International Journal of Technical Research and Applications e-ISSN: 2320-8163,
www.ijtra.com Special Issue 39 (KCCEMSR) (March 2016), PP. 60-62

SMART APPLICATION FOR ATTENDANCE MARKING SYSTEM USING FACIAL RECOGNITION

Sugandh Pandey[1] ,Krishna Singh[2],Manish Wadkar[3], Hrishikesh Vadalkar[4]
[1,2,3,4] Department of Electronics &Telecommunication Engineering
K.C. College Of Engineering And Management Studies And Research
Thane, India
sugandhpandey001@gmail.com

Abstract— **Attendance Management System (AMS) can be made into smarter way by using face recognition technique, where we use a CCTV camera to be fixed at the entry point of a classroom, which automatically captures the image of the person and checks the observed image with the face database using android enhanced smart phone.Firstly, marking attendance for student by comparing the face images produced recently and secondly, recognition of human who are strange to the environment i.e. an unauthorized person.**

For verification of image, a newly emerging trend 3D Face Recognition is used which claims to provide more accuracy in matching the image databases and has an ability to recognize a subject at different view angles.

Index terms- **CCTV camera, Face recognition, 3D Model, Face database.**

I. INTRODUCTION

Attendance systems of old practices are not quite efficient today for keeping track on student's attendance. Due to the availability of large resources over the internet today, it is very hard to motivate the students to attend lectures without fail

have become more challenging. In order to drag the attention of students and make them interactive in observing technologies we move on to latest upcoming trends on developing attendance systems. This is the strong reason for college attendance management system has to come up with an approach that ensures strong contribution of students in classrooms.

To track attendance of the students, many attendance management systems are introduced in the market. With the introduction of this variety of attendance system, skipping classes without the staff's knowledge have become difficult for the students. For few view of college attendance systems that were used earlier in the market are based on RFID systems, punch card systems, swipe card systems, biometric systems that includes fingerprint analysis, iris analysis etc. Although these systems all are lagged in their own respective so which lead to the new way practices on AMS.

In smart AMS we are going to mark the attendance of the student by capturing the image of the person for identifying correctly.

Attendance of students in the college is one of the essential day to day activities. Additional Operations within this smart system includes the software that provides

1. Marking of daily students' attendance.

2. Daily provision to check in personal attendance by employee of the college (teaching staff).

3. The software is installed to produce the attendance statistics which can be viewed on daily, monthly and yearly basis.

II. FEARTURES EXTRACTION

1. Problem definition

The Existing system is a manual entry for the students. Here the attendance will be carried out in the hand written registers. It will be a tedious job to maintain the record for the user. The human effort is more here. The retrieval of the information is not as easy as the records are maintained in the hand written registers. This application requires correct feed on input into the respective field. Suppose the wrong inputs are entered, the application resist to work. so the user find it difficult to use.The Existing system is a manual entry for the students. Here the attendance will be carried out in the hand written registers. It will be a tedious job to maintain the record for the user. The human effort is more here. The retrieval of the information is not as easy as the records are maintained in the hand written registers. This application requires correct feed on input into the respective field. Suppose the wrong inputs are entered, the application resist to work. so the user find it difficult to use.

2. Proposed system

To overcome the drawbacks of the existing system, the proposed system has been evolved. This project aims to reduce the paper work and saving time to generate accurate results from the student's attendance. The system provides with the best user interface. The efficient reports can be generated by using this proposed system. It is trouble-free to use. It is a relatively fast approach to enter attendances highly reliable, approximate result from user. Best user Interface. Efficient report.the proposed system also allows the teacher to interact with the students using the android application. It also allows the students to check their attendance.

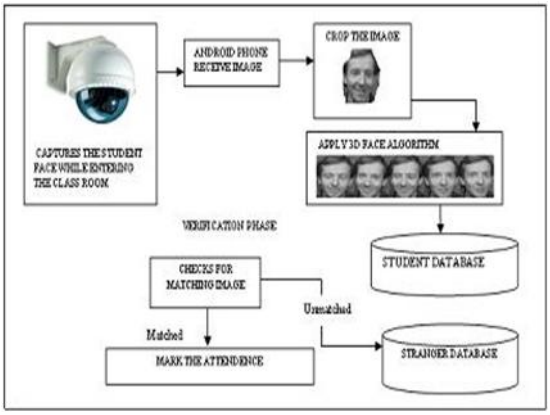

Fig.1. Block diagram of System.

ALGORITHM
PRINICIPAL OF COMPONENT ANALYSIS (PCA)
FACE RECOGNITION ALGORITHM:

TRAINING THE RECOGNIZER
Steps-

- Convert the Face image in Training set to face vectors
- Normalize the face vectors
- Calculate the average face vector ψ then subtract the mean

(average) face vector from each of face vectors to get the the normalized face vectors=Γi-ψ
To calculate Eigen vectors we need to calculate the covariance matrix C
C=AA^T where A =[ϕ1,ϕ2,ϕ3,……ϕM]
Where A is matrix with each column being each Normalized face vectors.
A=N^2 XM(numbers of row X numbers of columns)
C=A A^T
C=(N^2 X M)*(M X
N^2) C=N^2 XN^2
eg. If N^2=2500 then there will be 2500*2500 vectors
if we suppose there are 100 training set of training image ,then it is difficult to calculate there 100 Eigen face vectors
so the solutions to these is that we use "Dimensionality Reduction"
4.Calculate Eigen vectors from a covariance with dimentionality
It performs C=(A^T) (A)
=(M X N^2)(N^2 X M)
Suppose M=100
So 100 eigen vectors so each of dimensions(100X 1)
Now ,total numbers of rows in covariance vectors are total number of eigen vector
Covariance matrix C now is of M X M it will return M eigen vectors each of M X1 dimensionally.
Whereas earlier C has eigen vector of N^2 X1 and M<<N^2
5.Selects the K best eigen face ,such that K<M and can be represent the whole training set
6.Suppose we select 100 eigen vectors of which each of dimensions 100 X 1
Selected 'K' eigen faces must be in original dimentonality of face vector space.
Convert the Lower dimensionally K eigen vectors to original face dimensionality
μi=AVi
μi=eigen vectors in higher dimensional
A=Matrix A
Vi=eigen vector in lower dimensional face
Now the above K selected eigen face that are going to represents the image in training sets and represent in form of eigen vector

III. SYSTEM DESCRIPTION

[1] Hardware Description
- Minimum Ram-4Gb
- Hard Disk-128GB
- Processor-Intel Pentium 4
- Web Camera

[2] Software Description
- Operating System-Windows
- Eclipse Juno
- OPENCV
- My SQL
- XAMPP SERVER
- NetBeans IDE 8.1

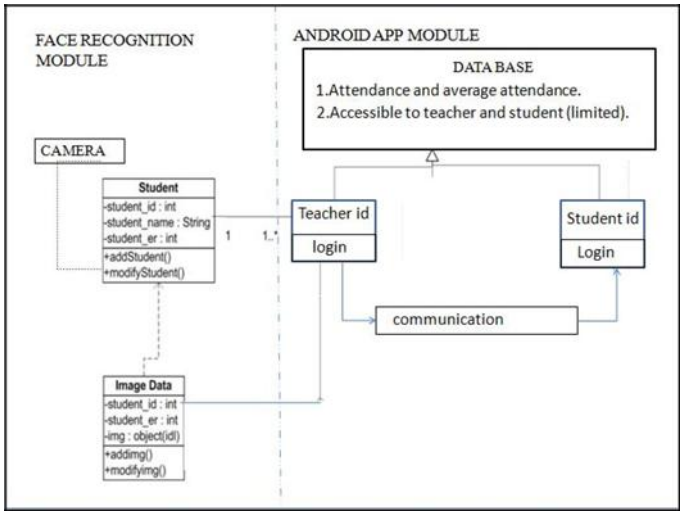

Fig.2 Proposed system architecture.

IV. CONCLUSION

The idea represented in this paper can be used to implement an android application for marking attendance that requires extracting features of an image and matching those features with the store image features. The performance can be improved by using for efficient algorithms that might reduce the time required for matching the store image

REFERENCES

[1] Rafael C. Gonzalez and Richard E. Woods "Digital image processing Using MATLAB", 2010.

[2] Weisheng Li "New Color Cluster Algorithm For Image Retrieval" 2009.

[3] Jun Tang, "A Color Image Segmentation algorithm Based on
Region Growing" 2010.

[4] Yoichi MIYAKE and Kimiyoshi MIYATA "Color Image Processing Based on Spectral Information and Its Application" 1999.

[5] V.S.V.S. Murthy, E.Vamsidhar, J.N.V.R. Swarup Kumar

"Content Based Image Retrieval using Hierarchical and K-Means Clustering Techniques " 2010.

[6] Sangoh Jeong, "Histogram-Based Color Image Retrieval", 2001.

[7] N. K. Kamila "Image retrieval using equalized histogram image bins moments", 2010.

[8].V. Vijaya Kumar "Integrated Histogram Bin Matching For
Similarity Measures of Color Image Retrieval" 2009.

[9] Shuang Tan, Yan Jia, Hua Fan, A Hierarchical Algorithm for Document-images Fast Matching, 3rd International Conference on

Multimedia Technology（ICMT 2013).

[11] Liu Zhongwei1，Zhang liujing2. A Comparitive and Analysis Study of Ten color Feature-based Image Retrieval Algorithms. SIGNAL PROCESSING, 2000,16(1):79-84.

[12] Krishna Kumar Pandey, Nishchol Mishra,Hemant kumar sharma, Enhanced of color matching algorithm for image retrieval IJCSI International Journal of Computer Science Issues, Vol. 8, Issue 3, No. 2, May 2011

[13] Zhang zheng, Wang Yan ping, Digital image processing and machine vision , Posts & Telecom Press, pp.430-434,2010.

[14]M.M Elgayar1,H.Soliman2,N.Meky3,Comparative study of low level feature extraction algorithm, Cairo University Egyptian Informatics Journal(2013)

[15] Tan C I, Huang W, Yu Z, et a1. Imaged Document Document Retrieval without OCR[J]. IEEE Transactions on Pattern Analysis and Machine Intelligence,2002,24(6):838-84