**ONLINE EXAMINATION USING HAAR CASCADE ALGORITHIM**

**A PROJECT REPORT**

***Submitted by***

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***in partial fulfilment for the award of the Degree***

***of***

**BACHELOR OF ENGINEERING**

**IN**

COMPUTER SCIENCE AND ENGINEERING

Diagram

Description automatically generated with medium confidence

**St. JOSEPH’S COLLEGE OF ENGINEERING**

**(An Autonomous Institution)**

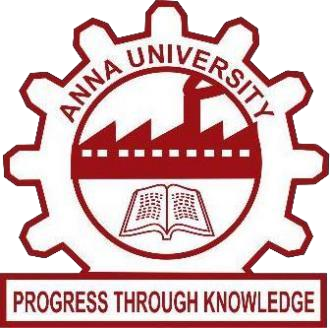
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JUNE 2022

**ANNA UNIVERSITY**

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The report of the project work submitted by the above students in partial fulfilment for the award of the Degree of Bachelor of Engineering in Computer Science and Engineering at Anna University is confirmed to be a report of the work done by the above students and then evaluated.

**Submitted to Project and Viva Examination held on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**INTERNAL EXAMINER EXTERNAL EXAMINER**

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**ABSTRACT**

With the advent of COVID-19, remote learning has blossomed. Schools and universities may have been shut down but they switched to online learning to finish their academic years. However, there has been no solution to examinations. Some have changed it to an assignment form where students can just copy and paste from the internet, while some have just cancelled them outright. If the way we are living is to be the new norm there needs to be some solution. We shall aim to track the eyeballs of the test-taker and report if he is looking to the left, right, or up which he might do to have a glance at a notebook or signal to someone. This can be done using Dlibs facial key point detector and OpenCV for further image processing. This project main aim is to prevent proacting during online examination by monitoring the student through webcam

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**CHAPTER 1**

**INTRODUCTION**

Proctored exams are time-based exams that a candidate takes while proctoring software monitors his computer’s desktop along with webcam video and audio. So essentially, an online proctored exam is like any other exam but with an online infrastructure to support all the associated activities. And most importantly, invigilation in order to maintain the sanctity of the exam.AI-based algorithm that monitors the candidates to flag any doubtful case. All the functions are real time based. With the advent of COVID-19, remote learning has blossomed. Schools and universities may have been shut down but they switched to applications like Microsoft Teams to finish their academic years. However, there has been no solution to examinations. Some have changed it to an assignment form where students can just copy and paste from the internet, while some have just canceled them outright. If the way we are living is to be the new norm there needs to be some solution. ETS conducts TOEFL and GRE among others is allowing students to give exams from home where they will be monitored by a proctor for the whole duration of the exam. Implementing this scheme at a large scale will not be plausible due to the workforce required. The AI will have four vision-based capabilities which are combined using multithreading so that they can work together:

* Gaze tracking
* Mouth open or close
* Person Counting
* Mobile phone detection

**1.1 OBJECTIVE:**

The aim and object in this project are to detect student activation level of the user by monitoring the facial expression. Here, we are going to use dlib package It’s a landmark’s facial detector with pre-trained models, the dlib is used to estimate the location of 68 coordinates (x, y) that map the facial points on a person’s face. Response time also calculated.

The applications of ML are various, e.g., object recognition, face detection, spoken language understanding, customer segmentation, and weather prediction. As hazardous chemicals need to be handled in chemical engineering, an intelligent system that can control and maintain the safety level of a working environment is urgently demanded. Therefore, in this research, a safety system is introduced that can remind workers to wear personal protective equipment when they are working in a dangerous environment. This system is the combination of some preprocessing algorithms, the ML Haar-cascade algorithm, and system control. The Haar cascade is an ML object detection algorithm used to identify objects in an image or video and is based on the concept.

**CHAPTER 2**

**LITERATURE SURVEY**

**TITLE 1:** Building pipelines for educational data using AI and multimodal analytics

**AUTHOR:** K. Sharma, Z. Papamitsiou, and M. Giannakos

**YEAR:** 2019

**DESCRIPTION:**

The academic researchers try to find out the best way for detecting stress and propose strategies to cope with it. Some people believe that all kinds of stress are harmful, but in fact, temporary stress is useful, provided that the body returns to its original condition. It keeps body alert to accidents, and ready to adapt to chaotic situations. Early detection of stress is beneficial to people and working environments. In this paper, we review the available literature to understand stress phenomenon, and to examine the stress detection methods and management strategies.

**MERITS:**

1. This will allow us to utilize data features that are educationally and contextually meaningful.
2. This paper aims to extend current methodological paradigms, and puts into practice the proposed approach in an adaptive self‐assessment case study taking advantage of new, cutting‐edge, interdisciplinary work on building pipelines for educational data, using innovative tools and techniques

**DEMERITS:**

1. . Effortless behavioral patterns commonly exhibited by learners, such as “cheating,” “guessing” or “gaming the system” counterfeit the learning outcome.
2. Multimodal data can accurately predict learning engagement, performance and processes

**TITLE 2:** Study on the relationship between the shape of stress crack and its detection signal

**AUTHOR:** Liang Xue , Chang’an Hu .

**YEAR:** 2020

**DESCRIPTION:**

Long term stress action is easy to cause stress crack of pressure vessel.

In the process of producing corrosion stress crack, the early stage of crack growth is slow, and the evolution process reaches critical size, which will become a large crack in a very short time, with great harm.

**MERITS:**

1. Nondestructive testing refers to the nondestructive testing of the tested materials.
2. If there are defects in the internal or surface of the materials,
3. These defects can be found without damage to the materials, and defects can be found as early as possible and dealt with in time.

**DEMERITS:**

1. It is widely used in various fields and plays an important role in the quality inspection of materials and products, and in the safety maintenance of in-service equipment is high.

**TITLE 3:** A Research on Stress Gradient for HIP in Ultrasonic Nondestructive Testing Technology

**AUTHORS:** Quan-wan Li, Chun-guang Xu**.**

**YEAR:** 2018

**DESCRIPTION:**

It is found in the inspection that bonding beryllium and copper together with two kinds of metals can lead to bad bonding, which seriously affects the safe operation of the equipment. In this paper, the residual stress distribution of the bonding block (beryllium side) at different depths is detected by using a probe of 15MHz, 10MHz, 7.5MHz, 5MHz, 4MHz. According to the propagation law of the critical refraction longitudinal wave and the ultrasonic detection system of the critical refraction longitudinal wave, the residual stress distribution of the bonding block (beryllium side) at different depths is detected.

**MERITS:**

1. In all ultrasonic propagation imagers, the ultrasonic data is captured and processed in real-time and the ultrasonic propagation can be visualized during scanning.
2. The scanning speed can go up to 1.8 kHz for two-axis linear translation stage-based B-UPIs and 10 kHz for galvanometer-based laser mirror scanners.

**DEMERITS:**

1. The C-scan results produced from non-dispersive, through-the-thickness, bulk-wave detection show good agreement in detection of structural variances and damage location in all inspected structures.
2. These results show that bulk-wave UPIs can be used for in-situ NDE of engineering structures.

**TITLE 4:** A Comprehensive Review on Stress Detection Techniques.

**AUTHORS:** G. Shanmugasundaram, S. Yazhini.

**YEAR:** 2019

**DESCRIPTION:**

Researchers have proved that stress level can be detected and validated through Heart Rate, Humidity response, Temperature response and Fuzzy Logic algorithm. This article examines the various stress detection techniques using the physiological parameters. It also explores the key challenges and opportunities in stress detection techniques.

**MERITS:**

1. Enables better accuracy, real-time tracking, alerting, monitoring and reporting irrespective of any place or any time.
2. IoT in healthcare provides customized personal service to the person under stress by utilizing individual gadgets and frameworks that are even utilized by single person.

**DEMERITS:**

1. Allows the devices to collect important data and able to transfer that data to the concerned person for real-time tracking by dropping notification to the person about their critical conditions through mobile application or any other linked devices.

**TITLE 5:** Application of BP neural network and genetic algorithm in stress prediction of anchor bolt

**AUTHORS:** Hui Xing; Xiaoyun Sun; Mingminig Wang

**YEAR:** 2015

**DESCRIPTION:**

The bearing capacity detection of anchor bolt system is very important for the supporting effect evaluation. In this paper, back propagation neural network (BPNN) and genetic algorithm (GA) were used to predict the pull force of free bolt.

**MERITS:**

1. Different anchorage quality could withstand different capacity, and get different supporting effect.
2. Therefore, the detection of anchoring capacity is a major issue in production safety.

**DEMERITS:**

1. The anchor bolt system is widely used in the field of slope control, mine roadway, underground engineering and so on.

**TITLE 6:** Study on Internal Detection in Oil–Gas Pipelines Based on Complex Stress Magneto mechanical Modeling

**AUTHORS:** Bin Liu; Simeng Zheng; Luyao He; He Zhang

**YEARS:** 2020

**DESCRIPTION:**

The pipeline micromagnetic stress internal detection technology lacks an effective theoretical model as a scientific guide due to the complex stress distribution inside the pipe wall during the operation of the pipeline.

In this article, based on the complex stress magneto mechanical coupling model, we have studied the corresponding relationship between the stress and the micromagnetic signal and analyzed the influence of the external magnetic field on magneto mechanical relationship under the nonmagnetic saturation condition**.**

**MERITS:**

1. The system has advantages of high speed and high precision in defects detecting. It can be used in different kinds of power stations.

**DEMERITS:**

1. The main contents are the producing and the detecting of the leaking magnetic field, the signal transmitting over a long distance, the acquiring and the processing of the data

**TITLE 7:** Reliability Evaluation of Stress in the Direction of Thickness Based on Ultrasonic Measurement Method

**AUTHORS:** Kun Zhou; Qinxue Pan; Chang Shao; Ruipeng Pan

**YEAR:** 2018

**DESCRIPTION:**

Based on the acoustoelastic theory, the ultrasonic nondestructive testing method of stress distribution in the thickness direction or bolt axial direction (which is called the Z axis after) is studied. The detection formula was deduced by combining the shear wave and the longitudinal wave, and the stress coefficient is replaced by the acoustoelastic coefficient to reduce the impacts of the test principle, the uneven thickness and inaccurate stress coefficient**.**

**MERITS:**

1. The ultrasonic method has been used to detect the stress.

**DEMERITS:**

1. The effect of stress is very important for mechanical components.
2. When it is harmful, there is an invisible trouble in the mechanical component

**TITLE 8:** Remote Detection and Classification of Human Stress Using a Depth Sensing Technique

**AUTHORS:** Yuhao Shan; Tong Chen; Liansheng Yao

**YEAR:** 2018 **DESCRIPTION:**

The proposed a novel framework for detecting and classifying human stress based on respiratory signals measured remotely by using a Kinect sensor with a detection range of 3 meters. They tested the framework on respiratory signals data set from 20 individuals under 3 different tasks (listen relax music, do exercise and do Stroop Color-word test), corresponding to relaxation, physical stress and psychological stress state.

**MERITS:**

1. Psychological stressor has no direct physical impact on the body.
2. It is perceived by the individual as a threat

**DEMERITS:**

1. A physical stressor has a direct effect on the individual’s body.
2. It may be an external uncomfortable condition (heat, cold, etc.), or due to internal demands of the body.

**TITLE 9:** A Smart Sensor in the IoMT for Stress Level Detection

**AUTHORS:** Laavanya Rachakonda; Prabha Sundaravadivel; Saraju P. Mohanty

**YEAR:** 2019

**DESCRIPTION:**

Psychological stress is a sense of pressure which affects the physiological parameters in a person. In this paper a novel stress detection system, iStress is proposed which monitors stress levels through body temperature, rate of motion and sweat during physical activity. The implementation of the iStress system uses a neural network approach utilizing a Mamdani-type fuzzy logic controller with more than 150 instances as the model. The implementation of the iStress system uses a neural network approach utilizing a Mamdani-type fuzzy logic controller with more than 150 instances as the model

**MERITS:**

1. Neu stress is neutral stress and it can be ignored as it does not cause any harm

**DEMERITS:**

1. Short but intense levels of stress in the human body are

termed acute while long term intense levels of stress are considered

chronic stress

**2.1 PROPOSED SYSTEM**

Our proposal is based on automation mode of student monitoring using webcam and monitor the person eye movement and head movement during the online examination based on the user action will be monitor and result will be updated.

* Apply test patterns in entry level.
* Monitor student action with the webcam
* Student can be monitor during examination in this digital learning process

**2.2 ADVANTAGES**

* Student can be monitor during examination in this digital learning process.
* Strictness is maintained.
* Lip movement is monitored.
* Eye movement, face movement detection is enabled
* All these activities are being established after the test

**CHAPTER 3**

**SYSTEM REQUIREMENTS**

Most software defines two sets of system requirements: minimum and recommended. With increasing demand for higher processing power and resources in newer versions of software, system requirements tend to increase over time. Industry analysts suggest that this trend plays a bigger part in driving upgrades to existing computer systems than technological advancements. A second meaning of the term of system requirements, is a generalisation of this first definition, giving the requirements to be met in the design of a system or sub-system.

**3.1 HARDWARE REQUIREMENTS**

The most common set of requirements defined by any operating system or software application is the physical computer resources, also known as hardware. The minimal hardware requirements are as follows,

1. Processor : Pentium IV
2. RAM : 8 GB
3. Processor : 2.4 GHz
4. Main Memory : 8GB RAM
5. Hard Disk Drive : 1tb
6. Keyboard : 104 Keys

**3.2 SOFTWARE REQUIREMENTS**

Software requirements deals with defining resource requirements and prerequisites that needs to be installed on a computer to provide functioning of

an application.

The minimal software requirements are as follows,

1. Front end : python
2. Dataset : csv
3. IDE : anaconda
4. Operating System : Windows 10

**3.3 FEASEBILITY STUDY**

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are

**3.4 TECHNICAL FEASIBILITY**

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands being placed on the client. A feasibility study evaluates the project’s potential for success.

**3.5 OPENCV PACKAGE**

Python is a general-purpose programming language started by Guido van Rossum, which became very popular in short time mainly because of its simplicity and code readability. It enables the programmer to express his ideas in fewer lines of code without reducing any readability. Compared to other languages like C/C++, Python is slower. But another important feature of Python is that it can be easily extended with C/C++. This feature helps us to write computationally intensive codes in C/C++ and create a Python wrapper for it so that we can use these wrappers as Python modules. This gives us two advantages: first, our code is as fast as original C/C++ code (since it is the actual C++ code working in background) and second, it is very easy to code in Python. This is how OpenCV-Python works, it is a Python wrapper around original C++ implementation. And the support of Numpy makes the task easier. Numpy is a highly optimized library for numerical operations. It gives a MATLAB-style syntax. All the OpenCV array structures are converted to-and-from Numpy arrays. So whatever operations you can do in Numpy, you can combine it with OpenCV, which increases number of weapons in your arsenal. Besides that, several other libraries like SciPy, Matplotlib which supports Numpy can be used with this. So OpenCV-Python is an appropriate tool for fast prototyping of computer vision problems.

**3.6 FEATURES OF ANACONDA NAVIGATOR**

Anaconda is a free and open source, easy to install distribution of Python and R programming languages. Anaconda provides a working environment which is used for scientific computing, data science, statistical analysis and machine learning. The latest distribution of Anaconda is Anaconda 5.3 and is released in October, 2018. It has the anaconda package, environment manager and a collection of 1000+ open source packages long with free community support.

**3.7 APPLICATIONS PROVIDED IN ANACONDA DISTRIBUTION**

The Anaconda distribution comes with the following applications along with Anaconda Navigator.

1.Jupyter Lab

2.Jupyter Notebook

3.Qt Console

4.Spyder

5.Glueviz

> **JupyterLab**: This is an extensible working environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture.

>**JupyterNotebook**: This is a web-based, interactive computing notebook environment. We can edit and run human-readable docs while describing the data analysis.

> **Qt Console**: It is the PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips and more.

> **Spyder**: Spyder is a scientific Python Development Environment. It is a powerful Python IDE with advanced editing, interactive testing, debugging and introspection features.

> **VS Code**: It is a streamlined code editor with support for development operations like debugging, task running and version control.

> **Glueviz**: This is used for multidimensional data visualization across files. It explores relationships within and among related datasets.

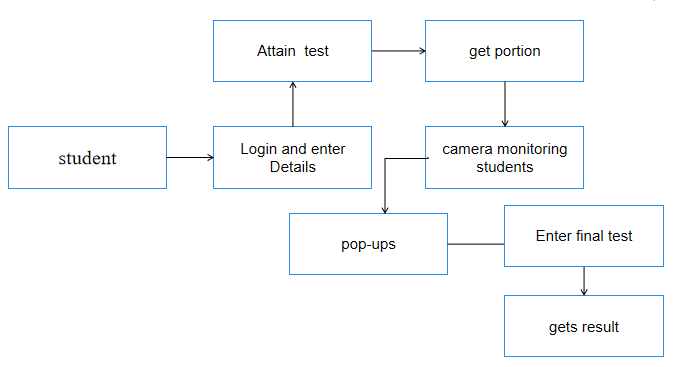
>**Orange** 3: It is a component-based data mining framework. This can be used for data visualization and data analysis. The workflows in Orange 3 are very interactive and provide a large toolbox.

>**Rstudio**: It is a set of integrated tools designed to help you be more productive with R. It includes R essentials and notebooks.

**CHAPTER 4**

**SYSTEM DESIGN**

Design is a meaningful engineering representation of something that is to be built. It is the most crucial phase in the developments of a system. Software design is a process through which the requirements are translated into a representation of software. Design is a place where design is fostered in software Engineering. Based on the user requirements and the detailed analysis of the existing system, the new system must be designed.

**4.1 SYSTEM ARCHITECTURE OF PROPOSED SYSTEM:** Figure 4.1 System architecture of online examination

In figure 4.1 first the user log in and enter details and then he willget the test with the portion for the test. While writing the exam he or she will be monitored by camera. If he or she involves in any malpractice there would be pop ups warning them. After completing the test is completed the result is shown.

**4.2 USECASE DIAGRAM OF PROPOSED SYSTEM**

Diagram

Description automatically generated

Figure 4.2 Use case diagram of online examination system

In the above Figure 4.2 the exam provider manages the exam information, generates schedules for exam, monitors exam result and update examination records, the examinees enter the details and views the exam schedule. A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.

Exam

* 1. **ACTIVITY DIAGRAM OF PROPOSED SYSTEM**

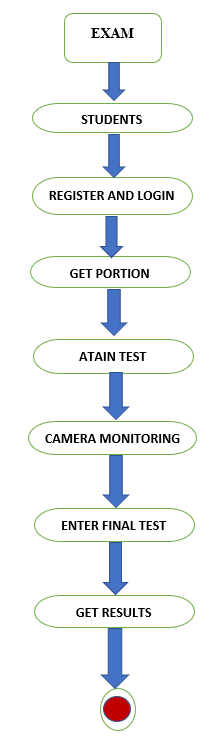
****

Figure 4.3 Activity diagram of online examination

In figure 4.3 the students first register and login into the website. Then the students get the portion, he then attains the test, while the student write the the exam he or she writes the exam, they will be monitored by camera, then he enters the final test after that he would receive the result for the test he has written.

**CHAPTER 5**

**SYSTEM IMPLEMENTATION**

This chapter describes all the modules that are required to build the cyberbullying detection model. The modules in the system are data collection, data pre-processing, data resampling, implementation of classification algorithms and performance analysis.

**5.1 DATA PREPROCESSING AND TRAINING**

This factor refers to the involvement of any training requirements, which are required for the execution of online exams. Training requirements may belong to examinee and / or invigilator. For example, the students with computer science/ information technology background are familiar with the usage of online exam systems. However, the students with other subjects like political science, accounting etc. may not be able to operate complex online exam system. For such students, it may be required to per-form training before actual exam. On the other hand, invigilator may also require training in case of complex ML/AI based system dealing with automatic assessment of online exams. Training requirements directly affect the online examination cost. Training requirements can be classified as High and Low. Certain characteristics of the aforementioned factors are highly important while adopting particular online exams features in real environment. These factors are directly linked with the system’s overall cost, which is a major concerning

element for most of the developing countries. In this context, it is required to investigate the requirements and effects of leading online exams features (Section III-B) on each factor. This facilitates the selection of a right online exam system for a particular country on the basis of existing E-learning infrastructure and overall cost. Therefore, we performed comparative analysis of key online exam features with respect to adoption factors. Four important factors (i.e. Network Infrastructure, Hardware Requirements, Implementation Complexity and Training Requirements) along with aforementioned characteristics. Finally, respective overall cost is given in last column .To evaluate the requirement / effect of each feature with respect to a particular factor, three symbols / abbreviations are utilized. The tick symbol (X) represents that a specified characteristic of a given factor is sufficient for the implementation of a particular online exam feature. On the other hand, the cross symbol (×) represents that a given online exam feature cannot be implemented through the specified characteristic of a factor. Finally, the essential characteristic of a particular factor, which is at least required for the implementation of a given feature is represented through Mandatory . It is important to note that four key online exams attributes are already defined in Section III-B. Here, each attribute is logically divided into two groups in order to perform realistic comparative analysis . For example, Verification & Abnormal Behavior attribute is divided into Bio-metric Based and Application Based groups where Biometric approaches utilize examinee images, videos etc., to evaluate examinee verification and / or abnormal behavior. On the other hand, the application-based approaches utilize examinee system’s events (e.g. Browser Window Status etc.) to detect cheating abnormalities. In addition to this, Security attribute is classified as basic and advanced where advanced security provides complete and secure communication mechanism between all servers and clients of online exam system . In the same way, Question Bank Generation & Evaluation attribute is divided into two groups (i.e. ML / AI based and Traditional) where the ML / AI based approaches apply advanced techniques for the generation and assessment of question bank. In contrast, Traditional approaches utilize different languages (e.g. Java, PHP etc.) without employing any latest ML / AI techniques. Finally, Usability attribute can be divided as Good or Fair where Good usability significantly improves the interaction of examinee with a given online exam system.

**5.2 MODULES DESCRIPTION**

**LIST OF MODULES**

1. Register
2. Login
3. Student entry level test
4. Student will be monitored
5. Final result

**5.2.1 REGISTER:**

Students first register the website like name, username, password, email id, number etc. You can use the exam registration system as a standalone registration software Or you can integrate it with our other online exam software’s like Exam Online and Remote Proctor to create a complete suite for managing the life cycle of an online exam process. Our proposed system will take up to hundred images while the process of registration and store it in the database for future purposes.

**5.2.2 LOGIN:**

Student login with a valid username and password. After that our system will take up to hundred images and matches it with the images taken using the pictures taken during the registration process. Only if it matches with the registered candidate, it will allow to proceed for the exam.

**5.2.3 STUDENTS ENTRY LEVEL TEST:**

1. First students will attend the entry level test.
2. Totally 5 question in website.
3. Once test over mark will show.

**5.2.4 MOUTH DETECTION**

This is very similar to eye detection. Dlib’s facial key points are again used for this task and the test-taker is required to sit straight (as he would in the test) and the distance between the lip’s key points (5 outer pairs and 3 inner pairs) is noted for 100 frames and averaged. If the user opens his/her mouth the distances between the points increases and if the increase in distance is more than a certain value for at least three outer pairs and two inner pairs then infringement is reported.

**5.2.5 FINAL TEST**

Students entered final test and get result. Camera must monitor the test.at that time camera will watch the student’s activity Gaze tracking will also be done to capture the positioning of test taker’s eyes. If he is looking left, right to have a glance at some notebook, warning will be displayed on screen. After a fixed number of warnings if the system fails to match an image or the test taker do not stop looking here and there, the test will automatically be closed and submitted and a report of that candidate will be sent to the conducting authority.

**CHAPTER 6**

**CONCLUSION**

**6.1 CONCLUSION**

Automated exam proctoring is challenging but very simple and effective. The invigilation by the proctor ensures the safe examination environment within the comfort and safety of your home. Many face recognition algorithms will be released in the future. Some of techniques and methods are being used here and a lot of different techniques, algorithms and methods will be used in future. This is a primary step in exam proctoring to conduct exam securely simultaneously maintaining its integrity

**6.2 FUTURE ENHANCEMENT**

In the future we have planned to make the project ie. online examination using haar cascade more reliable by training it with more datasets. We have also planned to add voice detection in the project, because it may become more reliable. We have also planned to add fingerprint so that we can identify the if the right person is taking up the test.

**APPENDIX**

**SOURCE CODE**

**Main.py :**

from flask import Flask, render\_template, Response

from flask import Flask,url\_for,request,render\_template,redirect,session,jsonify

import sqlite3

from flask\_login import logout\_user

from camera import VideoCamera,value

import webbrowser

import sys

import time

from flask\_login import logout\_user

import example

import pyautogui

from example import ply

import re

from face\_detection import face\_register,face\_reg

out = []

app = Flask(\_\_name\_\_)

app.config['UPLOAD\_FOLDER'] = './media'

"""

Demonstration of the GazeTracking library.

Check the README.md for complete documentation.

"""

from scipy.spatial import distance as dist

from imutils.video import VideoStream

from imutils import face\_utils

from threading import Thread

import numpy as np

import argparse

import imutils

import time

import dlib

import cv2

import cv2

from gaze\_tracking import GazeTracking

val1 =[]

# Blinking = []

# right = []

# left=[]

# center=[]

def mouth\_aspect\_ratio(mouth):

# compute the euclidean distances between the two sets of

# vertical mouth landmarks (x, y)-coordinates

A = dist.euclidean(mouth[2], mouth[10]) # 51, 59

B = dist.euclidean(mouth[4], mouth[8]) # 53, 57

# compute the euclidean distance between the horizontal

# mouth landmark (x, y)-coordinates

C = dist.euclidean(mouth[0], mouth[6]) # 49, 55

# compute the mouth aspect ratio

mar = (A + B) / (2.0 \* C)

# return the mouth aspect ratio

return mar

# construct the argument parse and parse the arguments

ap = argparse.ArgumentParser()

ap.add\_argument("-p", "--shape-predictor", required=False, default='shape\_predictor\_68\_face\_landmarks.dat',

help="path to facial landmark predictor")

ap.add\_argument("-w", "--webcam", type=int, default=0,

help="index of webcam on system")

args = vars(ap.parse\_args())

# define one constants, for mouth aspect ratio to indicate open mouth

MOUTH\_AR\_THRESH = 0.70

r = 0

l = 0

# initialize dlib's face detector (HOG-based) and then create

# the facial landmark predictor

print("[INFO] loading facial landmark predictor...")

detector = dlib.get\_frontal\_face\_detector()

predictor = dlib.shape\_predictor(args["shape\_predictor"])

# grab the indexes of the facial landmarks for the mouth

(mStart, mEnd) = (49, 68)

# start the video stream thread

print("[INFO] starting video stream thread...")

time.sleep(1.0)

frame\_width = 640

frame\_height = 360

def ply():

gaze = GazeTracking()

webcam = cv2.VideoCapture(0)

while True:

# We get a new frame from the webcam

\_, frame = webcam.read()

gray = cv2.cvtColor(frame, cv2.COLOR\_BGR2GRAY)

# detect faces in the grayscale frame

rects = detector(gray, 0)

# loop over the face detections

for rect in rects:

# determine the facial landmarks for the face region, then

# convert the facial landmark (x, y)-coordinates to a NumPy

# array

shape = predictor(gray, rect)

shape = face\_utils.shape\_to\_np(shape)

# extract the mouth coordinates, then use the

# coordinates to compute the mouth aspect ratio

mouth = shape[mStart:mEnd]

mouthMAR = mouth\_aspect\_ratio(mouth)

mar = mouthMAR

# compute the convex hull for the mouth, then

# visualize the mouth

mouthHull = cv2.convexHull(mouth)

cv2.drawContours(frame, [mouthHull], -1, (0, 255, 0), 1)

cv2.putText(frame, "MAR: {:.2f}".format(mar), (30, 30), cv2.FONT\_HERSHEY\_SIMPLEX, 0.7, (0, 0, 255), 2)

# Draw text if mouth is open

if mar > MOUTH\_AR\_THRESH:

print('hi')

print(MOUTH\_AR\_THRESH)

print(mar)

val1.append('mouth')

# cv2.putText(frame, "Mouth is Open!", (30,60),

# cv2.FONT\_HERSHEY\_SIMPLEX, 0.7, (0,0,255),2)

# Write the frame into the file 'output.avi'

# if the `q` key was pressed, break from the loop

# We send this frame to GazeTracking to analyze it

gaze.refresh(frame)

frame = gaze.annotated\_frame()

text = ""

if gaze.is\_blinking():

text = "Blinking"

val1.append(text)

elif gaze.is\_right():

text = "Looking right"

val1.append(text)

elif gaze.is\_left():

text = "Looking left"

val1.append(text)

elif gaze.is\_center():

text = "Looking center"

val1.append(text)

cv2.putText(frame, text, (90, 60), cv2.FONT\_HERSHEY\_DUPLEX, 1.6, (147, 58, 31), 2)

left\_pupil = gaze.pupil\_left\_coords()

right\_pupil = gaze.pupil\_right\_coords()

cv2.putText(frame, "Left pupil: " + str(left\_pupil), (90, 130), cv2.FONT\_HERSHEY\_DUPLEX, 0.9, (147, 58, 31), 1)

cv2.putText(frame, "Right pupil: " + str(right\_pupil), (90, 165), cv2.FONT\_HERSHEY\_DUPLEX, 0.9, (147, 58, 31), 1)

cv2.imshow("Demo", frame)

if cv2.waitKey(1) == 13:

return val1

break

app.secret\_key="Rudy"

@app.route('/')

def user():

return render\_template('user\_page.html')

@app.route('/register', methods=["GET","POST"])

def reg():

uname=None

pwd=None

cpwd=None

ema=None

msg="Register successfully"

if request.method=='POST':

uname=request.form['txt']

pwd=request.form['passw']

cpwd=request.form['cpassw']

ema=request.form['em']

t\_id=request.form['id']

gender=request.form['gender']

payment=request.form['payment']

print(payment)

print(gender)

import sqlite3

table\_name = 'studentregsiter'

conn = sqlite3.connect("carparking.db")

print('hi')

# conn = sqlite3.connect("carparking.db")

r=conn.cursor()

e=conn.cursor()

id\_num=conn.cursor()

r.execute("select name from studentregsiter ")

e.execute("select ema from studentregsiter ")

id\_num.execute("select id from studentregsiter ")

rows=r.fetchall()

rows\_e=r.fetchall()

rows\_id=r.fetchall()

for i in rows :

for j in i:

# print(i)

if uname == j:

msg='already username registeredser'

return render\_template('registraion.html',msg=msg)

else:

pass

for i in rows\_e:

for j in i:

if ema == j:

msg='already email registered'

return render\_template('registraion.html',msg=msg)

else:

pass

for i in rows\_id:

for j in i:

if id == j:

msg='already id registered'

return render\_template('registraion.html',msg=msg)

else:

pass

c = conn.cursor()

c\_1 = conn.cursor()

c.execute('insert into '+table\_name+' values (?,?,?,?,?,?,?)',(uname,pwd,cpwd,ema,t\_id,gender,payment))

val = face\_register(t\_id)

modalexam = 'null'

mainexam = 'null'

c\_1.execute('create table if not exists mark (name varchar(50),id varchar(50),value varchar(50),malpartice varchar(50),allmark varchar(50))')

value = 'null'

allmark = 'null'

malpartice = 'null'

c\_1.execute('insert into mark values (?,?,?,?,?)',(uname,t\_id,value,allmark,malpartice))

conn.commit()

conn.close()

return redirect(url\_for('login'))

# return render\_template('registraion.html',msg=msg)

return render\_template('registraion.html')

@app.route('/login',methods=["GET","POST"])

def login():

username=None

password=None

err="Invalid username and password"

if request.method=='POST':

session['username']=request.form['uname']

session['vid']=request.form['pwd']

id=request.form['id']

username=request.form['uname']

print(username)

password=request.form['pwd']

conn = sqlite3.connect("carparking.db")

r=conn.cursor()

r.execute("select name,pwd from studentregsiter where name=? and pwd=?",(username,password))

rows=r.fetchall()

print(rows)

val = face\_reg(id)

if val == 'Authorized':

if len(rows)!=0:

for i in rows:

if i[0]==username and i[1]==password:

print(username)

session['logged\_in'] = True

return redirect(url\_for('student'))

return render\_template('student.html',username=username)

else:

return render\_template('login.html',err=err)

else:

return render\_template('login.html',err=err)

return render\_template('login.html')

# @app.route('/logout')

# def logout():

# session.pop('username',None)

# return redirect(url\_for('index'))

@app.route("/logout")

def logout():

# logout\_user()

session.pop('username',None)

return redirect(url\_for('login'))

@app.route('/index')

def index():

return render\_template('index.html')

@app.route('/admin')

def admin():

return render\_template('admin.html')

@app.route('/study')

def study\_view():

return render\_template('study.html')

@app.route('/study\_1')

def study\_view\_2():

return render\_template('study\_1.html')

@app.route('/study\_2')

def study\_view\_3():

return render\_template('study\_2.html')

@app.route('/study\_3')

def study\_view\_4():

return render\_template('study\_3.html')

@app.route('/student\_result/<value>')

def std\_view(value):

print(value)

row = session["row"]

pyautogui.press('enter')

print(val1)

Result = value

blink = val1.count('Blinking')

left = val1.count('Looking left') +1

right = val1.count('Looking right')+1

center = val1.count('Looking center')

return render\_template('student\_result.html',blink=blink,left=left,right=right,center=center,Result=Result,rows=row)

# @app.route('/study\_1')

# def study\_view():

# return render\_template('study\_1.html')

# @app.route('/study\_2')

# def study\_view():

# return render\_template('study\_2.html')

# @app.route('/study\_3')

# def study\_view():

# return render\_template('study\_3.html')

@app.route('/blink')

def blink\_view():

user = session['username']

print(user)

conn = sqlite3.connect("carparking.db")

ss=conn.cursor()

ss.execute("select name,value from mark ")

slotrow=ss.fetchall()

for i ,j in slotrow:

if user == i:

sql="""update mark set value = ? where name = ?"""

ss.execute(sql,['sleep',i])

conn.commit()

print(i)

return render\_template('value\_blink.html')

@app.route('/exam')

def exam\_view():

return render\_template('New/menu.html')

@app.route('/question')

def question\_view():

print('hi')

# gen(VideoCamera())

# video\_feed()

return render\_template('New/question.html')

# @app.route('/exam')

# def exam():

# return render\_template('newindex.html')

@app.route('/moniter')

def moniter():

a =ply()

# out = a

print('hi',val1)

out.append(a)

print(a)

pass

@app.route('/student')

def student():

login=False

if 'username' in session:

login=True

user\_name = session["username"]

pwd = session['vid']

conn = sqlite3.connect("carparking.db")

r=conn.cursor()

r.execute("select \* from studentregsiter where name=? and pwd=?",(user\_name,pwd))

rows=r.fetchall()

print(rows)

session["row"] = rows[0]

return render\_template('student.html',login=login,username=user\_name,rows=rows[0])

return render\_template('student.html',login=login)

# def gen(camera):

# while True:

# frame = camera.get\_frame()

# yield (b'--frame\r\n'

# b'Content-Type: image/jpeg\r\n\r\n' + frame + b'\r\n\r\n')

# @app.route('/video\_feed')

# def video\_feed():

# user = session['username']

# value(user)

# return Response(gen(VideoCamera()),value(user),

# mimetype='multipart/x-mixed-replace; boundary=frame')

# def main():

# #sites=r"website.txt"

# #sites="http://0.0.0.0:5000/"

# #browser ="chrome"

# chrome\_path=r"C:\Program Files (x86)\Google\Chrome\Application\chrome.exe"

# webbrowser.register("chrome",None,webbrowser.BackgroundBrowser(chrome\_path))

# web = webbrowser.get("chrome")

# webbrowser.open\_new\_tab("http://localhost:5000/")

# '''with open(sites) as fobj:

# try:

# for num,url in enumerate(fobj):

# web.open\_new\_tab(url.strip())

# time.sleep(1)

# except Exception as e:

# print(e)'''

# from flask\_login import logout\_user

# ...

# @app.route('/logout')

# def logout\_view():

# logout\_user()

# return redirect(url\_for('index'))

@app.route('/valdiate',methods=['POST'])

def val():

val\_1 = request.form['val\_1']

val\_2 = request.form['val\_2']

val\_3 = request.form['val\_3']

conn=sqlite3.connect("carparking.db")

l=conn.cursor()

l.execute("select question,answer from question")

val =l.fetchall()

# for i,j in val:

count = 0

print(val)

print('done')

return jsonify({'success':'success'})

# @app.route('/question')

# def question():

# conn=sqlite3.connect("carparking.db")

# l=conn.cursor()

# l.execute("select question from question")

# val =l.fetchall()

# one = []

# two = [ ]

# qu = []

# for i in val:

# print(i)

# j = str(i)

# v = j[2:-3]

# print(v)

# qu.append(v)

# print(type(qu))

# print(qu)

# return render\_template('question.html',qu=qu)

if \_\_name\_\_ == '\_\_main\_\_':

app.run(host='localhost')

**VISUALIZATION**

1. LOGIN SCREEN OF THE PROPOSED SYSTEM

Graphical user interface

Description automatically generated

* 1. REGISTRATION SCREEN OF THE PROPOSED SYSTEM

Graphical user interface, application

Description automatically generated

1.3 AFTER LOGIN WE SEE OUR CREDENTIALS OR DETAILS

Graphical user interface, text, application, email

Description automatically generated

1.4 CAMERA ACCESS THAT MAINLY FOCUSES ON LIP MOMENT AND EYEBALL MOVEMENT

A picture containing text, person, person, indoor

Description automatically generated

**REFFERNCES**

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