Online Exam Portal

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Abstract: *Today's pandemic situation has transformed the way of educating a student. Education is undertaken remotely through online plat- forms. In addition to the way the online course contents and online teaching, it has also changed the way of assessments. In online education, monitoring the attendance of the students is very important as the presence of students is part of a good assessment for teaching and learning. Educational institutions have adopting online examination portals for the assessments of the students. These portals make use of face recognition techniques to monitor the activities of the students and identify the malpractice done by them. This is done by capturing the students' activities through a web camera and analyzing their gestures and postures. Image processing algorithms are widely used in the literature to perform face recognition. Despite the progress made to improve the performance of face detection systems, there are issues such as variations in human facial appearance like varying lighting condition, noise in face images, scale, pose etc. that blocks the progress to reach human level accuracy. The aim of this study is to increase the accuracy of the existing face recognition systems by making use of SVM and Eigenface algorithms. In this project, an approach similar to Eigenface is used for extracting facial features through facial vectors and the datasets are trained using Support Vector Machine (SVM) algorithm to perform face classification and detection. This ensures that the face recognition can be faster and be used for online exam monitoring.*

Keywords: Face Detection, Face Recognition, Online Test Portal, Image Processing, Support Vector Machine

I. INTRODUCTION

In our education system, exams play a major role in assessing and evaluating a student's knowledge. Exams, tests, and marks are some of the important aspects employed by educational institutions to evaluate the performance of the students. Most of the exams have strict set of rules and procedures that the student has to follow in order to write the examinations. These rules ensure that the students write their examinations in a proper manner and also to make sure that there is no cheating and malpractice in the examinations. Educational institutions are very much capable of conducting examinations and monitoring the students effectively. In today's pandemic situation, it is impossible to conduct offline examinations. Hence, educational institutions are adapting to online classes and online examinations. Online classes and online examinations are the only possible practices in the current situation. Monitoring students during online classes and examinations becomes a difficult process. This problem can be solved by using effective face recognition systems.

Almost all of the world's top universities have made online education a priority. When it came to evaluation, however, they relied on the traditional offline method of administering tests, which necessitates rigorous invigilation of each student in order to avoid any unfair attempts. As a result, we still lack an effective online evaluation system that can be administered without one-on-one real-time supervision while still preventing fraudulent behaviour. One of the most urgent issues about one-to-one supervision throughout the test period will be addressed by our proposed application
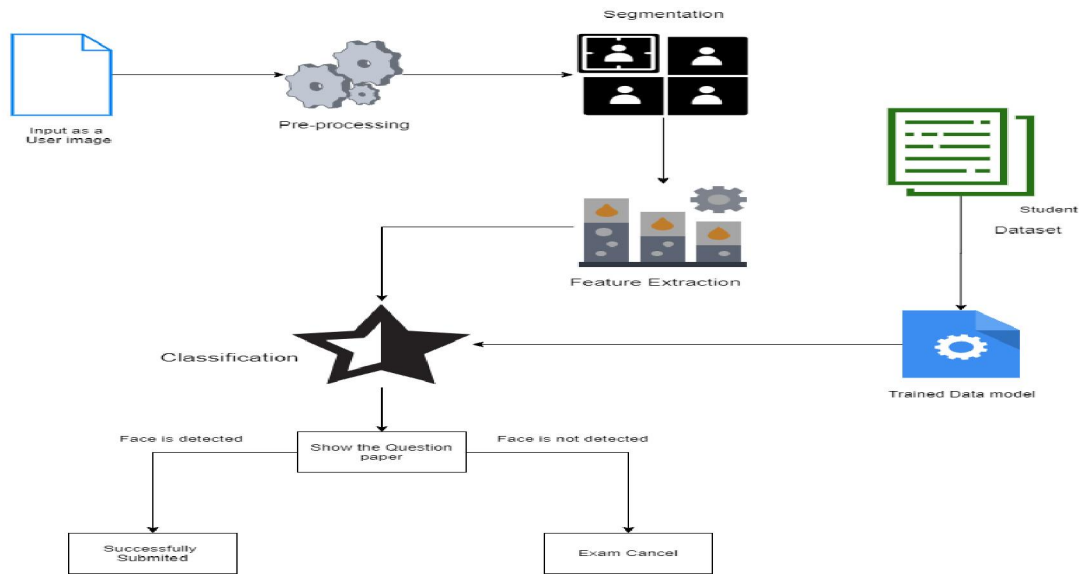
Figure: system Architecture

We have studied different research papers for collecting more information related to prostate cancer and detection of prostate cancer and some other papers related to Deep Learning algorithms.

II. LITERATURE REVIEW

A face recognition system using Eigenface method was proposed by Dhavalsinh [7] to monitor the attendance of the students, where the face acts as the main index. Eigenface is a set of eigenvectors used in face recognition and detection. it is used to determine the variation among multiple faces by performing a statistical analysis on the facial images. Sirovich and Kirby designed the Eigenfaces approach to do facial recognition and the same was used by Matthew Turk and Alex Pentland for face classification. Kranthikiran and Pulicherla [8] made use of Eigenfaces and Principal Component Analysis (PCA) to perform face detection for campus surveillance. Continuous face biometric recognition has been used by Fayyoumi and Zarrad [9] in developing a prototype for conducting online examinations. The prototype has been evaluated by obtaining feedbacks from different experts through a survey using a five-point Likert scale. The proposed system contains a question bank to assist the instructors in generating different tests randomly. Kamencay et al. [10] suggested a face recognition system using Convolutional Neural Network (CNN). The authors used OLR dataset comprising 400 diverse entities (40 categories/10 images for every category) to carry out the experiments and validate their results. The detection accuracy of the suggested method has been compared with the three popular image recognition approaches like PCA, Local Binary Patterns Histograms (LBPH) and KNN. In comparison with these methods the proposed CNN-based method performs better by achieving an identification accuracy of about 98.3%.

Table 1: Summary Table of Literature Review:

Sr. No.	Year	Title	Authors	Methodology
1	2019	Application of College English Listening Online Examination Platform Based on Streaming Media Technology	Qiuyan Li , Chengyong Yang	This is done by capturing the students' activities through a web camera and analyzing their gestures and postures. Image processing algorithms are widely used in the literature to perform face recognition
2	2019	Research on Abnormal Behavior Detection of Online Examination	Senbo Hu, Xiao Jia, Yingliang	Solving college English listening online examination by using

		Based on Image Information	Fu	streaming media technology. It gives an overview of streaming media technology, and proposes the use of streaming media technology to build the college English listening online examination platform.
3	2018	Impersonation Detection in Online Examinations	Pooja Mahesh , K Selvajyothi	Aim is to eliminate these human factors, to ensure that impersonation, if any, can be easily detected, and the impersonator is not allowed to take the examination. For this purpose, two-step biometric verification of the candidate is done
4	2018	College English Online Examination System Design Based on Cloud Computing Platform	Qiuyan Li	Plan to build a systematic, integrated, intelligent and extensible college English online exam on the cloud computing platform by using the open-source Hadoop framework.classified in respective stage.
5	2016		Zhang Yong-sheng, Feng Xiu-mei, Bao Ai-qin	The software methodology followed in this project includes the object-oriented methodology and the application system development methodologies. The description of these methodologies is given below.

III. METHODOLOGY

Dataset and Results

The dataset used here consists of images of the our own students. In the sample images available in the dataset. Efficiency of this training model depends on the number of images present in the dataset. And the accuracy of our CNN model is ranging from 8.5 to 9.5. The accuracy of model is increased by increasing the dataset size.

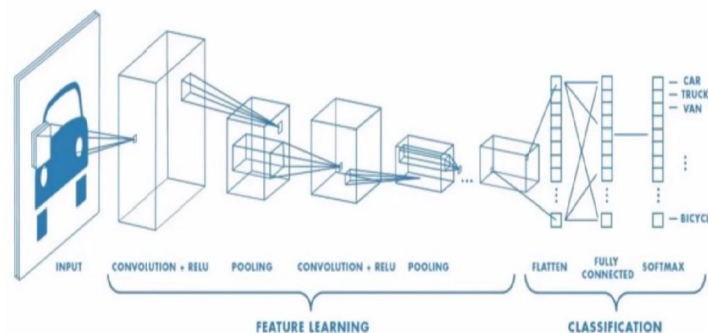**Proposed architecture of CNN (Convolutional Neural Network):**

Fig2. Architecture of CNN

IV. CONCLUSION & FUTURE WORK

A machine learning based face detection and recognition system using CNN model is proposed to detect the faces of students for monitoring their activities during online examinations. The proposed system aids in detecting the faces in a faster manner by obtaining feature vectors from the input images.. Higher accuracy can be obtained . Still better optimal values can also be obtained by applying different algorithms. Higher accuracy can be obtained using convolutional neural networks.

Providing accessibility to the administrators who have a valid userid and password Helps to reduce administrative work Data Security.

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