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Authors:

Osman Yakubu

Osei Adjei

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Abstract

Biometric recognition refers to the automatic recognition of individuals based on their physiological and/or behavioral characteristics. It is used to confirm an individual's identity rather than using an identification card. Unique identifiers of humans include fingerprints, hand geometry, earlobe geometry and retina. Fingerprint verification is one of the most reliable personal identification methods. The performance of Automatic fingerprint identification systems relies heavily on the quality of the captured fingerprint images. Automatic Fingerprint identification systems are currently being implemented in Ghana. In the 2012 elections, fingerprint biometric verification was implemented and the opposition went to court challenging the results. One of their petitions is that some voters did not go through biometric verification, but the electoral commission argued that even though the verification machines rejected them, their names were in the electoral register and they had identification cards. This research studied categories of workers who do not protect their fingers while at work and established that quite a number of them cannot be verified with fingerprint methods successfully because they had poor fingerprint images. A multimodal approach is proposed where multiple traits can be used, but if it is found to be expensive parties should develop a framework to enable those who cannot be verified due to poor fingerprint images to vote.

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Index Terms

Computer Science

Security

Keywords

Biometrics fingerprint verification multimodal election petition multimodal