/11 was a wake up call to governments in placing higher priority in developing better security systems. It is different when you watch a spy movie and when an airplane hits the World Trade Center for real... In response to the threat, David Blunkett, Home Secretary of the UK has thought of using national identity cards to all its residents.

These cards, with the use of biometrics will not only deter terrorists but also help control identity fraud and the problem of illegal immigrants. According to the Strategic Action Plan for the National Identity Scheme released by the Home Office last December 2006, ??? The Scheme will provide a comprehensive and secure way of managing the personal identity data of all those who legally reside or work in the UK. ??? Theoretically speaking, the biometric system is a brilliant answer to our fear of terrorism and continuous problems with credit card fraud and illegal immigrants. With biometrics, the government thinks that it can best authenticate its residents as compared to other forms of identification such as pin numbers and passwords that can easily be stolen or forgotten. Fake impersonators also find it difficult to

commit their petty crimes because biometrics will be needed to get new identity cards. Therefore, copycats will be losing their nine lives in this effort.

The Home Office is still in the process of finding the right biometric system that would best answer their objectives. So far, it seems like the National ID is gearing towards fingerprint biometrics. As we have already noted, there already cases of unscannable fingerprints due to trauma or physical abuse to the hands. If terrorists can choose to commit suicide bombing, what is to stop them from partially erasing their fingerprints to elude the system? The U.

S. is also developing its biometrics security system in its visa processing. The Americans believe that finger scans make the passing through system to the country quicker compared to the typical checking of names and biographical data that can easily be faked by terrorists. Homeland Security believes that using biometrics will make it impossible for anyone to fake their travel documents and this will lessen false duplications and stealing of passports. The constant fraud and abuse cases on the U.

S. Immigrations??? security system will also be reduced. However, there are issues being raised against these ideas to use biometrics in securing national interest. Another disadvantage is centralization of data. Since all private information is held by a single agency, what is going to stop fraudsters, criminals and terrorists from hacking those computers? In May 2000, students from the Philippines were able to create the ??? I Love You??? virus that crippled the international web. This seemingly simple virus has affected great organizations like the American State Department and the CIA.

Business files of major companies like Ford and Time-Warner were also infected. If students can do it, why can't terrorists? Biometrics has been used for security purposes but this technology is reinventing itself day by day to address other concerns that help make this world a much a happier place. Biometrics is in the process of developing systems that aid in better business procedures, in marketing, sales and even auditing. There are still so many possibilities for this field of science and technology. Spam! Another field where biometrics is holding much promise is in online marketing. As of the moment, online marketers are always guessing if they are truly reaching their customers because the traditional methods (credit cards, log-in passwords, and cookies) are unsuitable for understanding a particular customer's behavior on the internet.

Due to the fact that many people can use a single computer, it is hard to track down who really visited a certain website to surf for a specific product. Marketers and scientists are putting their heads together to create a biometric instrument such as a biometric mouse that can immediately recognize who is surfing online via fingerprint scanning. This way, marketers can target their promotions and advertisements only to those who showed interest. This not only makes things cost-efficient for marketers but it also means better sales and understanding of customers. However, biometrics can also be a threat to personal privacy on the web. Marketers are hoping to solve this problem by using third party organizations that people have trusted in the past.

This means that marketers can only identify the behavior or needs of customers but another trusted company (third party) shall keep the identity

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of their clients closed. Voice of the Auditor Auditors of the Illinois Department of Revenue (IDOR) have to go to the premises of the companies they were auditing. This could be up to 30 miles away from IDOR. This means that if the auditor needed information from the database, one had to call the office and have it sent by mail or messenger.

This could take about ten days. To solve this, IDOR installed a speaker-verification system in 1994. To access its computer network, auditors simply had to voice-verify over a telephone line so they could get the information needed from their data base. It has sped up processing and is still being used up to the present.

A Call To Shop The Home Shopping Network (HSN) whose business spans the globe, also used voice biometrics to replace its touch-tone procedures over the telephone. Touch tone is available to only 70% of their market. With voice biometrics, HSN has started its new procedure by asking the customer to verbally say his phone number over the phone. This system will then identify if the client is a regular or new one. New ones are automatically directed to the operators while the regular ones are identified.

The field of biometrics is a very interesting one that holds so much promise in the field of securing not only individual homes, bank accounts but also national security. However, issues on privacy and proper implementation to avoid misuse and abuse have to be really discussed so that any endeavor that would require such high technology and most probably high cost, will not go to waste. Biometrics is a technology that can help secure not just countries, but the world in general. If nations will work together to coordinate

on which biometric system will be feasible for all immigrations procedures, for example, the problem of terrorism can be addressed more effectively.

If nations will come together, a new kind of marketing on the internet can be developed and might give economically smaller countries a niche in global business. The world can be a safer and more interactive with the help of biometrics. Obviously, biometrics has also gone way beyond security systems into fields such as finance, auditing, and the internet. Many businesses can also benefit from the full development of the technology. Let us not give up our hands so easily because of privacy issues.

The situation, because of the intricateness of this new technology can be complicated but with more and more researchers doing their work, technology can surely develop an answer to the challenges that society throws at biometrics. Reference <http://news.bbc.co.uk/2/hi/science/nature/736208.stm>