



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

“Monitoring Student Live Behaviour ”

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ABSTRACT :

Due to health problems such as epidemics and any emergencies, many schools, universities and educational institutions are forced to stop using their facilities for educational purposes, so many of them have switched to virtual education. All these educational institutions have begun to choose digital tools. such as: Google Meet, Microsoft Team, and Zoom to bring classes and teach students. 24per cent were unaware or for some reason their academic performance was not improved. The main objective of this project is to create a livelihood where both teachers, teachers can monitor their student’s behaviour can obtain relevant data about the class.

INTRODUCTION

Mortal geste analysis is a major and important aspect of computer-assisted visual analysis devoted to the acquisition, coverage and understanding of mortal geste and its physical behavior. The teaching and learning process can be considered as the most important activity in theological institutions and colleges. During classes, student and gesture attendance is likely to be covered by the school teacher and the teaching environment. Experts will be qualified to track the work of academics and geste during classes. However, pupil geste is highly variable and vigilance is really weak, especially considering the larger situation. The use of machine learning and computer monitoring systems has made great strides over the past decade and has been successfully implemented in various programs such as automated testing, security, image data analysis, generalization, validation and monitoring. One example of automated testing is used in a learning environment. One way to determine if a student is paying attention in class is to look at his facial expressions. Face detection means computer programs that require automatic translation and identification of facial features and changes in facial data. In a one-person study, facial expressions can respond to current sensory functions and can be assessed while looking at the action unit features. Monitoring of students’ behavior and actions is important for teachers, so that they can easily identify student misconduct or negligence in the classroom.

PROBLEM STATEMENT

Manual analysis of student attention from the recorded classroom videos is manageable only when the time duration of lecture and the number of students is limited. Also, it requires assistance from trained researchers and hectic human effort for the analysis. Further these observations are labor intensive, expensive and often limited in duration and efficiency. Manual analysis of student attention from recorded classroom videos can be challenging and resource-intensive, especially when dealing with longer lectures or a large number of students. It often requires trained researchers or educators to review the videos and make subjective judgments about student engagement. Additionally, the process can be time-consuming and expensive, limiting the duration and efficiency of the analysis.

ALGORITHM DETAILS:

Linear Regression

Linear Regression is an algorithm that belongs to supervised Machine Learning. It tries to apply relations that will predict the outcome of an event based on the independent variable data points. The relation is usually a straight line that best fits the different data points as close as possible. The output is of a continuous form, i.e., numerical value. For example, the output could be the head motion of the student, the changing behavior, etc. In the above example, the independent variable can be single or multiple.

Logistic regression

Logistic regression is fast and relatively uncomplicated, and it's convenient for you to interpret the results. Although it's essentially a method for binary classification, it can also be applied to multiclass problems. Logistic regression is a statistical method that is used for building machine learning models where the dependent variable is dichotomous: i.e., binary. Logistic regression is used to describe data and the relationship between one dependent variable and one or more independent variables.

OVERVIEW OF PROJECT MODULES:

1. Data Collection Module:

sqlite3.connect(database [, timeout, other optional arguments])

This API opens a connection to the SQLite database file.

connection.cursor([cursorClass])

This routine creates a cursor which will be used throughout our database programming with Python.

cursor.execute(SQL [, optional parameters])

This routine executes an SQL statement.

connection. Execute(SQL [, optional parameters])

It creates an intermediate cursor object by calling the cursor method.

2. Facial Expression Analysis Module:

NumPy

An image is essentially an array of pixel values where each pixel is represented by 1 (greyscale) or 3 (RGB) values. Therefore, NumPy can easily perform tasks such as image cropping, masking, or manipulation of pixel values.

OpenCV

It is mostly used in computer vision tasks such as object detection, face detection, face recognition, image segmentation, etc.

Holistic

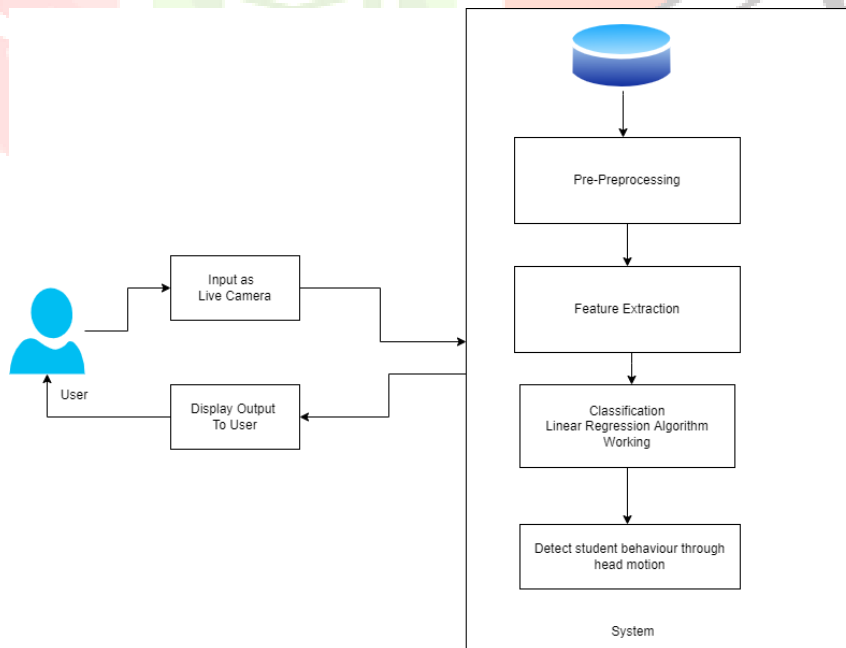
It can be used to make cutting-edge Machine Learning Models like face detection, multi-hand tracking, object detection, and tracking.

User Interface Module:

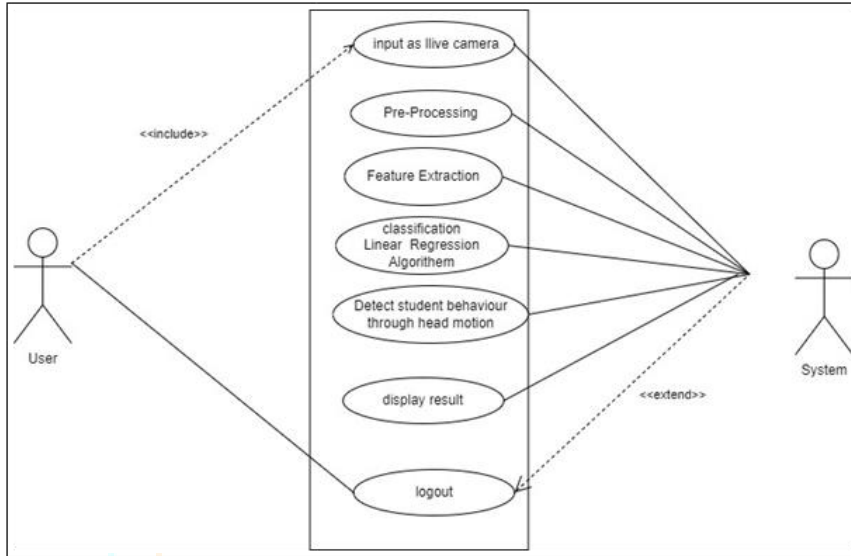
Tkinter is the standard GUI library for Python. Python when combined with Tkinter provides a fast and easy way to create GUI applications. Tkinter provides a powerful object-oriented interface to the Tk GUI toolkit. Creating a GUI application using Tkinter is an easy task.

PROPOSED SYSTEM ARCHITECTURE

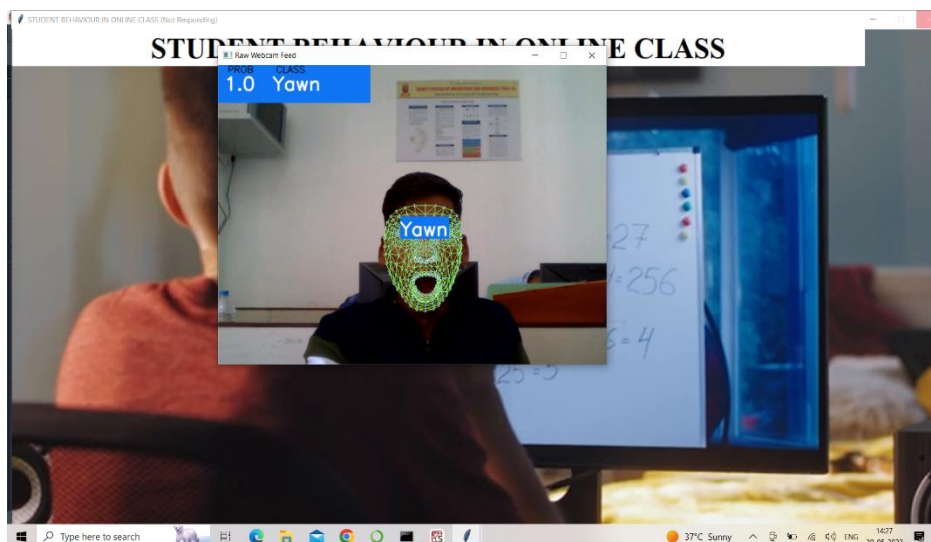
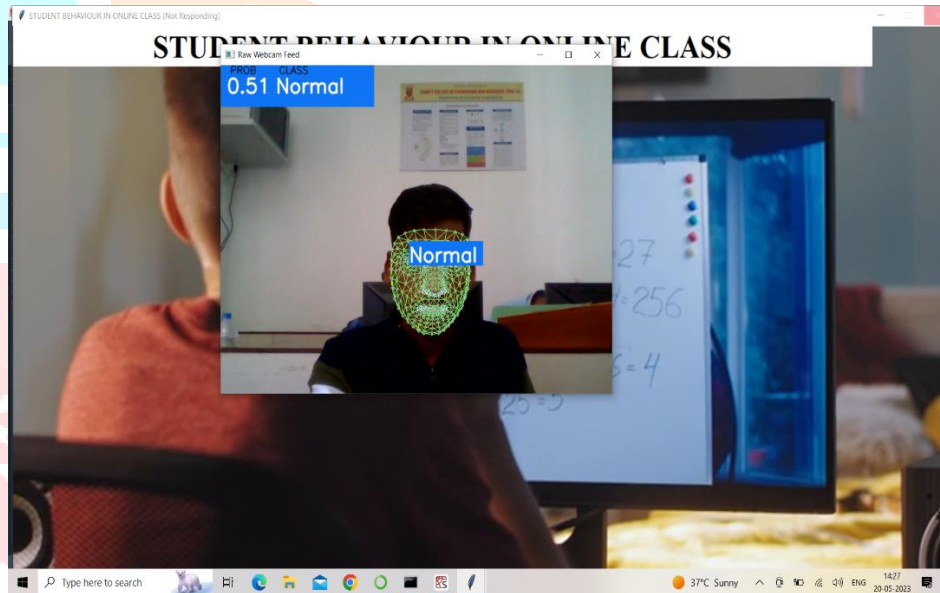
In the proposed system practical wisdom is used to predict student behavior in online classes where the student is live. Student characteristics are captured throughout the framework and data is analyzed based on different types of work related to eye movements, oral movements, head movements and analysis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

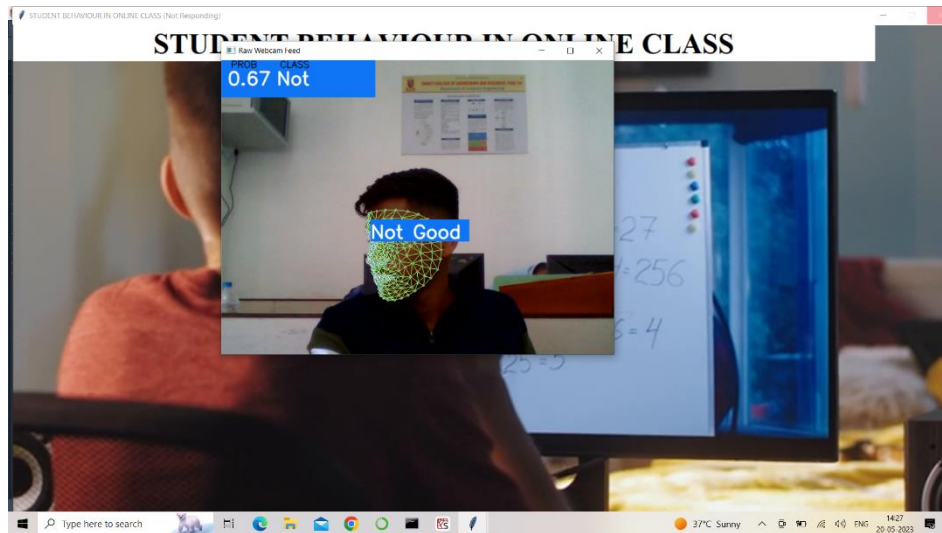


USE CASE DIAGRAM:



RESULTS AND DISCUSSION:





CONCLUSIONS:

This study aims to create a system that automatically supports teachers and skills related to monitoring student behavior. Through Live camera and using LR algorithm we can detect the student's behavior. Many behaviors, such as facial expressions, posture, etc. are most appropriate for subsequent system development. A whole system that supports student behavior recording, mathematical continuity, and demonstration of the completed structure of the entire system that supports student behavior live analysis and provides appropriate results.

FUTURE WORK:

In the future, we would like to improve this idea and use the model more wisely. This will develop the effect of the model and students who are working hard will have other opportunities to work and prepare more easily for future exams. So, extra classes or visits to the teachers were not successful therefore, we should plan to add an extra module to the proposed construction. The recommendation module will automatically send personalized recommendations to users depending on their current status. We aim to use the model in other subjects and expand the vision across the entire set of courses at the institution. We will provide the software to the various online learning platforms and online examination platforms to detect live behavior.

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