Efficient Attendance Management System

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Abstract— Now a days the smart attendance management system using face detection techniques. Daily attendance marking is a common and important activity in schools and colleges for checking the performance of students. Manual Attendance maintaining is difficult process, especially for large group of students. Some automated systems developed to overcome these difficulties, have drawbacks like cost, fake attendance, accuracy, intrusiveness. To overcome these drawbacks, there is need of smart and automated attendance system. We are implementing attendance system using face recognition. Since face is unique identity of person, the issue of fake attendance and proxies can be solved. The system uses local binary pattern face recognition technique as it is fast, simple and has greater success rate. Also, it has pro-vision to deal with intensity of light problem and head pose problem which makes it effective. This smart system can be an effective way to maintain the will-less squatter recognition system is proposed based on appearance-based features that focus on the un shorten squatter image rather than local facial features. The rest step in squatter recognition system is squatter detection Viola-Jones upper detection rates is used. The whole squatter recognition process can be divided into two parts squatter detection and squatter identification. For face detection part, Viola Jones face detection method has been used out of several face detection methods. After face detection, face is cropped from the actual image to remove the background. Eigen faces and sher faces methods have been used for face identification part. Average images of subjects have been used as training set to improve the accuracy of identification.

Key words: Face Detection, Face Recognition, Eigen Faces, Data Base

I. INTRODUCTION

Maintenance of student attending is that the foremost powerful task in varied establishments. Each establishment has its own technique of taking attending like exploitation attending sheet or by exploitation some biometric ways in which. But these ways in which Consumes tons of some time. For the foremost half student attending is crazy the assistance of attending sheet given to the college members. This consumes tons of labor and time. We tend to don't understand whether or not or not or not the every student is responding or not. Calculation of consolidated attending is another major task which could cause manual errors. In another cases the attending sheet could become lost or taken by kind of the scholars. To beat such troubles we tend to tend to tend to stand live in would like of automatic attending management system. There unit of measurement several biometric ways that} on the market throughout which the basic construct is same. One in all them is that the finger print identification system. Throughout this methodology initial the finger prints of the folks are collected and hold on within the information of finger print detector. For this initial we've visit gather the finger print of each individual. This might be done only one time or once a novel entry need to be tons of within the information. Then the obtained finger prints are compared with the images in information. If the 2 finger prints are same the attending is marked as gift. However this methodology includes a range of the disadvantages. They're for this methodology the scholars got to be compelled to attend in queue that ultimately consumes tons of labor. If once the finger isn't unbroken properly or if the finger print is not recognized properly then the attending are marked as absent. So this method isn't best. The other biometric methodology out there is eye ball detection. Throughout this method eyeball detector is used. It senses the blinking rate of eye ball and it along senses true of iris. Throughout this method initial the attention ball or iris of every individual is hold on within the information. Usually the attention ball is not same for all persons. It's some distinction. The obtained image of eye ball is then compared with the attention ball within the information. If it's same then the attending is marked. However extensive it's out of the question. As there unit giant kind of students within the category eye ball detection of every individual isn't potential. These disadvantages unit overcome with the assistance of automatic attending management that doesn't consumes time and so the information isn't lost till we've a bent to erase the knowledge. This method is best in recently.

II. EXISTING SYSTEM

In the recent days Biometric method using Fingerprint detection.

A. Biometric identification using Eyeball detection.

In this project we are going to describe the attendance without human interference. In this method the camera is fixed in the classroom and it will capture the image, the faces are detected and then it is recognized with the database and finally the attendance is marked. If the attendance is marked as absent the message about the student's absent is send to their parents. There are various methods for comparing the faces. The Eigen face is the one of the method. Eigen faces is set of Eigen vectors which are used in computer vision problem of face recognition. And when the student is absent then we call and SMS to their Guardian.

III. ARCHITECTURE

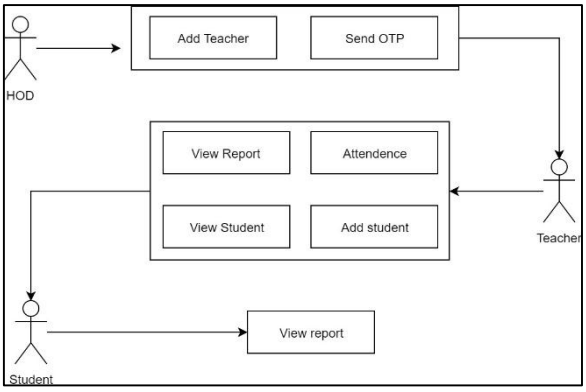

Fig. 1: Architecture diagram

IV. ALGORITHM

Viola and jones's algorithm is used as the basis of our design. As we know there is some similarities in all human faces, we used this concept as a haar feature to detect face in image. Algorithm looks for specific haar feature of a face, if these feature found algorithm pass the candidate to the next stage .Here the candidate is not whole image but just a rectangular part of this imageknown as sub window have a size of 24*24 pixel. With this window algorithm check whole image.

A. Haar Features

As we know there some kind of similarities in human face. We use this concept for making haar feature .They are composed of two or three rectangles. These features are applied on face candidate to find out whether face is present or not. Each haar feature has a value and this can be calculated by taking the area of each rectangle and then adding the result. Using the integral image concept we can easily find out the area of rectangle.

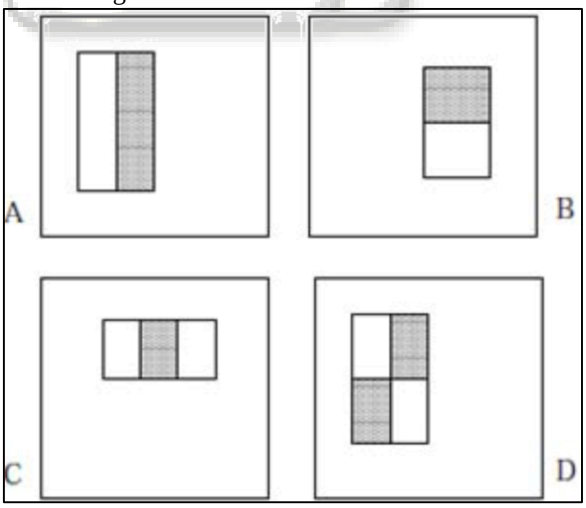

Fig. 2: Examples of haar features

B. Integral Image

The integral image is defined as the summation of the pixel values of the original image. The value atany location (x, y) of the integral image is the sum of the image‟ s pixels above and to the left of location (x, y). Fig. below illustrates the integral image generation.

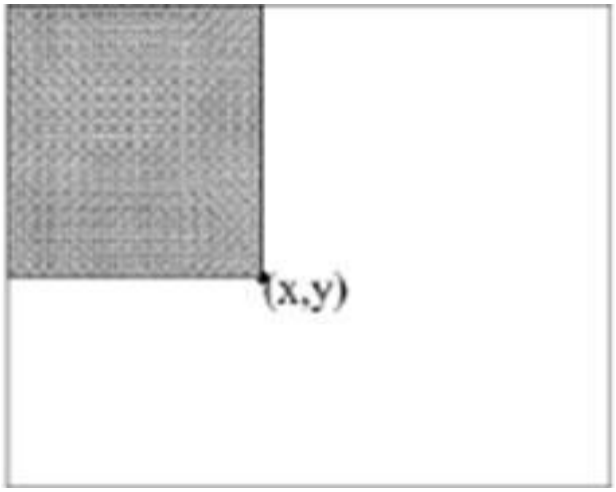

Fig. 3: Integral image

$$\sum_{x' \le x, y' \le y} ii(x,y) = i(x',y')$$

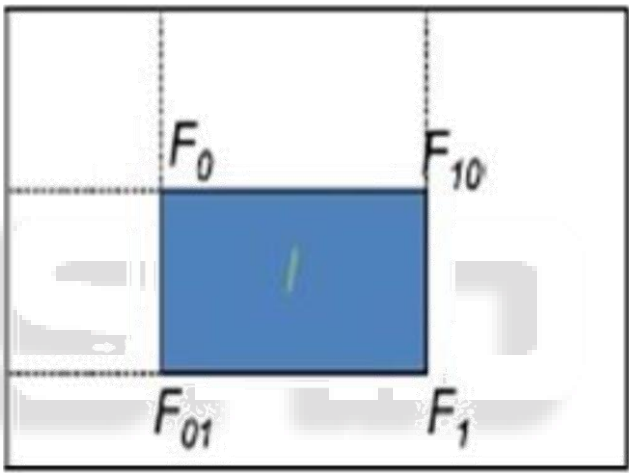

Fig. 4: Fast Calculation in Integral Image

Fig. presents the calculation process: in order to calculate the intensity sum of green region. Just four values of F have tobe considered. As a consequence, the intensity sum of any rectangular-shaped area can be calculated by considering as few as four values of F. This allows for an extremely fast calculation of a convolution with one of the rectangular haar feature describe above. The integral image F can be calculated in pre-processing stage prior to detection in a recursive manner in just one pass over the original image I as in equation 2 and 3 below.

$$R(x, y) = R(x, y-1) + I(x, y) \quad (2)$$

$$F(x, y) = F(x-1, y) + R(x, y) \quad (3)$$

Where R and F are initialized by R(x, -1) = 0 and F(-1, y) =0.

The sum of intensities of a rectangular are ranging from (x, y) to (x1, y1) can be calculated by considering the values of F at the four cover point of theregion instead of summing up the intensities of all pixels inside:

$$\sum_{a=x}^{x1} \sum_{b=y}^{y1} I(a,b) = F(x1,y1) - F(x,y1) - F(x1,y) - F(x,y) \quad (4)$$

C. Haar Feature Classifier

A Haar feature classifier uses the rectangle integral tocalculate the value of a feature. The Haar feature classifier multiplies the weight of each rectangle by its area and the

results are added together. Several Haar feature classifiers compose a stage. A stage comparator sums all the Haar feature classifier results in a stage and compares this summation with a stage threshold. The threshold is also a constant obtained from the Ada Boost algorithm. Each stage does not have a set number of Haar features. For example, Viola and Jones‟ data set used 2 features in the first stage and 10 in the second. All together they used a total .of 38 stages and 6060 features.

D. Cascade

It is possible to eliminate the false candidate quickly using stage cascading. The cascade eliminates candidate if it not passed the first stage. If it passed than send it to next stage which is more complicated than previous one. If a candidate passed all the stage, this means a face is detected.

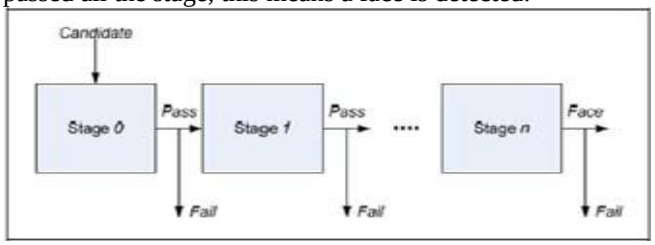

Fig. 5: Cascade of stages. Candidate must pass all stages in the cascade to be concluded as a face.

1) Math Model:-

S= {I, P, O}
Where,
S=System
I=Input
P=Procedure
O=Output
I= {Student-PI, Teacher-PI.}
Where,
PI=Personal Information
Procedure
Step1:-Admin/HOD
HOD will create the Teacher Account, the User name and password will be send on the registered mobile number.
HOD= {T-Fname, Lname, Mno, Sub}
Where,
Fname=First name,
Lname=Last name,
Mno=Mobile Number,
Sub=Subject.
Step2:-Teacher
Teacher will create the Student Account, the User name and password will be send on the registered mobile number.
Teacher={S-Fname, Lname, Rno, Sub}
Where,
S=Student,
Fname=First name,
Lname=Last name,
Rno=Roll number,
Sub=Subject.
Step3:-Student
The student will login and check the attendance.
Student :-{ Uname, pwd}
Uname=User name,
Pwd=Password.
Step4:-
If attendance is less than 75%, send a SMS to the Parents.

V. CONCLUSION

Using this system we tend to tend to face live able to replace all the recent ways in which. Economical and automatic attending management is introduced in paper. This system wishes entirely easy hardware for installation. The management of attending throughout this technique is additional easy and therefore the attending is taken additional accurately. One powerful task throughout this system is face recognition. We've got AN inclination to face live operative towards it.

A. Output:

Fig. 6: Recognition welcome page

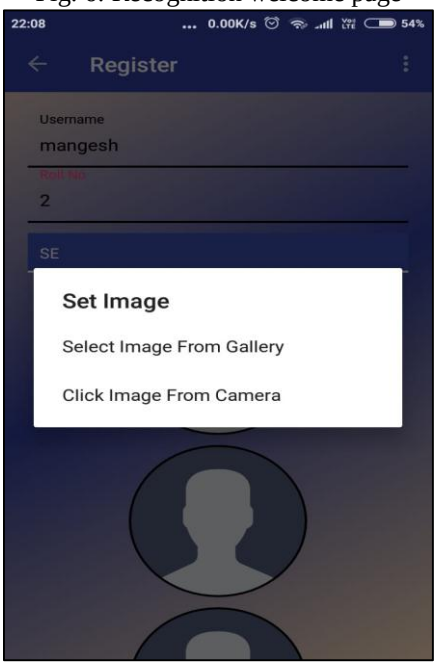

Fig. 7: Registration Page

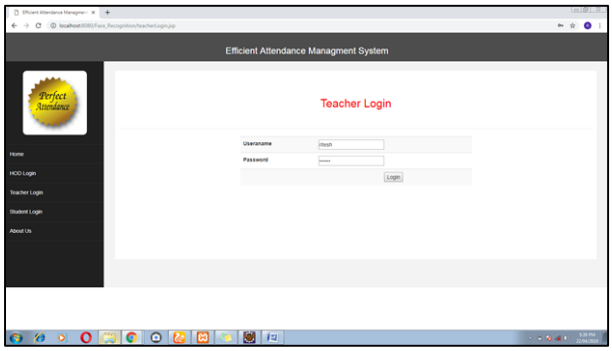

Fig. 8: Teacher Login

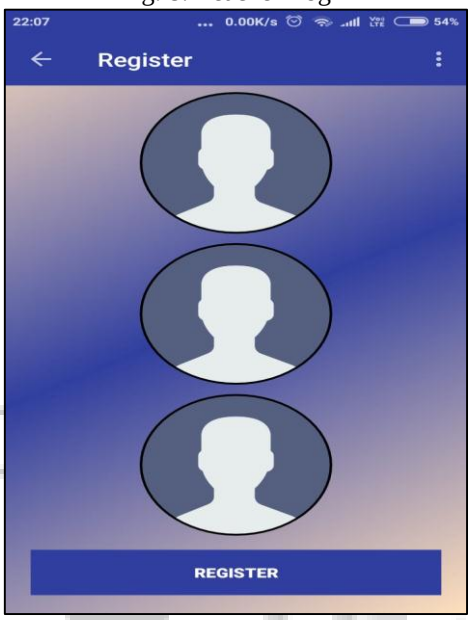

Fig. 9: Adding Faces

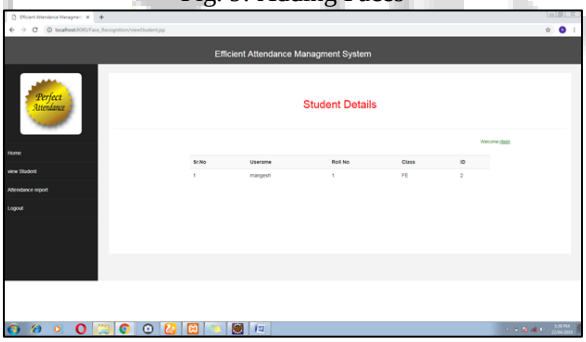

Fig. 10: Student Detail

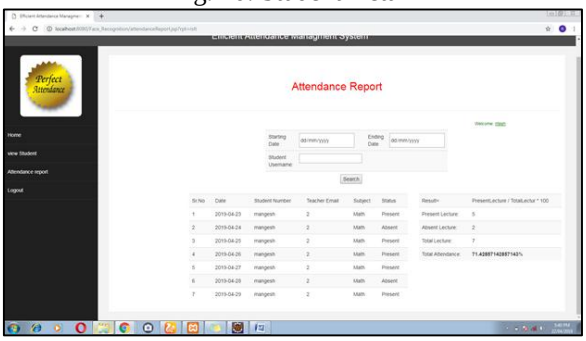

Fig. 11: Attendence Detail

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