

Attendance Management System Using Face Recognition

SUBMITTED

TO



**VISHWAKARMA INSTITUTE OF INFORMATION TECHNOLOGY,
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Abstract- This project consists of the idea to develop an automatic attendance management system i.e. without interference from humans. We human has ability to recognize each other face the same way this system will recognize the face of students and will store into database which can be access later to take attendance report of student

keywords: attendance management

INTRODUCTION

Attendance keeps checks on students to help understand the teacher about seriousness and dedication to the particular work. Teachers need to call students names & thus it takes more time. Also maintaining a student attendance report thus sometimes becomes complex.

We need a systematic attendance system to tackle the issue above using face recognition this can be possible. There are some automatic attendance making frameworks which are presently utilized by many organizations. One of such frameworks is the biometric method. Despite the fact that it is programmed

and a stride in front of conventional technique it neglects to meet the time requirement and some other fraudulent techniques are possible with it. This task presents an automatic attendance management system using face recognition framework, without any sort of obstruction with the ordinary educating strategy. The framework can be additionally executed during test meetings or in other instructing exercises where participation is exceptionally fundamental. This framework of attendance management system using face recognition takes out traditional students ID, for example, calling name and roll number of the students, or checking individual recognizable proof cards of the students, which can meddle with the continuous showing measure, yet in addition can be distressing for understudies during assessments.

Idea to work with the project was to design better attendance system so that records maintained with accuracy , ease of handling, availability and will save time of both teacher and student

PROPOSED METHODOLOGY

Problem Statement:

In the old way we took it there using paper and there is a chance for a representative. This enhances the craftsmanship of teachers as counting attendees.

Designing a better student management system so that records are easily maintained and accurate has been a key element of the project.

This will improve the accuracy of the attendance records as it will eliminate all manual labor and will save valuable time for students and teachers.

Modules:

1. Uploading and processing data.
2. Describe the structure of the Model.
3. Model training.
4. Performance measurement.

1. Uploading and processing data.

Gold data in relation to in-depth learning models. Photo segmentation models have the best chance of doing well if you have good photo numbers on the training set. Also, the structure of the data varies depending on the technique / framework we use.

Our database contains a variety of pictures of students that give them a name so that they can distinguish themselves correctly. With these pictures we train a database with images ranging from 0 - 100 and different types of viewing.

2. Describe the structure of the Model.

This is another very important step in our model building process. We have to explain what our model will look like. To model, we build a neural network, various types of neural networks are available but after going through some research papers we have come to the conclusion that we will work with the LBPH algorithm. (Histories of Binary Patterns Local)

Using LBP combined with histograms we can represent face images with a simple data vector.

3. Model training.

Parameters: LBPH uses 4 parameters:

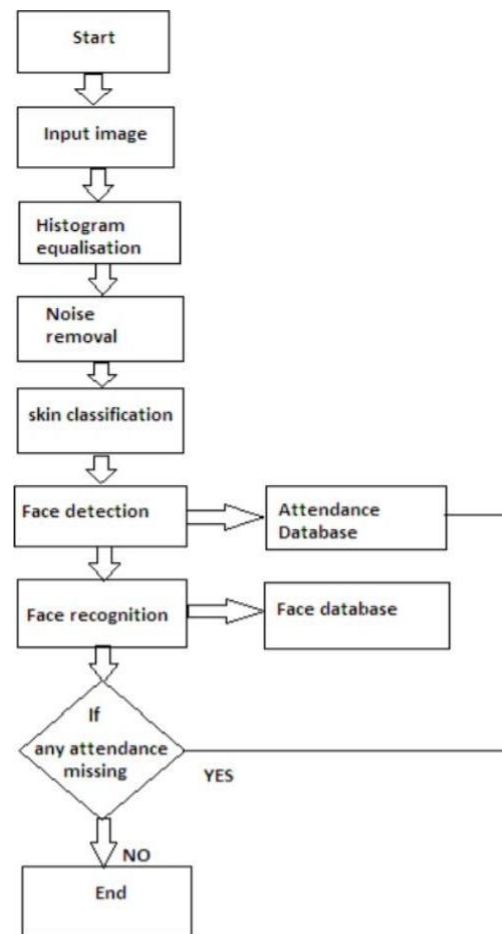
- Scope: radius is used to create a local binary pattern and represents radius around the center pixel. The frequency is set to 1.
- Neighborhood: the number of sample points to form a circular area of a binary. Keep in mind: the more points you enter, the higher the computer cost. The frequency is set to 8.
- Grid X: the number of cells on the horizontal side. The more cells, the better grid, the vector size of the emerging element. The frequency is set to 8.
- Grid Y: the number of cells in a straight line. The more cells, the better grid, the vector size of the emerging element. The frequency is set to 8.

4. Performance measurement.

At this point, the algorithm is already trained. Each created histogram is used to represent each image from the

training database. So, when we are given an image to insert, we perform steps again for this new image and make a histogram representing the image.

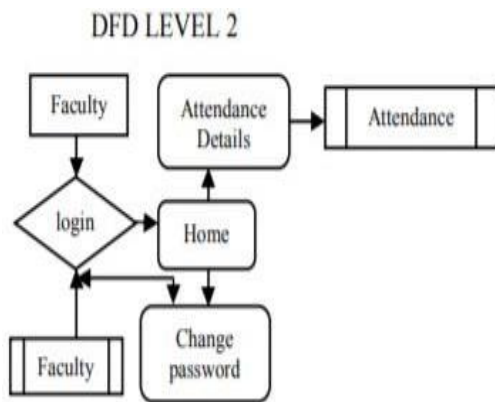
Basic Working:



FLOW CHART OF THE SYSTEM

In the system we have trained earlier with different images so now using a camera it will try to detect the face firstly then it would identify /recognize the image using the dataset provided to it. After it recognizes the image it puts up a data entry into the datasheet with name, date and time respectively.

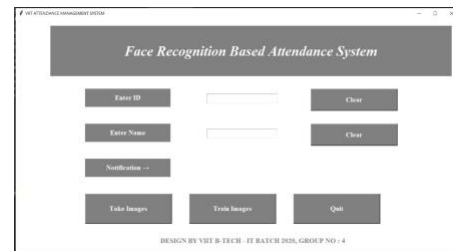
Activities of Faculty:



The faculty has given a login into the database with different password and login id, with certain options like attendance details and attendance by date etc.

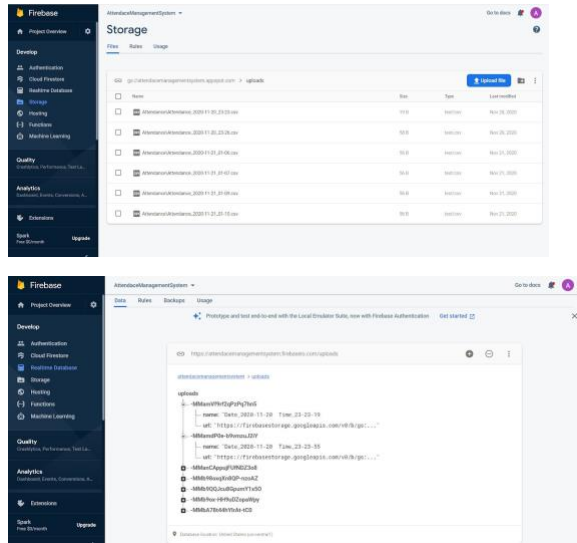
Implementation:

1. dataset training and recognition:



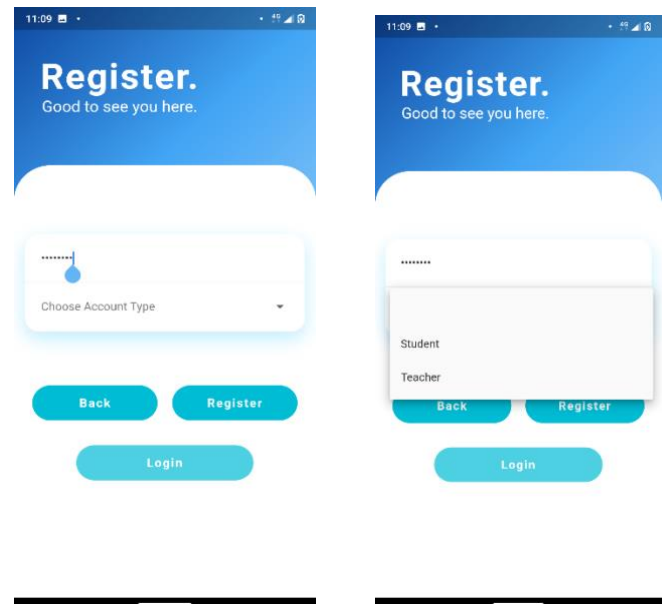
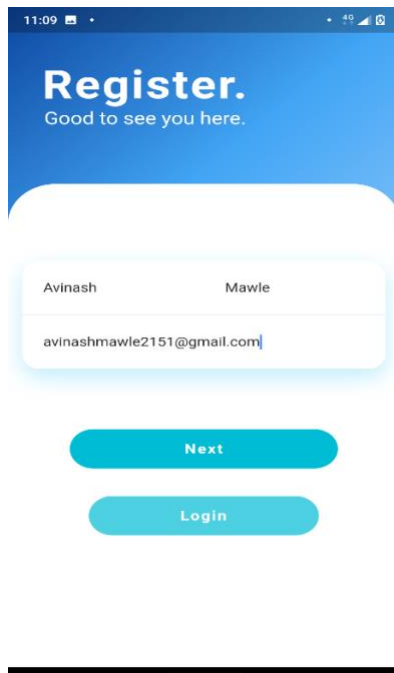
to train the dataset and recognize the face we have written code.py file with the use of haarcascade for frontal face and lbph algorithm.

2. database storage:

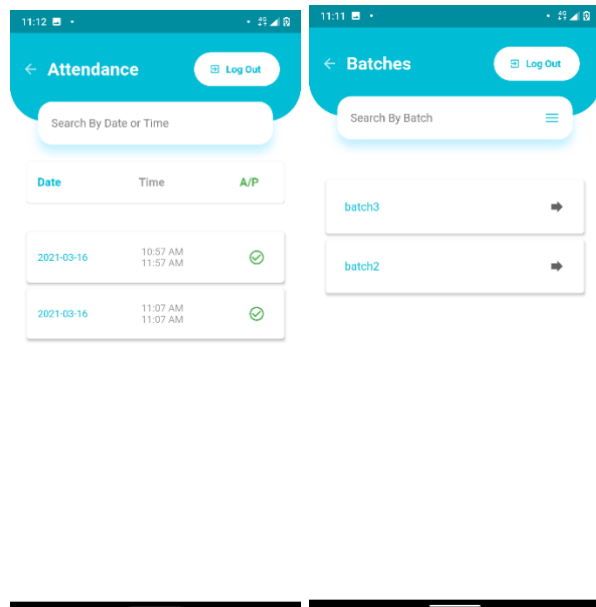
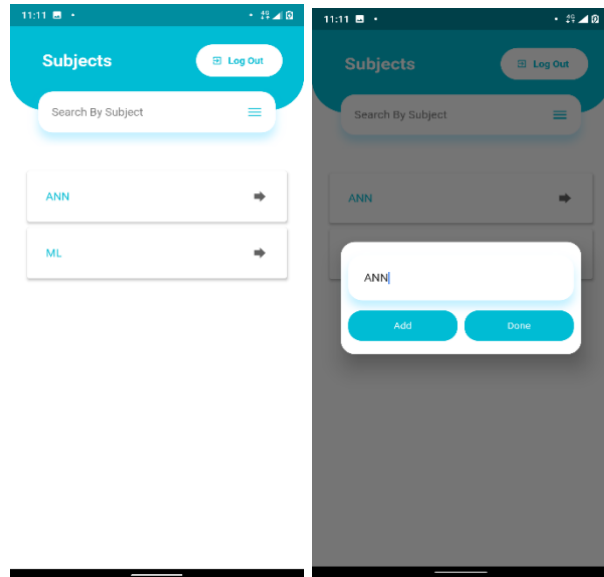


to store data of attendance we have connected the database to firebase, all files of attendance are stored directly into it.

3. Mobile Application



We have deployed a mobile application with the help of java in android studio so that it can facilitate teachers to manage and view attendance easily. To use this application first we have to register and select role or type of the account as in teacher or student. In the teacher login profile, we have provided add subject, remove subject, batch and remove batch and also teacher can search enrolled students and their attendance by their id or roll no. and by date and time as well. to make it more user friendly teacher/student can update their password email id and username whenever they want. In student's login profile they can also see their batch, subjects they have enrolled in and their marked attendance of subjects with date and time.



CONCLUSION

The System framework we have developed is effectively ready to achieve the task of attendance marking in the classroom automatically. And output is obtained in an excel sheet as desired in real-time.

It saves time and manual effort, especially if it is a lecture with a huge number of students. Automated Attendance System has been anticipated for the purpose of reducing the drawbacks in the traditional attendance marking system.

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