

SYSTEM FOR ATTENDANCE AND ATTENTIVENESS MONITORING WITH INTEGRATED EVALUATION COMPATIBILITY

E-STAT

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Abstract— This paper provides a review of a system which is capable of analyzing all student quiz data with the help of Power-bi and it can take attendance and check attentiveness of students with the help of AI. This will allow live response and learning reception analysis by analyzing the answers provided by the learners along with the attention given in the class. This will also allow feedback to the professors who can adjust their teaching methods for the class accordingly.

Keywords— Proctored, AI-ML, Web-dev,

1. Introduction

Since the Pandemic (Covid-19) and its consequential restrictions, nearly all levels of education shifted online. It has been difficult for the instructors (teachers) to understand how good the students' reception of the taught material was. Shyness, hesitancy to switch on mics and ask doubts also hindered the learning process.

The only metric to verify the success of course outcomes was to analyze student performance on assessments. And these analyses would only be available at the end of the course. We intend to propose a system which can store prepared questions in its database and based on the topic covered in a learning session, load relevant questions in the form of

and will remain open for checking the attentiveness of the student. Then further the faculty can download the real time data of the student whether he was cheating or not, how much he was attentive & the exam result data can be analyzed with the help of power-bi how much student marked which answer in the form of pie-chart and graphs which can be accessed by students, faculty

questionnaire thus automating the task of preparing questionnaires. This system also takes access to the camera of the user to register attendance and study attentiveness in the class. This will allow live response and learning reception analysis by analyzing the answers provided by the learners and attention given in the class. Analysis and comparison of metrics can also be done over a long period of time and multiple sessions thereby mapping personal growth as well. This will also allow feedback to the professors who can adjust their teaching methods for the class accordingly.

2. Methodology

First with the help of our developed web-page the user will sign-up as a faculty or student and their data will be stored at PHPmyadmin with help of xampp. Now the user can login, if the user is faculty it will be directed to the create form page where the faculty will be redirected to google forms where they can create form and send it to the student. When the user will login as a student it will redirect to the page where all the links of the test will be available. Now while the student will be giving the exam our system will take access to the camera of the user for taking attendance and parents. This analyzed data can be used by the faculty to understand if they have to repeat their already taught portion again or not, how much the student was attentive during the quiz & if the students were present or not.

3. Literature Survey

[1] Tamimi (2015) et. al have studied facial recognition technology and proposed a system which registers attendance using facial recognition. The relationship between four parts of the face is analyzed using Harvey's law of cosine, and mathematical models are used to verify the face. Experimental findings show detection ratio in the range of 75 to 94.3%.

[2] Bekkering et. al have conducted thorough research of how students' performance in class is affected by their lack of attendance and attention in class. The video conferencing software automatically logged attendance and alertness, and participation was calculated by multiplying the attendance and attentiveness scores.

[3] McDougall (2010) et.al have tried to determine the utility of alternative response tactics like random oral questioning of students by the faculty during the lectures, for promoting student's preparation for class. Low participation scores early in the course can help identify students at risk. Recommendations are made accordingly to estimate attentiveness more accurately.

[4] Krithi P (2017) et.al have tried to make it as simple as possible for end users to access the application and navigate it. The idea enables for the preservation and management of academic reports from students. It allows both the student and the guardian to keep track of their progress, average attendance, and all of the important activities that are taking place without having

to visit the campus.

[5] Nordin (2020) et. al have proposed an attendance monitoring system based on facial recognition. It is written in Javascript. There are two user interfaces in the system: one for the administrator/lecturer and another for the student/learner.

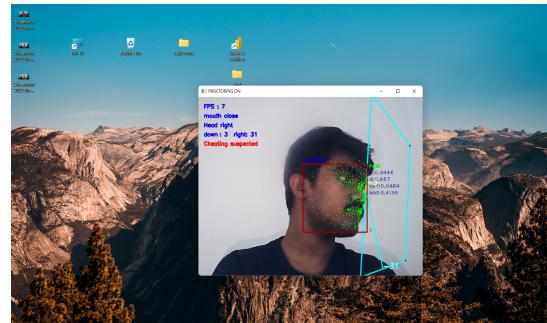
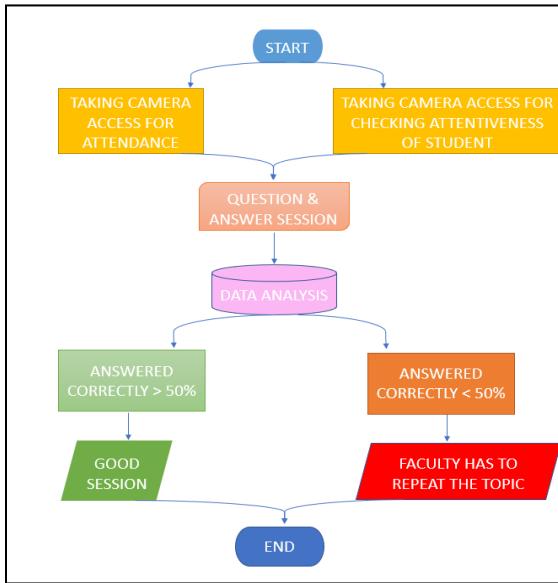
[6] Cavus (2006) et.al have developed a system, Neu-VLE, which is easily accessible through browsers. Students can use this system to access interactive course tools, self-tests, assignments, resources that can be downloaded, chat, quizzes, and email. A survey after its implementation showed positive opinion towards online learning.

[7] Alameri (2020) et.al attempt to analyze students' perception of online learning. The survey size was 450. The responses collected had been analyzed using a multiple regression model. The results were overwhelmingly positive with over 82.5% of the respondents agreeing that e-learning platforms helped make learning faster.

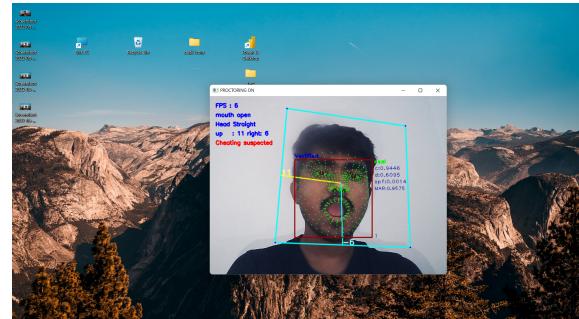
[8] Hiremath(2020) et al. provide an alternative chatbot for educational platforms that can access both local and web databases to help users. An effort has been made to increase the efficiency of this system using a combination of technologies such as machine learning, pattern matching, NLP, and data processing techniques.

[9] Li (2020) et. al proposed a research paper which describes the development stages and the related technologies of face recognition. Face recognition in real-world situations has been studied. Face detection, face position, identity identification, image preprocessing, and so on are all part of it.

4. Flowchart/Block Diagram



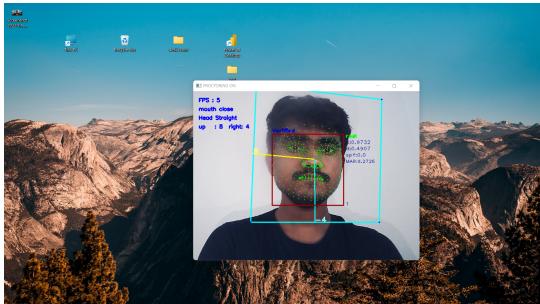
5.3 Head move right, mouth is closed, suspected Cheating



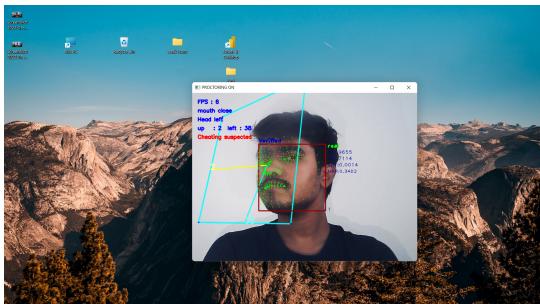
5.4 Head is straight, mouth is open which indicates student is cheating, cheating suspected

5. Experimentation and Results

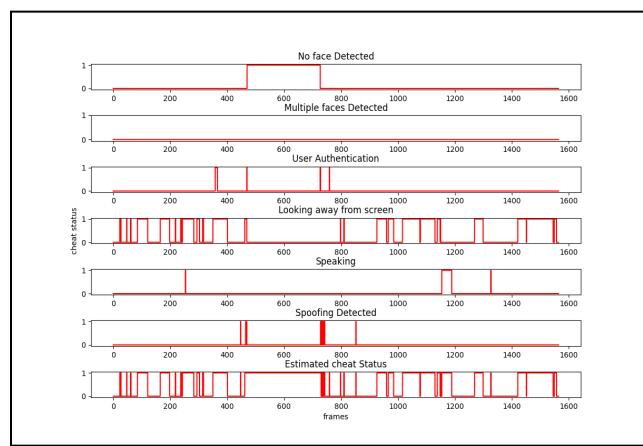
5.1 Face recognition and proctored examination.



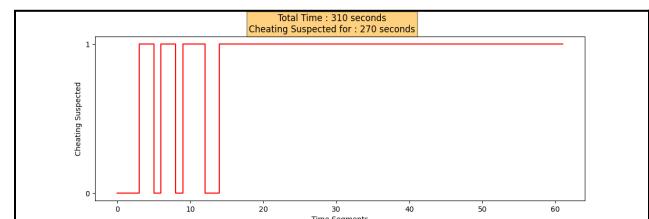
Here the face is detected by the system and a proctored exam started. Initially the head is straight, the mouth is closed.



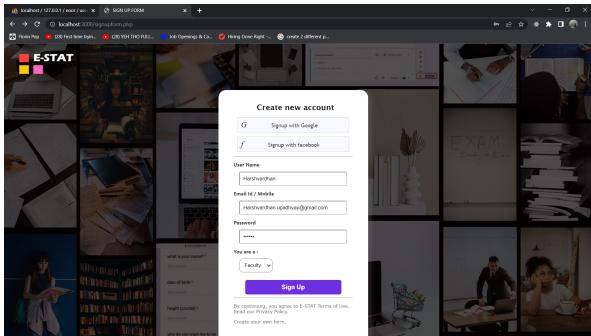
5.2 Head moves left, chin is little up, suspected cheating



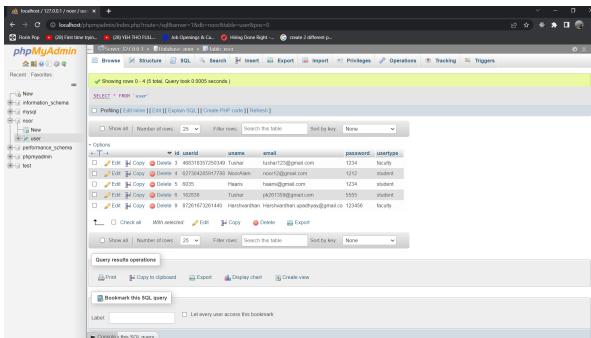
5.5 student is speaking, multiple face detected, away from screen



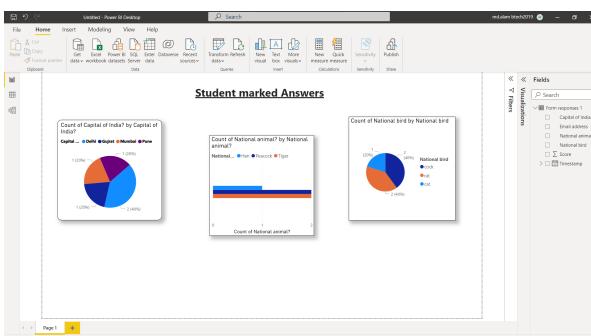
5.6 This graphical representation shows how totally a student was not attentive while giving the exam.



5.7 The E-STAT web-page where the faculty or student will sign up.



5.8 Here at PHPmyadmin all the users data will be stored Whether they are student or faculty



5.9 The result can be analyzed with the help of power-BI.

6. Discussion

We have developed the interface for the Web App and have completed the design and development of the first few pages of the web app. For the next part, we worked on the Backend development and database management of the system. For this, we used platforms such as Firebase and Xampp. We have outsourced form creation to google forms for now, where as going forward, an inbuilt option to create form can be added. Going forward we can integrate a form creation option and integrate the Face recognition system with the Web App.

7. Conclusion

To summarize, our project is divided into three primary sections. Face Recognition Attendance System, and Face Recognition Attendance Monitoring are all part of the E-STAT Web App.

We completed the design and development of the first several pages of the web app, as well as the web app's UI. We worked on the system's backend development and database administration in the next section. We used systems like Firebase and Xampp for this.

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