LIVE ONLINE CLASS MONITORING USING FACE RECOGNITION

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ABSTRACT

Speed up progressions in the innovation period gets changes every one of the fields. Live participation is one such model that empowers the division to stamp the participation of understudies consequently by perceiving their appearances, particularly in the web-based classes. The guideline reason this framework has been advanced is to further develop the internet-based participation arrangement of different colleges to stay away from the abuse of time and resources. The model depends on the face discovery and acknowledgment calculation strategy and consequently perceives an understudy. To assess and upgrade the exhibition of the framework, many channel capabilities are utilized which give the capacity to catch and perceive the pictures even in dull and lowlight places. The principal witticism of the Student Attendance system structure is to perform, adding and controlling participation notes of an individual, programmed estimation on number of presenters and truants in view of separate period and approachability of the class and it naturally produces the mechanized report or calculation sheet. Participation is checked and refreshed for a timestamp of each and every 10/20 minutes for an internet based live class. This framework makes the using time productively and makes each understudy aware of be mindful in the class.

1.   INTRODUCTION

Today in the fast-growing world, face recognition is one of the trending technologies which can be used in various domains. One of the use cases where we can implement face recognition in marking of attendance through online. The online environment for the conduction of classes made the progressive rate of the education to step back. The online education thus made it difficult to raise issues for marking attendance too. It is easy for humans to perform a task accurately by practicing it repeatedly and memorizing it for next time. Human brain can analyze images easily. The aim is to design a system with more than 90% accuracy.

The goal is to correctly identify the student in the live session video and recognize the student from the dataset and meanwhile update the same, this is achieved with different algorithms and techniques to learn first-hand what works well and how techniques perform.

(a)   The main goal of the project is to develop a system for live class attendance monitoring, and this is achieved through face recognition.

(b)   The Live online class attendance system is much more efficient than the traditional attendance system both in saving time and maintaining the database. Its main objective is to make students attentive in class.

2.   LITERATURE REVIEW

In the past period of school system, the class observing is done physically. With the more noteworthy change in innovation and upgrade of day to day existence made the establishments move to online mode. The current framework is utilized to screen the understudy participation through biometric, iris catch, through actual camera in conventional schooling system.

A. Digital picture methodology:

The utilization of a computerized PC to deal with computerized photos utilizing a calculation is known as advanced picture handling. Computerized picture handling, as a subsection or discipline of computerized signal handling, has various benefits over simple picture handling. It empowers an extensively more extensive selection of calculations to be applied to the crude information, as well as keeping away from issues like clamor and impedance during handling. Advanced picture handling can be addressed as multifunctional frameworks since pictures are characterized in two aspects (or more). Three variables have impacted the age and development of computerized picture handling: first, the progression of PCs; second, the headway of math (especially the creation and further developed execution of discrete math hypothesis); and third, the rising costs for many applications in the climate, farming, military, industry, and clinical science.

(a)   **Face Detection:**

Face acknowledgment can be considered a subset of item class discovery. The objective of item class identification is to find and estimate all things in a picture that have a place with a particular class. The location of front facing facial pictures is the focal point of face identification calculations. It's like picture identification, where an individual's picture is broke down one small step at a time. The picture is a counterpart for

the picture put away in the data set. Any adjustments to the information base's face elements will deliver the matching strategy futile. In view of the hereditary calculation and the eigen-face procedure, a dependable face-recognition technique has been created.

To start, all valley segments in the dark level picture are tried for likely natural eye areas. The hereditary calculation is then used to foster all of the possible face regions, including the temples, iris, nostrils, and mouth corners. The lighting impact, which is brought about by lopsided enlightenment, and the shirring impact, which is brought about by head development, are both decreased by normalizing each possible face applicant. Every applicant's wellness esteem is determined by extending it onto the eigenfaces. All of the face up-and-comers with a high wellness esteem are picked for additional check after various cycles. Right now, the evenness of every individual's face is estimated, and the presence of different facial attributes is affirmed.

(b) Face Recognition:

A facial acknowledgment framework is an innovation that can match a human face from a computerized picture or a video outline against a data set of countenances. It works by finding and estimating facial highlights from a given picture and is frequently used to check clients through ID confirmation administrations. Facial ID is a troublesome example acknowledgment issue in registering, in spite of the way that people can perceive faces absent a lot of exertion. In view of a two-layered photo, facial acknowledgment frameworks endeavor to perceive a three-layered human face that changes appearance with lighting and facial inclination. Facial acknowledgment frameworks go through four moves toward complete this computational issue. The face is first sectioned from the reference picture utilizing face discovery. The divided face picture is situated in the second stage to represent face pose, picture size, and visual characteristics like lighting and grayscale. The objective of the arrangement strategy is to consider exact facial element limitation in the third stage, facial component extraction. To portray the face, highlights like the eyes, nose, and mouth are found and estimated in the picture. The face's laid out highlight vector is then matched against a data set of countenances in the fourth stage. Underneath addresses a face with discovery focuses.

3.   METHODOLOGY

Following is the series of steps that is followed by the model.
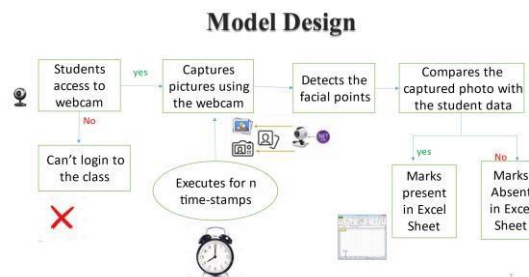
4.   IMPLEMENTATION OF KEY FUNCTIONS

(i)   findEncodings():

The encoding points will be saved in the encodeList. def findEncodings(image):

(i)   VideoCapture():

It is used to capture the live video from the webcam of the respective PC.
Cap=cv2.VideoCapture(0);

(ii)   markAttendance():

It stores the name of the student and the system time at which the student has joined the session. def markAttendance(name):

(iii)   cvtColor():

This is used to change the color scale of the captured image from BGR to RGB.
imgs=cv2.cvtColor(img,
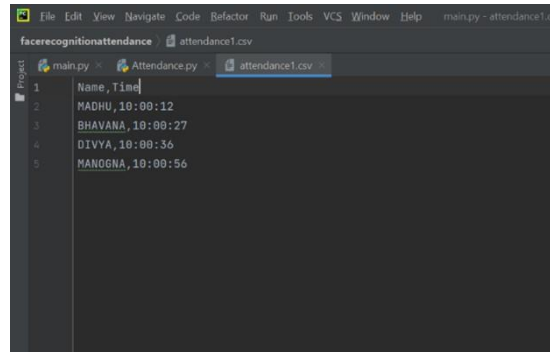cv2.COLOR_BGR2RGB);

(iv)   strftime():

This method is used to extract the system time using datetime package.

5.   RESULTS

The output of the system stores the name and system time, and it is used to mark attendance for the students who attended the online session. The datasets are uploaded manually according to the student database for the respective class.

For every session, the students' pictures are captured through webcam and the facial points are identified. The present data is compared to the loaded dataset; if the maximum features are matched then the attendance is marked for the respective login. The complete details will also be updated in the csv file.

(i) The developed model will detect and is able to recognize the faces.

(ii) Compares with dataset and finds the perfect matching.

(iii) If it finds the perfect match with dataset then marks the student as present in csv file or vice versa.

(iv) his model helps to monitor the attendance for the live online class.

6. FUTURE WORK

The present model now records the presence of a student only at entry time. So, it will be developed in such a way that it records the presence of a student at certain time stamps like (10/20 mins) in CSV file (Excel sheets). All the data collected at respective timestamps is compared to mark the attendance with maximum presence.

Popup notifications are introduced whenever the student goes out of the screen or present idle infront of screen.
The model should be developed in such a way that more than two students can also attend the class in the same device.

7. CONCLUSION

With the increase of online classes conduction due to pandemic, its is difficult for a trainer to monitor the students. This model helps to keep track of students. It is helpful to decrease the burden of the faculty. Few features of this model can make the student concentrated and active in the session. As the future generations will be mostly relied on online classes, this model is helpful.

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