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ONLINE FACE RECOGNITION ATTENDANCE SYSTEM AND EXAM CONDUCTION

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Abstract - *Facial detection has recently attracted increasing interest due to the multitude of applications that result from it. In this context, we have used methods based on machine learning that allows a machine to evolve through a learning process, and to perform tasks that are difficult or impossible to fill by more conventional algorithmic means. In this work we propose a Online Attendance Marking System and Exam Conduction for institutional purpose. This system will enable the department to mark the attendance of students automatically by recognizing their faces. The system is based on the face detection and recognition algorithms and automatically recognizes a student whenever he/she comes across the camera module. Further after the recognition it automatically updates his/her attendance in the database. The basic architecture and all the algorithms used in the model are described in the paper elaborately. Moreover in order to evaluate and enhance the performance of the system many of the filter functions are used which provide the capability to capture and recognize the images even in dull and low light places. This paper also suggests the technique to ensure that a student can mark the attendance only once in a day. The live attendance system is much more efficient to traditional attendance systems both in saving time and in maintaining the database. The main objective of this project is to offer system that simplify and automate the process of recording and tracking students' attendance through face recognition technology.*

1. INTRODUCTION

With the current rapid increase in the computation capacities and the availability of recent recognition and detection equipment and technologies, of investigation and representation, computers are becoming more and more intelligent. Many research projects and commercial products have demonstrated the ability of a computer to interact with humans in a natural way by looking at people through cameras, listening to citizens through microphones etc. One of the fundamental techniques that allows such interaction with the computers is face detection. Face detection, thus, determines the locations and sizes of human faces present in arbitrary (digital) images. It detects facial devices and ignores anything else, such as buildings, trees, bodies, and anything other than the face. Although this appears to be an insignificant task for human beings, it is an extremely difficult task for computers, and has been one of the most studied research topics in recent decades.

To ensure the speed of the attendance recording process is faster than the previous system which can goas fast as approximately 3 second for each student. Have enough memory space to store the database. Able to recognize the face of an individual accurately based on the face database. Allow parents to track their child's attendance. Develop a database for the attendance management system. Provide a user-friendly interface for admins to access the attendance database and for non-admins (parents) to check their child's attendance by mailing the attendance. Allow new students or staff to store their faces in the database by using a GUI. Able to show an indication to the user whether the face- recognition process is successful or not.

1.2 BACKGROUND AND MOTIVATION

The current method that institutions uses is the faculty passes an attendance sheet or make roll calls and mark the attendance of the students, which sometimes disturbs the discipline of the class and this sheet further goes to the admin department, which is then updated to an excel sheet. This process is quite hectic and time-consuming. Also, for professors at institutions, the biometric system serves one time at a time. So, why not shift to an automated attendance system which works on face recognition technique? Be it a classroom it will mark the attendance of the students,

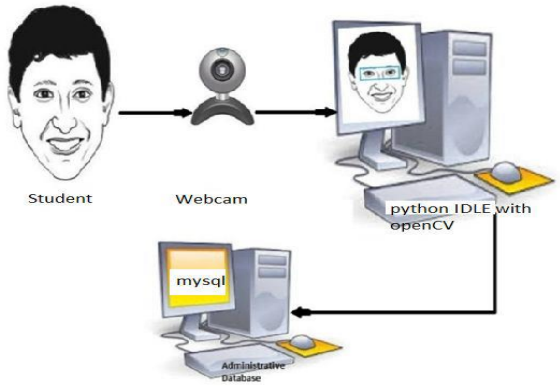
The targeted groups of the attendance monitoring system are the students and staff of an educational institution.

The database of the attendance management system can hold up to 200 individual's information. The facial recognition process can only be done for more than 1 person at a time. An excel sheet is created which contains the student attendance and is mailed to the respected faculty. The project has to work under a Wi-Fi coverage area or under Ethernet connection, as the system need to update the database of the attendance system constantly. The face recognition system can check and identify multiple faces in a single scan making it less time

consuming and provides maximum optimisation for efficient use. The internet connectivity is required for updating the database constantly while taking attendance through the webcam for the project.

2. Proposed System

It is a two-tier system which consists of a dedicated database, and a specially constructed Python Django or Tkinter. There is a Face Recognition model in the python which help to detect the face. We will use Open CV Module to identify the face of the person.



After detecting the face of the person we will save the face of the person in harrcascade mode for the database to understand. We will implement a Login Page for the user after login page there will be Two option for face attendance and exam Conduction. After you click the Face attendance u will be ask to open the webcam for the attendance. After the face detection it will append the database to present and if the face does not match it will show the error. The second option will be of exam conduction you will be ask to open the webcam again and after the attendance you will be redirect to and MCQ exam and after completing the exam you can logout the teacher can share the marks of the student after the completion of the exam.

We will use SQL Database to store the login information and face date will be also store. This is the technical approach As technology improves, higher-definition cameras will become available. Computer networks will be able to move more data, and processors will work faster. Facial-recognition algorithms will be better able to pick out faces from an image and recognize them in a database of enrolled individuals. The simple mechanisms that defeat today's algorithms, such as obscuring parts of the face with sunglasses and masks or changing one's hairstyle, will be easily overcome. An immediate way to overcome many of these limitations is to change how images are captured. Using checkpoints, for example, requires subjects to line up and funnel through a single point. Cameras can then focus on each person closely, yielding far more useful frontal, higher-resolution probe images. However, wide-scale implementation increases the number of cameras required.

3.1 Architecture

The system architecture consists of various stages and steps ranging between creating dataset and updating of the database. These steps are discussed vastly in the following sections.

Fig. Block Diagram of the General Framework

1) Creating Dataset:
In this step we are going to create a dataset of 71 images for each student one by one. This step may broadly be termed as the image capturing stage of the system. Here in order to detect the faces i.e. to bound the face of the person in rectangular shape we will use a 'Cascade Classifier' in the form of a xml file. By default we are going to use 'haarcascade_frontalface_default.xml' In the following manner.
FaceDetect=cv2.CascadeClassifier('haarcascade_frontalface_default.xml');cam=cv2.VideoCapture(0);
Now distinguishing each user with an Id, a dataset can be created in the following way. Also, all the images will be first converted in the Gray Scale format so that during training and recognition of the image no ambiguity would appear due to the color of a particular image.
2) Training Dataset: In this step we are going to feed the data and respective names of each face to the recognizer. In this way it can learn about all the images with corresponding ids.
The basic code is as follows:-
recognizer=cv2.face.LBPHFaceRecognizer_create();
path='dataSet'
3) Recognition of Images:
In this step we are going to feed the new faces of the same user and see if the face recognizer we just train can detect them or not.
4) Data Storage:
Now the time is to describe about the second aspect of the model i.e. creating database for keeping the record of the attendances of
each student on a routine basis. For this we are going to use the WAMP SERVER to create a local host in our PC.

For face attendance database will consist of login and registration of the person. After The successfully login the student will need a webcam to train the face .

3.2 Design Details

After training the face the data will be stored in the database and for the attendance it will be append into the excel sheet Login
Table 1 select Login and registration form

Login Data	Username/email
	Password
Registration	Full Name
	College ID No
	Email Id
	Phone Number
	Class

Table 2 train the face and mark the attendance
In these database table there will be 2 main part that is train the face and mark the attendance
Select train and attendance from database

Training face	Face Recognition module
	Full name
	Roll no
	Trained face data
Attendance	Trained face data
	Name /roll no
	Append to excel sheet

These part will consist of conduction of the exam For the database of the exam conduction there will certain rows and column .this exam will consist of mcq type and write answer will be displayed after the exam Select exam from registration and train database

Attendance for the exam	Trained face data
	Full name
	Roll no
Second authentication system	OTP
	Mobile No
	Registration details
Exam	Question
	Option 1
	Option 2
	Option 3
	Option 4
	Correct answer
	Marks

4. CONCLUSIONS

Thus, the aim of this paper is to capture the video of the students, convert it into frames, relate it with the database to ensure their presence or absence, mark attendance to the particular student to maintain the record. The Automated Classroom Attendance System helps in increasing the accuracy and speed ultimately achieve the high-precision real-time attendance to meet the need for automatic classroom evaluation. Sometimes the poor lighting condition of the student's room may affect image quality which indirectly degrades system performance, this can be overcome in the latter stage by improving the quality of the video or by using some algorithms from this model we can recognize the faces of students and can mark their attendance automatically in real time without human intervention. The feasibility of the model can be increased drastically if we hire a cloud space in order to store the data of the students. In this way this model can even be built for the entire college in the respective departments. Moreover this is a basic model which can be used in many more fields.

5. REFERENCES

[1]https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.ijert.org/research/online-attendance-systemIJERTCONV5IS09052.pdf&ved=2ahUKEwjuuu7RhM_rAhXjILcAHe12AIg4FBAWMAd6BAgAEAE&usg=AOvVaw2CWJ5mNdolwlJ5KDSq04f7

[2] Newman-Ford, L.E., Fitzgibbon, K., Llyod, S. & Thomas, S.L., "A Large-Scale Investigation into the Relationship between Attendance and Attainment: A Study Using an Innovative, Electronic Attendance Monitoring System", Studies in Higher Education, 33(6), pp. 699-717, 2008

[3] Mazza, R. & Dimitrova, V., "Visualising student tracking data to support instructors in web-based distance education", Proceedings of the 13th International World Wide Web Conference on Alternate Track Papers & Posters Press, pp.154-161, New York: USA, 2004

[4] https://ieeexplore.ieee.org/document/8539274

[5]https://www.slideshare.net/EagleEyes6/propsal-of-online-voting-system

[6]https://ieeexplore.ieee.org/document/8500246

[7] https://ieeexplore.ieee.org/document/8539274

[8]http://webvaultwiki.com.au/Default.aspx?Page=Create-Mysql-Database-User-Phpmyadmin&NS=&AspxAutoDetectCookieSupport=1

[9]https://www.wikihow.com/Create-a-Database-in-phpMyAdmin

[10]https://www.cloudways.com/blog/connect-mysql-with-php/

[11]https://www.a2hosting.in/kb/developer-corner/mysql/connect-to-mysql-using-php

[12]https://stackoverflow.com/questions/260342/what-best-practices-do-you-use-for-testing-database-queries

[13] https://www.guru99.com/data-testing.html

[14] https://www.geeksforgeeks.org/form-validation-using-html-javascript/

[15] https://www.w3schools.com/js/js_functions.asp

Eighth CANMET/ACI International Conference on Super-plasticizers and other Chemical Admixturesin Concrete, October 29-November 1, 2006, Sorrento, Italy pp253- 261.