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AI BASED ATTENDANCE MONITORING SYSTEM

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ABSTRACT: In this project, face of a person is used for the aim of attendance making automatically. As Attendance plays an important role for each college, universities and schools. A number of an automated biometric-based attendance system are projected within the literature reviews, poor system models have negatively affected their performance. Hence, a necessity to handle the various desires needed with the development of an AI-based attendance observation system. Attendance observation System is important in all organizations for checking the performance of students and it is not easy task to check each and every student is present or not. As we can see in all organization attendance are taken manually by calling their roll numbers or names and marked present in registers issued by the department heads as a proof and in some organizations the students wish to sign on these sheets which are stored for future references. In this system, we use are using the technique of utilization of face detection and recognition framework to endlessly recognize students going to class or not and marking their attendance by comparing their faces with stored information in database to match and marking attendance. This facial biometric framework takes an image of a person using camera and distinction image with the stored image in the database at the time of enrolment and if it matches, marks the attendance and monitor the student performance endlessly. We may use the concept of artificial intelligence to observe student attendance like capturing the motion photos of the student when present in class to analyse the student data how much time the student presents in class.

Keywords: Face Detection, Face Recognition, OpenCV, Image Enhancement, Attendance System

1.INTRODUCTION

As Attendance is an important factor for both the student as well as the teacher of an academic organization. The student's attendance system using artificial intelligence idea mainly works using the concept of Facial Detection, face recognition system and Student's attendance observing system and applications. Maintaining the attendance is very important in every and each groundwork for checking the performance of students. Every organization has its own technique. Face is considered as a primary key feature to spot and speak with alternative peoples within the world because face considered as a unique identity for every and each person. The facial features will be unique to the other indusial. It processes overall facial structure, distances between color, ears, eyes, nose and mouth, etc. Except for computers, it's tough to analyse the data therefore we tend to use the concept of Computer vision. The intention of using computer vision technology to recognize the human features in a computer. Hence, this technique handles all the problems that occurred in traditional system and other bio metrics strategies.

2.LITERATURE REVIEW

(Marko Arsenovic et al) The developing procedure is split into several necessary stages, together with the training dataset and augmentation, getting ready images and training DNNs and last but not least, integration into the prevailing system so as to check the proposed method. In this paper, a brand-new deep learning-based face recognition attendance system is projected. The complete procedure of developing a face recognition element by combining state-of the-art ways and advances in deep learning is delineated. [1]

(Louis Mothwa et al) It demonstrates how a multicamera installation reduces the impact of occlusion within the method of face detection, since higher face detection will increase the accuracy of sophistication class attendance observation. A wise model for student attendance monitoring system supported on facial recognition has been conferred in this paper. The real-time face recognition with periodical updates of the attendance info determines the presence of students throughout the total lecture period. [2]

(RefikSamet et al) The system consists of three layers: Application Layer, Communication Layer, and Server Layer. A filtering system based on Euclidean distances calculated by Eigenfaces, Fisher faces, and LBP has been developed. The projected system eliminates the price for further instrumentation, minimizes attendance-taking time, and permits users to access the information anytime and anyplace.[3]

(Dr.B.R.Shunmugapriya et al)The group image of the students is captured and shold on within the database. The individual faces of each student area unit recognized by face detection algorithm program. The project conferred the robust human face recognition system supported on discriminative robust native binary pattern and LDP for automatic attending system. [4]

(Naveed Khan Balcoh et al) The system consists of a camera that captures the pictures of the classroom and sends it to the image enhancement module. After enhancement the image comes within the Face Detection and Recognition modules then the attendance is marked on the information/database server. This paper introduces the efficient and correct methodology of attendance within the classroom atmosphere that may replace the recent manual ways. This methodology is secure enough, reliable and accessible to be used. No need for specialized hardware for putting in the system within the classroom.[5] There is a need to create such a system which will solve this problem and make a user-friendly environment for the customer [10]. Also, human fingerprint considered as the most trustworthy criteria for identification and it also cannot be changed with time even up to the death of an individual [11].

3.Proposed work

3.1Architecture Diagram:

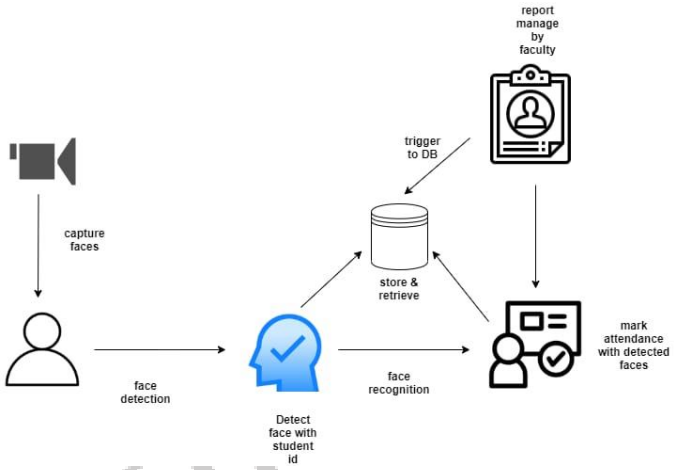

fig.1 System Architecture

3.2Algorithms and Techniques Used

1.Face Detection:

Haar Cascade used for Face Detection in OpenCV. Viola-Jones Face Detection techniques, popularly known as Haar Cascades. It is an object detection algorithm used to identify faces in image or a real live video. The algorithm is given a lot of positive images consisting of faces and lot of negative images not consisting of any faces to train on them. The model created from this training is available at the OpenCV. Haar cascade detection is one of the most powerful face detection algorithm not only used to detect faces, but also for eye,lips,licence number plates etc. we can access with OpenCV method.

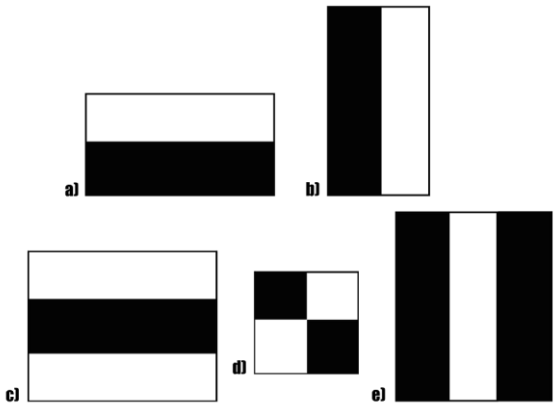

Fig.2 A sample of Haar features used in viola and jones

2.Face Recognition:

- Apply PCA classifier
- Extract the features from detected faces
- Compare Features
- Put Student's Attendance based on recognized faces
- Steps Used in PCA Algorithm:

Step1: Acquire preparing set of 'N' number of pictures at the first stage. In this technique the pictures are of 92*112 pixels each.

Step2: Calculation of the Eigen face from the "N" preparing set pictures keeping just couple of M pictures that is relate to that of the highest Eigen values. The M pictures indicate the "face space". At the point when new faces experienced, the

"Eigen faces" can be recalculated in like manner.

Step3: The relating distribution of the "M" dimensional weight space for each known individual is calculated by representing their particular face pictures onto "face space".

Step 4: Compute set of the weights anticipating the information picture or info picture to M "Eigen faces".

Step5: Determine if the given picture is face picture or not by checking to the closeness of given picture or picture to "face space".

4.RESULTS

Fig.4.1: Face capture

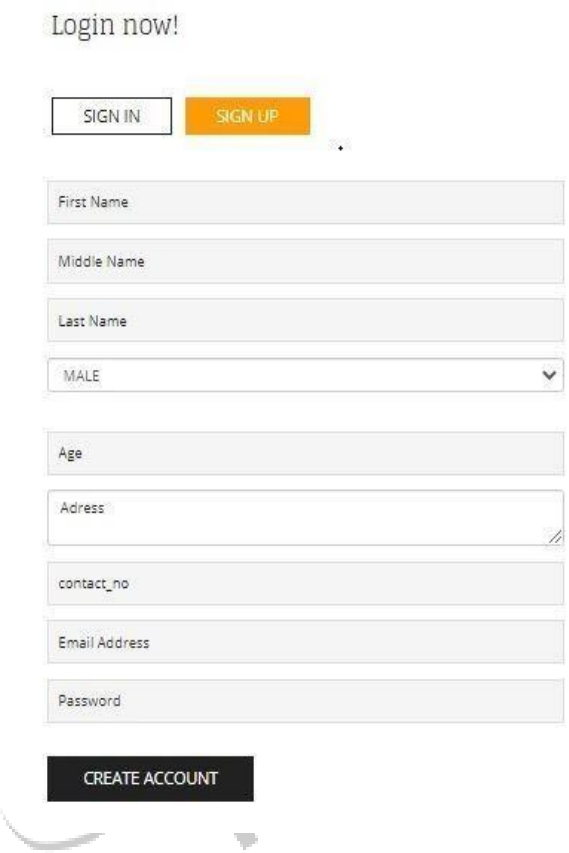

Fig 4.2: Registration Page

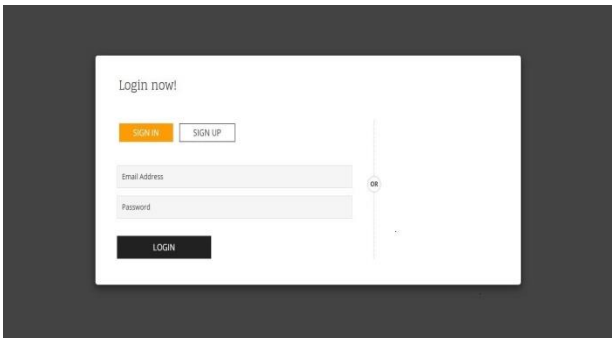

Fig 4.3: Login Page

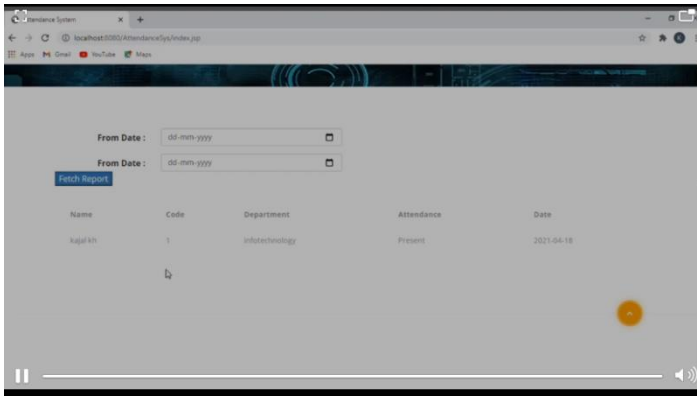

Fig 4.4: Attendance report

5.CONCLUSION

We come to comprehend that there is extensive form of methods, for example, biometric, RFID based mostly and so forth which are time intense and non-efficient. So, to overcome, this on the top of framework is that the higher and reliable resolution from each perceptive of our time and security. In this way we've accomplished to feature to a reliable and effective participation framework to differentiate faces in classroom and recognize the faces accurately to mark the attendance. The scope of the project is that the system on which the software is installed, i.e., the project is developed as a desktop application, and it'll work for a particular institute. However afterward, the project can be changed to control it online.

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