International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 07 | July - 2023 SJIF Rating: 8.176 ISSN: 2582-3930

ONLINE PROCTORING SYSTEM USING DEEP LEARNING

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ABSTRACT

Distance and on- line mastering (or e-learning) has emerge as a norm in schooling and education due to a ramification of benefits similar as effectiveness, flexibility, affordability and ease of use. Insulation requirements. however, tracking participants and scholars throughout training, specifically assessments, is a major task for on- line systems due to the dearth of physical presence. strategies and technologies need to be advanced that offer sturdy equipment for detecting unfair, unethical and unlawful conduct for the duration of the study room requirements. We suggest in this paper a new online surveillance system that uses deep learning to continuously monitor physical locations without the need for a physical examiner. The system makes use of biometric strategies which includes face sensor OpenCV DNN and the eye tracking algorithm OpenCV. further, the machine consists of person and phone detection. To make sure equity for the duration of examinations, the device can also recognize devices including cell telephones, laptops, iPads and books.

KEYWORDS : Deep Learning, CNN ,YOLOv3,OpenCV,Online Proctoring.

INTRODUCTION

Utmost schools and universities give educational courses and training physically, i.e., taking the attendance of lectures, entrance examinations, semester examinations, and other conditioning in physical classrooms and spaces. Tutoring and literacy in physical spaces have numerous disadvantages similar as strictness for scholars, preceptors, and other staff, taking physical spaces with strict conditions, availability related challenges for the scholars and staff in terms of space and time, challenges related to mortal disabilities, advanced fiscal costs, transportation- related challenges and damages to people and terrain, and numerous further. Online tutoring and literacy have been known to have numerous advantages including the inflexibility and availability for people to attend classes from homes, at their convenience both in time and space, lower costs, a much lower impact on the earth terrain, and numerous further. Indeed, all the disadvantages of in- class tutoring mentioned over could be overcome or abated by online literacy. Despite the numerous benefits of online literacy, in- class literacy has remained the mainstream choice for tutoring and literacy. Massive open online courses(MOOCs) that are offered online have motivated numerous to attend and complete courses and degrees online. Numerous of the

top schools and universities worldwide give scholars with online courses as well as certificates upon completion of the courses.

The proposed online proctoring system is based on deep learning. The system uses various methods to proctor the physical places without the presence of an invigilator. The system employs biometric approaches including face discovery using OpenCV model and Eye tracking using OpenCV. Also, to apply fairness during examinations, the system is suitable to descry widgets including mobile phones and multi person detection. The system is estimated using the FDDB(Face Detection Data Set and Benchmark) and LFW(Labeled Faces in the Wild) datasets.

LITERATURE REVIEW

An overview of the applicable exploration is presented in this section. In the online proctoring system, Section A analyzes the literature in the academic realm, and Section B reviews the literature in the commercial sector.

A. Academic Research

The online test is facing immense challenges throughout the examination. Sarrayrih.(3) bandied the several challenges presented by the online examination, as well as delivering a result by grouping the hostnames or IPs of clients for a specific locality and time, with a biometric result like face recognition and fingerprints. Fenu (4) proposed a multibio-metric continuous authentication system including face recognition, voice recognition, touch recognition, mouse, and keystroke in 2018. Selvi. In(5),a profile- based authentication framework is proposed for the online examination based on different grueling questions ,including the favourite questions, individualized questions, and an academic question. Another online proctoring system was proposed by Atoum (6), which continuously estimates six factors, including voice, phone, text, and active window detection,aspect estimation, and user verification. Garg (7) proposed a face recognition and detection result for the secured online test using deep learning.

B. Commercial Research

Lately, the online proctoring system has become a challenge for researchers and developers. Due to the coronavirus situation, the demand and challenges for the online proctoring system are tremendously raising day by day. Several industrial companies developed the proctoring system commercially with the paid version. For example, ExamOnline[9],Honorlock [10], ProctorU [11] and so on.

EXISTING SYSTEM

Tutoring and literacy in physical spaces have numerous disadvantages similar as strictness for scholars, preceptors, and other staff, taking physical spaces with strict conditions, availability related challenges for the scholars and staff in terms of space and time, challenges related to mortal disabilities, advanced fiscal costs, transportation- related challenges and damages to people and terrain, and numerous further. Online tutoring and

literacy have been known to have numerous advantages including the inflexibility and availability for people to attend classes from homes, at their convenience both in time and space, lower costs, a much lower impact on the earth terrain, and numerous further.

The being system employs biometric approaches similar as face detection and the Eye tracking. Also, the system incorporates eye blinking detection to detect stationary pictures. also, to enforce fairness during examinations, the system is suitable to descry widgets including mobile phones, laptops, iPads, and books. The system is enforced as a software system and estimated using the FDDB and LFW datasets.

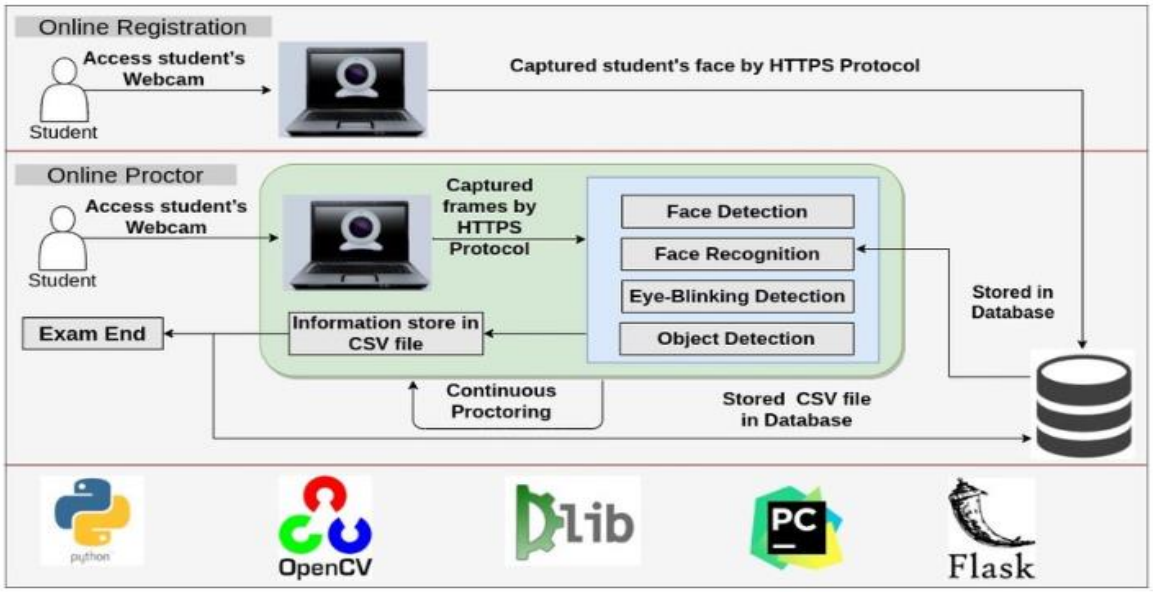


Fig 1. Architecture of Existing System

PROPOSED SYSTEM

The proposed system entitled as “ONLINE PROCTORING SYSTEM USING DEEP LEARNING” is mainly focused on detect malpractices on the online exams. The proposed system for online proctoring consists of four modules. The first module is used for Detecting the face. We use OpenCV DNN model for face detection. Eye tracking is the second module ,pretrained Convolutional neural network is used to get facial landmarks. Then we use OpenCV to detect eyes from facial landmarks. The third module is Mouth Opening , to detect the points of mouth in a video we use Dlib library’s facial keypoints module. The last module is used for the person and phone detection .YOLOv3 object detection model is used in this module.The YOLOv3 model is much accurate and faster the the other models like mean average precision (mAP) and intersection over union (IOU).It runs significantly faster than other detection methods with comparable performance. The system is implemented as a website and evaluated using the FDDB and LFW datasets.

The proposed system has the features like,

1. Adding Teachers
2. Adding Students

3. Upload Notes
4. Adding Exams
5. Send Report

The main Advantages of the proposed system are,

- Work as an Academic Management System.
- Using Open CV DNN model and Its more accurate.

YOLOv3

The YOLO v3 (you-only-look-once) is an multi-scale object detection network. The YOLO v3 uses a feature extraction network and multiple detection heads to make predictions at multiple scales. To produce network predictions from multiple feature maps the YOLO v3 object detection model runs a deep learning convolutional neural network (CNN) on an input image. To generate the bounding boxes the object detector gathers and decodes predictions. To detect classes of objects in an image YOLO v3 uses anchor boxes.

OpenCV

OpenCV is a Python open- source library. It's used for computer vision in AI, Machine literacy, face recognition etc. It supports the notorious Darknet frame as well. One may fete this if they've used sanctioned YOLO models with the Darknet frame. We need one model weights train having the weights extension to load the Darknet models. In our proposed system, we used the OpenCV DNN(Deep neural network) model. It's grounded on a Single- Shot- Multibox sensor and uses ResNet- 10 Architecture as the backbone.

CNN

A CNN (convolutional neural network or ConvNet) is a network architecture.It for deep learning that learns directly from data. CNNs are particularly useful for finding patterns in images to recognize objects, classes, and categories. A CNN is composed of an input layer, an output layer, and many hidden layers in between. Convolution , activation or ReLU , and pooling are the most common layers.

HARDWARE SPECIFICATION

Memory : 4GB RAM or above

Processor : Intel Core i3 or above

Hard disc : 512GB

SOFTWARE SPECIFICATION

Operating System : Windows 7 or above

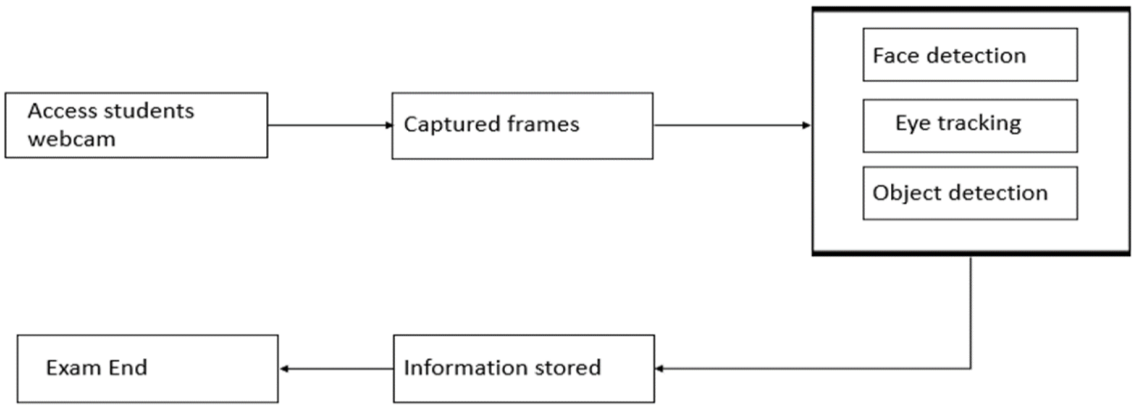
Front End : HTML, CSS, JavaScript ,XML

Back End : Python , Java

Frame Work : Flask

IDE Used : Visual Studio

BLOCK DIAGRAM



CONCLUSION

There are many drawbacks to any organization when they conduct any assessment via traditional pen- and-paper grounded system rather than remote proctoring system. Cataloging examinations becomes easier as there's no need to set up specific testing centers to conduct examinations. Communication between the monitor and the examinee is more streamlined, hassle-free and briskly. Social perception of the millions towards online examinations also needs to be changed and they must be made apprehensive of the benefits for the same. The advanced system is a better and effective proctoring system for proctor the scholar without the physical appearance of a invigilator and to descry the deceitful and intolerant geste of the scholar during the test.

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