Biometric Protection Methods in Information Security

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Annotatsiya: Today, modern information security and cyber security are aimed at reducing the risks for this strong security solution: traditional passwords have long been a weak point for security systems. Biometrics aims to answer this question by connecting the identification of the person with our body and behavior. In the current era of information exchange, the requirements for information security are high, including ensuring the security of systems by implementing biometric authentication of biological features.

Keywords: biometric, biological biometric, biometric security, biometric authentication, biometric identification information systems, users of information systems.

Biometrics is emerging as a leading edge for many personal and corporate security systems in data protection. It may seem unbelievable that you and everyone else have different biological and behavioral identities with unique identities. However, biometric identification has a high potential for many to use it as a stand-alone authentication.

In this article, we explore the basics of how to use biometric security to store information in cyber security. To implement these plans, we answer biometric questions: What does biometric mean? What is biometric data? What is a biometric scanner? What are the risks of biometric security? How can we make biometrics more secure?

What is biometrics? Biometrics are biological measurements—or physical characteristics—that can be used to identify individuals. For example, fingerprint mapping, facial recognition, and retinal scanning are all forms of biometric technology, but these are the most recognized options. Researchers have identified the shape of the ear, the way a person sits and walks, unique body odors, veins in the hands, and even facial folds are other unique identifiers. These features further identify biometrics, which increases the level of security.

Three Types of Biometric Security: Although these can have other applications, biometrics are often used for security, and you can basically categorize biometrics into three groups:

➢ Biological biometrics

➢ Morphological biometrics

➢ Behavioral biometrics

Biological biometrics are used at the genetic and molecular level. These may include characteristics such as your DNA or blood, which can be assessed through a sample of your body fluids. **Morphological biometrics** includes the structure of your body. More physical features such as eyes, fingerprints or the shape of your face can be mapped for use with security scanners. **Behavioral biometrics** are based on patterns that are unique to each individual. How you walk, talk, or even type on the keyboard can reveal your personality if these patterns are observed.

Biometric Security Jobs: The role of biometric identification in our everyday security is increasing. Physical characteristics are relatively fixed and individual - even with twins. Each

person's unique biometric identity can be used to replace or at least augment password systems for computers, phones, and access-restricted rooms and buildings. Once biometric data is captured and mapped, it is stored for comparison with subsequent access attempts. Often this data is encrypted and stored inside the device or on a remote server. In other words, biometric security means that your body is the "key" to unlock access.

Biometrics are mainly used because of two main advantages:

➢ Ease of use: Biometrics are always with you and cannot be lost or forgotten.

➢ Hard to steal or impersonate: Biometrics cannot be stolen like passwords or keys. While these systems aren't perfect, they hold tons of promise for the future of cybersecurity.

Some overviews of biometric security:

➢ Voice recognition

➢ Fingerprint scan

➢ Recognize the face

➢ Recognition of Iris

➢ Heart rate sensors

In practice, biometric security has been effectively used in many fields. Complex biometric data is used to protect confidential documents and valuables. Citibank already uses voice recognition, and Britain's Halifax Bank is testing heartbeat devices to verify customers' identities. Ford is even considering installing biometric sensors in cars.

Biometric data is included in electronic passports around the world. In the United States, electronic passports contain a chip containing a digital photograph of a person's face, fingerprint, or iris, as well as technology that prevents unauthorized data readers from reading the chip and erasing the data. As these security systems are developed, we are seeing the pros and cons in real time.

Biometrics - identification and privacy issues. Biometric authentication is convenient, but privacy advocates fear that biometric security undermines privacy. The concern is that personal information can be collected easily and without consent.

Facial recognition is part of everyday life in Chinese cities, where it is used for simple purchases, and London is famous for its CCTV cameras. New York, Chicago and Moscow are now linking their cities' CCTV cameras to facial recognition databases to help local police fight crime. Advancing the technology, Carnegie Mellon University is developing a camera that can scan the irises of people in a crowd from a distance of 10 meters. In 2018, a facial recognition system was introduced at Dubai Airport, where travelers are photographed by 80 cameras as they pass through a tunnel in a virtual aquarium. Facial recognition cameras are also available at other airports around the world, including Helsinki, Amsterdam, Minneapolis-St. Paul and Tampa. All this data must be stored in one place, which increases the fear of constant surveillance and data misuse.

Ways to protect biometric identification: With privacy and security risks, biometric systems must use additional safeguards. If systems require multiple means of authentication, such as life detection (e.g. blinking) and matching coded patterns to users within encrypted domains, unauthorized access becomes difficult.vSome security systems also include additional features such as age, gender, and height to biometric information to deter hackers. Biometric information is a good replacement for usernames as part of a two-factor authentication strategy.

Two-factor authentication makes for a powerful combination, especially as IoT devices proliferate. By increasing the level of protection, secure internet devices are less vulnerable to data breaches. Additionally, using a password manager to store any traditional passwords can give you extra protection.

Biometrics continues to be a growing method of identity verification for cybersecurity systems. Protecting your physical or behavioral signatures in combination with other authentications provides the strongest security known. At the moment, this is at least better than using a character-based password as a stand-alone verification. Biometric technology offers very attractive solutions for security. Despite the risks, the systems are convenient and difficult to replicate. Moreover, these systems will continue to evolve for a very long time in the future.

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