

## Biometrics

Prateek Rastogi\*

Associate Professor, Department of Forensic Medicine, Kasturba Medical College (Manipal University), Mangalore, India

Biometrics means the identification of human characteristics. In current times, due to advance in computer based technology biometrics is preferred as a tool for identification and access control.

Biometrics uses measurable and distinctive physiological and behavioral parameters. Physiological or physical parameters are related to general anatomy of the body such as finger prints, hand prints, retinal prints, DNA, face recognition etc., whereas behavioral parameters include traits like voice, gait etc.

To be suitable for biometric purpose the selected criteria should be measurable (easy to collect and monitor), reliable (correct), individualistic (unique), persistent (does not alter with time), universal (possessed by every person), acceptable (no objection for collection). Usually no single parameter meets all the criteria but the one with maximum positives is selected for the purpose.

After selection of criteria, there are two steps in biometrics; verification and identification. In verification step, firstly, reference data is created for all individuals, secondly, this reference data is matched with randomly selected samples. In identification step the target sample will be matched against the reference for identification, this can help to confirm the identity (positive identification) or reject the identity (negative identification).

In his or her first interaction with the biometric machine the person enrolls him for the system so that the matching be done in any further interaction of individual with the system. In majority of setups this biometric identification is done by using a single criteria and faces criticism for frequent failures, eg. If retinal scale is used and person is suffering from some eye problem, in case of fingerprints if finger amputation happens and so on. Thus, the latest concept is to have a multimodal biometric system like a combination of fingerprint, retinal prints and so on. This, will not only avoid problems arising due to hacking of single point data but can also be useful in situations where one parameter cannot be used for one or the other reason.

Biometrics, an advanced identification technique has lot of advantages like easy storage, easy retrieval and easy identification but suffers from few drawbacks such as system failure, system hacking, leakage of personal and private information, usage of this personal information for criminal purposes. Biometrics have an additional advantage of easy transfer to any corner of the world and can be helpful in countering terrorist attacks. Biometrics technique no doubt is superior to older identification techniques but to be used with caution and care to prevent misuse.

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**\*Corresponding author:** Prateek Rastogi, Associate Professor, Department of Forensic Medicine, Kasturba Medical College (Manipal University), Mangalore, India, E-mail: [rastogiprateek@rediffmail.com](mailto:rastogiprateek@rediffmail.com)

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