IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 1, May 2022
Impact Factor: 6.252

Online Exam System and Real Time Proctoring

Prof. Ashwini Ghatol[1], Ravindra Kanitkar[2], Chinmay Barbade[3], Prajwal Pophale[4], Amey Khandekar[5], Sanket Dewase[6]

Assistance Professor, Department of Computer Science and Engineering[1]
Student, Department of Computer Science and Engineering[2,3,4,5,6]
Sipna College of Engineering and Technology, Amravati, Maharashtra, India

Abstract: *In the pandemic situation of COVID-19 education institutions have change their mode from offline to online for providing education facility. Allowing to learn and improve themselves at their own pace With this advantage an disadvantage can also be seen concern with examination taken to check excellence of student is that malpractice or cheating in examination. To eliminate this effect a solution is proposed called Online Proctoring Using AI Technology. Online Proctoring System (henceforth called as OPS), in general make use of online tools to maintain sanctity of the examination. There are various psychological, cultural and technological parameters need to be considered while developing AI-based Proctored System. In this paper, we present a Online Proctoring System that performs automatic online exam proctoring. The system hardware includes one webcam and a microphone, for the purpose of monitoring the visual and acoustic environment of the testing location. The system includes five basic components that continuously estimate the key behavior cues: user verification, text detection, voice detection, gaze estimation and phone detection. By using the continuous estimation components, and applying a temporal sliding window, we design higher level features to classify whether the test taker is cheating at any moment during the exam. The system includes five basic components that continuously estimate the key behavior cues: user verification, text detection, voice detection, gaze estimation and phone detection. To check how efficient our proposed system is we collected multimedia (audio and video data) representing various malpractice action's while taking online exams. The results determines how accurate, robust, and efficient our online exam proctoring system is.*

Keywords: AI, AIPS, Artificial Intelligence, Exams, Online Proctoring, Online Learning, Proctoring System, user verification, gaze estimation, phone detection, text detection, voice(sound) detection.

I. INTRODUCTION

In COVID19 pandemic, online education has taken advancement at rapid rate. Most of the students are taking advantage of Online Courses and other online certificate courses. Most of the colleges are also transitioning online to provide more resources to their students. All students more opportunities and chance to learn and improve their skills. From last few year , during the pandemic situation, almost all educational institutions have change their mode from offline to an online education form Colleges started taking classes and tests online, for courses in all sectors. The COVID-19 Pandemic also make impact on entrance exams and the recruitment process, which filters students by taking a their online test. As one cannot expect the same level of seriousness and focus from a graduate-level student. Every student would have their learning, understanding and information retaining capabilities in them. In this situation, malpractice during academic work and online exam would be on the rise.

We believe the implementation of an Online Exam System with Real time Proctoring is the need of the hour. We also believe that it could become the norm to use such systems for continuous monitoring for online exams. The quality of one's online certification is dependent directly upon the quality of the testing process that one undergoes through it. It is same as exams would be monitored when taken in recruitment and colleges, they need to be proctored when being conducted on online system. The Online Exam System with Real Time Proctoring is needed to keep a check on all students, as when attempting exams online, there are no other ways for students to cheat. Teachers to students considered for in-place or physical mode exams to monitor them would not be practical in such a situation. This led to the development of different types of digital proctoring systems in the market. These systems use the hardware components such as webcams and mics already present in their laptops to check and monitor their behavior during the online examination. Many factors must be considered while designing a digital proctoring system. The Online Exam System with Real-Time Proctoring must run on

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 1, May 2022
Impact Factor: 6.252

all types of systems without any issues. The system would be an entirely human-based system. The students are under monitoring during the examination taken by faculty through the online software and with the help of resources within it such as a webcam and mic. The students have been giving their exams in a secure way to ensure that no other computer resources within it are not being in used. They would also be monitored via their webcams and mic to check their behavior. All activities would be recorded and analyzed by the OESRTP to fag any attempts at cheating. When a student tries to cheat, the system would fag such behavior the system could either suspend the exam or generate a report for review the institution.

II. WORKING OF THE SYSTEM

"Online Exam System with Real time Proctoring" was designed & developed in Django as a backend technology and Bootstrap as a frontend technology. The proctoring features are developed using various machine learning algorithms and technologies like OpenCV, Yolo, ensorflow, etc. It is a web application and it provides a registration & login for both teachers & students along with admin registration. Teacher can register by giving his/her necessary personal details like full name, email, whatsapp number, address and profile picture. After successful registration, and once approved by the admin, teacher can log in by giving username & password. After login, on teacher's dashboard, he can view total number of registered students, total courses and total questions where he can create as many new courses as he wants by providing total number of questions and maximum marks as input. After creating course, he can add questions in that particular course by providing question names, four options and one correct option as input. Similarly student can log in by providing his username, password and his real time photo which is captured by web camera and if the photo captured and photo stored in the database matches then and then only he gets logged in otherwise he will not be able to login to provide authenticity feature.

After successful login, a student can attend exams of particular courses created by the teacher and also check his marks. When student attends exam proctoring features like looking left, looking right, looking center, no person detection, more than one person detection, mobile phone detection and eye blinking will be checked every 5 seconds of the time. Final count of each features will be stored in database along with student's marks and then sent to the teacher for final approval whether he should accept or reject the student's paper.

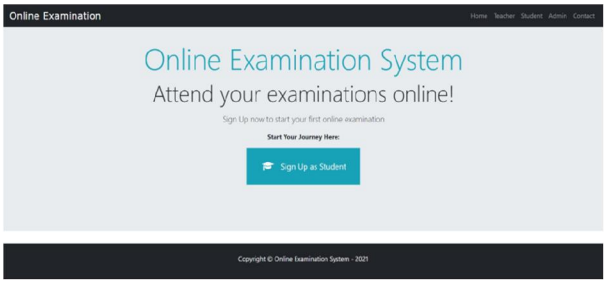

Fig 1: Website Home Page

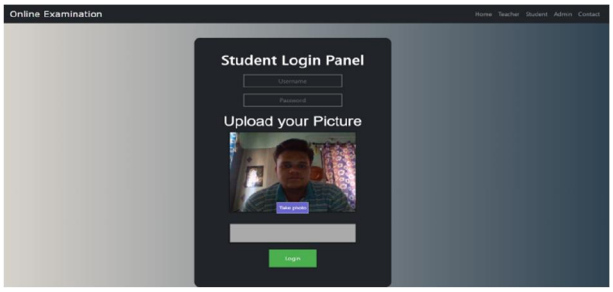

Fig 2: Student Login Panel with Image Verification

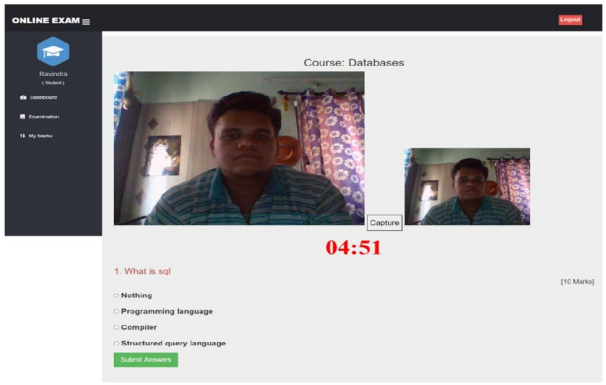

Fig 3: Exam Section

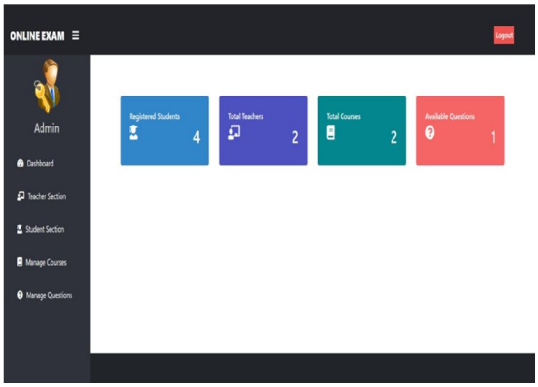

Fig 4: Admin Dashboard

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 1, May 2022
Impact Factor: 6.252

III. REVIEW OF LITERATURE

The credibility of online classes faces criticism due to the distance between students and instructors that may contribute to breaches in integrity (Moten, Fitterer, razier, Leonard, & Brown, 2013). Researchers contend that online programs must address student integrity; the use of proctoring software is one way to do so, to try to assure that students are being fairly and effectively evaluated. Moten and colleagues explained that in online courses, students work in relative autonomy and anonymity and instructors may not be certain who is taking exams or how best to validate learning (2013). In addition, Berkey and Halfond (2015) have examined the sensitive subject of cheating in online courses, and found an alarming 84% of 141 students who responded to their survey agreed that student dishonesty in online test taking was a significant issue. Yet, less than half the students surveyed indicated they had ever used proctoring software in online tests. In a study by King, Guyette, and Piotrowski (2009), 73% of 121 undergraduate students surveyed felt it was easier to cheat online compared to a traditional face-to-face classroom. When asked if they were likely to cheat, a survey of 635 students found that nearly one out of three would consider cheating in any environment and students indicated that they were more than four times as likely to cheat in an online class (Watson & Sottile, 2010). However, the same survey found no significant differences in student descriptions of cheating behavior in online and face-to-face classes (Watson & Sottile, 2010). Many studies that address the prevalence of cheating on line vs. to face-to-face classes, many of these studies relied on student self reports (Guyette & Piotrowski, 2009; Stuber McEwen, Wisely, & Hoggatt, 2009; Etter, Cramer, & Finn, 2007; Watson & Sottile, 2010). Research focusing on actual student behavior has found conflicting results. For example, Ladyshewsky (2015) analyzed graduate student test scores and found no difference between the test scores in unproctored online tests when compared to face-toface, proctored tests. Similarly, Yates and Beaudrie (2009) found no differences in course grades between community college students who took monitored versus unmonitored exams. Beck (2014) extended this work to examine scores on specific tests, where steps to reduce cheating such as randomizing the order of questions, having a single question on each page, and only allowing forward progress through the tests were used. Beck also found no differences between undergraduate student grades on monitored versus unmonitored tests (2014). Other studies have found rampant cheating. For example, one large-scale study of cheating in online courses and work tasks found that between 26% and 34% of students cheated by looking up answers online, as did 20% of contract employees (Corrigan- Gibbs, Gupta, Northcutt, Cuttrell & Thiess, 2015). This innovative study used multiple techniques to identify cheating, including: 1) planting a fake resource that appeared in Google search engines when the Examining the Effect of Proctoring on Online Test Scores Alessio, H. M.; Malay, N.; Maurer, K.; Bailer, A. J.; & Rubin, B.(2017) Examining the effect of proctoring on online test scores, Online Learning 21 (1) exact wording of the question was entered; 2) expert analysis of wording, comparing student responses to one another as well as to common website language focusing on idiosyncratic language; and 3) tracking of IP addresses. However, unlike a typical university class, both samples involved a degree of anonymity: the class was a massive open online course aimed at undergraduate engineering students in India, and the contract employees were dentified and assigned the work through a crowdsourcing work platform.

In summary, when clear-cut differences in test scores occur in separate sections of the same course or when a test is taken under contrasting conditions, questions arise about potential underlying reasons for grade disparities. There are various strategies for addressing integrity during online tests, and the use of proctoring software is one of them (Berkey & Halfond, 2015). Proctoring software involves two major elements. First, it activates the camera on a computer, and records the student taking the exam. This enables faculty to observe the students' behavior and identify activities that may indicate cheating such as talking to others or looking up information in books. Second, it either limits the students' ability to use their computers for other tasks by eliminating the ability to engage in activities such as copy-pasting, printing and searching the internet, or it records everything that students do on their computers, or both. Limiting students' abilities to use other tools or resources is referred to as "locking down" the computer or browser. Recordings of exams can be reviewed by the professor or teaching assistants; alternatively, they can be reviewed by employees of the proctoring vendor, either simultaneous to the exam or afterward, who mark points in the exam when possible violations of exam rules are identified.

The purpose of this study was to compare test performance of students enrolled in multiple sections of the same online class where four of the nine sections used proctoring software for at least one of their tests and the other five course sections never proctored tests. We also compared student scores in the same section with and without the use of proctoring software.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 1, May 2022
Impact Factor: 6.252

IV. CONCLUSION

Online Test Proctoring is a new trend in the education system that has opened doors to many possibilities in the exam. we have to use this latest technology to keep the integrity and credibility of the online exam and For the online assessment of candidate online exams is growing in an education sector. By planning proper procedure the process of conducting exam can be done by scheduling test the monitoring and then calculating score of the test to declare result. To prevent use of any electronic gadgets such as mobile, headphone, etc. While conducting online exams are challenge as a proctoring software. In proctoring software AI-driven proctoring solutions ensure that removing changes of human error, integrity and bids leads to a seamless and affordable for both educators and test candidates. The highest standards of data security and protection should be met when handling both examination content and student data in the context of an online exam.

REFERENCES

[1]. References Allen, I.E., and Seaman, J. (2015). Grade level:
[2]. Tracking online education in the United States. Babson Survey Research Group and Quahog Research Group,
[3]. LLC. Last access on February 3, 2016:
[4]. http://www.onlinelearningsurvey.com
[5]. Beck, V. (2014). Testing a model to predict online cheating: Much ado about nothing. Active Learning in Higher Education, 15(1), 65-75.
[6]. Bunk, J., Li, R., Smidt, E., Bidetti, C., and Malize, B. (2015.
[7]. Understanding faculty attitudes about distance education: The importance of excitement and fear. Online Learning, 19(4), 1-11.
[8]. Berkey, D., and Halfond, J. (2015). Cheating, student authentication and proctoring in online programs. New England Journal of Higher Education, July 20. Retrieved from http://www.nebhe.org/thejournal/cheating-student-authenticationand-proctoring-inonline-programs Corrigan-Gibbs, H.
[9]. Gupta, N., Northcutt, C., Cutrell, E., and Thies, W. (2015).
[10]. Deterring cheating in online environments. ACM Transactions on Computer-Human Interaction, 22(6), Article 28. Last access on February 3, 2016: DOI: http://dx.doi.org/10.1145/2810239 Etter, S., Cramer, J.J., and Finn, S. (2007). Origins of academic dishonesty: Ethical orientations and personality factors associated with attitudes about cheating with information technology. Journal of Research on Technology in Education, 39(2), 133-155.
[11]. Grijalva, T.C., Nowell, C., and Kerkvliet, J. (2006). Academic honesty and online courses. College Student Journal, 27(3), 180-185.
[12]. Harbin, J. L., and Humphrey, P. (2013). Online cheating: The case of the emperor's clothing, elephant in the room, and the 800 lb.gorilla. Journal of Academic and Business Ethics, 7, 1-6.
[13]. Hard, S.F., Conway, J., and Moran, A.C. (2006). Faculty and college student beliefs about the frequency of student academic misconduct. The Journal of Higher Education, 77(6), 1058-1080.
[14]. Jones, I.S., Blankenship, D., and Hollier, G. (2013). Am I cheating? An analysis of online students' perceptions of their behaviors and attitudes. Psychology Research, 3(5), 261- 269.
[15]. Kennedy, K., Nowak, S., Raghuraman, R., Thomas, J., Davis, S.F.(2000). College Student Journal, 34(2), 309.