Something You Have: Smart Cards

- Attacks against smart cards have also been engineered by experts such as Paul Kocher, Cryptography Research- (www.cryptography.com)

- By studying a smart card's power consumption as it conducted various operations, Kocher was able to determine the contents stored on the card.

- While such attacks are possible, they require a reasonable amount of expertise on the part of the attacker.

Something You Have: ATM Cards

- ATM card is another example of a security mechanism based on some secret the user has.

- On the back of an ATM card is a magnetic stripe that stores data—namely the user's account number.

- This data is used as part of the authentication process when a user wants to use the ATM.

Something You Have: ATM Cards

- Since the magnetic stripe on an ATM card is so easy to copy, credit card companies also sometimes incorporate holograms or other hard-to-copy elements on the cards themselves.

Something You Are

Something You Are: Biometric

- The third general method of authenticating a user is based on something that the user *is*.

- Most of the authentication techniques that fall into this category are biometric techniques, in which something about the user's biology is measured.

- When considering a biometric authentication technique as part of your system, it is important to consider its effectiveness and social acceptability.

Something You Are: Biometric: 1. Palm Scan

- The first biometric authentication technique that we consider is a palm scan in which a reader measures the size of a person's hand and fingers, and the curves that exist on their palm and fingers.

- It also incorporates fingerprint scans on each of the fingers.

- In this way, the palm scan technique is much more effective than simply taking a single fingerprint of the user.

Something You Are: Biometric: 2. Iris Scan

- 2nd technique used: scan their iris.

- Here, a camera takes a picture of a person's iris and stores certain features about it in the system.

- Studies show iris scan more socially acceptable than the palm scan.

- User is required to actually put her hand on the reader for a few seconds, while in the iris scan, a camera just takes a quick picture of the user's iris.

- The iris scan is less intrusive since the user does not have to do anything except look in a particular direction.

Something You Are: Biometric: 3. Retina Scan

- Another biometric technique is a retinal scan, in which infrared light is shot into a user's eyes, and the pattern of retinal blood vessels is read to create a signature that is stored by a computer system.

- In a retinal scan, the user puts his head in front of a device, and then the device blows a puff of air and shoots a laser into the user's eye.