A Novel To Verify Identity Detection UsingHand Geometry.

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Abstract: *In today's society, when information security is crucial, biometrics, which may be used to identify people based on their physical or behavioural features, have acquired relevance. Biometrics systems based on hand geometry are becoming more popular in low- to medium-security applications. Systems for hand geometry-based identification make use of the hand's geometric characteristics, such as the length of the fingers, the diameter of the palm, and the perimeter. These hand geometry attributes are used in the suggested system, a verification system, to authenticate users. In this study, a low-cost, potent, and user-friendly biometric person authentication system based on hand geometry is introduced. One of the novelties of this work comprises on the introduction of hand geometry's related, position independent, feature ex- traction and identification which can be useful in problems related to image processing and pattern recognition.*

Keywords: LR,Pre-processing,Feature Extraction

1. INTRODUCTION

The attendance of students has grown in importance for all organisations and educational institutions today. The traditional technique of recording attendance—calling names or having people write their names on paper—is very time-consuming and unsafe, making it ineffective. For convenience or data accuracy, this paper transfers manual student attendance administration to a computerised system. In order to manage students' attendance using a palm-print scanner, the system is created by integrating ubiquitous computing systems into the classroom. The system is built to establish a palm-print-based attendance management system, requiring students to use their palms to successfully complete the attendance so that only real students can have their attendance during class tracked. The need for personal identity or authentication has become very essential with the advancement of numerous computer systems. For information security or authentication, everything from ATM cards to the internet requires some kind of password. But there are numerous methods for guessing or cracking passwords. People are subject to the constraint of maintaining distinct passwords for various programmes and changing them frequently. It would be required to memorise several different passwords in today's environment. Even identity and access cards can easily stolen, and there is a potential of fraud. Every day, new incidents involving card and password theft are reported.

Hand geometry is one of the most reliable systems for human identification or verification out of all the biometrics. The hand's geometric shape is used as part of a biometric system for identification. This approach was rather common a few years ago, but it is now rarely utilised. The technique is based on the observation that at a certain age, a person's hand form remains constant and differs from that of another person. When in Identification mode, the system uses hand geometry as a biometric

recognition and searches a database of matching hands to identify a person from among the total enrolled population. Using shape context information, we present hand geometry identification in this research, and we compare it to shape measure using statistical image processing methods.

2. LITERATURE SURVEY

1. Zhizhong Han , Baorui Ma, Yu-Shen Liu , Member, IEEE, and Matthias Zwicker "Reconstructing 3D Shapes From Multiple Sketches Using Di- rect Shape Optimization.

3D shape reconstruction from multiple hand-drawn sketches is an in- triguing way to 3D shape modeling. Currently, state-of-the-art meth- ods 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-based 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. Then, DSO minimizes a project-and-compare loss to reconstruct the 3D shape such that it matches the predicted attenuance images from the view angles of all input sketches. Based on this, we further propose a progressive update approach to handle in- consistencies among a few hand-drawn sketches for the same 3D shape. Our experimental results show that our method significantly outper- forms the state-of-the-art methods under widely used benchmarks and produces intuitive results in an interactive application.

2.Johnson I Agbinya "Human Palm Geometry Modelling for Biometric Security Systems"

Palm print modelling and recognition systems have been extensively studied. Palm shape or palm geometry has had lesser attention paid to its study because of the difficulties associated with shape definitions and modelling. This paper reports on experimental determination of human palm geometry equations. Experimental determination of hu- man palm geometry was undertaken using measurements of hands of 14 subjects drawn from a mixture of racial and gender backgrounds. By also analysing scanned images of their hands, characteristic mea- surements of their palms were determined. Characteristic expressions describing the geometry of human hands are proposed. The equations are based on measurements of various parts of the hand cross a broad spectrum of female and male representatives of various ethnic groups. They describe the relationships between the lengths of the hands and their perimeters at the finger tips and the base of the fingers. The re- lationships lead to a unique expression called the hand geometry equa- tion.

3. Rui Cao1 Yue Liu1 "Hand ControlAR: An Augmented Reality Appli- cation for Learning 3D Geometry

The traditional way of learning geometry cannot provide a great sup- port for novice students since the geometric figures are 2D on the black- board or the book. In consideration that Augmented Reality(AR) pro- vides an intuitive way to learn geometry, an interactive AR system that enables students to naturally and directly manipulating 3D ob- jects through hand gesture-based interactions and intuitively explore the spatial relationship between spheres and polyhedrons is proposed in this paper. The proposed gesture-based interaction enables the user manipulate AR objects in the real 3D space instead of 2D space. We design three levels of study to enable students to learn the geometric concepts as well as an experiment to evaluate the effectiveness of the AR system. Analysis of experimental results showed that the proposed system is easy to use, attractive, and helpful for students.

4. Seung-Chan Kim , Member, IEEE, Byung-Kil Han "Haptic Rendering of 3D Geometry on 2D Touch Surface Based on Mechanical Rotation"

In this paper, we present a robotic surface display that physically imi- tates the orientation of virtual 3D geometry touched through a 2D flat screen. The proposed approach renders the surface orientation of

3D geometry such that users can tactually obtain relative geometric infor- mation, which plays a significant role in the process of real-world haptic object perception. Taking advantage of the planar aspect of touch sur- faces, the system constructs a rotation matrix to control the pose of a surface with minimal mechanical movements with given partial geomet- ric information (i.e., normal vector at the point of touch). To evaluate the proposed rendering scheme, we conducted a geometric task (two alternative forced choices) with a set of hand-sized cylindrically curved geometries in which participants were asked to identify which of the two surfaces they perceived as being more curved. Curvatures with the same polarities (i.e., convex-convex and concave-concave) were em- ployed in the study and psychometric curves estimated to obtain the threshold of the curvature difference and to validate the proposed ren- dering scheme. Possible applications of the proposed system and its limitations are also presented

3. PROPOSED SYSTEM

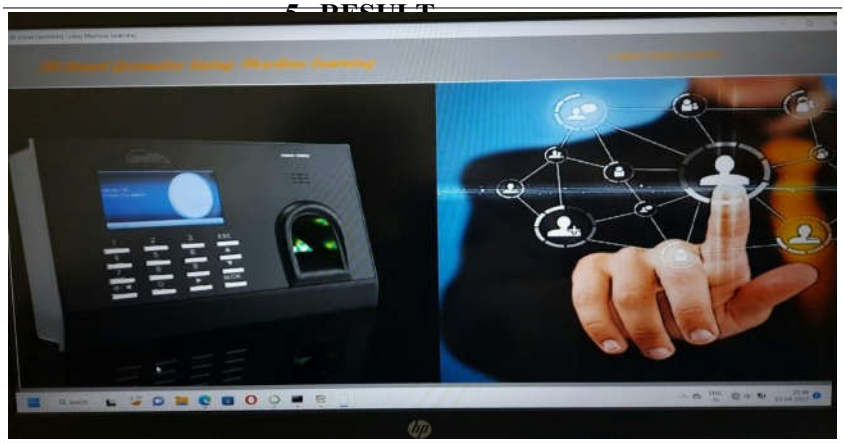
The proposed system acquires hand images in a contact –free manner to ensure high user friendliness and also to address the hygienic concerns. In this proposed system shape features are compared for identification of human using hand geometry as a biometric system. Database is a collection of hand co ordinators with 1000 coordinators of hand of each person. In addition with this, this is tested for Hand Geometric Points Detection Competition Database with 1000 co ordinators of hand in database.

4. METHODOLOGIES

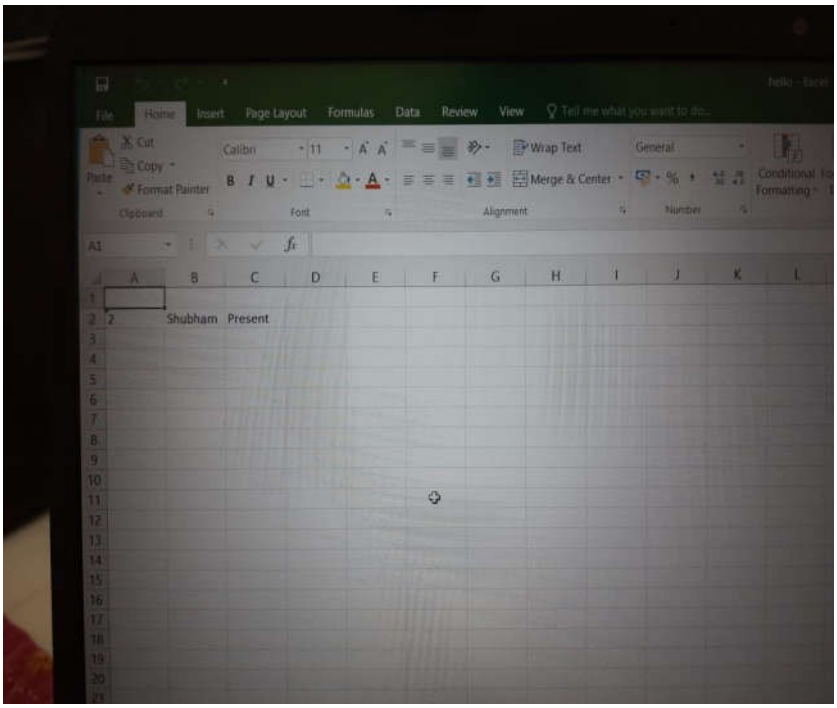
Machine Learning has been witnessing a monumental growth in bridging the gap between the capabilities of humans and machines. Researchers and enthusiasts alike, work on numerous aspects of the field to make amazing things happen. One of many such areas is the domain of Computer Vision.

The agenda for this field is to enable machines to view the world as humans do, perceive it in a similar manner and even use the knowledge for a multitude of tasks such as Image Video recognition, Image Analysis Clas- sification, Media Recreation, Recommendation Systems, Natural Language Processing, etc. The advancements in Computer Vision with Deep Learning has been constructed and perfected with time, primarily over one particular algorithm— LR.

5. RESULT



Outputs:



6. CONCLUSION & FUTURE SCOPE

In our system camera captures the object and verify in the system. thenit will find the object and detect the object by its name. First we will describe the representation of object shape. Representation of objects is very important in object detection and tracking. There are various

ways used to represent objects. This project has presented a new approach to achieve more reliable personal authentication using simultaneous extraction and combination of 3D and 2D hand geometry features. The proposed system acquires hand images in a contact –free manner to ensure high user friendliness and also toaddress the hygienic concerns. Simultaneously acquired range and 2D images of the hand are processed for the feature extraction and matching.

We introduced two new representations, namely finger surface curva- ture and unit normal vector, for 3D hand geometry based biometric mea-surement. Simple and efficient metrics are proposed for the matching of pairof 3D hand images. Match scores from 3D and 2D hand geometry matchersare combined to obtain a highly reliable authentication system. Our research also suggests that significant performance improvement can be achieved by combining hand geometry information extracted from user's 2D and 3D hand images. We discussed the way to measure the attendance of students. A pre-liminary experiment demonstrates a teacher can classify any student's atten- dance according to their use. Any teacher can take the records and generate graph according to their use.

7. REFERENCES

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