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Face Recognition Attendance System

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ABSTRACT: There is a need to develop a real time operating student attendance system which means the identification process must be done within defined time constraints to prevent omission. The extracted features from facial images which represent the identity of the students have to be consistent towards a change in background, illumination, pose and expression. High accuracy and fast computation time will be the evaluation points of the performance.

I. INTRODUCTION

Attendance marking in a classroom during a lecture is not only task but also a time consuming one at that. Due to an unusually high number of students present during the lecture there will always be a probability of proxy attendance. Attendance marking with conventional methods has been an area of challenge. The growing need of efficient and automatic techniques of marking attendance is a growing challenge in the area of face recognition. In recent years, the problem of automatic attendance marking has been widely addressed through the use of standard biometrics like fingerprint and Radio frequency Identification tags etc., However, these techniques lack the element of reliability. In this proposed project an automated attendance marking and management system is proposed by making use of face detection and recognition algorithms. Instead of using the conventional methods, this proposed system aims to develop an automated system that records the student's attendance by using facial recognition technology. The main objective of this work is to make the attendance marking and management system efficient, time saving, simple and easy. Here faces will be recognized using face recognition algorithms. The processed image will then be compared against the existing stored record and then attendance is marked in the database accordingly.

Compared to existing system traditional attendance marking system, this system reduces the workload of people. This proposed system will be implemented with 4 phases such as Image Capturing, Segmentation of group image and Face Detection, Face comparison and Recognition, Updating of Attendance in database

II. LITERATURE REVIEW

Arun Katara et al. (2017) mentioned disadvantages of RFID (Radio Frequency Identification) card system, fingerprint system and iris recognition system. RFID card system is implemented due to its simplicity.

Viola Jones Algorithm:-

Viola-Jones algorithm segment from static images or video frame. And also 2. High detection to localize the face Speed. 3. High Accuracy

Local Binary Pattern Histogram Local Binary Pattern (LBP) is a simple yet very efficient texture operator which labels the pixels of an image by thresholding the neighborhood of each pixel and considers the result as a binary

III. METHODOLOGY

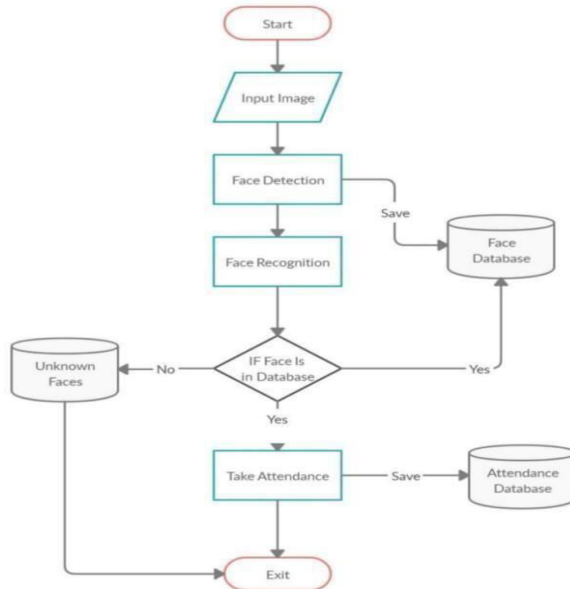
Problem Definition

There is a need to develop a real time operating student attendance system which means the identification process must be done within defined time constraints to prevent omission. The extracted features from facial images which represent the identity of the students have to be consistent towards a change in background, illumination, pose and expression. High accuracy and fast computation time will be the evaluation points of the performance.

Proposed Experiment Work

The face detection task can be broken down into two steps. The first step is a classification task that takes some

arbitrary image as input and outputs a binary value of yes or no, indicating whether there are any faces present in the image. The second step is the face localization task that aims to take an image as input and output the location of any face or faces within that image as some bounding box. After taking the picture the system will compare the equality of



the pictures in its database and give the most related result

SYSTEM ARCHITECTURE

IMPLEMENTATION TOOLS&MODULE DEVELOPED

The main components used in the implementation approach are opensource computer vision library (OpenCV). One of OpenCV's goals is to provide a simple-to-use computer vision infrastructure that helps people build fairly sophisticated vision application quickly. Open CV library contains over 500 functions that span many areas in vision. The primary technology behind Face recognition is Open CV. The user stands in front of the camera keeping a minimum distance of 50cm and his image is taken as an input. The frontal face is extracted from the image then converted to gray scale and stored. The principal component Analysis (PCA) algorithm is performed on the images and the eigen values are stored in an xml file. When a user requests for recognition the frontal face is extracted from the captured video frame through the camera. The eigen value is re-calculated for the test face and it is matched with the stored data for the closest neighbor.

Modules:-

1) Face Detection

Start capturing images through camera of the client side: Begin: Pre-process the captured image and extract face image calculate the eigen value of the captured face image and compared with eigen values of existing faces in the database. If eigen value does not matched with existing ones, savethenew face image information to the face database (xml file). Ifeigen value matched with existing one then recognition step will done.

2)Face Recognition

Using PCA algorithm the following steps wouldbe followed in for face recognition.

Find the face information of matched faceimage in from the database.

update the log table with corresponding faceimage and system time thatmakes completion of attendance foran individual student.

3)Sharing

In this project we add an extra featurecalled auto mail. It can automatically sent the attendance file to specific mail

IV.RESULTS

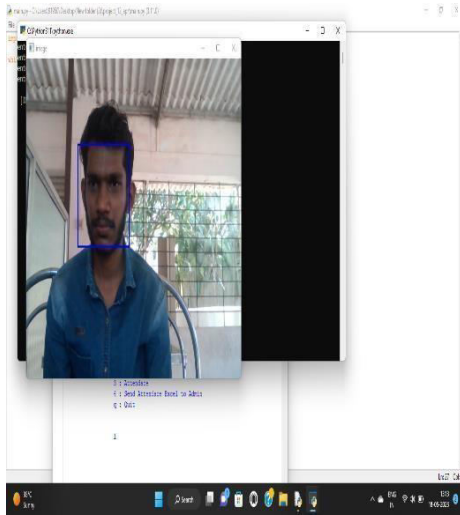


Fig.1.1

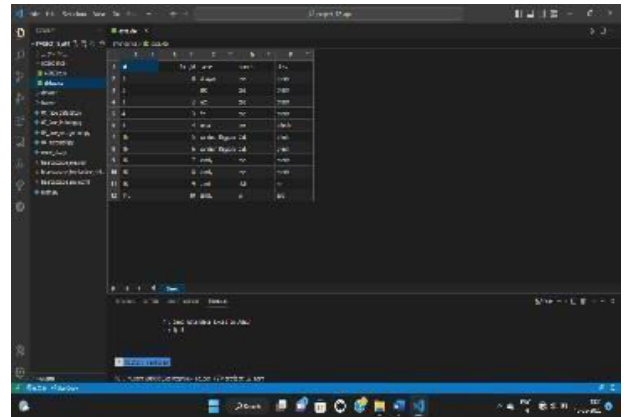


Fig.1.2

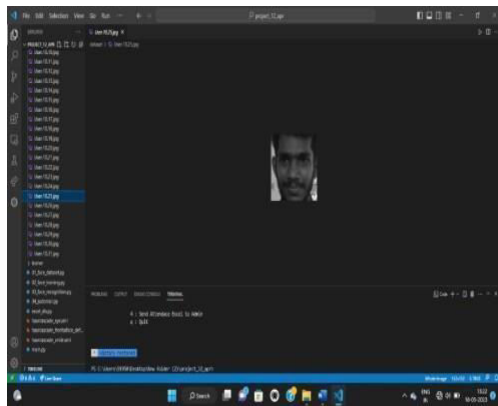


Fig.1.3

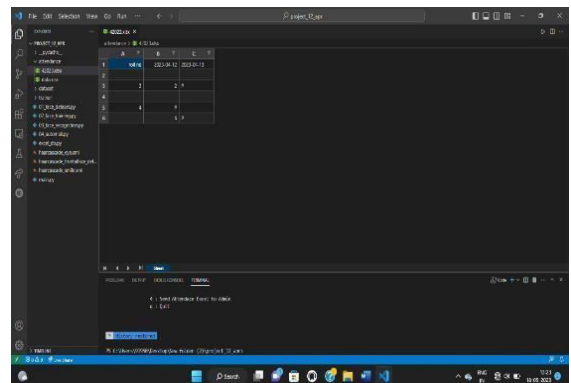


Fig.1.4

V.CONCLUSION

Thus, the aim of this paper is to capture the video of the students, convert it into frames, relate it with the database to ensure their presence or absence, mark attendance to the particular student to maintain the record. The Automated Classroom Attendance System helps in increasing the accuracy and speed ultimately achieve the high-precision real-time attendance to meet the need for automatic classroom evaluation.

We are setting up to design a system comprising of two modules. The first module (face detector) is a mobile component, which is basically a camera application that captures

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