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Securing Exam Integrity: Detecting and Preventing Fraud Activities in Examination Centers Using Python

Mr. M. Palanisamy [1], V. Arunraj [2], V. G. Avinash [3], T. Kamalesh [4], V. Nishanth [5]

[1] Assistant Professor, Department of Information Technology, Dhanalakshmi Srinivasan Engineering College (Autonomous), Perambalur, Tamil Nadu.
[2,3,4,5] UG - Department of Information Technology, Dhanalakshmi Srinivasan Engineering College(Autonomous), Perambalur, Tamil Nadu.
E-Mail: ps875235@gmail.com, arunrajvel02@gmail.com, avisuriya2003@gmail.com, skkamalesh1612@gmail.com, sujinishanthss2009@gmail.com

ABSTRACT

Exam malpractice is defined as any international wrong doing that is contrary to the examination's standards and intended to provide a candidate an unfair advantage. Exam malpractice, commonly referred to as cheating, is the unethical behavior that students engage in during tests in an effort to improve their grades by taking shortcuts. Exam malpractice is any act or irregular way of testing applicants that violates the laws and customs governing how exams are conducted. In order to pull off the magic they are accustomed to in every exam, many students have neglected their books, which has caused a great deal of harm to the students. Examinee fraud has received a lot of attention in the real time educational system and is considered as a significant problem by not just the test bodies but also school administrators, the entire educational system, the government and society at large. In order to establish a better system for conducting exams, which can aid in lowering malpractice occurring in testing facilities, it is critical to identify impersonators in examination halls. Exam malpractice caused by the use of impersonators could be prevented using a biometric approach. With the use of facial features that have been retrieved and exploited by algorithms or other methods, candidates can be identified using face recognition technology, which is widely employed in many applications. This issue needs to be resolved effectively, yet with fewer resources. The development of deep learning algorithm has made it simple to resolve this issue. In this research, a framework for facial recognition and student behavior analysis that uses the Grassmann algorithm and convolutional neural network algorithm is being developed.

Keywords: Face Image Acquisition, Face Classification, Smart Alert Notification, Grassmann Algorithm and Convolutional Neural Network.

I. INTRODUCTION

Online exams have got a surprising momentum especially during the pandemic. Almost every college is switching their traditional exam format to Online Examinations. They are able to conduct MCQ exams with the help of available platforms but the platforms lack strong candidate verification. Moreover, those platforms have increased the malpractices of candidates during exams. Hence, we introduce this study. The main objective is to develop an online exam system which is secure and through online exams we can save time expending between paper and result. The main idea behind developing this project is to provide fast way of conducting exam through internet in a secure environment. The project will have various features to conduct exams in secure manner like proctoring and face recognition for user authentication. The results will be stored in a excel sheet so it will be useful for teachers to keep records of student grades. It can reduce the hectic job of manually assessing the answers as response from the candidate can be checked automatically and instantly and the user can give the exam anytime and anywhere. The major problem that occurs in examination system is malpractices. This is identified due to the absence of credible identity verification system for offline and also for online examinations. In order to overcome the above problem researchers have focused on the use of artificial techniques and use of biometrics. In the past history work has been carried out on examination malpractices. ANN classifiers are used for similarity measure between trained and test features. Monitoring can be done using authentication techniques. An iris recognition method based on the natural open eyes. In order to realize exactly matching, it must eliminate these factors through the image pre-processing. Iris image pre-processing includes iris location, eyelid fitting, eyelash detection and normalization. Image quality assessment for live ness detection technique is used to detect the fake biometrics. A biometric system should have the uniqueness, stability, collectability, performance, acceptability and forge resistance. Image quality measurements for real and fake user. Multi model biometric is also done in which more than one biometric grouped together & compare with the existing databases. The system uses the face recognition approach for the automatic attendance of students in the classroom environment.

II. PURPOSE

The purpose of developing a system to detect and prevent fraud activities in examination centers using Python is multifaceted. At its core, the aim is to safeguard the integrity and fairness of academic assessments. By leveraging Python's versatile libraries and frameworks, this system seeks to ensure that all candidates are valuated based on their own merits, without unfair advantages gained through cheating or impersonation. Upholding the credibility and reputation of educational institutions is paramount, as it ensures that academic qualifications accurately reflect genuine knowledge and skills. Moreover, by demonstrating a commitment to combatting fraud, institutions can foster trust among stakeholders, including students, educators, employers and accrediting bodies, in the reliability and validity of their assessments. Automated fraud detection mechanisms enable efficient analysis of large volumes of data, including video footage, audio recordings and exam papers, enhancing accuracy and consistency compared to manual monitoring methods. Compliance with regulatory requirements and standards for exam security is essential to maintain accreditation and uphold legal obligations. Furthermore, by continuously analyzing patterns of fraud and adapting detection techniques, institutions can stay ahead of evolving threats and ensure that examinations remain a valid measure of individual's capabilities. Ultimately, the purpose of this system is to uphold the fundamental principles of fairness, integrity and trust in academic assessments, ensuring that qualifications earned through examinations hold true value and meaning.

III. OBJECTIVES

Developing the framework to recognize the face and also analyze the behavior patterns of students which includes Grassmann algorithm and Convolutional neural network algorithm.

IV. EXISTING SYSTEM

A face-based examination system is a type of online examination system that uses facial recognition technology to verify the identity of the test-taker and ensure that they are the same person who registered for the exam. The system uses a camera to capture the test-takers face and compare it with the stored image of their face in the database. If the images match, the test- taker is allowed to proceed with the exam. Otherwise, the test-taker is denied access to the exam. In recent time students are currently adopting various examination malpractice method. The most rampart among the approach is impersonation which cannot be easily detect especially in a very large class and conspiracy of some invigilator or teachers. This project is focused on design of biometric control examination attendance register to deter impersonation during examination. There is various approach to biometric usage which include the fingerprint, face recognition, DNA, hand geometry, iris recognition, retina etc. This project work adopted face recognition biometric technology that recognized different faces. Database of the captured image was built through the use of HAAR cascade algorithm model and deep learning algorithms to initiate and refining the database model respectively. Face recognition was done via skin segmentation, candidates face search, and verification, while face recognition was carried out by face image processing and classification. The entire process was coded using python and the resulted system was tested with return shows significant accuracy of recognition test for candidate/students used in the training and testing phase.

DISADVANTAGES

- The current system is very time consuming.
- It is very difficult to analyze the exam manually.
- To take exam of more candidates more invigilators are required but no need of invigilator in case of on-line exam.

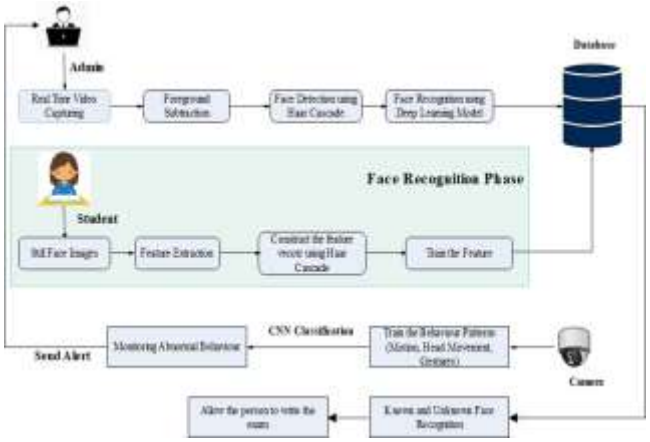
V. PROPOSED SYSTEM

The advent of technology has steadily digitized all services and offerings, taking them to the online platform, and education has been no exception. With the ubiquitous high-speed internet and laptops, the pervasiveness of technology has enabled a seamless transition to the online ecosystem. Universities, schools and various educational institutions have progressed and adapted to Learning Management Systems (LMSs), where software application tracks, reports, administers and documents materials shared with the students. The objective of online exams is to ensure that assessment givers can undertake the paradigm shift from offline to online processes. The online industry is growing rapidly, and factors such as convenience, scalability, increased reach, and customization are shaping its adoption. Established evaluation techniques are now nearing saturation and would soon become obsolete. Online examination, also known as e-examination, enables examiners to conduct exams using the internet or a company-wide intranet for remote candidates. Most online exams include answer processing modules, allowing evaluators to issue results moments after the candidates complete the test. This fully-automated system evaluates the examinees thoroughly and presents the results in considerably lesser time. As well as facial recognition technology more and more used and developed for various applications including security systems, attendance systems or other things. As well as attendance system that is a recurring transaction because it is associated with controlling the presence of a person in activity. In the field of education, examination system is very important because the presence of students is part of a good assessment for teaching and learning. This project we can implement Grassmann algorithm to detect the face based on facial feature points and classify the faces using Convolutional neural network algorithm with improved accuracy rate. And also provide motion details, head movement and gesture details at the time exam and alert about misbehaving students.

ADVANTAGES

- It saves our time.
- It increases the efficiency.
- It allows neat handling of data rather than error prone records.
- It gives the accurate data.

SYSTEM ARCHITECTURE



VI. FUTURE ENHANCEMENT

In future, we can extend the framework to analyze the system with various deep learning algorithms and also other patterns.

VII. CONCLUSION

Impersonation of the candidate is a fundamental problem in examination system often referred as malpractice. Hall ticket and identity cards are normally used in the examination system for fraud detection. Existing examination system mainly deals with document image analysis techniques and biometric system in identification, recognition and classification of the candidate. Generally, fraud is detected by using document image analysis whereas the proposed model is focus on the image/video for analysis. In this project we can implemented face recognition techniques. Face recognition of Biometric techniques is part of facial image applications with increasing research area and integration. This proposed work deployed facial recognition to deter students from impersonation during examinations which is rampart in some colleges. This system will be beneficial as it will provide enhanced candidate authentication and verification and keep track of his/her activities throughout the exam. This system is totally online leading lower no usage of paper. This system can be more reliable and efficient platform for conducting online examinations. And also extend the system to analyze the activities of student from video surveillance system. The activities include human behavior that are classified as motion, gestures and head movements. If the activities considered as abnormal means, provide alarm with improved accuracy rate.

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