ATTENDANCE MONITORING USING FACE RECOGNITION

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Abstract: Taking attendance manually is a very tiresome job. The existing biometric attendance also consumes a lot of time as it is not spontaneous. This paper describes the work aims at automating the whole process of attendance management this problem can be solved using face recognition approach. The camera installed will take a picture of the whole classroom, followed by detecting individual faces in the image, recognizing the students and then updating their attendance. The image will be captured twice once at the beginning of the class and once at the end to ensure that the student has attended the whole class and will be marked in an excel sheet for maintaining a student's record.

*Index Terms***:** *Face Detection, Recognition, Attendance.*

I. INTRODUCTION

Attendance maintenance is an obligatory and a significant task to the institution for student's record. Every institution has its own way to do so. Some of them use the old paper or file-based approach and some have adopted methods of automatic attendance using some biometric techniques like Fingerprint, Iris Recognition, and Face Recognition.

Face Recognition is considered to be one of the most successful applications of image processing that is the main reason behind the great attention it has been given in the past several years. There are many algorithms which can be used in Open CV library for face detection and recognition they are Eigen faces, Fisher faces, Local binary patterns histograms and Haar Cascade.

The process can be divided into two main stages: processing before detection where face detection and alignment take place (localization and normalization), and afterwards recognition occurs through feature extraction and matching steps. This system is built and trained using the Haar Cascade algorithm for face recognition approach concerning the automatic attendance of students in the classroom without student's intervention. This attendance is recorded by using a Camera that captures images of students, detect the faces in images, compare the detected faces with the database and mark the attendance.

II. LITERATURE SURVEY

3.1 Smart Attendance using Face Recognition with Percentage AnalyserBy Jyotshana Kanti, Anubhooti Papola.

This paper uses the face recognition technique for marking attendance. In this, a new method which uses PCA (Principal Component Analysis) with Artificial Neural Network for the purpose of face recognition in Attendance management, in addition, there is a function which analyses the percentage of attendance for a student and helps him manage his leaves. In this work, the artificial neural network architecture is implemented which will determine the orientation of the face and then recognize the face. Thus, the system which will design will recognize those faces also in which side view of the face is visible. Also, an added percentage analyser feature will help the students to monitor their attendance. The proposed system which yields overall accuracy of 81.3%.

3.2 Efficient Attendance Management using Face Recognition ByNaveed Khan Baloch, M. HaroonYousaf.

The attendance is recorded by using a camera attached inside the classroom which captures the images of students, detects the faces in images and compare the detected faces with the database and mark the attendance. A camera takes the images to detect and recognize all the students in the classroom. In order to avoid false detection, we are using the skin classification technique, through which we can enhance the efficiency and accuracy of detected faces which yields overall efficiency of 82.3%.

III. EXISTING SYSTEM

In the existing system few of the observations were made like, Although the system had developed to be work in computerization, but it still require computer operator to manage the storing and retrieving of information frequently. So, the proposed system had only converted the traditional attendance system to computerization but everything still have to be done manually such as key-in student attendance which are considered as the limitations .It only reduces the cost used for paper work but the system does not save much time . This system may mark up absentee due to improper facial texture recognition

IV. PROPOSED SYSTEM

1. The Student's face is captured during the enrolment process and entered in the database then the attendance is marked

2. For Face recognition there are two types of 20 comparisons:

• Verification

• Identification

 3. Verification - System analyses the given individual with whom that individual says they are and gives a yes or no decision.

4. Identification - System compares the given individual to all the other individual in the database and gives an ordered list of matches.

5. All identification or authentication technologies operate using the following four stages:

 • Capture: A physical sample is captured by the system during enrolment and also in Identification or Verification process.

• Extraction: Unique data is extracted from the sample and a template is created.

• Comparison: The template is then compared with a new sample.

• Match/Non-match: The system decides if the features extracted from the new sample match
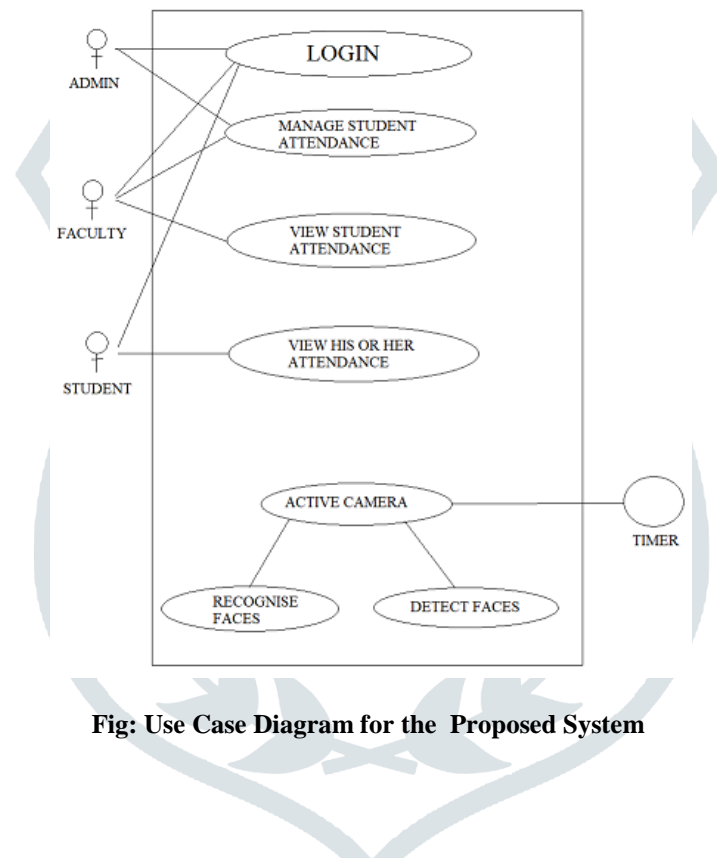
USE CASE DIAGRAM

Fig: Use Case Diagram for the Proposed System

V. REQUIREMENTS

A. Hardware Requirements

    1) Processor: Intel Core i5-8250U CPU @ 1.60GHz 1.80 GHz

    2) Installed Memory(RAM): 8.00 GB or higher

    3) System Type: 64 bit operating system, x64- based processor

    4) A camera with the Resolution: Webcam with 0.9 MP

B. Software Requirements

    1) Programming Language: Python 3.6, Open CV 4.0

    2)Database : Firebase

    3) Windows 10

VI. RESULT ANALYSIS

Analysis based on Haar Cascade

An analysis made using Haar Cascade, it is used to analyse Facial features. Where the faces are captured and trained using the data sets. The attendance is marked immediately after recognition in the excel sheet as the accuracy level is more than 60 per cent for this system.

VII.CONCLUSION

This paper describes the work aims at automating the whole process of attendance management this problem can be solved using face recognition approach. The camera installed will take a picture of the whole classroom, followed by detecting individual faces in the image, recognizing the students and then updating their attendance. The image will be captured twice once at the beginning of the class and once at the end to ensure that the student has attended the whole class and will be marked in an excel sheet for maintaining a student's record.

VIII. REFERENCES

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