Abstract

Hand Vein patterns are one of the safest biometric information due to their strong resilience against the impostor attacks. In the presented work, a new approach for biometric authentication using infrared thermal hand vein patterns is proposed. The proposed work presents a Euclidean distance based vein's pattern based biometric authentication that can be used for ascertaining the biometric identity of person under scanner. The vein patterns are grabbed using the infra red (IR) thermal cameras and after applying some image pre-processing operations, a binary image is obtained consisting of veins crossings and intersections. The binary image is thinned using the morphological operations and a single line thinned image pattern is obtained. The thinned image pattern is now examined for intersections extractions and inter-distance between intersections. The inter-distance between intersections of vein patterns are stored in a data base. Further, when a test vein pattern is brought under test, the data base information is compared to that of the test pattern using Euclidean distances. Minimum the Euclidean distance, more is the equivalency of the test pattern to data base pattern.

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Vein Patterns as Bio-metric Identifier using Euclidean Distance

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ISSN 2321-9017 Volume 1, No. 1, June – July 2013 International Journal of Bio-Medical Informatics and e-Health Available Online at http://warse.org/pdfs/ijbmieh02112013. pdf Mona A. Ahmed1, Hala M. Ebied2, El-Sayed M. El-Horbaty3, Abdel-Badeeh M. Salem41, 3, 4Computer Science Department2Scientific Computing DepartmentFaculty of Computer and Information SciencesAin Shams University, Cairo, Egypt eng. monaa_cs@hotmail.com, halam@cis.asu.edu. eg, shorbaty@cis.asu.edu. eg, abssalem@cis.asu.edu. eg

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Keywords

Region of Interest  Vein Bio-metrics  Segmentation  Thresholding  Imposter
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