AI BASED ONLINE EXAM PROCTORING SYSTEM

Mr.S.Sankar Assistant Professor,Computer Science and Engineering , Dhirajlal Gandhi College of Technology

Ms.J.Sherly Student, Computer Science and Engineering , Dhirajlal Gandhi College of Technology

Ms.K.Nandhini Student, Computer Science and Engineering , Dhirajlal Gandhi College of Technology

Ms.M.Swetha Student, Computer Science and Engineering , Dhirajlal Gandhi College of Technology

Ms.P.Sivaranjani Student, Computer Science and Engineering , Dhirajlal Gandhi College of Technology

---***---

I.ABSTRCT

A weapon for enhancing one's life and helping nations thrive is education. Moving towards e-learning and e-assessment is now necessary because to the extraordinary COVID-19 pandemic breakout and country lock-downs. An engaging method of testing distant pupils is through e-assessment. When deciding whether to take examinations online, it is important to make sure that the test accurately assesses the knowledge, abilities, and quantity of the candidate. Additionally, it is crucial to ensure the test is genuine legally, which means it is vital to stop the student from getting outside advice or information. The project's goal is to provide an online exam proctoring API that would allow students to take exams without being interrupted or receiving information or recommendations from outside sources. The project's goal is to create an API for online exam proctoring that would allow students to take tests without being distracted or obtaining unauthorized help. In this project, an end-to-end video-based deep learning method has been proposed to identify the degree of at-risk students' participation in electronic written exams. This method feeds sequential video frames into a Temporal Convolution Network (TCN) for action segmentation on videos to identify the degree of participation. A online application called Online Exam Proctoring API, based on the Model-View-Controller (MVC) architectural pattern, enables the management of electronic exams for specific courses. The system we created is broken down into many parts that analyse the video stream and ambient noise captured via the webcam, mouse, and keyboard actions. This system has undergone a thorough re-engineering to accommodate the difficult and complex task of conducting written exams securely from a distance, including concerns with authentication, anti-cheating techniques, and a description of their methodology to authenticate the exam done from a distance. By minimizing human labour, our technology will affect online learning even after pandemics and can be a fantastic addition to the present online proctor suite.

Key Words: E-assessment, Online exam proctoring, Temporal convolution network, Electronic examination, templates, journals

II.INTRODUCTION

Examination is a digital testing platform that enables students to finish exams anytime they want. Exams are created in the system in advance by teachers. The exam is conducted in a separate examination room with a computer and a camera monitoring system for recording. Additionally, there are sporadic inspections of the facilities. Exam exams are a good substitute for the conventional classroom exams and are particularly appropriate for literature exams, maturity tests, and personal exams. Exams increase study flexibility and relieve teachers of the burden of planning various examination occasions throughout the course of the academic year.

Exams taken online provide flexibility for both teaching and learning. Additionally, they facilitate the use of a variety of assessment techniques, facilitate the authoring and evaluation of answers, and lessen the amount of documentation required. The automated system eliminates the shortcomings of the conventional exam system and establishes the framework for the new standard. Exams given electronically can be viewed as a wonderful technological innovation. Exams that can be taken online are considered to be electronic exams. These tests have the appearance and action of a conventional exam. The sole

distinction is that typing is required in place of handwriting for the responses. A platform for electronic exams was created with the use of cutting-edge technology. This website was created specifically to address the problems or shortfalls found in conventional classroom-based exams.

III. LITERATURE SURVEY

In this research, a unique online proctoring system is proposed that employs deep learning to continuously monitor physical locations without the need for a physical proctor to be there. The system makes use of biometric techniques, including face recognition utilising the OpenCV and HOG face detectors. The technology also uses an eye blinking detection technique to find stationary images. Additionally, the technology is able to recognise devices like phones, laptops, iPads, and books to enforce fairness during tests. The FDDB (Face Detection Data Set and Benchmark) and LFW (Labelled Faces in the Wild) datasets are used to test the system, which is implemented as a software system.Two elements make up the proposed web-based online proctoring system. The online registration component comes first, followed by Secondly, there is the online proctoring component.

IV.SYSTEM IMPLEMENTATION

A.EXISTING SYSTEM

Traditional tests are administered in classroom settings at designated testing locations. The following are some of the difficulties involved with administering traditional exams. The exam centres must be made accessible for the administration of the exams. This includes expenses for locating testing locations, setting up the necessary infrastructure, and hiring examiners to oversee testing. To the testing locations, both the candidates and the examiners must travel. Both time and money may be wasted as a result of this. A sufficient number of the paper-based answer sheets and question papers must be made available. Exams administered on paper are therefore not very environmentally friendly. Additionally, the answer sheets are physically transported to and from the exam sites and kept somewhere. This method of travel is dangerous to misuse and harm. Additionally, there would be expenses associated with infrastructure investment. Briefly said, traditional paper-and-pencil exams are costly to administer and deliver, require

laborious physical labour, and are not ecologically friendly. To verify applicants taking the exam, an invigilator is required to be present at the exam Centre during the traditional exam process. You require one invigilator for every 30 to 50 candidates at each exam site. As a result, more than 25 invigilators would be required to supervise the exam of more than 1000 applicants. This would entail excessive physical labour and cost.

B.PROPOSED SYSTEM

Develop an AI-monitored, remotely proctored exam with CamProctor utilising TCN is the project's suggested system. Online proctoring systems frequently utilise Temporal Convolutional Network (TCN), a sort of deep learning technology, to identify suspicious activity during examinations conducted online. TCN is a neural network architecture that uses dilated convolutions to analyse sequential input, such as time-series data. As a result, the online proctored tests track and monitor students and aid institutions in eradicating exam cheating thanks to AI-powered technology.

Our online examination software provides auto proctoring features, so your institute may conduct exams without fuss or concern about fraud or other irregularities. Online proctoring is an AI-based automated proctoring solution that automatically invigilates exams using the webcams and microphones of the students.

B.1 Recognition of Faces

One of the crucial elements of the authentication process for remote users throughout the online test process is face recognition.

B.2 Face Recognition on CNN

Convolutional Neural Networks (CNN) are a widely utilised technique in many domains, including online proctoring systems, for face recognition and identification. Strong deep learning algorithms known as CNNs can automatically identify and learn patterns from visual data.

B.3 Video Proctoring

The footage is recorded as the webcam examines the students' faces. If there is any unusual activity in the video, it raises red

flags. To assist you in determining whether an electronic test has been successfully finished with machine-driven remote invigilation proctoring, it would create an in-depth report for you. TCN enables AI-enabled remote proctoring systems to continually learn, adjust, and advance in intelligence.

B.4 Proctoring of images

It evaluates and examines the photographs of the students, which are taken at regular intervals, to see if there has been any cheating. Secure online exam environments are now possible thanks to image proctoring.

B.5 Secure Browser

Prevents the candidate from opening multiple windows at once while taking the electronic exam.Additionally, switching windows while taking the scheduled online exam is not allowed with AI-powered remote proctoring. In order to maintain control over the Online Exam environment, the protected browser technology required by the proctored examination process applies this restriction.

V.ARCHITECTURE
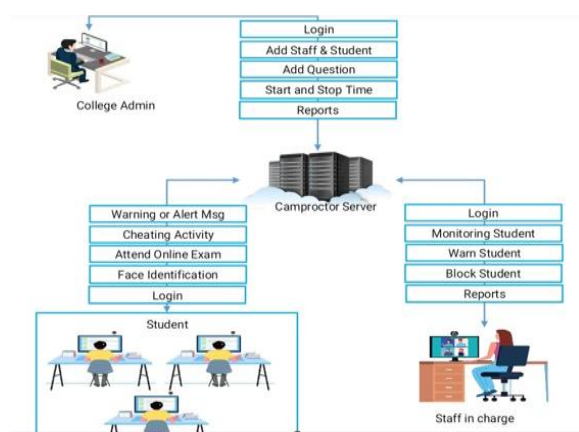
VI.CONCLUSION

Due to the widespread adoption of remote teaching and learning, electronic tests are becoming a need. Recent exam proctoring solutions, however, are unable to offer a complete solution for preventing and identifying cheating during online exams. In this project, a Web dashboard called CamProctor was created to identify exam-taking behaviour by using computer vision techniques and deep learning algorithms to analyse exam

films. In an online exam, temporal convolutional neural networks were utilised to identify cheating. The education sector can be transformed by applying AI, and everything is now virtual thanks to CamProctor. AI-integrated computer systems can guarantee the validity of the exam by discouraging cheating and the use of unfair tactics by the candidate. Using Remote Proctoring, educational institutions don't have to exams should be delayed or postponed during the disease outbreak. Our suggested approach will help lessen inequality throughout the online test. When using an online proctoring system, human-induced detection is crucial since it helps identify students' questionable activity throughout the exam.

VII.REFRENCES

[1] X. Yang, D. Wu, X. Yi, J. H. M. Lee and Tan Lee, "iExam: A Novel Online Exam Monitoring and Analysis System Based on Face Detection and Recognition", Electrical Engineering and Systems Science, 2022.

[2] Jiyou Jia and Yunfan He, "The design implementation and pilot application of an intelligent online proctoring system for online exams", Interactive Technology and Smart Education, 2021.

[3] M. Ueda, T. Tanaka and H. Hasegawa, "Attempt to develop a sound-based examination monitoring system" in Acoustical Science and Technology, Acoustical Society of Japan, vol. 42, no. 4, pp. 226-227, Jul. 2021.

[4] A.Nigam, R. Pasricha, T.Singh and P.Churi, "A Systematic Review on AI-based Proctoring Systems: Past Present and Future", Education and Information Technologies, vol. 26, no. 5, pp. 6421-6445, Sep. 2021.

[5] M.Labayen, R.Vea, J.Florez, N. Aginako and B. Sierra, "Online Student Authentication and Proctoring System Based on Multimodal Biometrics Technology", IEEE Access, vol. 9, pp. 72398-72411, 2021.

[6] K.Garg, K.Verma, K.Patidar, and N.Tejra, "Convolutional neural network based virtual exam controller," in 2020 4th International Conference on Intelligent Computing and Control Systems (ICICCS). IEEE, 2020, pp. 895–899.

[7] Proctoredu, "Conduct credible online tests anywhere, anytime." https: //www.proctoredu.com/, accessed October 04, 2020.

[8] Comprobo, "Online automated invigilation or proctoring," https://comprobo.co.uk, accessed October 04, 2020.

[9] M. Ghizlane, B. Hicham and F. H. Reda, "A New Model of Automatic and Continuous Online Exam Monitoring", 2019 Int. Conf. Syst. Collab. Big Data Internet Things & Secur., pp. 1-5, 2019.

[10] H. S. G. Asep and Y. Bandung, "A Design of Continuous User Verification for Online Exam Proctoring on M-Learning", Proc. Int. Conf. Electr. Eng. Informatics, vol. 2019-July, no. July, pp. 284-289, 2019

[11] O. Ruiz-Vivanco, A. Gonzalez-Eras, J. Cordero and L. BarbaGuaman, "Monitoring for the evaluation process on-line prototype based on openface algorithm", Communications in Computer and Information Science, vol. 895, pp. 500-509, 2019.

[12] G. Fenu, M. Marras, and L. Boratto, "A multi-biometric system for continuous student authentication in e-learning platforms," Pattern Recognition Letters, vol. 113, pp. 83–92, 2018.

[13] Z. Zhang, E. S. Aziz, S. Esche and C. Chassapis, "A virtual proctor with biometric authentication for facilitating distance education", Lecture Notes in Networks and Systems, vol. 22, pp. 110-124, 2018.

[14] Y. Atoum, L. Chen, A. X. Liu, S. D. Hsu, and X. Liu, "Automated online exam proctoring," IEEE Transactions on Multimedia, vol. 19, no. 7, pp. 1609–1624, 2017.

[15] Y. Atoum, L. Chen, A. X. Liu, S. D. H. Hsu and X. Liu, "Automated Online Exam Proctoring", IEEE Trans. Multimed., vol. 19, no. 7, pp. 1609-1624, 2017.

[16] R. Bawarith, D. Abdullah, D. Anas and P, "E-exam Cheating Detection System", Int. J. Adv. Comput. Sci. Appl., vol. 8, no. 4, pp. 176-181, 2017.

[17] R. Bawarith, D. Abdullah, D. Anas, and P. Dr., "E-exam Cheating Detection System," International Journal of Advanced Computer Science and Applications, vol. 8, no. 4, pp. 176–181, 2017.

[18] S. Prathish, A. N. S. and K. Bijlani, "An intelligent system for online exam monitoring", 2016 International Conference on Information Science (ICIS), pp. 138-143, 2016.

[19] Yousef Atoum, Liping Chen, Alex X. Liu, D. H. Hsu Stephen and Xiaoming Liu, Automated Online Exam Proctoring, 2015.

[20] Ali Sharifara, Mohd Shafry Mohd Rahim and Yasaman Anisi, A General Review of Human Face Detection Including a Study of Neural Networks and Haar Feature-based Cascade Classifier in Face Detection, 2014.

[21] N.L Clarke, P. Dowland and S.M. Furnell, "e-Invigilator: A biometric-based supervision system for e-Assessments", International Conference on Information Society (iSociety 2013), June 2013.