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Face Attendance System

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Abstract — well-organized and real-time face discovery has been made possible by using the technique of Local Binary Pattern since Viola and Jones' work. The software first captures an image of all the authorized persons and stores the information into database. Proposed work deals with automated system to detect and classify the Faces using Probabilistic neural network algorithm. The methodology comprised of three phases, first face Detection from images, second apply Local Binary Pattern algorithm for the purpose of feature extraction. The most useful and unique features of the face image are extracted in the feature extraction phase. In the classification the face image is compared with the images from the database. In our research work, we empirically evaluate face recognition which considers both shape and texture information to represent face images based on Local Binary Patterns for person independent face recognition. The features area is first divided into small region from which Local Binary Patterns (LBP), histograms are extract and concatenated into a single feature vector. This feature vector forms an efficient representation of the face and is used to measure similarities between images in third phase and probabilistic neural network has been created and trained according to the features extracted from the image. Trained classifier classifies the types of hematoma according to their features.

I. INTRODUCTION

Checking the performance of students and maintaining the attendance is a tedious process for institute. Each institute has adopted their own method of taking attendance i.e. calling the names or by passing the sheets. Several very popular automatic attendance systems currently in use are RFID, IRIS, FINGERPRINT etc. However, making queue is essential in these cases thus requires more time and it is intrusive in nature. Any damage to RFID card can make inappropriate attendance. Apart from this deploying these systems on large scale is not cost efficient. In order to have a system both time and cost efficient with no human intervention, facial recognition is the suitable solution also face is people's preliminary scheme of person identification. With the rapid development in the fields of image processing such as pattern recognition, facial recognition and signature recognition the efficiency of this system is keep on increasing. This system is attempting to provide an automated attendance system that carries out the face recognition task through an image/video stream to record the attendance in lectures or sections and keeping the database of attendance. After creating the database of the students/ candidates, it requires almost zero efforts from the user side. Thus intrusive nature is absent in this system and makes the system effective

II. LITERATURE REVIEW

1.Paper name:Learned templates for feature extraction in fingerprint images

Author:B. Bhanu, X. Tan

Most current techniques for minutiae extraction in fingerprint images utilize complex preprocessing and postprocessing. In this paper, we propose a new technique, based on the use of learned templates, which statistically characterize the minutiae. Templates are learned from examples by optimizing a criterion function using Lagrange's method. To detect the presence of minutiae in test images, templates are applied with appropriate orientations to the binary image only at selected potential minutia locations.

2.paper name: Rfid based attendance system

Author:T. Lim, S. Sim, and M. Mansor

Most educational institutions' administrators are concerned about student irregular attendance. Truancies can affect student overall academic performance. The conventional method of taking attendance by calling names or signing on paper is very time consuming and insecure, hence inefficient. Radio Frequency Identification (RFID) based attendance system is one of the solutions to address this problem. This system can be used to take attendance for student in school, college, and university.

3.paper name: Robust real-time face detection

Author:P. Viola and M. J. Jones

This paper describes a face detection framework that is capable of processing images extremely rapidlywhile achieving high detection rates. There are three key contributions. The first is the introduction of a newimage representation called the "Integral Image" which allows the features used by our detector to be computed very quickly. The second is a simple and efficient classifier which is built using the Ada Boost learning algorithm to select a small number of critical visual features from a very large set ofPotential features. The third contribution is a method for combining classifiers in a "cascade" which allows background regions of the image to be quickly discarded while spending more computation on promising face-likeregions.

4.paper name:A training algorithm for optimal margin classifiers

Author:B. Boser, I. Guyon and V. Vapnik

Personnel detection at border crossings has become animportant issue recently. To reduce the number of falsealarms, it is important to discriminate between humans andfour-legged animals. This paper proposes using enhancedsummary autocorrelation patterns for feature extractionfrom seismic sensors, a multi-stage exemplar selectionframework to learn acoustic classifier, and temporal patterns from ultrasonic sensors. We compare the results usingdecision fusion with Gaussian Mixture Model classifiersand feature fusion with Support Vector Machines. Fromexperimental results, we show that our proposed methodsimprove the robustness of the system.

5.paper name:RFID BASED ATTENDANCE SYSTEM

Author: PratikshaGajananLangi, LeenaBhaskarTumbre,YogeshwariJaganath Mali

In recent years, there have been rise in the number of applications based on Radio Frequency Identification (RFID) systems and have been successfully applied to different areas as diverse as transportation, health-care, agriculture, and hospitality industry to name a few. RFID technology facilitates automatic wireless identification using electronic passive and active tags with suitable readers. In this project, an attempt is made to solve recurrent attendance monitoring problem in developing countries using RFID technology. The application of RFID to attendance monitoring as developed and deployed in this study is capable of eliminating time wasted during manual collection of attendance and an opportunity for the educational administrators to capture face to face classroom statistics for allocation of appropriate attendance scores and for further managerial decisions. In this project we have used AT89C52 Microcontroller. It is a low power, high performance CMOS. 16x2 Alphanumeric Display which can display alphabets, numbers as well as special symbols. EM12 RFID reader module with passive RFID tags used in our project which content 13digit number tag in it.

III. EXISTING SYSTEM

Traditional way of marking attendance involves a typical situation of students sitting in a classroom and the teacher calling out the names of the students individually to mark their attendance. The attendance is usually marked using hard resources - pen and paper. The huge attendance records that maintained are then used for later references.

3.1 Disadvantages of Existing System

- It is cumbersome to maintain a huge set of records.
- It is time Consuming
- Error-prone
- Its leads to wastage of Resources.

IV. PROPOSED SYSTEM

This paper is presenting a proposed work of an automated attendance system using image processing techniques. This work is experimented on students face we have to used classification methods, PNN algorithms, etc. But improvements are expected to increase its efficiency of classification. This This system automatically detects the student face and marks the attendance by recognizing their face. This system is developed by capturing real time human faces . The detected faces are matched against the reference faces in the dataset and marked the attendance for the attendees.

4.1 Advantages of Proposed System

I. We perform a detailed security analysis and performance evaluation of the proposed data

- Required less time
- Increase Efficiency
- Improve the accuracy.

V. SYSTEM ARCHITECTURE

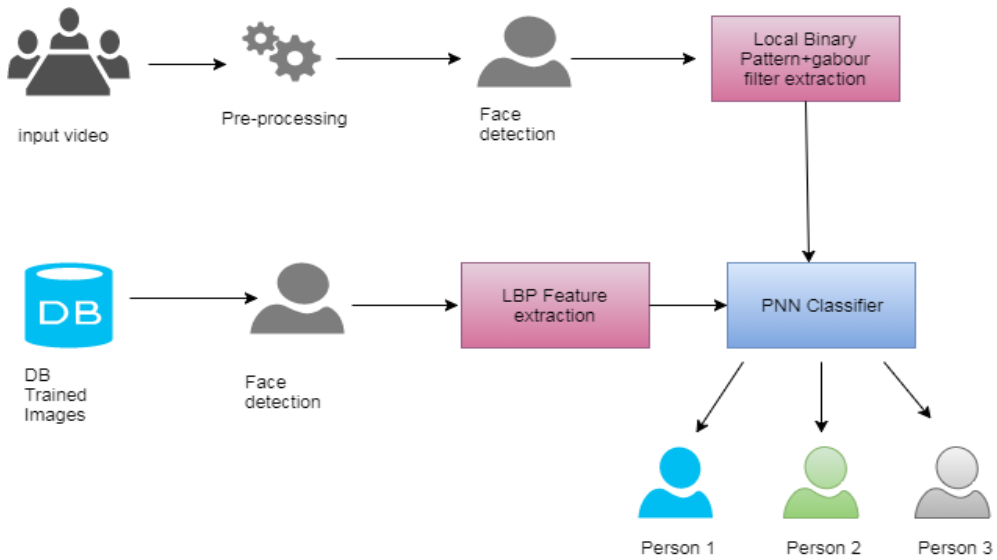

Figure 1. Proposed System Architecture

VI. CONCLUSION AND FUTURE SCOPE

We have extensively evaluated PNNA and compared it with other state-of-art methods. The approach to the evaluation experiments with PNN using the same datasets used in evaluating other state-of-the-art methods, is meant to ensure its robustness and demonstrate that PNN achieves improved accuracy in face recognition under variations in ambient lighting, pose, expression, face size, occlusion and distance from the camera. The results demonstrate that when the size of the dataset is small or medium (i.e., the number of subjects is not greater than one hundred), PNN is able to deal successfully with these conditions.

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