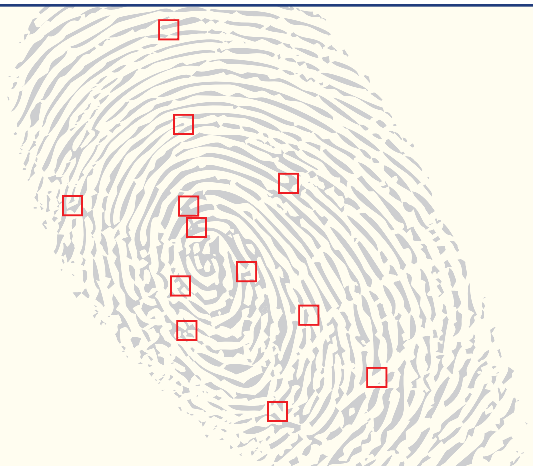
LaCie SAFE Hard Drive

What is biometrics?

The term refers to the emerging field of technology devoted to the identification of individuals using biological traits. Biometrics automated methods of recognition measure individuals' physical or behavioral characteristics. Common physical biometrics include fingerprints, hand or palm geometry, and retina, iris, or facial characteristics. Behavioral characteristics include signature, voice (which also has a physical component), keystroke pattern, and gait. Of this class of biometrics, technologies for signature and voice are the most developed.



Fingerprint-based biometrics looks for minutia, which are the points on a fingerprint where a ridge ends or splits in two.

What is fingerprint recognition?

Fingerprint matching is by far the most successful biometric technology because of its ease of use, non-intrusiveness and reliability. Fingerprints consist of ridges and valleys formed in complex patterns that are unique for every person and thereby provide an optimal verification method. Rather than scan each ridge, fingerprint-based biometrics looks for minutia, which are the points on a fingerprint where a ridge ends or splits into two. An algorithm extracts the most promising minutia points from an image and then creates a template, usually between 250 to 1,000 bytes in size.

At registration (enrollment) the minutia points are located and the relative positions to each other and their directions are recorded. This data forms the template—the information later used to authenticate a person. At the matching stage, the incoming fingerprint image is pre-processed and the minutia points are extracted. The minutia points are compared with the registered template, trying to locate as many similar points as possible within a certain boundary. The result of the matching is usually the number of matching minutiae. A threshold is then applied, determining how large this number needs to be for the fingerprint and the template to match.

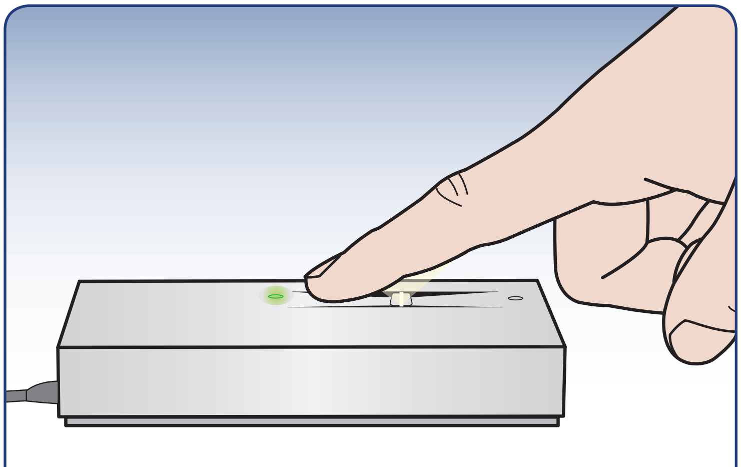
Fingerprint verification is well adapted to access-controlled devices. In fact, this biometric technology is easy-to use and quite well accepted compared to other identification technologies. Fingerprint verification also has a lower error incidence rate in comparison to other biometrics solutions.

What kind of biometric technology is used in the SAFE drive?

The LaCie SAFE Mobile Hard Drive integrates active fingerprint-sensing technology. Each sensor cell (pixel) contains an active capacitive feedback circuit whose effective feedback capacitance is modulated by the presence of live skin close to the surface of the sensor. For instance, the sensor can't match the fingerprint of a deceased person. In contrast to optical sensors with panels, capacitive sensors—also called "solid state"—are difficult to imitate. Solid state technology enables sensing the skin capacity variation of a finger. For example, if you draw a line using ink on your fingertip, the image in solid state won't show the line. Solid state technology is based on sensing the finger—not looking at it the way optical detection does.

The silicon fingerprint sensor integrated into the LaCie SAFE drive produces a full, clean image around all portions of the finger that come in contact with the sensor. Optical solutions can produce edges of the image that are not crisp because sensors only focus on a small area. With our fingerprint sensor, the risk of non-matching between the fingerprint and the stored biometric data are very low thanks to this superior image quality.

Integrating a swiping fingerprint sensor minimizes corruption risks. It is extremely hard for end-users to copy a fingerprint because the finger movement immediately eliminates any possible traces. Many low-cost optical solutions can be compromised by a simple photocopy of a fingerprint. Some low-cost optical solutions also have problems with latent fingerprints being left on the sensor by grimy hands. By integrating all fingerprint-matching technology into the hardware, the LaCie SAFE Hard Drive is a fully self-contained drive that does not have to rely on the host computer to perform fingerprint matching. This maintains full portability for the user by eliminating the need to install any driver software on the host computer prior to use.



With our fingerprint sensor, the risk of non-matching between the fingerprint and the stored biometric data are very low thanks to this superior image quality.

What are the current applications of biometrics?

Biometric technologies are becoming the foundation of an extensive array of highly secure identification and personal verification solutions.

Many technological devices and systems are now developed with biometric solutions to control access to rooms, workstations, networks and some software applications. Utilized alone or integrated with other technologies such as smart cards, encryption keys and digital signatures, biometric technology is set to pervade many aspects of the economy and our daily lives. More and more consumer electronics products integrate biometric identification such as in some laptops, PDA, mobile phones, or MP3 players.

Are there real needs for biometric solutions?

These days, people are generally not opposed to using their biological traits instead of passwords for identification. In their daily lives, people have so many passwords to remember (credit card, door access, car computer control...) that they find it easier and faster to scan their fingers on a panel than to remember and enter a new password. Utilizing biometrics for personal authentication is becoming more convenient than other current methods (such as passwords or smart cards).

The trend is toward centralizing identity management—employing a combination of both physical and logical access parameters for gaining access to different types of resources. Many companies are now looking for this sort of identity management solution, which requires the use of biometrics. As the level of security breaches and transaction frauds increases, the need for highly secure identification and personal verification technologies is becoming apparent. The need for biometrics can be found in federal, state and local governments, in the military, and in commercial applications. Enterprise-wide network security infrastructures, government IDs, secure electronic banking, investing and other financial transactions, retail sales, law enforcement, health and social services are already benefiting from this technology.

Is biological trait identification safe and reliable?

The security field uses three different types of authentication: something you know (a password, PIN), something you have (a card key, smart card) or something you are (a biometric trait). Of these, biometric trait identification is the most secure and convenient authentication tool. It cannot be borrowed, stolen or forgotten, and forging one is practically impossible. Each human has his/her own biological identity that is different from anyone else's, which explains the difficulty in corrupting this kind of data. To show how reliable biometrics is, many governments are choosing to use fingerprint and face digitalization on identity papers and visas to better identify people. Using biometric identification avoids the risks of forgotten passwords or data access control corruption.

Sources:

http://www.biometrics.org/html/introduction.html
http://csrc.nist.gov/cryptval/des/tripledesval.html

Established in the United States, Europe and Asia, LaCie is the world's leading producer of PC and Macintosh compatible storage peripherals. Through a specialized sales dealer network, LaCie offers innovative solutions for professionals in many applications (graphics, audio, video, web design, digital photography, etc.). What differentiates LaCie is the quality and design of its products—original creations by designers such as Philippe Starck, Porsche Design GmbH and Neil Poulton. LaCie is listed on the Paris Nouveau Marché (code 5431).

LACIE