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# Online Proctoring System by using A.I and M.L

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**ABSTRACT:** With the expanding request for inaccessible instruction and online examinations, the execution of compelling online proctoring frameworks has ended up fundamental. This framework points to maintain scholastic judgment by checking and securing online appraisals through progressed innovation. The proposed online proctoring framework coordinating highlights such as biometric confirmation, AI-driven facial acknowledgment, screen recording, and real-time checking to anticipate cheating and unauthorized help. It too incorporates components for identifying suspicious behaviours and hailing peculiarities for advance survey. By giving a consistent and secure examination environment, the framework guarantees that appraisals are conducted decently and straightforwardly, in this manner keeping up the validity and judgment of the assessment prepare.

**KEYWORDS:** Online proctoring, Remote assessment, Academic integrity, Artificial intelligence, Computer vision, data privacy.

## I. INTRODUCTION

The quick development of online instruction has revolutionized the way we learn, advertising uncommon get to and adaptability. Be that as it may, this move has too displayed interesting challenges, especially in keeping up scholarly keenness amid farther appraisals. Enter the online proctoring framework: a innovative arrangement planned to address these challenges and guarantee the validity of virtual examinations.

Online proctoring frameworks serve as computerized invigilators, utilizing a combination of progressed advances and human oversight to screen understudies amid online tests. These frameworks point to form a secure testing environment that imitates the controlled conditions of conventional in-person exams, whereas obliging the assorted needs of farther learners.

As instructive educate and businesses progressively depend on online evaluations, understanding the capabilities, impediments, and suggestions of online proctoring frameworks gets to be significant. This presentation investigates the key highlights, benefits, and concerns encompassing these computerized checking devices, setting the arrange for a more profound talk on their part in forming long term of instruction and appraisal.

## II. LITERATURE SURVEY / EXISTING SYSTEM

Online proctoring frameworks have gotten to be progressively critical as instructive teach and organizations endeavour to preserve the keenness of inaccessible evaluations. Tending to the advanced isolate and giving back to understudies missing get to innovation are prescribed.

Client encounters with online proctoring frameworks are blended. Whereas a few appreciate the comfort and adaptability of farther appraisals, others have concerns approximately protection and expanded uneasiness due to steady observing. Well known online proctoring frameworks offer different highlights but confront feedback for security issues, specialized glitches, and once in a while hailing non-malicious behaviours as suspicious.

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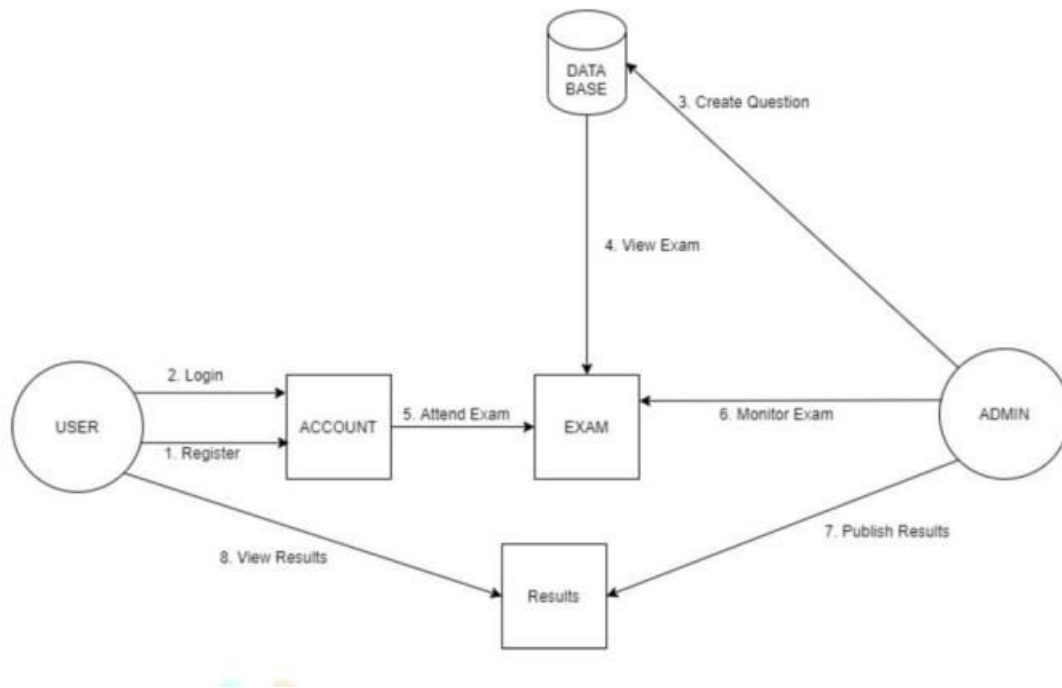


Figure 1: Work Flow Diagram

**Ethical Considerations:**

The moral suggestions of online proctoring frameworks have been a major centre of the writing. Concerns approximately security, information security, and the mental affect on understudies are habitually talked about. Roberts and Rajah-Kanagasabai (2020) look at the adjust between guaranteeing exam keenness and regarding students' protection rights. They contend that straightforward communication approximately information collection and utilization is fundamental to picking up students believe.

Another moral issue is the potential for predisposition in AI and ML calculations. Concurring to Binns et al. (2018), there's a hazard that these frameworks might excessively recognize certain bunches of understudies based on race, sexual orientation, or other characteristics. They emphasize the require for intensive testing and approval of calculations to decrease inclination and guarantee reasonableness.

Implementation Challenges: Actualizing online proctoring frameworks faces different challenges, as highlighted within the writing. A key challenge is ensuring solid web network and get to basic equipment for all understudies. Hanna et al. (2021) look at the computerized partition and its effect on students' capacity to require portion in online appraisals. They propose that institutions offer back and assets to understudies who don't have get to innovation.

Technical issues like system malfunctions and incorrect identifications are also prevalent difficulties. De Lima et al. (2020) examine the effectiveness of different online proctoring solutions and find that false positives, where innocent actions are incorrectly flagged as suspicious, can erode students' confidence in the system. They recommend ongoing enhancements and frequent software updates to improve precision and dependability.

User Experiences: The writing shows that understudy and teacher encounters with online proctoring frameworks are shifted. A few ponders appear positive criticism, highlighting the comfort and adaptability of farther evaluations. For illustration, Okada et al. (2020) note that numerous understudies esteem the alternative to require exams from domestic, because it cuts down on travel time and costs.

On the other hand, some studies point out negative experiences, especially concerning privacy issues and the stress of constant monitoring. Dawson (2021) notes that some students feel uneasy about the invasive nature of online proctoring, which can heighten anxiety during exams. They advise institutions to take these concerns into account when developing and implementing proctoring solutions.





**Existing Systems:**

A few online proctoring frameworks are broadly utilized in instructive teach. ProctorU, ExamSoft, and Respondus are among the foremost prevalent. Each framework offers a extend of highlights, counting character confirmation, environment filtering, and action observing.

ProctorU employments live delegate to screen exams in real-time, combined with AI devices to identify suspicious behaviour. ExamSoft canters on secure exam conveyance and employments strong encryption to ensure exam information. Respondus offers lockdown browsers to avoid understudies from getting to unauthorized assets amid exams.

These frameworks have been broadly assessed within the writing. For illustration, Heilweil (2020) surveys the viability of ProctorU and finds that whereas it is viable in anticipating cheating, it moreover raises noteworthy security concerns. ExamSoft has been lauded for its strong security highlights but criticized for specialized issues that can disturb exams (Chin et al., 2019). Respondus is famous for its ease of utilize but has been detailed to every so often hail non-malicious behaviours as suspicious (Cultivate and Layman, 2020).

**III. PROPOSED METHODOLOGY AND DISCUSSION**

**Data Collection:** Collect a different dataset of online exam recordings that cover different scenarios, counting distinctive lighting conditions, camera points, and understudy behaviours amid examinations. Guarantee this dataset too incorporates occurrences of cheating behaviours. Comment on the dataset with names to recognize diverse sorts of behaviours, recognizing between ordinary exam-taking behaviours and cheating behaviours.

**Preprocessing:** Conduct preprocessing on the collected data to improve its quality and prepare it for model training. Preprocessing steps can involve video stabilization, noise reduction, frame extraction, and resizing.

**Feature Extraction:** Extract pertinent features from the pre-processed video frames. These features might include facial landmarks, eye movements, head poses, and hand movements. Employ techniques like OpenCV and facial recognition libraries to accurately extract these features.

**Model Selection:** Select reasonable machine learning models for distinguishing cheating behaviours in online exam recordings. Consider utilizing models such as Convolutional Neural Systems (CNNs), Repetitive Neural Systems (RNNs), or half breed structures to analyse both transient and spatial highlights.

**Model Training:** Prepare the chosen machine learning models utilizing the clarified dataset. Apply procedures such as exchange learning to use pre-trained models on large-scale datasets for improved execution.

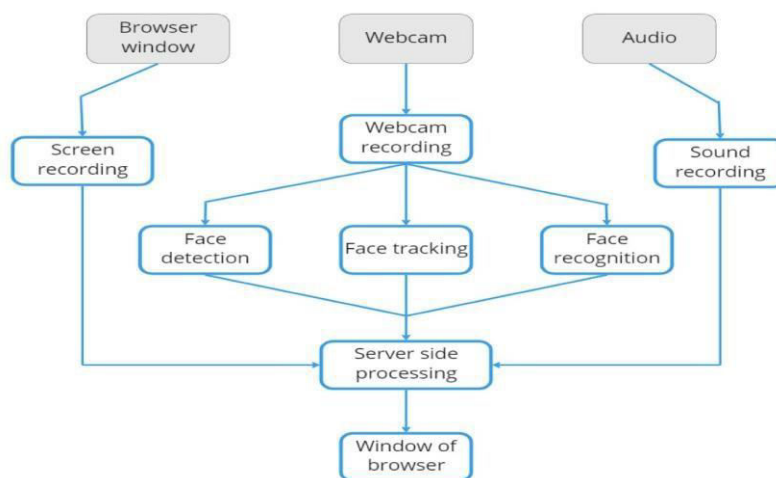


Figure 2: Proposed Framework Architecture

#### IV. EXPERIMENTAL RESULTS

1. Identified the user who attempted the exam

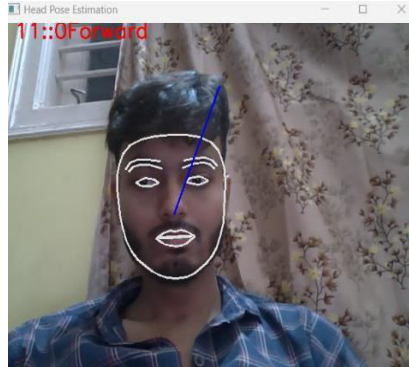


Figure 3: Looking Forward

2. Whenever there is any movement in front of the system, it issues a warning by facing right.

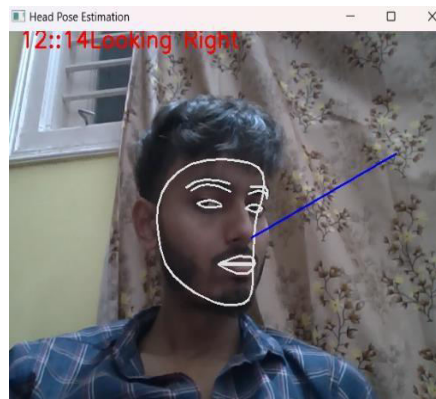


Figure 4: Looking Right

3. Whenever the user makes any movement in front of the system, the system generates warning cell phone detected.

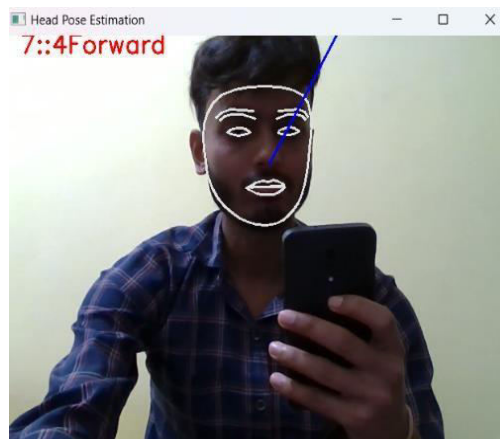


Figure 5: Cell phone detected

#### 4. Suspicious Behaviour Detection

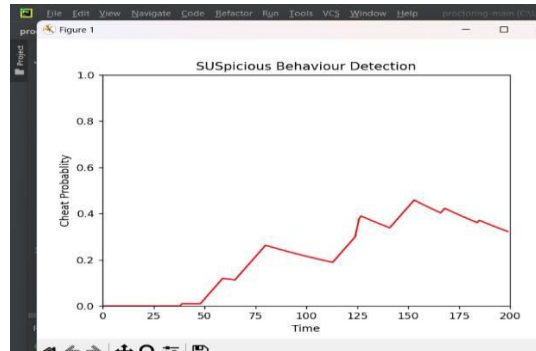


Figure 6: Graph Representation

### V. CONCLUSIONS

Online proctoring frameworks have gotten to be basic for maintaining scholastic judgment in farther and online instruction settings. These frameworks give a few benefits, such as permitting understudies to require exams from any area, minimizing the calculated issues of in-person proctoring, and empowering proficient and versatile checking of expansive understudy populaces.

All things considered, executing online proctoring frameworks presents a few challenges. Specialized issues, counting framework breakdowns, questionable web associations, and off base distinguishing pieces of proof of cheating behaviours, can influence the systems' viability and steadfastness. In addition, protection concerns and the stretch of being always observed can contrarily affect students' encounters and execution.

#### Future Scope:

Enhanced AI and Machine Learning: Future frameworks are anticipated to utilize more progressed AI and machine learning models, progressing the precision of identifying cheating behaviours and minimizing wrong positives and negatives.

**User Encounter and Openness:** Developments will likely centre on making more natural and user friendly interfacing, pointing to decrease the stretch and uneasiness related with online proctoring.

**Privacy and Security:** There will be an expanded accentuation on information security, with frameworks outlined to safely store and oversee understudy information in compliance with worldwide information assurance controls. Advanced security measures will be actualized to avoid information breaches and ensure the exam process's astuteness.

**Scalability and Adaptability:** Efforts will be made to create versatile arrangements competent of taking care of expansive numbers of understudies at the same time without execution issues. More adaptable proctoring alternatives, such as live proctoring, recorded proctoring, and AI-only proctoring, will be advertised to meet diverse needs and inclinations

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