A Fingerprint-based Age and Gender Detector System using Fingerprint Pattern Analysis

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 136 - Number 4

Year of Publication: 2016

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10.5120/ijca2016908474

Abstract

Humans have distinctive and unique traits which can be used to distinguish them thus, acting as a form of identification. Biometrics identify people by measuring some aspect of individual’s anatomy or physiology such as hand geometry or fingerprint which consists of a pattern of interleaved ridges and valleys. The year 2015 election in Nigeria was greeted by some petitions including under-aged voters. The need for an age and gender detector system is a major concern for organizations at all levels where integrity of information cannot be compromised. This work developed a system that determines human age-range and gender using fingerprint analysis trained with Back Propagation Neural Network (for gender classification) and DWT+PCA (for age classification). A total of 280 fingerprint samples of people with various age and gender were collected. 140 of these samples were used for training the system’s Database; 70 males and 70 females respectively. This was done for age groups 1-10, 11-20, 21-30, 31-40, 41-50, 51-60 and 61-70 accordingly. In order to determine the gender of an individual, the Ridge Thickness Valley Thickness Ratio (RTVTR) of the person was put into consideration. Result showed 80.00 % classification accuracy for females and 72.86 % for males while 115 subjects...
out of 140 (82.14%) were correctly classified in age.

References


Index Terms

| Computer Science | Pattern Recognition |
Keywords

Authentication, Histogram equalization, Ridge, Gender, Age.