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Online Exam Proctoring System

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Abstract: *Plagiarism has been more common in recent years, which is a cause for concern. In a course taught utilizing Personalized Instruction methods, the impacts of using advanced undergraduate students (external), currently enrolled students (internal), constant, variable, and no proctor systems were compared. The results showed that there were no variations in student examination performance independent of proctor system, using both between and within group designs. Student performance and progress were also substantially connected with ability in the no-proctor scenario; however, ability level was not a significant factor in determining student performance and advancement when any type of proctor system was used. Students favored the proctor system to which they were exposed, though those who were exposed to more than one system preferred either an internal or an external proctor. The use in behavioral instruction research, the use of intra-group and multiple baseline designs is examined. Internal proctoring is explored in terms of teacher and student benefits.*

Keywords: Agile Model, Machine Learning, Online Exam, Proctoring System, YOLO

I. INTRODUCTION

The development of remote learning has been facilitated by COVID-19. Despite the closure of schools and institutions, students continued their education using programmes like Microsoft Teams. Exams have not yet found a solution, though. While some have just scrapped them outright, some have turned them to an assignment form that students may copy and paste from the internet. There must be a solution if the way we live is to become the new standard.

Students may take examinations from home with a proctor watching them the entire time, according to ETS, which administers the TOEFL and GRE among other tests. Due to the needed manpower, implementing this plan on a big scale won't be feasible.

The scope of today's educational institutions is substantially expanded via online courses. Exams are an important part of any curriculum, and online learning programmes are no exception. There is a chance of cheating in each exam, therefore detecting and preventing it is crucial. Our system keeps an eye on some indicators in the test taker's room, as well as a camera and a microphone. The camera is either the webcam on the laptop or a smartphone camera. Because the microphone is embedded into the laptop, no additional hardware is necessary on the part of the student to allow the exam to take place.

The use of online proctoring is generally regarded positively by students. Students are generally positively disposed towards the employment of online proctoring

II. LITERATURE SURVEY

Ref No.	Proposed Solution	Result	Advantages	Drawback
[1]	Novel online proctoring system that uses deep learning to continually proctor physical places without the need for a physical proctor.	Achieved up to 97% and 99.3% accuracies for face detection and face recognition	Flexibility and accessibility for people to attend classes from homes, at their convenience both in time and space, lower costs.	Monitoring of attendees and students during classes, particularly during exams, is a major challenge for online systems due to the lack of physical presence.

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[2]	To stop applicants from cheating or engaging in any other unethical behavior during an online exam.	The examination can sometimes be generated more quickly, nearly instantaneously.	Candidates have more options on when to take their exams. Instead of having to take time out of work to drive to a testing facility, candidates may conveniently choose where to take their exam.	1. Whether or not cheating is taking place during the exam, the examiner or proctor has the opportunity to look at any nefarious activities. 2. The second component is Locking which prevents students from opening other tabs in the web browsers.
[3]	1. The system would recognise cheating attempts and take appropriate action when a student made one. 2. The system has the option of either suspending the test or producing a report for the institution to evaluate.	Under the guise of verification needs, highly private biometric information may be gathered and retained.	1. Could serve as a reliable and useful method for meeting the demand for online exams More flexibility in scheduling is offered, and human mistake is decreased.	Despite the upbeat thesis put forward by futuristic educational technologists, whatever alterations the new technologies bring about in a particular educational environment at a particular historical time need for in-depth analysis.
[4]	Vision-based techniques like gaze tracking, mouth detection, person count and mobile phone detection,	System combined with a secure browser to prevent cheating.	No use any other languages, other than python. Monitor multiple students at a time.	Does not eliminate the need for a proctor. It is necessary to use external hardware, such as a spectacle camera, to capture the entire test-taker's field of vision and apply computer vision to its feed.
[5]	The server-side part is managed by the C and the Python. Python is doing the facial recognition and report that of all the examiners.	The technique was included into an online intelligent tutoring programme for teaching arithmetic in schools. The recorded log data reveals that every student paid close attention to the exam, remained in front of the camera, and kept quiet.	Open-source software is utilized to implement real- time facial and speech recognition. .	This cannot provide the same level of fairness and honesty for all test takers as in traditional classroom tests.
[6]	They have proposed a web-based system to identify, and analyze the malpractices carried out by students during online examinations using Artificial intelligence and voice recognition.	A Robust System that detects online exam cheating practices like sitting with a partner, using a mobile phone, switching tabs to look for answers online, leaving the seat during the examination, and logs them with a user-	1. User-friendly. 2. Shows the mobile app with the same functionality.	As managing academic dishonesty in the online space has become more challenging, staff and school administrators are at odds over how to stop such behavior in both traditional and online classes.

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		friendly mobile and web compatible examination portal.		
[7]	There are two degrees of authentication security in this instance. comparing the user's name with the right password and determining the right exam taker's face. In order to avoid cheating, this research presented two key factors: The following is how the suggested system architecture is being used: recognizing the face in a video sequence, following it, and identifying the sound.	1. The level of security against cheating has increased while keeping exam takers' performance unchanged. 2. Test takers can now concentrate more on their exams without being interrupted by a proctor's sudden requests or instructions thanks to the use of 360-degree security cameras.	1. A more sophisticated proctoring scheme. 2. It increased scheduling flexibility and decreased costs associated with human mistake and resource use.	1. Many test-takers will still attempt to circumvent these proctoring systems, though. 2. Similar to traditional face-to- face proctoring, there are still numerous instances of cheating.
[8]	In this work, it was suggested that the face recognition algorithm be given gradual training for users' faces. According to the incremental method, users' faces are trained progressively using a picture of their faces that was obtained during a lecture session. The old dataset kept in the server storage that has already been prepared is erased and replaced by the new dataset each time a fresh collection of user images is obtained. When additional pre-processing steps like data augmentation, posture alignment, etc. are used, the face recognition process requires additional computational burden, which somewhat lowers speed performance.	In this research, they compare the four face detection methods mentioned earlier. The image size uses 320x244 pixels as typically uses in image processing. A larger image size will only cause a higher load on the system and may cause false detections.	1. The deep learning (MTCNN and YOLO-face) method shows better performance than the traditional one (Viola-Jones and LBP). 2. Incremental training has a better performance compared to batch training in speed and dataset size. 3. The face detection method can result in better face recognition accuracy.	1. Limitation on mobile devices memory requires the use of algorithms that employs smaller memory to run. 2. A larger image size will only cause a higher load on the system and may cause false detections.

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III. METHODOLOGY

The complete process of online proctoring is known as the proctoring system. It is a sophisticated setup that combines AI-powered tools and services to safeguard the testing environment when a test-taker writes an online test from a distance.

As it streamlines and automates the process of administering secure exams, from authenticating, invigilating, and measuring credibility, an online proctoring system satisfies the demands of academia and students.

To begin, a webcam on the student's computer device must be turned on in order to video record the physical learning space as well as everything the student does during the assessment session. This video footage can be monitored remotely by the examiner or proctor system. The examiner or proctor system can detect potential cheating through suspicious actions and postures such as talking to someone in the room or looking for answers in a book, mobile device, or other printed media.

The second option is a lockdown, which prevents students from accessing any other computer software, including the Internet browser, as well as user-computing procedures (such as copying, pasting, or printing), which could lead to exam cheating. Along with this, we have also prepared our own website that is used by the student to give the exam and hence it will be directly proctored from there.

- Student will login into the system.
- Students' identities will be validated.
- In the backend the camera will be turned on for further proctoring.
- Students will give the exam and side by side it will be proctored by the teacher and if any malicious act happens the student will not be further permitted to give the exam.

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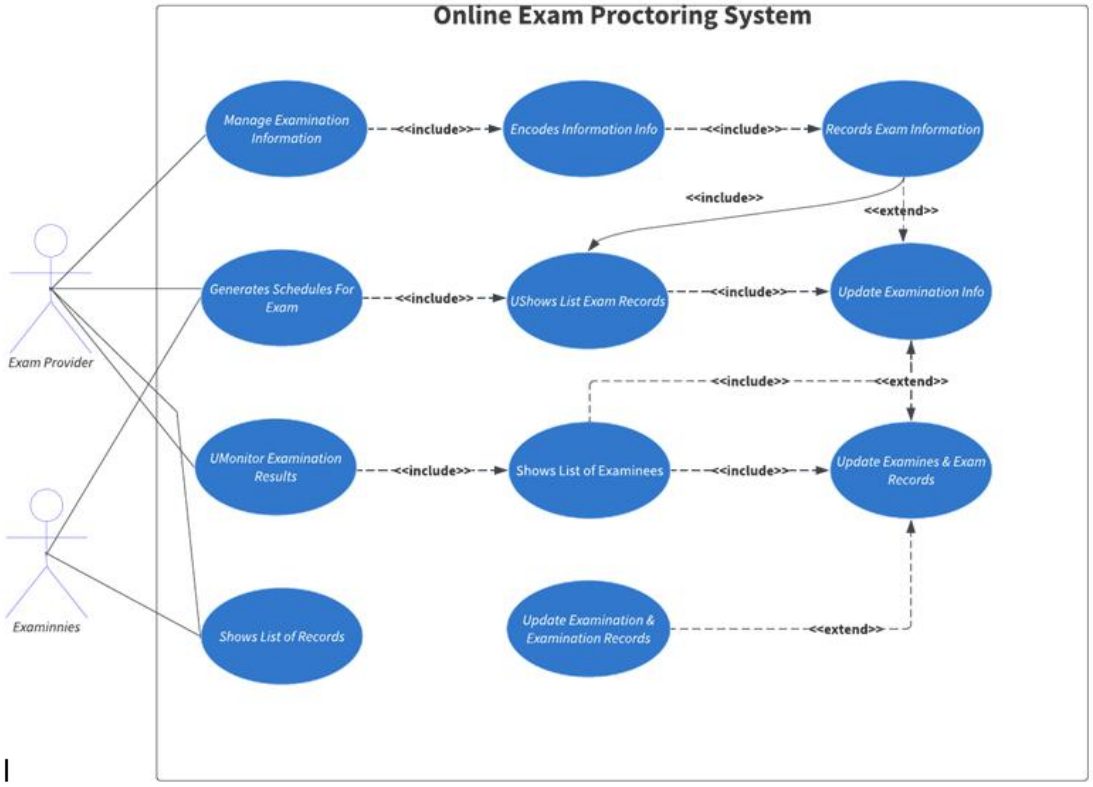

IV. FUTURE SCOPE

In India, there are 37.4 million students enrolled in higher education in 2019. India is rapidly becoming one of the world's largest organisers of online exams because to its enormous student population. By 2024, it is anticipated that India's online education industry would increase by 14.33 billion dollars. This demonstrates how serious we are about moving away from the drawn-out traditional testing procedure and toward online assessment solutions.

This system still has a lot of work ahead of it. As the need for this infrastructure develops, so does the demand for online activities. There are certain disadvantages. Unlike a live exam, online proctoring requires students to have access to adequate technological infrastructure; otherwise, the option will fail.

V. CONCLUSION

There are certain disadvantages to using online proctoring. Unlike a live exam, online proctoring requires students to have access to adequate technological infrastructure; otherwise, the option will fail. This naturally creates a divide between those who have access to the technical infrastructure and those who do not. Students with disabilities, on the other hand, may require significantly more assistance than can be supplied during online proctored tests. There are also concerns regarding how the acquired footage may be interpreted and used by others. Because these problems are unlikely to fade away, online proctoring can only be offered as a supplement to other options.

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