ATTENDANCE MONITORING SYSTEM USING FACERECOGNITION

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ABSTRACT

Now-a-days, marking attendance takes 5-10 minutes of time for each subject. This leads to wastage of time for both teachers and students. To avoid that we come up with a project called "ATTENDANCE MONITORING SYSTEM USING FACE RECOGNITION". We

made this project using a face recognition library. First , we created one folder and inserted the students image for training purposes. We executed this project in pycharm. using the array named "CLASSNAMES" we have extracted the student name from the image and stored it inthat array. In the training phase we convert the training students image to grayscale image forencoding purposes. Basically, 128 encoding measurements are different between two faces . Using that concept we made this project . Before the testing process, we should find encoding for all training images and stored in an array. In the testing process , through camera image we should perform till encoding process and match this encoding measurement with training encoding measurement . If that matched then the rectangle box with their name showed in their face. And automatically the person's name with time is stored in an excel file .

Keywords -

I. INTRODUCTION

Nowadays,time is everything. By using time we get everything like knowledge, getting newtechnology, lot of....................................Wasting of time will never be retained. In college and in school we are taking attendance it takes 5 minutes or more that. For this we come up with solution called "ATTENDANCE MONITORING SYSTEM USING FACE RECOGNITION".A facial recognition system is a technology capable of matching a human face from a digital image or a video frame against a database of faces, typically employed to authenticate users through ID verification services, works by pinpointing and measuring facial features from a given image.

Problem Statement

Now a days, marking attendance leads to wastage of time in the classroom . Faculty want totake attendance in each and every session. This consume students time as well as teachers time. To overcome that, we make a project called "Attendance monitoring system using facerecognition".

Objectives

1. Nowadays,time is everything.

2. By using time we get everything like knowledge, getting new technology, lot of.....
   Wasting of time will never be retained.

3. In college and in school we are taking attendance it takes 5 minutes or more that. For this we come up with solution called "ATTENDANCE MONITORING SYSTEM
   USING FACE RECOGNITION".

4. A facial recognition system is a technology capable of matching a human face from a digital image or a video frame against a database of faces, typically employed to
   authenticate users through ID verification services, works by pinpointing and measuring
   facial features from a given image.

Scope

- The purpose of this project is to marking the attendance in digital manner .

- In this project , we are going to make it for colleges and schools .

- But , this project is also beneficial for hospitals , industries etc .

- This project prevents the time waste in many sectors .

II. METHODOLOGY

We have used eigenfaces algorithm to automate attendance monitoring, Eigenfaces is a method that is useful for face recognition and detection, it works by determining the variance of faces in a collection of face images and it uses those variances to encode and decode a face, The base of the eigenfaces method is the Principle component Analysis (PCA) . PCA is mainly used for dimensionality reduction, it is used in many applications such as visualisation, feature extraction, data compression. The idea behind PCA is to linearly project original data onto a lower dimensional subspace offering the principal components (eigenvectors) maximum variance of the projected data and. Eventually, both lead to the same result which is the best reconstruction formula minimum distortion error from the projection. this subspace is called principal subspace, while using this algorithm the images are converted from RGB to grayscale, the faces are detected from the image, and encodings are calculated and stored fro each image, while testing the image is captured through camera, and the encodings are calculated for that image, and those encodings are compared with the stored encodings, and if any of the encodings gets matched, the attendance is marked along with the time

III. Description

Image processing: In the initial step the gadget is moved over the printed page and the inbuilt camera catches the pictures of the text. The nature of the picture caught will be so high to have quick and clear acknowledgment because of the great goal camera. Letters will be separated and changed over into computerized structure. It comprises of three stages: Skew Correction, Linearization and Noise Removal. The

caught picture is checked for slanting. There are potential outcomes of picture getting slanted with one or the other left or right direction. Here the picture is first lit up and binarized. The limit with respect to incline area checks for a state of bearing and accepting that recognized then a clear picture turn is finished till the lines coordinate with the even midpoint, which conveyed an inclination amended picture. The commotion presented during catching or of succession of characters into sub picture of individual image (because of low quality of the page must be cleared for additional handling. Division: This activity tries to decay a picture characters). The binarized picture is checked for interline spaces. On the off chance that entomb line spaces are identified then the picture is portioned into sets of sections across the interline hole.

The lines in the sections are checked for even space convergence concerning the foundation. Histogram of the picture gave to distinguish the width of the even lines. Then, at that point, the lines are filtered upward for vertical space convergence. Here histograms are utilized to identify the width of the words. Then, at that point, the words are disintegrated into character width calculation. Include Extraction: In this stage we accumulate the fundamental highlights of the picture called highlight maps. One such technique is to recognize the edge in the picture, as they will contain the necessary text. Tesseract: This product is utilized to change over the picture record to message document by separating the messages from the picture and putting away it in the record with.txt expansion.
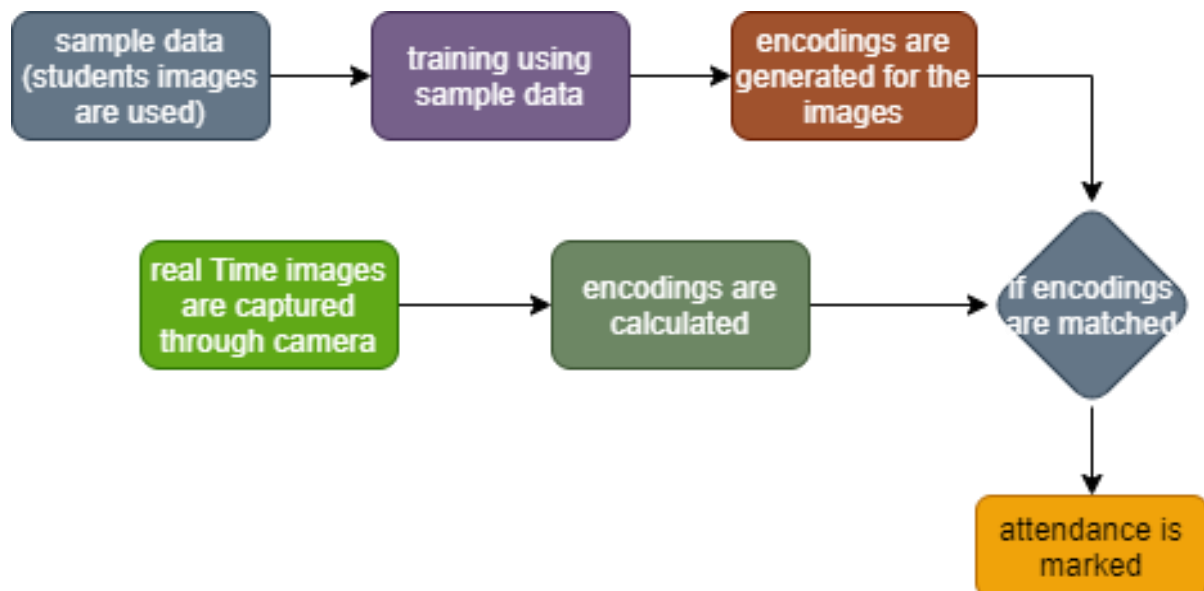
IV. FLOWCHART

Fig. 1

V. IMPLEMENTATION

We implemented this project using pycharm and python programming language . Basically , we have divided this project into four phases .

Preparing datasets :

We collected sample images from the net and stored it in one folder , at the same time stored all the students'

names in a separate array .

Training Phase :

In this phase , we converted all training images into grayscale images and based on the small pixels on the images , for each image we found 128 encoding measurements and stored it .

Testing Phase :

In the phase , through the camera we get the testing image , we followed the same procedure for this testing image and we identified 128 encoding measurements by converting this image into grayscale image .

Mark the attendance :

we compared the testing image encoding measurements with all the stored training image encoding measurements , if it gets matched then automatically the respective students name with current time is stored .

VI.   APPLICATIONS AND ADVANTAGES
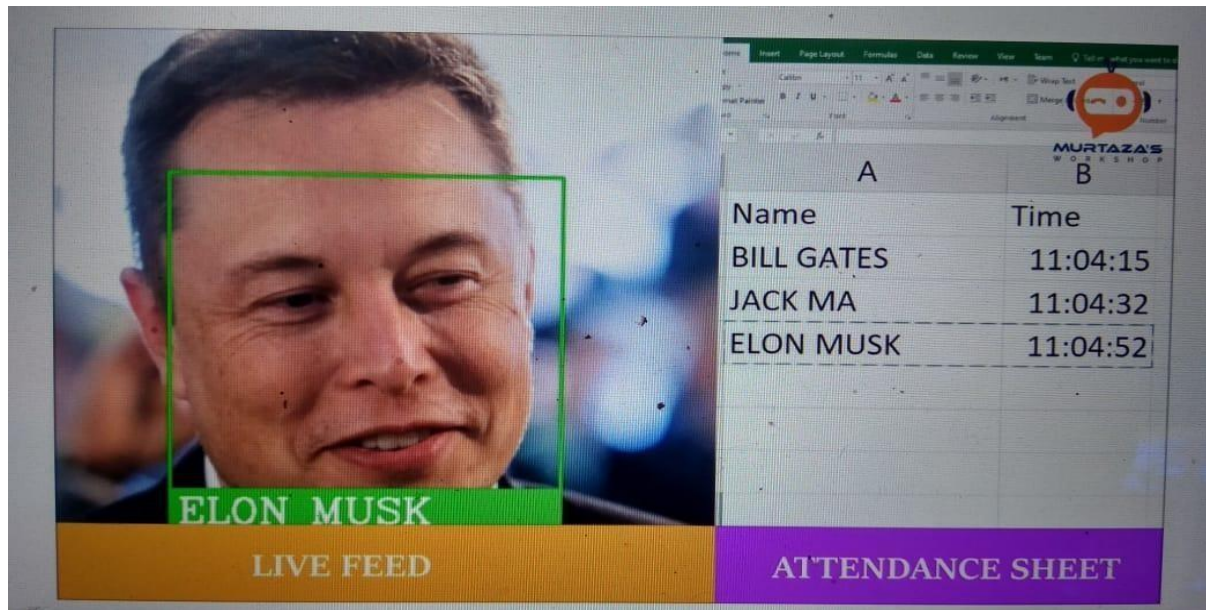
Advantages

- High in accuracy
- Time Saving
- Identifying the proper image and taking attendance.
- Support for large Databases

Applications

- It is used in schools , colleges and and also in industries to prevent the wastage oftime .
- It reduces the management time in so many areas .

VII.   EXPERIMENTAL RESULTS:

The output obtained from our project , once the student's image is bound by a green box with his/her name then automatically the student name is stored along with current time .

VIII. CONCLUSION

So by using face recognition and python we can automate the attendance taking process which improves the efficiency and reduces the time spent for taking attendance.

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