

Biometrics: hand geometry and vein check



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Hand Geometry and Vein Check Hand Geometry and Vein Check of the Technology Hand geometry is a technology that measures and records the length, width, and surface area of a person's hand. A plate with five pegs and a camera are used in capturing the silhouette image of the hand. Once the image is captured, up to " 31, 000 points are analyzed and 90 measurements taken; the measurements range from the length of the fingers, to the distance between knuckles, to the height or thickness of the hand and fingers" (NSTC, 2006, p. 8).

(360 Biometrics, 2011)

Unlike the hand geometry, vein geometry is a fairly recent development. Vein network differ from person to person, between twins, and even between hands of the same person. A person's vein network is not believed to undergo change in shape but only in size. Vein geometry makes use of infra-red camera to obtain clear images of the vein network (Yuksel, Akarun, & Sankur, 2011).

Hand geometry has not been known to be affected by changes in environment (360 Biometrics, 2011). The use of palm vein has been defended based on the fact that the palm is likely to maintain the body temperature on a very cold day unlike the back of the hand. It is therefore assumed that with very cold temperatures vein check using the palm veins is not likely to be affected (Fujitsu Company, 2006).

Historical Development

Hand geometry was developed in 1985 by David Sidlauskas. Since then, its popularity has grown wildly. Hand geometry is widely used by many companies (NSTC, 2006). On the other hand, vein geometry is equally increasingly attracting a lot of attention. Various parts of the hand, and <https://assignbuster.com/biometrics-hand-geometry-and-vein-check/>

indeed the body, can be used for vein pattern geometry. Badawi (2006) suggested the use of the back of the palm to obtain vein network. Fujitsu Corporation prefers using the palm. The corporation has successfully, since 2004, developed palm vein authentication for commercial banks. Its latest product PalmSecure has hit the market (Fujitsu Company, 2006).

Political and Legal Influences

Hand geometry biometric has found a wide acceptance as it is viewed to be non-invasive. It has a good political good will as it enhances security especially where public places are involved. Generally, the biometric systems have the back up of the political field as they enhance security measures in public places and also greatly reduce the probability of fraud being committed. The question on whether the information collected by biometric systems can be kept private and only for the purpose for which it is collected or not raises some legal concerns (Rosenzweig, Kochems, & Schwartz, 2004).

Economical, Psychological and Sociological Considerations

The hand and vein biometric systems have great implications economically, psychologically and socially. According to NSTC (2006), hand geometry has a very low storage needs compared to other biometric systems. The hand geometry, however, raises some psychological and sociological question. Since the palm has to be placed on a screen, questions of hygiene surge to the fore in the use of this system. People are prone to feel some discomfort touching where others have touched. For the case of vein check biometric, Fujitsu has designed a contactless palm vein biometric system. A palm is placed just on top of a screen without touching it (Fujitsu Company, 2006).

Cultural, Moral and Ethical Implications

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Biometrics systems have faced some socio-cultural concerns categorized into three namely: information privacy, physical privacy and religious objections. It is feared that with the use of biometric systems, information privacy is more prone to be abused due to creep and tracking abilities of these systems. These systems are also likely to be opposed due to perceived damage they may cause to body parts, for instance, the eyes. On the religious front, the systems have been associated with bringing to reality the prophesied mark of the beast in the book of Revelation (Army Biometric, n. d.).

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