Exam Guard Face Detection and Recognition for Exams using Machine Learning

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ABSTRACT-Cameras usages to be increased dramatically over the last few years, and unusual surveillance behavior has been automatically recognized. Various computer vision techniques have been employed to watch and record real-world events. In an effort to mitigate the effects of the epidemic on the education sector, the majority of educational institutions already provide online courses. However, in orderto make these online learning sessions dynamic and comparable to the traditional offline classroom, it is imperative that students are accurately identified and that their behavior is observed. In this work, we provide novel deep learning-based algorithms that monitor a student'smood in real time, including anger, disdain, joy, grief, fear, and surprise. The efficiency of activity tracking and student identification

INDEX TERMS Student Recognition; Student Activities Monitoring; Deep-Learning;Engagement Detection; Digital Classroom; e-class

I.INTRODUCTION

The popularity of online education has grown significantly because it provides flexibility and accessibility to students all around the world. But the move to online instruction has also brought up new difficulties, especially when it comes to upholding academic integrity during online tests. Conventional proctoring techniques, such in-person invigilation, can be invasive and inconvenient for students and are not always practical in virtual environments.In order to overcome these obstacles, we suggest a facemachine learning (ML)-based detection and recognition system. In order to maintain the integrity of the examination process and protect students' privacy, this technology attempts to keep an eye on students while they are taking online tests.There are various benefits of using machine learning algorithms for facial identification and detection. These techniques enable real-time student surveillance during tests by automatically detecting and recognizing faces in photos

LITERATURE REVIEW

An essential part of maintaining academic integrity is keeping an eye on students while they take online tests. Conventional proctoring techniques, such in-person invigilation, work well, but they are not always practical in virtual environments. As a result, several technical solutions have been created, such as face detection and identification algorithms based on machine learning (ML).Numerous investigations have looked into the application of machine learning algorithms for facial recognition and detection in the context of online exam monitoring. For instance, Chen et al. (2018) suggested a system that monitors students during online exams using facial detection and identification techniques based on deep learning. They discovered that their technology could precisely identify and detect faces in real time, protecting the validity of the testing procedure.Likewise, Wang and colleagues (2020)

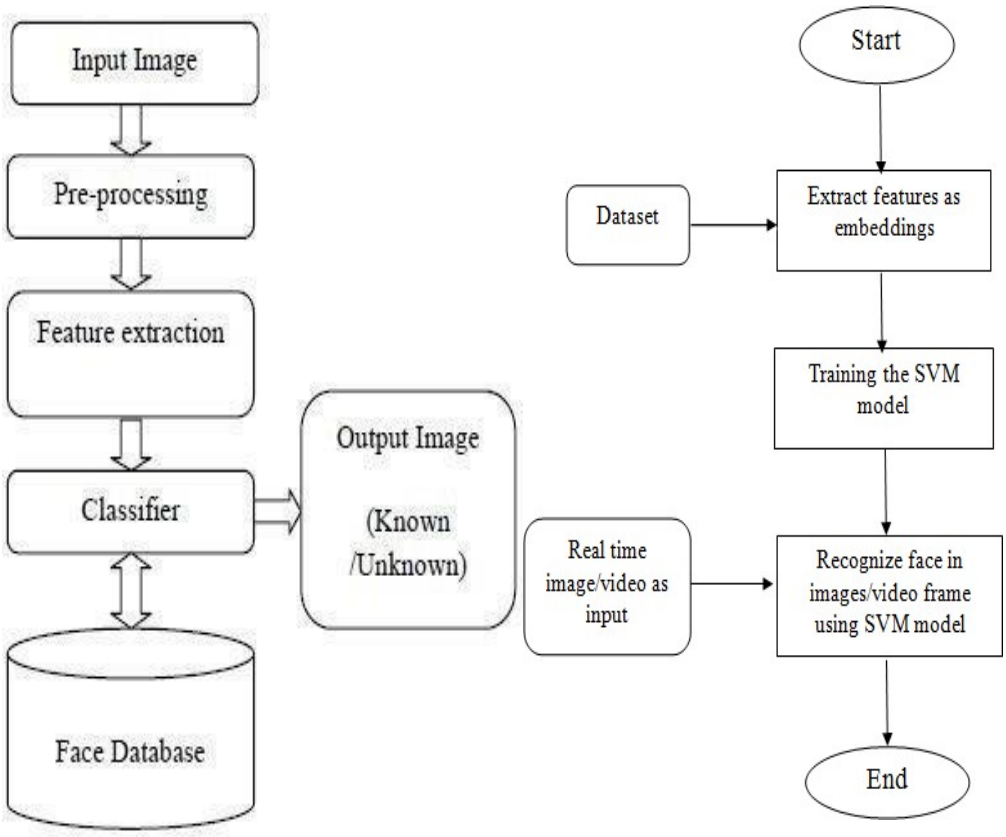
III. PROBLEM STATEMENT

The move to online learning has raised the demand for safe and dependable ways to keep an eye on students taking exams online. Conventional proctoring techniques, such in- person invigilation, might be bothersome to students and aren't always practical in virtual environments. Furthermore, manual proctoring is error-prone and labor-intensive.

IV. ALGORITHM

We will use a combination of machine learning techniques in our face detection and identification system to keep an eye on students while they take online exams. Preprocessing: To enhance the effectiveness of the machine learning algorithms, We suggest a machine learning (ML)-based face detection and recognition method to overcome these difficulties. By keeping an eye on students while they take online tests, this approach seeks to protect students' privacy while maintaining the integrity of the examination process preprocess the photos. Resizing, normalization, and face alignment. Face identification: To identify faces in the photos, apply a face identification algorithm. Deep learning-based techniques like MTCNN or RetinaFace, as well as algorithms like Haar cascades and Histogram of Oriented Gradients (HOG), can be used to do this. Face Recognition: To identify the faces found in the photos, use a face recognition algorithm.

FLOW DIAGRAM



A.Working

Data collection: Compile a collection of pictures featuring the faces of the pupils who will be sitting for the tests. The algorithms for face detection and recognition are trained on this dataset.Preprocessing: To enhance the algorithms' performance, preprocess the photos. To maintain uniformity throughout the photos, this can entail scaling, normalization, and facial alignment.Training: To detect faces in images, train the face detection algorithm (e.g., using Haar cascades, HOG, or deep

CONCLUSION

While the system offers significant benefits, there are also challenges and areas for improvement. These include the need to enhance accuracy, address privacy concerns, learning-based approaches). Likewise, train the face recognition algorithm to identify the faces found in the photos (e.g., using Eigenfaces, Fisherfaces, LBPH, or deep learning-based techniques like FaceNet or VGGFace).Combining the Online Exam Platform with Integration: Connect the online assessment platform to the trained algorithms. This enables the webcam or camera feed to be used by the system to take photographs. ensure regulatory compliance, and integrate advanced monitoring features. Future research and development efforts should focus on addressing these challenges to further improve the effectiveness and usability of the system.

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