Childsafe Web Browser Based on Age Estimation from Fingerprints Through Discrete Wavelet Transform and Singular Value Decomposition

Dahiya, Paritosh (School: DAV Multipurpose Public School)

Wide use of internet by kids increase the risk of getting exposed to obscenity and darknet. The project innovates a childsafe webbrowser which will automatically block the inappropriate websites after estimating user's age by just one fingerprint at runtime. The project completes in four steps- Dataset and Fingerprint sample collection, Fingerprint feature extraction, Classification and Interfacing age output with a webbrowser. The age estimation from fingerprints is based on the concatenation of features obtained by the Discrete Wavelet Transform (DWT) and Singular Value Decomposition (SVD) of the fingerprint image. The evaluation of the system is carried on using internal database of 3200 fingerprints in which 1600 were males and 1600 were females and grouped into 3 age-groups from 5-14, 15-18 and 19+ using a fingerprint scanner. The frequency features were extracted by 6th level of DWT and energy vector of the image is calculated. Spatial features were extracted using SVD and both were fused together to form single feature vector of each image. Classification of age was done using the K-Nearest Neighbor Classifier and verified using the internal database. This output was interfaced with the web browser which automatically blocks the adult websites if user's age is below 18. This blocking was done by using the system hosts file. My project ensures childsafe browsing as age estimation success rate in Males is 94.6% (5-14), 91.1% (14-18) and 86.7% (19+) and in Females it is 93.3% (5-14), 87.4% (14-18) and 78.8% (19+). Accuracy is continuously increasing with increase in database.

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