iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** XI **Month of publication:** November 2022

DOI: https://doi.org/10.22214/ijraset.2022.47441

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue XI Nov 2022- Available at www.ijraset.com

"Gesture Identifier"

Nilam Pawar[1], Dipali Raykar[2], Rutuja Satav[3], Ambika Pandarkar[4], Prof. Shweta. S. Jadhav[5]
[1, 2, 3, 4, 5]*Department of Computer Engineering, HSBPVT's Parikrama college of Engineering, Kashti*

Abstract: ***In modern society, where information security is emphasized, the importance of biometrics, which identifies individuals based on their physical and behavioral characteristics, is increasing. Hand geometry based biometric systems are gaining acceptance in low-to-medium security applications. Hand geometry -based identification systems use geometric characteristics of the hand, such as finger length and width, palm diameter and circumference. The proposed system is an authentication system that uses these hand shape features for user authentication.***

This project presents a low-cost, high-performance, and easy-to-use hand-geometry based biometric personal authentication system. One of the novelties of this work involves the introduction of position-based, position-independent feature extraction and hand shape identification, useful for problems related to image processing and pattern recognition. Today, the presence of students (classes) has become an important part of every organization/institution. Traditional methods of recording attendance through paper attribution or signatures are very time consuming, insecure and inefficient. This paper describes manual student attendance management in a computerized system for convenience or data reliability. Therefore, the system was developed by integrating a ubiquitous computing system into the classroom to manage student attendance with palmprint scanners.

This system was designed to implement a palmprint scanner-based attendance management system for students If only real student scan register attendance during class, then attendance must be achieved using the palm of your hand. The system records attendance electronically using a webcam and records attendance in a database. Student roster call rates and details are easily viewable via a graphical user interface (GUI).

Only real students can record attendance during class and must use their palms to successfully complete their attendance. The system records attendance electronically using a webcam and records attendance in a database. Student appeal rates and their details can be easily viewed through a graphical user interface (GUI).

Keywords: Machine Learning, Feature Extraction, gesture recognition

I. INTRODUCTION

Biometrics authentication is the ideal solution to the security requirements. Not only it is much more user friendly than remembering a number of passwords or carrying around a card, but it is something that cannot be stolen or cracked. The biometric authentication systems use human traits which are unique to the individual and neither is stolen nor duplicated. Biometrics authentication is truly the future of personal identification.

Hand geometry-based biometry systems exploit features on the human hand to perform identity verification. Due to limited discriminatory power of the hand geometry features, these systems are rarely employed for applications that require performing identity recognition from a largescale database. However, these systems have achieved tremendous popularity and public acceptance, as evidenced by their widespread deployment for access control applications, attendance tracking, and many other inspection tasks.

With regards to the development and implementation of the system, it is necessary to help teachers systematically manage student attendance. The system should have a database containing information about the students and should help the instructor manipulate the data, update the database, and alert the instructor. It also comes with a nice, easy-to-use interface. Finally, the attendance system must be suitable for commercial use. This system manages and implements class attendance to develop a system that automatically performs all attendance management.

Purpose

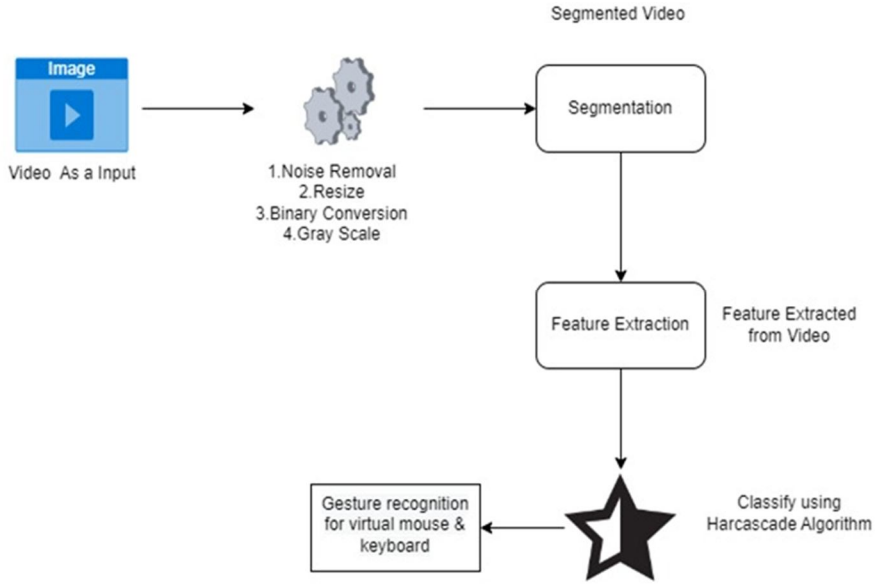
1) Detect the crest and top of the hand image.
2) Feature extraction from hand images.
3) Extract depth information from 3D images.
4) Compare the characteristics of the test image with data present in the database.
5) Shows the system's determination of whether the owner of the test image is a valid user of the system.

II. LITERATURE SURVEY

"Reconstructing 3D Shapes from Multiple Sketches Using Direct Shape Optimization" 3D shape reconstruction from multiple hand drawn sketches is an intriguing way to 3D shape modelling. Currently, state-of-the-art methods employ neural networks to learn a mapping from multiple sketches from arbitrary view angles to a 3D voxel grid. Because of the cubic complexity of 3D voxel grids, however, neural networks are hard to train and limited to low resolution reconstructions, which leads to a lack of geometric detail and low accuracy. To resolve this issue, we propose to reconstruct 3D shapes from multiple sketches using direct shape optimization (DSO), which does not involve deep learning models for direct voxel grids 3D shape generation. Specifically, we first leverage a Conditional Generative Adversarial Network (CGAN) to translate each sketch into an attenuance image that captures the predicted geometry from a given viewpoint. The DSO then reconstructs the 3D shape to match the predicted attenuated images at the viewing angles of all input sketches with minimal design and comparison losses () (). Based on this, we propose a progressive update approach to resolve the discrepancy between multiple hand-drawn sketches for the same 3D shape. Our experimental results show that our method significantly outperforms the state-of-the-art method in the popular test and produces intuitive results in the interactive application. "Modelling the geometry of the Human Palm for biometric security systems" Palm print modelling and recognition systems studied extensively. Palm or palm shape less attention was paid to geometry study because of the difficulties associated with it shape definition and modelling. This paper experimental determination reports the equation of the geometry of the human palm. Experimental determining the geometry of the human palm was done using hand measurement 14 subjects drawn from a mixture of racial and gender background. By analyzing the scanned one images of their hands, characteristic the measurements of their palms were determined. Characteristic descriptive expressions geometries of human hands are designed. The equations are based on measurements different parts of the hand cut across a wide spectrum female and male representatives of different ethnic groups. They describe relationships between hand lengths and their perimeters at the tips of the fingers and the base fingers. Relationships lead to the unique an expression called the hand geometry equation. "QUICK LIFTING FOR 3D HAND POSITION ESTIMATION IN AR/VR APPLICATIONS" We present a simple model for human hand skeleton which is aimed at estimation 3D hand position from 2D key points. The in AR/VR scenarios there is an estimation problem where cheap cameras are used for generation 2D views through which rich interaction with the world is desirable. Starting with a noisy line up 2D hand (camera plane coordinates of detected hand joints), the proposed algorithm generates 3D key points which are (i) consistent with the skeleton of the human hand limitations and (ii) prospective project up to given 2D key points. Our work takes into account 2D to 3D lifting problem algebraically, indicates the parts of the hand that can be raised pinpoints the parts that can lead to ambiguities and suggests a remedy ambiguous cases. And most importantly, we show that fingertip localization errors are good proxy for errors on other finger articles. This observation leads to insight-based search a formulation that immediately determines finger represents without solution limited trigonometric problems. The result is fasting algorithm running in super real time on a single kernel. When the lengths of the hand bones are unknown the technique estimates them and allows smooth an AR/VR session where the user's hand is automatically estimate at the beginning and the rest of the session continued smoothly. Our work provides accurate 3D results that are competitive with state-of-the-art no requiring any 3D training data. Hand Control AR: Augmented Reality Applications for Teaching 3D Geometry" The traditional way of learning geometry cannot provide great support for beginning students because geometric figures are 2D on blackboard or book. With regard to Augmented Reality (AR) provides intuitive way to learn geometry, interactive AR a system that allows students to naturally and direct manipulation of 3D objects by hand gesture-based and intuitive interactions explore the spatial relationship between spheres and polyhedrons are proposed in this article. The proposed gesture-based interaction enables the user manipulates AR objects in real 3D space instead of 2D space. We propose three levels study that will enable students to learn geometric concepts and experiment to evaluate effectiveness of the AR system. Analysis experimental results showed that the proposed the system is easy to use, attractive and useful students. "Haptic Rendering of 3D Geometry in 2D Touch surface based on mechanical rotation" In this paper, we present a robotic surface a display that physically mimics orientation virtual 3D geometry by touch over 2D flat screen. The proposed approach provides the surface orientation of the 3D geometry such that users can tactically obtain relative geometric information that plays a significant role haptic object process in the real word perception. Use of the plane aspect of touch surfaces, the system constructs rotary matrix for surface position control with minimal mechanical movements with entered partial geometric information (i.e.) normal vector at the point of contact). On evaluate the proposed rendering scheme, we performed a geometric task (two alternatives forced dials) with a manual size set cylindrically curved geometries in which participants were asked to identify which ones two surfaces that they perceived as more curved. Curvature with equal polarities (i.e. convex-convex and concave-concave) were employed in the study and psychometric curves estimated to obtain the threshold value curvature difference and for verification proposed rendering scheme. Possible application of the proposed system and its limitations are also listed.

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue XI Nov 2022- Available at www.ijraset.com

III. SYSTEM DESIGN



Data Flow Diagram

A. Data

Flow diagram in the data flow diagram, we show data flow in our system in DFD0 my show the basic DFD in which a rectangle is present both input and output and the circle shows our system, In DFD1 we display the current input the actual output of the system input of our system is text or image and the output is detected as wisely in DFD 2 we represent the user traffic as well as admin.

Figure 4.1 Data flow Diagram 0 level

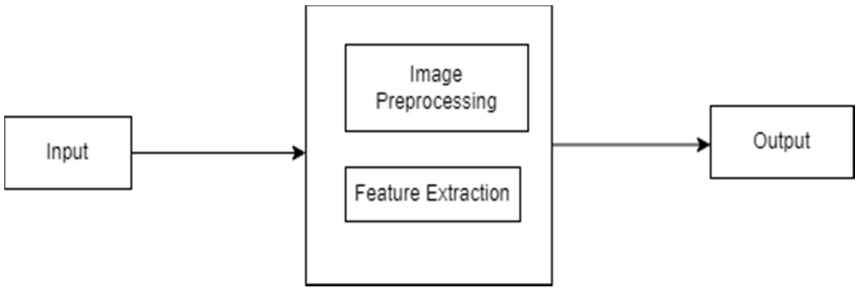


Figure 4.2 Data flow Diagram 1 level

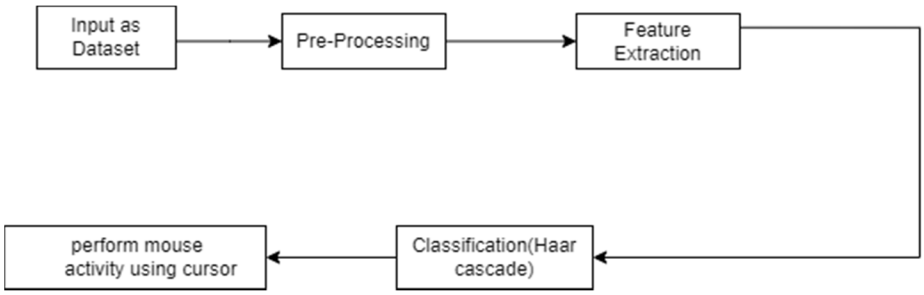


Figure 4.3Data Flow Diagram 2 level

B. Algorithms and Methodology

LR: parser is a bottom-up parser for a context-free grammar that is very general uses a computer programming language compiler and other related tools. LR: parser reads their input from left to right and creates truest derivative.

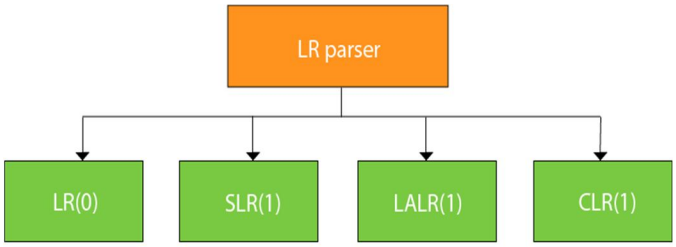
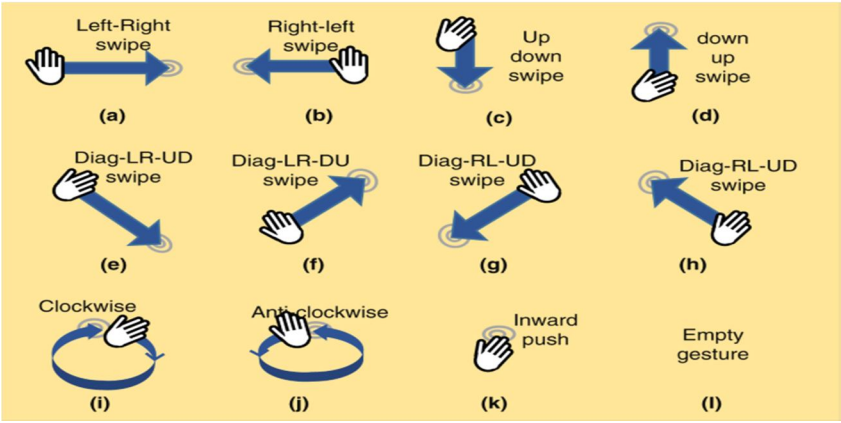


Fig: Types of LR parser

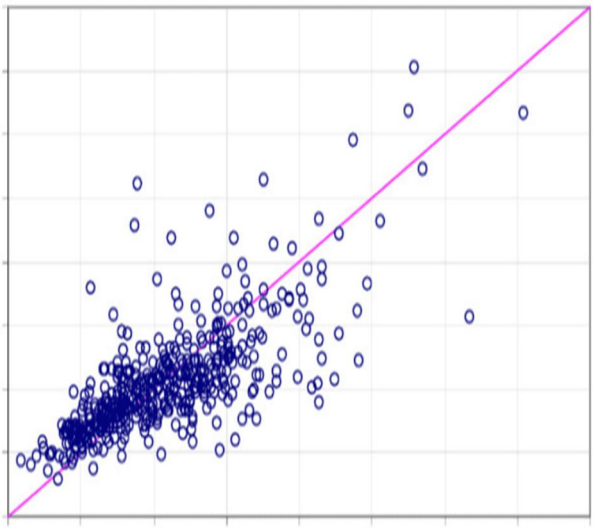
It is called a bottom-up parser because it attempts to do so limit grammar production at the highest level by stacking from sheets. LR parsers are the most powerful parsers all deterministic parser in practice. The LR parsing algorithm is the same for all parser, but the parse table is different for each parser It consists of the following components as follows.

C. Input Buffer

It contains the given string and ends with a symbol.

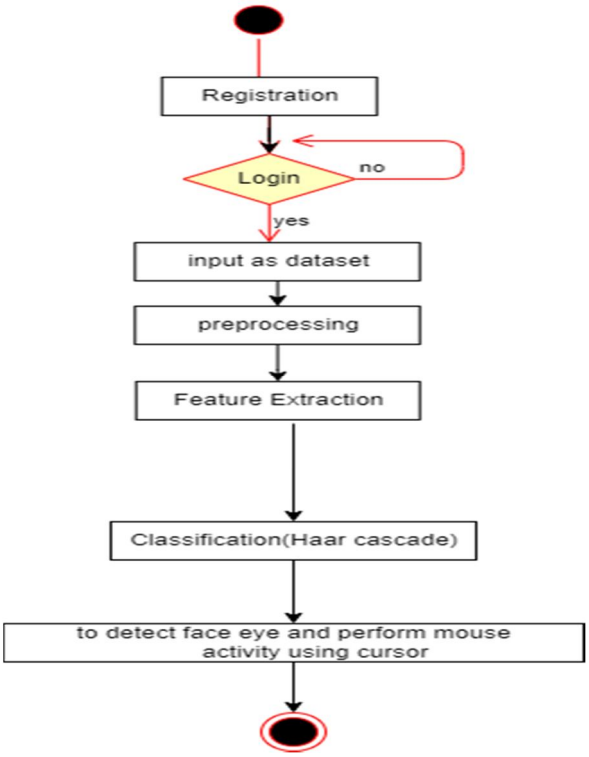


Tray -A combination of the state symbol and current input symbol is used to denote analysis table in order to perform the analysis decision.



D. Activity Diagram

Activity diagrams are graphical representation of step work procedures wise activities and events with support for selection, iteration and concurrency. In Unified Modelling Language, activity diagrams are intended for both computational and organizational processes (i.e work procedures), as well as data streams intersecting with related activities. Although activity diagrams above all, they show the overall flow of their control may also include elements showing flow data between activities through one or more data storage.



1) Advantages

a) The geometry of the hand is simple and relatively easy to use.
b) Inexpensive.
c) Usually considered less intrusive than fingerprints, retina, etc.
d) Environmental factors are not a problem like dry weather that causes desiccation skin.

2) Usage

a) Can be used in bulk organization requiring employs identification.
b) Attendance tracking systems in various institutions.
c) Leave the creation of the database to the state administration records by profiling citizens for security purpose.
d) Can be used as an access control system for securing certain spaces from strangers.
e) This can also be used by authentication systems technique.
f) Interactive kiosks.

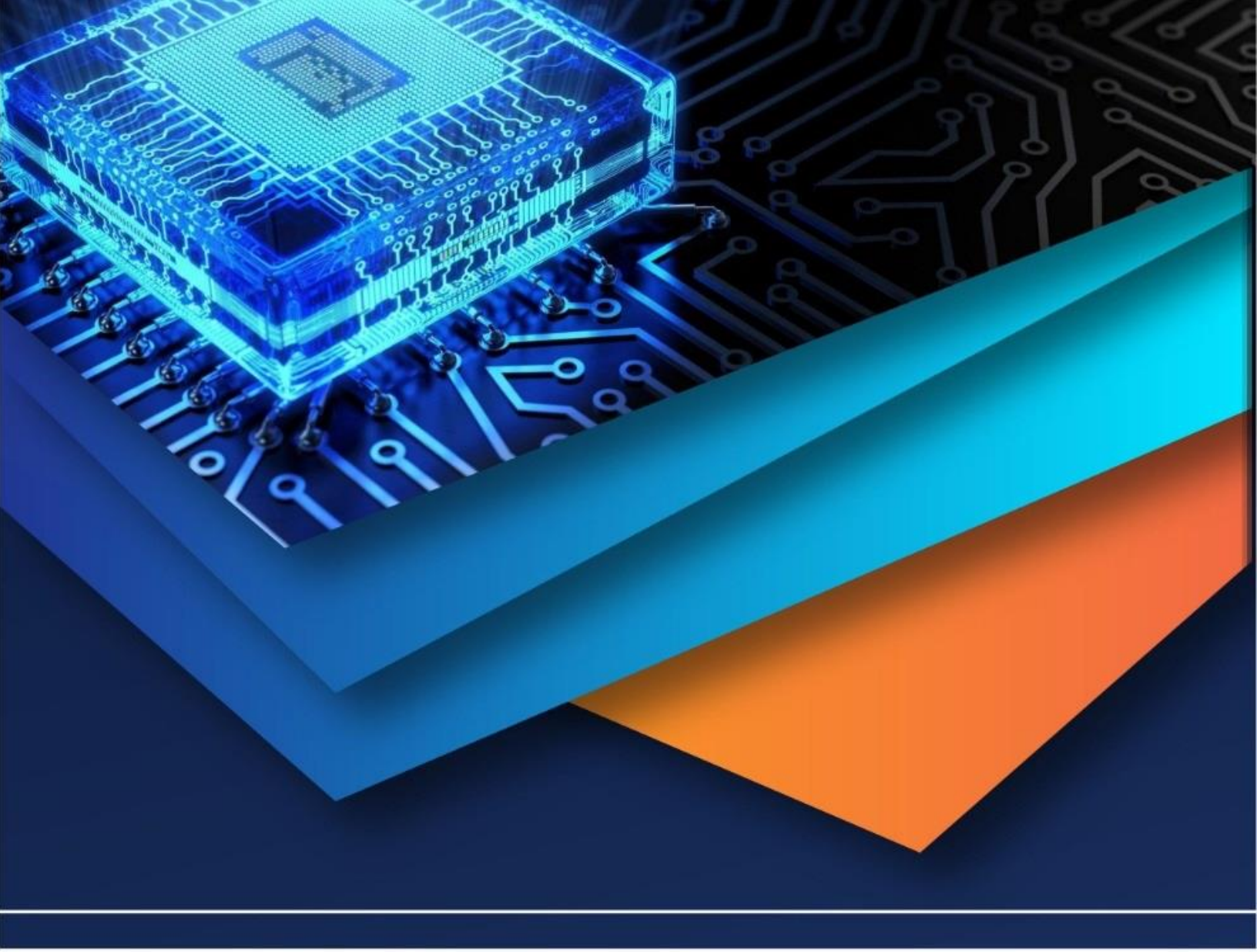
IV. CONCLUSION AND FUTURE SCOPE

This project introduced a new approach to achieve more using reliable personal authentication simultaneous extraction and combination of 3D and 2D hand geometry elements. Proposed the system acquires images of non-contact hands way to ensure high user friendliness and also solve hygiene problems. Range and 2D images taken simultaneously hands are processed for function extraction and matching. We introduced two new representations, namely the finger surface curvature and unit normal vector, for a 3D hand biometric measurement based on geometry. Simple and effective metrics are designed matching pair of 3D images of hands. Wrestle scores from 3D and 2D hand geometry matchmakers are combined to gain highly reliable authentication system.

Our research also suggests that significant performance improvement can be achieved by combination hand geometry information obtained from 2D and 3D images of the user's hands. we discussed method of measuring student attendance. A preliminary experiment shows the teacher can grade each student's attendance according to their use. Any teacher can accept records and generate a chart based on them use.

REFERENCES

[1] "R. Sanchez-Reillo" C. Sanchez-Avila and A. Gonzalez-Makros, "Biometric Identification through Hand Geometry Measurements," IEEE Trans. PAMI, 22(10):1168-1171, October 2000.
[2] A. K. Jain, A. Ross, and S. Pankanti, "Hand Geometry Based Prototype Verification System," Proc. AVBPA, Washington DC, 166-171, March 1999.
[3] "A. K. Jain and N. Duta, "Deformable matching of hand shapes for verification," Proc. International Conf Image Processing, 857-861, October 1999
[4] A. Kumar, D. C. M. Wong, H. C. Shen, and A. K. Jain, "Personal authentication using biometric palmprint and hand geometry," Proc. AVBPA, Guildford, U.K., 668-675, 2003
[5] P. Malassiotis, N. Aifanti, and M. G. Strintzis, "Personal authentication using 3D finger geometry," IEEE Trans. Info. Forensic Security, 1(1): 12-21, March 2006.
[6] "D. L. Woodard and P.J. Flynn, "The Finger Surface as a Biometric Identifier," CVIU, 100(3): 357-384, December 2005.
[7] "N. Otsu, "A method for selecting threshold values from gray-level histograms," IEEE Trans. Systems, Man and Cybernetics, 9(1):62–66, 1979.
[8] W. Xiong, K.A. Toh, W.Y. Yau, X. Jiang, "Model-driven deformable hand shape recognition without positioning aids", Pattern Recognition, 38(10): 1651-1664, October 2005.



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY