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Identity Verification using Geometry of Human Hands

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Abstract: *Biometrics which can be used for identification of individuals based on their physical or behavioural characteristics has gained importance in today's society where information security is essential. Hand geometry based biometrics systems are gaining acceptance in low to medium security applications. Hand geometry based identification systems utilize the geometric features of the hand like length and width of the fingers, diameter of the palm and the perimeter. The proposed system is a verification system which utilizes these hand geometry features for user authentication. This project introduces an inexpensive, powerful and easy to use hand geometry based biometric person authentication system. One of the novelties of this work comprises on the introduction of hand geometry's related, position independent, feature extraction and identification which can be useful in problems related to image processing and pattern recognition. Today students' (class) attendance became more important part for any organizations/institutions. The conventional method of taking attendance by calling names or signing on paper is very time consuming and insecure, hence inefficient. This paper presents the manual students' attendance management into computerized system for convenience or data reliability. So, the system is developed by the integration of ubiquitous computing systems into classroom for managing the students' attendance using palm print scanner. The system is designed to implement an attendance management system based on palm print scanner which students need to use their palm to success the attendance where only authentic student can be recorded the attendance during the class. This system takes attendance electronically with the help of the webcam, and the records the attendance in a database. Students' roll call percentages and their details are easily seen via Graphical User Interface (GUI).*

Keywords: Biometric, Sensor, Hand-Geometry, Authentication, Verification.

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