

Uniqueness of Fingerprint Biometrics to Human Dynasty: A Review

Authors : Siddharatha Sharma

Abstract : With the advent of technology and machines, the role of biometrics in society is taking an important place for secured living. Security issues are the major concern in today's world and continue to grow in intensity and complexity. Biometrics based recognition, which involves precise measurement of the characteristics of living beings, is not a new method. Fingerprints are being used for several years by law enforcement and forensic agencies to identify the culprits and apprehend them. Biometrics is based on four basic principles i.e. (i) uniqueness, (ii) accuracy, (iii) permanency and (iv) peculiarity. In today's world fingerprints are the most popular and unique biometrics method claiming a social benefit in the government sponsored programs. A remarkable example of the same is UIDAI (Unique Identification Authority of India) in India. In case of fingerprint biometrics the matching accuracy is very high. It has been observed empirically that even the identical twins also do not have similar prints. With the passage of time there has been an immense progress in the techniques of sensing computational speed, operating environment and the storage capabilities and it has become more user convenient. Only a small fraction of the population may be unsuitable for automatic identification because of genetic factors, aging, environmental or occupational reasons for example workers who have cuts and bruises on their hands which keep fingerprints changing. Fingerprints are limited to human beings only because of the presence of volar skin with corrugated ridges which are unique to this species. Fingerprint biometrics has proved to be a high level authentication system for identification of the human beings. Though it has limitations, for example it may be inefficient and ineffective if ridges of finger(s) or palm are moist authentication becomes difficult. This paper would focus on uniqueness of fingerprints to the human beings in comparison to other living beings and review the advancement in emerging technologies and their limitations.

Keywords : fingerprinting, biometrics, human beings, authentication

Conference Title : ICAES 2015 : International Conference on Anthropological and Ethnological Sciences

Conference Location : Singapore, Singapore

Conference Dates : September 10-11, 2015