RETINAL SCAN

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When we want to do anything online, we identify ourselves through user IDs and passwords. These identifying tools are not only difficult to manage, their security is also a cause of concern. IDs and passwords can be forgotten or stolen; devices can be hacked or tampered with. Many of us find ourselves juggling around with up to 100 passwords, far too many for the human mind to remember. Some take the path of least resistance and write their passwords on pieces of paper, which they store in their desks or even stick to their computer screens. We have reached a stage where we need alternatives to passwords.

Used almost exclusively in high-end security applications, the retinal scan uses a low-intensity light source and a delicate sensor to scan the pattern of blood vessels at the back of the retina, a pattern unique to each individual. It is not to be confused with another ocular-based technology, iris recognition. Though it was known as early as the 1930s that each human eyeball had unique characteristics, it was not until 1984 that the first retinal scanner was made available for commercial use. It was produced by EyeDentify, a company formed in 1976, still the primary manufacturer of these devices.

During a retinal scan, the user must remove glasses, stare at a specific point, and hold their head still for the 5-0.5 seconds it takes to complete the scan. A retinal scan is very difficult to fake because no technology exists that allows the forgery of a human retina, and the retina of a deceased person decays too fast to be used to fraudulently bypass a retinal scan.

Retinal scanning is part of biometrics, the field of science and engineering which develops ways to uniquely identify individual persons. The most popular form of biometrics employed today is of course the fingerprint, though the error rate for fingerprint identification is sometimes as high as 1 in 500. A retinal scan, on the other hand, boasts an error rate of 1 in 10,000,000. Its close cousin, the iris scan, is slightly less precise, maintaining an error rate of approximately 1 in 131,000.

Traditionally used to block physical gateways, such as those guarding the cores of power plants or military installations, the retinal scan has been employed in recent times to safeguard critical computers and their data. The retinal scan retails for as low as $220, making it affordable to anyone wanting to maintain high levels of security. Furthermore, it is probably the most accurate biometric available, far surpassing the fingerprint in both reliability and accuracy.

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