Automatic Attendance Management Based on Facial Recognition

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ABSTRACT

Even today the institutions use inefficient traditional manual attendance system. The traditional roll call method is not just inefficient rather it is quite time consuming. So it is necessary to develop a way that is automatic, fast and much efficient. The paper is one such solution to that problem. The system trains a model that has information of all the students and that model can be used to recognise a student in class and thus automatically after recognising, the student will be marked present in the database. The student can even verify his/her attendance. The whole work will be done by system and hence this way the process can be made effective and time consuming.

Keywords

Facial Recognition**,** Machine Learning, Automatic Attendance Management

1. INTRODUCTION

In a country like India where there are lots of rules regarding attendance like mandatory 75% attendance in B.tech. The process of attendance is an important one and hence it is needed to be fast and effective. Our system has following elements:

- Face Recognition: Face recognition is a processor skill being utilized in an assortment of uses that distinguishes human faces in computerized pictures.
- Face Recognition: It is a sort of biometric programming application that can recognize a particular individual in a computerized picture by breaking down and looking at designs.

We are using OpenCv library in python.
OpenCV is a collection of program design utilities chiefly meant at immediate computer
vision. There is a SQLite database that is in the system that stores all the student informations as well as attendance information.

2. OBJECTIVE AND SCOPE

The main objective of the paper is to create an effective way to take attendance. It is intended to give a one stop solution to all the problems associated with attendance. The system will help user with its GUI and any student can mark his/her attendance and even can check if his/her attendance has been marked.

This kind of system has wide scope as attendance management is a problem of everywhere, be it institutions or offices or even in examination centers. Hence the system can be deployed everywhere with some changes based on the requirements of different users.

3. METHODOLOGY

The system uses Machine Learning to mark attendance. There are three processes in this and they are data gathering, training of recogniser, face recognition. The system uses GUI made using Tkinter for making it user friendly so that user can interact with GUI rather than executing codes. The system uses OpenCv library for all facial recognition processes. The face recognised will be used to make updation in SQLite database. The system is quite fast and it is even possible for students to see the contents of database which has been done using Pandas library.

4. RESULTS

To mark attendance one has follow following procedure:
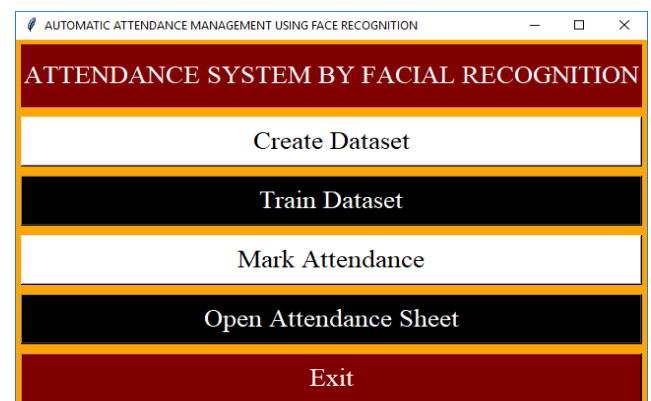1. Click on "Mark Attendance" in main GUI:

Figure 1: Main GUI

2. Click Start!
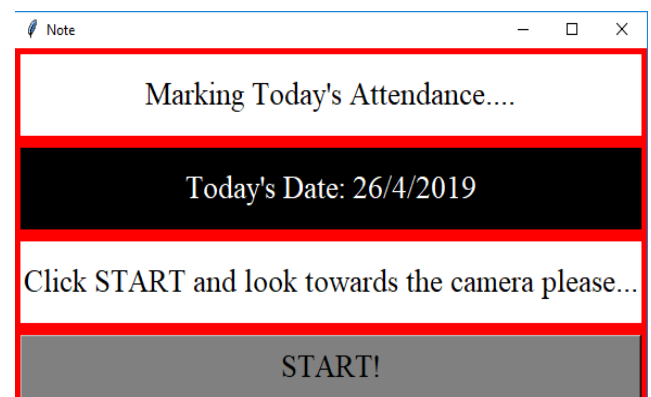

Figure 2: Start Page

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3. Look towards the camera until an error message or an attendance confirmation message comes up:
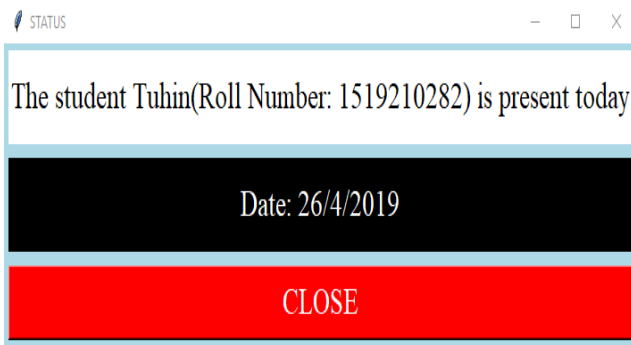

Figure 3: Close Page

One can even check to confirm his/her attendance by clicking on "Open Attendance Sheet" in main GUI, it will show the table in database in form of excel file:

Figure 4: Attendance Sheet

5. CONCLUSION

So as to keep up the participation this framework has been proposed. It replaces the manual framework with a computerized framework which is quick, effective, cost and efficient as replaces the stationary material and the administrative work. Consequently, this framework is required to give wanted outcomes and in future new functionalities can likewise be incorporated. Additionally, the proficiency could be improved by coordinating different procedures with it in not so distant future.

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