

Online Proctoring Tool For Class and Exam

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Abstract:

Universities shuttered as a result of the epidemic, which had an important influence on higher education. It has affected individuals of all identities, instructive stages, and pay stages. Due to the constant pandemic for the last two years, all the schools and colleges, and institutions have started to take classes remotely via virtual meetings. Universities will have to re-visualize their educational nature in order to stay relevant, with making digital expanding and balancing student-teacher and other connections. Notwithstanding the way that advanced education establishments were anxious to substitute eye to eye addresses with internet learning, these terminations affected learning, tests, and safety. Even though technology is improved within a short span of time, online learning has its own disadvantages and tampering. Educational institutions require a solution that does not jeopardise educators' and students' experience, convenience, or practicality. The human delegate would be supported following along on the understudy's exercises by our program. One camera and a microphone are included in the system hardware for monitoring the visual and audio environment. As a result, anytime a student is accused of committing a mistake, the teachers

are provided with notifications about the student's activities, like; eyes moving, using phone, drowsiness tracking. So, when teachers get this information, they might take action as needed. AI-controlled remote proctoring has the prospective to revolutionise the institutions, universities, colleges by permitting all that to be done electronically. AI-empowered computers frameworks can protect the test's uprightness by preventing applicants from cheating or utilizing out of line methods during the assessment.

Keywords— Proctoring, online classes, face detection, dashboard

I. INTRODUCTION

Virtual classrooms provide various challenges for lecturers and teachers. Faculty members are oblivious of what is going on with students when they are learning online. We've seen a lot of occasions where kids leave their computers and walk outside, or use their phones or communicate with pals. There isn't much interaction amongst the kids. Teachers have little knowledge of their students' activities and feel as though they are lecturing to a screen. Without seeing the pupils' faces, teachers must instruct them. When we are teaching in a physical classroom, we may tell by their facial expressions if we need to repeat the

idea for better understanding or whether we can go on. Not just them, but also students, encounter several challenges. The mentalities of the pupils in a class are diverse. A student who grasps things well, a student who grasps things poorly, a student who is not attentive, a student who has many doubts, a student who is mischievous, and so on. However, because an online class is less participatory, students are more hesitant to ask questions and simply go on. This will cause a slew of issues in the future, as students will feel compelled to ignore any facts or ask professors any questions they cheval. One of the biggest issues is this. Interaction between students and teachers is crucial during educating. Our tool assists teachers in learning about their pupils' current situation. For example, whether or not the students are paying attention, whether or not they are using their phones, whether or not they are drowsy or sleeping, and whether or not they have kept the device static only for attendance purposes. Our programme will notify the teacher if more than half of the students are not interested in the topic, allowing the teacher to create a pop quiz, a fun topic to discuss, or other interactive sessions. If the professors have knowledge or status about the pupils, this is conceivable; otherwise, the class is merely a blank wall between the students and the teachers.

II. LITERATURE SURVEY

Adithya Nigam(Springer Conference) et el..., [1] "A Systematic Review on AI-Based Proctoring Systems: Past, Present and Future" This paper potrays about Online testing is the following rush of reception after internet realizing which has seen a critical ascent popular because of the issues presented by the continuous COVID-19 Pandemic. Web based Proctoring Systems don't actually be totally idiot proof however are quickly changing the reception of internet testing from home, a situation that beforehand would have been believed to be unbelievable among the majority. With the coming of Online Proctoring Software, security issues related with it are duplicating and are a reason for authentic concern.

Carina S. et el... "Implementation of E-Proctoring in Online Teaching: A Study about Motivational Factors" the paper was published, by This paper demonstrates about Infante-Moro

Web based education, actually doesn't offer total remote instructing as a rule, since there are numerous organizations that, in the assessment cycle, keep on requiring the actual presence of the understudy in a particular spot to join the understudy and the inspector in said place, for administrative reasons. In any case, there are now e-delegating instruments that permit this cycle to be done from a distance, without expecting that actual presence.

Yousef Atoum, et el..., "Automated Online Exam Proctoring". The intention of this paper is to introduce a sight and sound investigation framework for online test delegating, which expects to keep up with scholastic respectability in e-learning. From the viewpoint of the message taker, the framework is both conservative and easy to work, since it simply requires two essential cameras and a receiver.

Daniel Woldead et el..., "21st Century assessment: Online proctoring, test anxiety, and student performance". This study found that students with high trait test anxiety score worse on examinations, and this is especially true for students with high text anxiety who take exams in an online proctored environment.

Karen S. Fiano et el..., "The Need for New Guidelines and Training for Remote/Online Testing and Proctoring". Schools and colleges immediately transferred delivery and evaluation of educational curriculum online after the release of COVID-19. Institutions have to assess and alter present examination rules and procedures to accommodate new methods of test administration and proctoring due to the quick move to testing students off campus and away from conventional in-person proctored situations.

Beverly Paris et el..., "An Analysis of Academic Integrity Techniques Used in Online Courses at a Southern University."

TEACHING ONLINE COURSES HAS ITS DIFFICULTIES: If you ask any teacher who has never taught an online course what their greatest concern would be if they did, they'll almost certainly respond "keeping the course's academic integrity." Another issue that these teachers are likely to be concerned about is the various ways in which students might misrepresent themselves online. This can happen if the registered student

has someone else take their exam or finish their coursework.

Istiak Ahmad et al., "A Novel Deep Learning-based Online Proctoring System using Face Recognition, Eye Blinking, and Object Detection Techniques", Due to a multitude of advantages such as efficiency, flexibility, affordability, and usability, distance and online learning (or e-learning) has become the norm in training and education. Furthermore, because to the COVID-19 pandemic's physical isolation restrictions, online learning has become the sole alternative. Due to the lack of physical presence, monitoring attendance and students throughout courses, particularly during tests, is a big difficulty for online systems. It is necessary to create methods and technology that give reliable instruments for detecting unfair, unethical, and unlawful behaviour in classrooms and tests.

Connie Barber, "From Stress to Success: Leveraging the Online Experience for Information Systems Students". The pandemic of the coronavirus illness of 2019 (COVID-19) in 2020 forced colleges all over the world to switch to distance learning. Higher education was severely disrupted, and graduate and undergraduate students' stress levels were affected. However, remote learning may be implemented in a less stressful manner that still helps students prepare for a digital workplace. Students may also be able to improve their digital skills through various kinds of remote learning.

III. RELATED WORK

The demand for online learning has risen dramatically over the years. Researchers have offered several approaches for proctoring online exams and classes in the most effective and convenient manner while maintaining academic integrity. Proctoring does not imply that test/class participants are allowed to cheat or become distracted in a variety of ways. Distraction and cheating are instead minimized in a variety of ways. One frequent method for proctoring online tests is to use online human supervision. The most significant downside is that it is highly costly since it requires a large number of employees to watch the test takers. Researchers have also proposed several comprehensive monitoring solutions, using tools

which help in identifying frauds and cheating techniques, like if more the one person is in a frame, or if the tab is being changed frequently, and many others. But even using all these the teachers would want to monitor these activities of students.

IV. IMPLEMENTATION

How our application works :

Whenever a class is scheduled and teacher opens up our application, all students who have joined the meeting will appear on the dashboard. Each and every students' camera will be activated and starts capturing the surrounding, our featuristic capabilities include ; Face detection, face spoofing detection, phone detection, drowsiness detection, person count. So whenever a student does one of the above, his profile will be prioritized to the top of the dashboard and the teacher can take action and monitor it accordingly. And the teacher profile includes all the classes she is assigned to in her respective subject and sections. Also the details of the students activites will be directly updated in the database and stored. From this teachers will have the control over the class just as in physical classes and they will be able help the students in ways that are required.

V. EXPERIMENTAL RESULTS

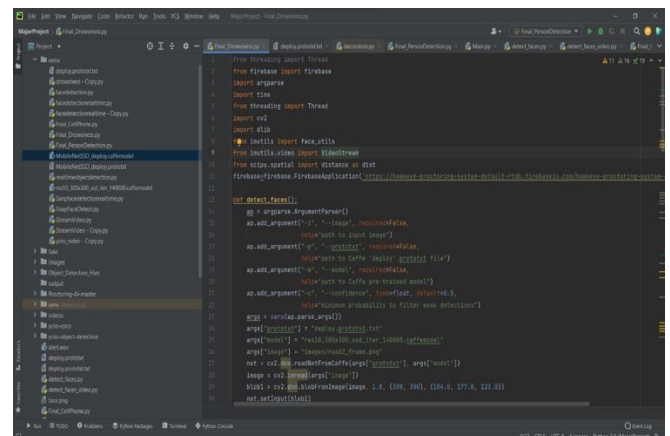


Fig. 1. Imported methods

Fig. 1. shows the imported libraries for using the face detection and other features of our tool.

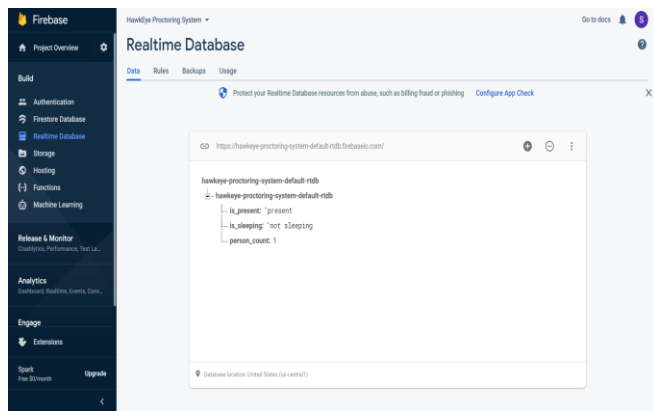


Fig. 2. Firebase used for storing results

Fig. 2. shows how the data is updated in realtime in the database.

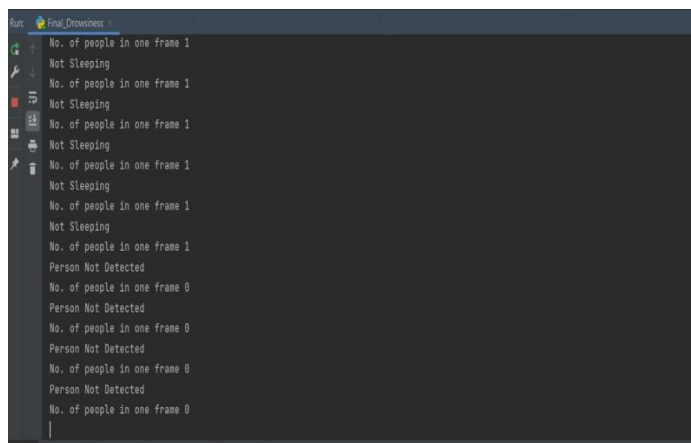
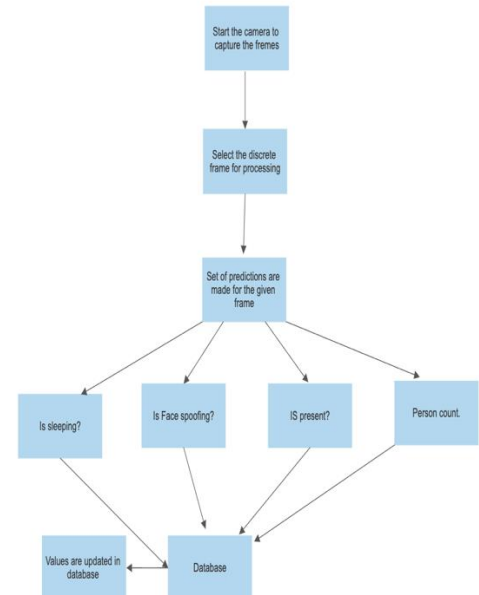


Fig. 3 . Results of the person count and drowsiness alert

Fig. 3 . shows the results (number of people in a frame) on the terminal. We have hidden the camera interface so as to reduce the performance of CPU for efficiency.



The AI-based remote proctoring process is repeated thousands of times to develop, train and refine every event defined in the system. An event can be a single behavior or indicative of identity fraud, content theft and cheating behavior. For example, if someone is found looking off-screen to the left, it can be considered as a single data point and that specific portion of the video is segmented and labeled as unfair means. Once the number of such data points of the same behavior goes beyond the limit, the continuous event of building, training and refining is initiated. Each of the thousands of events that execute through the process is categorized as potential fraud, theft or cheating. All the events would result in whether or not the session should be marked with a suspected breach of integrity.

VI. METHODOLOGY

VII. PROCTORING SYSTEM METHODS

1) Face detection: is a feature which helps in detecting a person, and verifies his actual presence in the photos and videos. This one kind of way to detect similarities of objects in a certain digital class of multimedia.

2) Face Anti-Spoofing: To impersonate another person in our technical reality, masks are most often used or photos of the native person. Face

Anti-Spoofing is a set of protective measures to counter such deception.

3) Phone Detection: This is helpful when the student is using a phone while class is going on, this functionality detects and updates the same on the dashboard. If the student denies using it, this functionality captures the student in the act.

4) Person Count: It will display the number of people present inside a frame. This is helpful in knowing if the student is concentrating on the class or having fun with their friends.

5) Drowsiness Detection : It shows if a person is sleepy, by detecting the eyeball tracking and using parabolic equation , it can alert the teachers if a student is sleepy or not.

VIII. FUTURE SCOPE

In the future developments of our project we will enhance the AI to produce more accurate results, new features relating to real world could be included, we can conduct online exam directly from our application. We want to create a platform where teachers and students interact just like how they do in real world classes. Interaction totally depends on how the class goes and how the students receive it, as it's virtual, it will be difficult to control and proctor it, so making it very feasible for both of them is our main goal. More immersive interaction can be brought with tools relating to schooling , teaching, lab can be taught with more engaging and interactive classes.

IX. CONCLUSION

By allowing everything to be done online, remote proctoring has the potential to revolutionise the education industry. AI-enabled computer systems may assure the authenticity of students in front of the camera by preventing them from being distracted outside of class, allowing them to connect with professors more regularly. We also learnt about new AI stages, deep learning, and web development. This guarantees that no student is left behind when it comes to the information and skills and knowledge, that

teachers have placed upon them. This tool may be used on a variety of websites, integrated with one another. More than anything else the main conclusion we come to is for the sake of professors and students where they have an impeccable interaction.

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