Real Time Attentiveness Detection In Online Meeting Platforms

TECHNICAL FIELD OF INVENTION

A system consisting of eye and yawning detection modules to check attentiveness of people while attending meeting remotely and notify them when they are inattentive by triggering an alarm at their end.

BACKGROUND

There had been a lot of technological shifts going on, but this was boosted due to pandemic. During the pandemic a new trend started where students and employees would attend classes and meetings remotely. This complete shift to online mode led to more instances where the meeting attendees showed signs of inattentiveness, like sleepiness, distraction, drowsiness, not being present in front of the camera. This further led to decrease in productivity and efficiency. Among the various surveys done, one of the surveys showed that the instances of inattentiveness increased, and people tend to indulge in off-task activities at some point during the meetings or classes. Due to such rising problems, we proposed this model which will identify inattentive behaviour of the attendee based on eye closure and yawning detection. The model is designed in such a way that it will automatically detect inattentiveness of the person and will trigger an alarm at the attendee's end.
The model will classify the states of the attendee as- Active, Sleeping and Drowsy. According to the state of the attendee their attentiveness will be judged, and the alarm will be triggered in inattentive states (i.e., drowsy, and sleepy). The attendance will be then marked on the basis of final score.

OBJECTIVES

- To make people more attentive during online meetings/classes by alerting them by triggering an alarm on the attendee's end.
- To help teachers with the attendance system by developing a more efficient system.
- To help students be more serious towards their classes and for employees to be more attentive during meetings in order to increase efficiency and productivity.

FIGURES

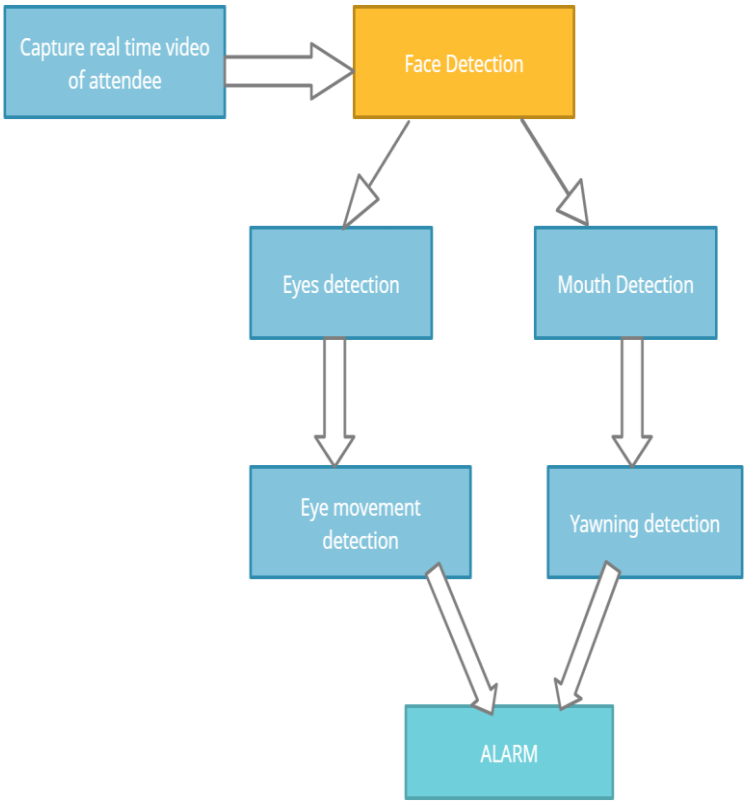

FIG. 1 PROCESS FLOW DIAGRAM

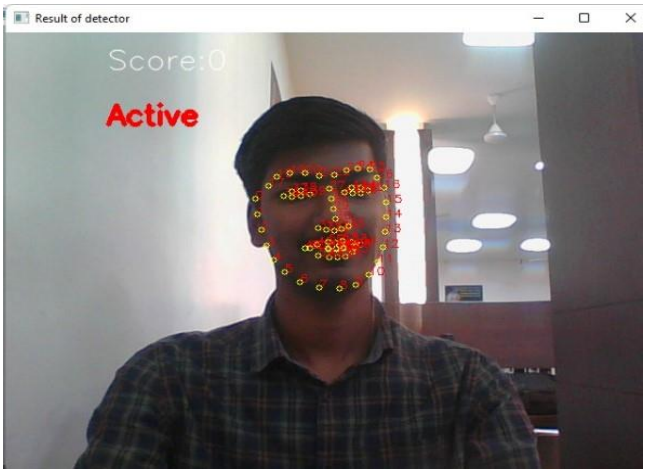

FIG. 2 ACTIVE STATE

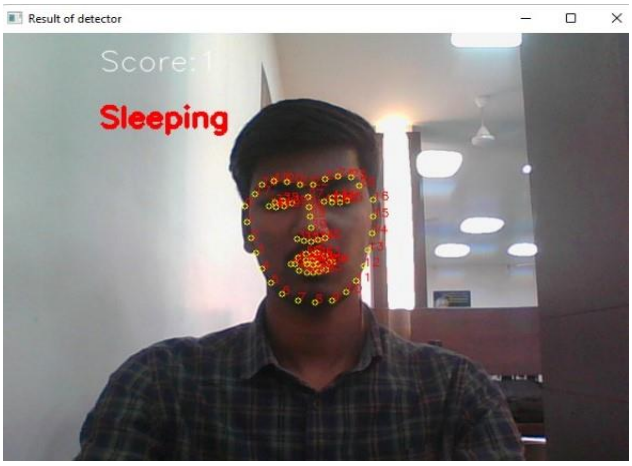

FIG. 3 SLEEPY STATE

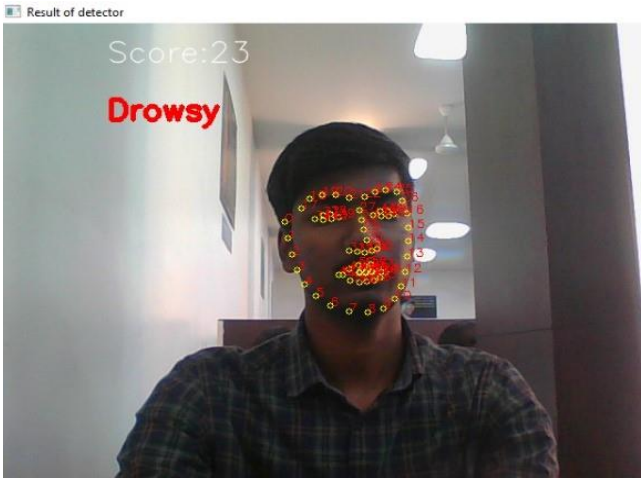

FIG. 4 DROWSY STATE

CLAIMS

- This system performs attentiveness detection in online meeting platforms.
- This system will help teachers to mark the attendance with more ease and will also enhance the attendance management system.
- Not only the teachers but also the employers will get benefited through this system as this will help them know if the people attending meeting are attentive or not, hence increasing productivity and efficiency of the employees.
- The system involves triggering an alarm at the attendee's end the moment attendee is becoming inattentive.

- There are three states which are checked by the system, these are- Drowsy state, Sleepy state, and Active state.

- When the attendee yawns, the yawn_status becomes True (initially False) and yawn_count also starts increasing from zero (initial value).

- The organizer will know about the attendance through the list he/she downloads in the end, the system will mark the attendance according to the final values of the parameters considered which is further reflected in the list downloaded.

TECHNOLOGY USED

1. Machine Learning
2. Front-end:
    - HTML
    - CSS
    - JavaScript
3. Backend:
    - Python
    - Django

ABSTRACT

The Concept of online classes and meetings got a push during the pandemic, this led to providing people more ease at work, they tend to work in their comfort zone and for students it became easy attendance grabbing system. Thus, the online system has its shortcomings. To overcome the shortcomings and to help the organizers and the teachers we propose a system which detects the attentiveness of the attendees in the meeting. The system on detecting the inattentiveness will trigger an alarm on the attendee's end. The organizer would also be shown with the related data on downloading the list of the attendees to know who all were present in the meeting and their attentiveness according to the set parameters. The detection for the attentiveness is performed using Dlib Algorithm. Firstly, the face is detected followed by the detection of facial features- eyes and mouth for detecting eye movements and yawning respectively. The system can aid in enhancing efficiency of the attendance management system. The focus of our system would be on eyes and mouth, the web camera will detect the features and based on the parameters defined it would monitor for attentiveness by using the efficient techniques of image processing.

END USERS

The target users will be the people in organizations which are using online meeting platforms, these may include schools, universities, colleges, companies, etc., which are working remotely so are conducting classes and meetings on online platforms. In today's scenario, almost every organization is using online platforms for conducting meetings.

ADVANTAGES

- This system will help have more attentive attendees, hence increasing efficiency of online meetings.

- Attentiveness is an important aspect in remotely conducted meetings and classes, this system will help check for this crucial aspect and help them by notifying them through triggered alarms at their end.

- Attendance system will be enhanced as it will be marked on the basis of attentiveness of the student, so this is going to help in having majorly attentive attendees.

- No meetings or classes will be taken lightly and will be attended seriously by the concerned group.

- Lack of attentiveness could be due to bad posture also so people will have a better posture too if monitored by this attentiveness detection system.

SUMMARY

- Many organizers and teachers face the problem of checking the attentiveness of the attendees and students respectively.

- The attendees would be shown warning in the form of an alarm which gets triggered whenever they are not attentive or are yawning many times during the meeting and the organizer will also get to know of
  the same on downloading the list.

- Teachers will be helped majorly through this as this data would help teacher mark the attendance with more ease and will lead to an enhanced system of attendance. Also, the students will be more focused towards their studies
  and classes.

- Not only teachers but it may be useful for offices as well where bosses can check for attentiveness of their employees.

- This attentiveness detection is also a boon for today's scenario as due to bad seating postures people are getting back problems, one of the factors for non-attentiveness

could be bad posture, it could make people feel drowsy. So, it is important to check for attentiveness and furthermore posture can be corrected by itself.

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