



# STUDENT ACTIVITY PREDICTING IN ONLINE CLASSES

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**Abstract:** Because of the health emergency that forced universities to stop using their centers for teaching, many of them opted for virtual education. Affecting students' learning processes, which has predisposed many of them to become acquainted with this new learning process, increasing the use of virtual platforms. Many educational institutions now rely on digital tools like Discord, Google Meet, Microsoft Team, Skype, and Zoom. The study's goal is to report on the impact of student learning using the aforementioned videoconferencing tools. Surveys were conducted with teachers and students, and 66 percent stated that their educational development had not been affected. The majority of them became acquainted with the platforms; however, less than half of them. Although 24 percent of teachers reported that their academic performance had improved, some teachers are still experiencing psychological difficulties as a result of this new teaching method. Finally, both teachers and students agree that these tools are extremely beneficial for virtual classes. The primary goal of this project is to develop a self-sufficient agent capable of providing information to both teachers and students. Student involvement is directly related to important academic outcomes such as critical thinking and the grades students receive in a topic.

**Keywords:** live behavior, Pose prediction, Yawn prediction

## 1. INTRODUCTION

Human behavior analysis is a branch of computer vision research that focuses on detecting, monitoring, and comprehending human physical actions [1]. The teaching and learning cycle is possibly the most important operation in an academic institution. Attendance and student behavior are closely monitored during classes, along with teaching activities [2]. According to data, student interest is a critical factor in participation and performance [3]. Teachers will be able to track student activity and identify relevant indicators to make assumptions about the student's genuine involvement in learning experiences [4]. However, people's behavior is unpredictable in most situations, and monitoring is difficult, especially in large scenarios. Emotions, according to research, have a significant impact on learning and achievement. These feelings can be either positive or negative. There are four academic emotions that are known to be important for student learning: (1) Accomplishment Emotions contribute to task accomplishment, performance, and loss of such practices; (2) epistemic emotions are the feelings caused by neurological challenges, such as the excitement of a new task; the interest, uncertainty, and annoyance of obstacles; and the joy of overcoming the problem; (3) topic emotions which pertain to the issues discussed in the lessons; and (4) social emotions which relate to teachers and colleagues in the school, such as affection, consciousness, and friendship. Such feelings are especially important in teacher-student interactions and community learning. Attention is the emotional mechanism

that allows us to focus on one aspect of the world while ignoring others. "Pay attention!" is an expression used by many teachers around the world to their students. The first step in the learning process is to pay attention [5]. Over the last decade, machine learning and computer vision methods have made tremendous progress and have been successfully applied in a variety of applications such as automated assessment [6][7], security, image data investigation [8] [9], general identity verification and surveillances [10] such as [11]. In a classroom setting, one example of automated assessment is used. Facial expressions can be used to determine whether or not a student is conscientious in the classroom. Facial expressions are changes in a person's facial expressions in response to internal mental states, thoughts, or social contact. Facial expression recognition refers to computer programmers that attempt to interpret and identify facial expressions and changes in visual detail automatically. Interaction can be divided into two types for automated classroom evaluation: single-person and classroom-based study. In a single-person study, facial gestures can provide feedback on current neural functions and be evaluated when action unit characteristics are observed. In a classroom-based study, the emphasis shifts from single individuals to shared characteristics and experiences among participants [4]. Monitoring student behavior is essential so that teachers can easily identify and correct inappropriate behavior. Schools can help students achieve behavioral targets and consider student ownership by tracking student actions.

## 1.2 OBJECTIVE

The primary objective of this project is to create a self-sufficient agent that can offer information to both teachers and pupils. The level of student involvement is directly related to important academic outcomes like critical thinking and the marks students get in a topic.

## 2. OVERVIEW OF THE SYSTEM

### 2.1 Existing System:

Because of the epidemic, teaching in schools is not possible when different video consultation methods were used to educate students. Education is good for students, because it has the power to change society and these students will be the future of the country. Thus, the ITC has contributed to new educational reforms such as introducing various self-sustaining agents in teacher-student interactions. The main idea of study was to determine the influence on students about learning using the visual tools mentioned above. Nowadays situation is like, with the improvement of a portable platform, such as a smart phones and pads, the E-Learning model has been rapidly evolved online and improve learning. There are many students who take these classes lightly and think they cannot be punished, because of their negligence and thus they get low marks. Thanks to this center parents face problems in keeping students or their children in control.

#### 2.1.1 Disadvantages of Existing System

In an investigation, explains that students have learning effectiveness during their online classes using Discord, as it allows access to requested activities and availability.

### 2.2 Proposed System

In the proposed system practical wisdom is used to predict student behaviour in online classes where the student is live. Student characteristics are captured throughout the framework and data is analyzed based on different types of work related to eye movements, oral movements, head movements and analysis are performed in the case of a student working in that class. Image representation is used to indicate student performance.

#### Advantages Of the Proposed System

Helps in understanding the student's interest for respective class.  
Teachers can take decisions in improving effective ways of teachings.

## 2.3 Proposed System Design

**Client:** This application is run by student where camera will open and students' video is displayed on screen. Details of each frame are shared is sent to other modules for processing and analyzing with trained model. Result is shown in graph after analysis.

### Server Module:

This module is executed to track details of student and analyze actual performance. Each frame is sent to face processing module for checking with trained model. Server Module is used to process data between client and face processing module.

### Face Processing Module:

This module each frame is taken as input and shape predictor model is used to predict various aspects of features like (eye aspect ratio, mouth aspect ratio, drowsy, yawn, head pose. After calculating these values are sent to server module.

## 3. ARCHITECTURE

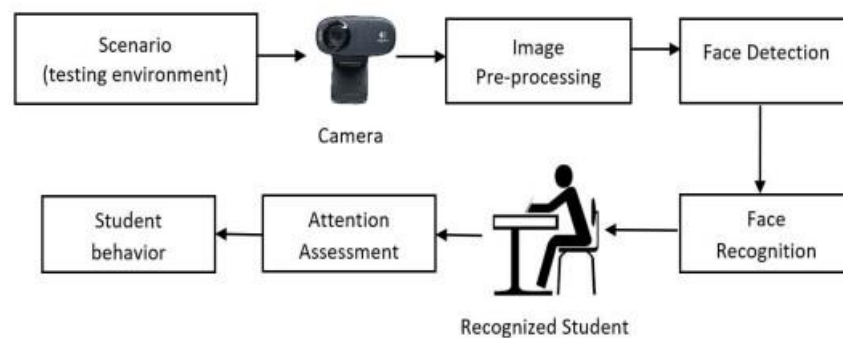
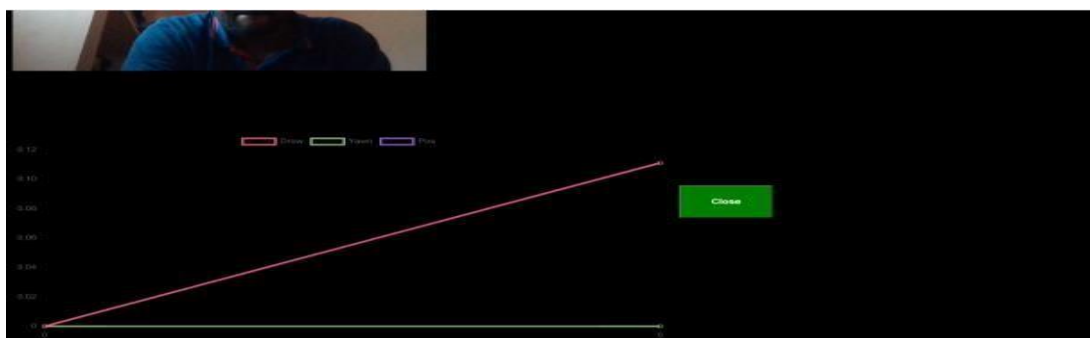


Fig 1: Architecture diagram

## 4. RESULTS SCREEN SHOTS



Graphical representation of Drowsiness



Graphical Representation of Yawns



Graphical Representation for Drowsiness, Yawn, Head Pose

**View Split Data:**

Overall performance of Students.

**CONCLUSION**

A Shape predictor model with Ensemble regression was used in the classroom teaching system to analyze the student's observable activities in the identification of student actions based on stated criteria.

scenes. The decision was made shortly after the review of the live feed. DLIB models have been created. OPENCV was used to test such models for object detection. Because more students prefer larger room sizes, the recommended approach is frequently adaptable and receptive to different circumstances, such as using a higher type of camera with specific upgrades, such as an IP camera, for persistently capturing images of the students, identifying the countenances in photographs, and contrasting the distinguished appearances and the data set. It could be used to estimate more significant information picture estimates anchor box elements that are ideal.

**5. REFERENCES**

- [1] Qianguo Chen (2017), "Learning Behavior Analysis and Prediction Based on E-Learning Platform Data" 17th IEEE International Conference on Communication Technology, PP 2031-2036.

- [2] Kun Liang, Yiying Zhang, Yeshen He, Yilin Zhou, Wei Tan, and Xiaoxia Li (2017), “Online Behavior Analysis-Based Student Profile for Intelligent E- Learning” Hindawi - journal of Electrical and Computer Engineering, Volume 2017, ID 9720396; 7pages.
- [3] Bui Ngoc Anh, Ngo Tung Son, Phan Truong Lam, Le Phuong Chi (2019), “A Computer-Vision Based Application for Student Behavior Monitoring in Classroom” MDPI Applied Sciences, pp 1-17.
- [4] Gratiela Dana Boca (2021), “Factors Influencing Students’ Behavior and Attitude towards Online Education during COVID-19” MDPI Sustainability, PP 1-21.
- [5] Ning Yan, Oliver Tat-Sheung Au (2019), “Online learning behavior analysis based on machine learning” Asian Association Emerland Insight, PP 2414-6994, DOI 10.1108/AAOUJ-08-2019-0029.
- [6] Ijaz Khan, Abdul Rahim Ahmed, Nafaa Jabeur, Mohammed Najah Mahdi (2021), “An artificial intelligence approach to monitor student performance and devise preventive measures”, Springer Open, PP 8-17.
- [7] John Gardner, Michael O’Leary (2020), “Artificial intelligence in educational assessment”, WILEY Journal of Computer Assisted Learning, J Comput Assist Learn. 2021;37: PP 1207–1216.
- [8] Ram Gopal, Varsha Singh (2021), “Impact of online classes on the satisfaction and performance of students during the pandemic period of COVID

