A Minor Project Synopsis

on

Face Recognition Based Attendance System

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In Information Technology

By

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Synopsis

1. Introduction

In the era of modern technologies emerging at rapid pace there is no reason why a crucial event in educational sector such as attendance should be done in the old boring traditional way.

Attendance monitoring system will save a lot of time and energy for the both parties students as well as the class teachers. Attendance will be monitored by the face recognition algorithm by recognizing only the face of the students from the rest of the objects and then marking them as present. The system will be pre feed with the images of all the students and with the help of this pre feed data the algorithm will detect them who are present and match the features with the already saved images of them present in the database.

2. Motivation

Nowadays many educational institutes are using a manual monitoring system and most of the time they accidentally loss their attendance sheet so that they cannot properly monitor the attendance of their students. Moreover, the process is time consuming and may include human error at any stage.

Therefore it is desirable to design software which will help these institutes to mark the attendance of the students by face recognition which will save their time as well as human effort. Also with the evolving times, it is better to adapt machine based methodologies in our daily routines of workplaces (such as attendance management in our project) so as to be at par with the upcoming technology.

3. Project Objectives

i. **Automated Time Tracking:** As an automated attendance management system, face recognition attendance system provides precise time records, reducing costly mistakes.

ii. **Time Efficiency:** Reduction of Time in recording attendance manually.

iii. **Reduction of Human Effort:** Since the entire process is automated, the need for human intervention is minimal. Thus, it ensures minimum error chances in recording attendance.

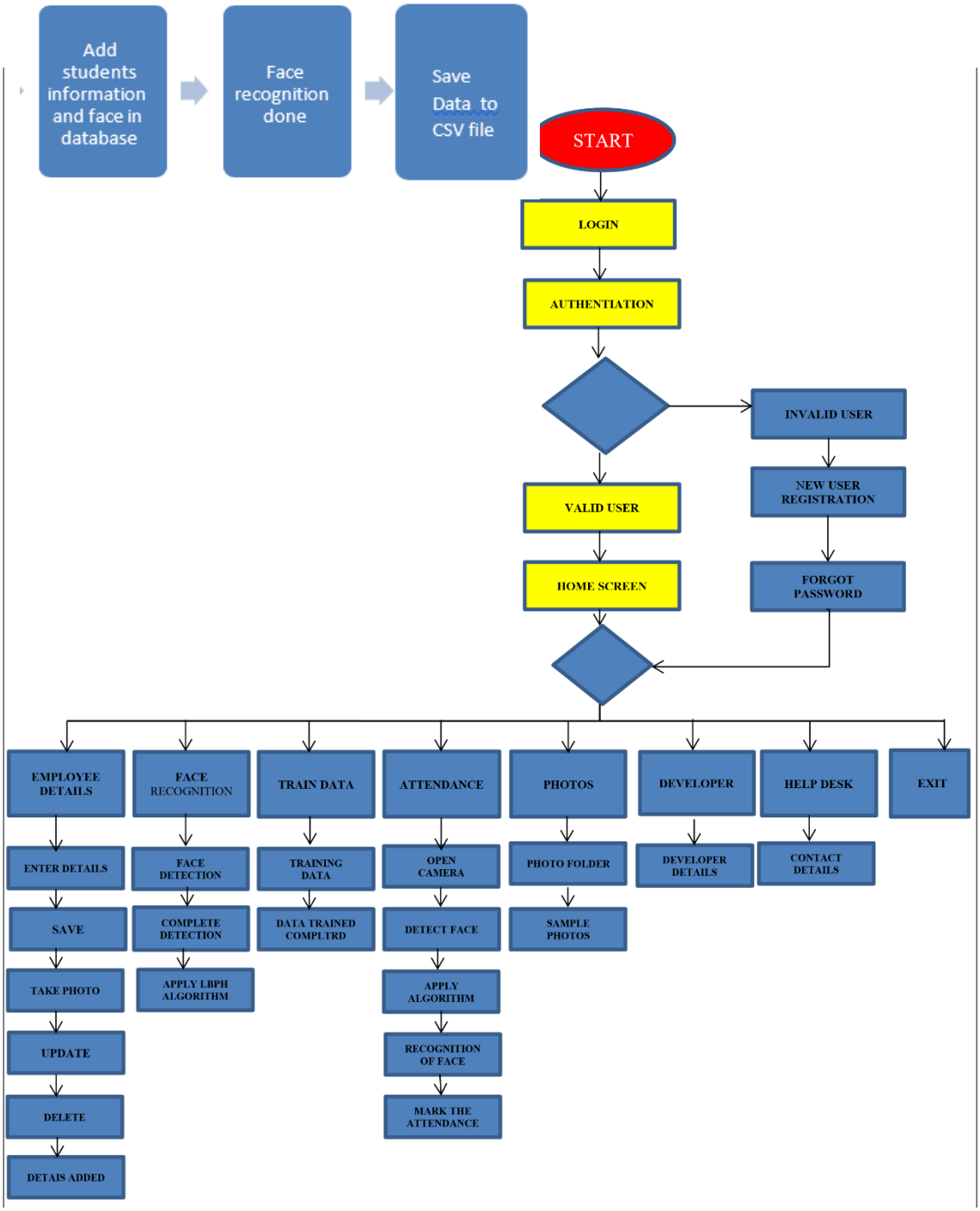
iv. **Security:** Improved Security and Data as it securely stores and protects sensitive information and complying with data privacy

v. **<u>Easier Management of Data:</u>** With all the records and data being stored on the machine, retrieving it later would be easier as compared to managing bulky registers for attendance records

4. Methodology/ Planning of work:

A real-world student attendance system which recognize face of student and attendance of the respective student will be marked automatically on excel sheet.

A Basic Representation of the same is given below:



Steps & Features involved

i. **Student Records:** This feature holds details of students such as their names, registration number, class, section and other important data which may be useful in accessing the information about a particular student. It will also be used to capture student's face so as to mark the attendance next time the student does so. On clicking this button, the user will be able to record all the necessary data of a given student and store it in the database.

ii. **Face Recognition:** This feature will be used to identify the identity of a student based upon facial recognition. Once the camera would identify the face, it would show the details of that student. This feature also has the provision of indicating an unknown face, if any such sample is not present in the database.

iii. **Mark Attendance:** This feature will be used to mark the attendance of a particular student and store the data in excel sheet. If any such face, which is not stored in the database is countered, it would remark it as an unknown face.

iv. **Train Data:** This Option is used to train the sample data based upon some crucial algorithms such as Haar Cascade Algorithm and LBPH Algorithm.

v. **Photos:** Upon clicking this option, the user will be able to view stored photos of students, or the data we have stored in the database.

vi. **Help Desk:** To guide the user throughout the project.

5. Facilities required for proposed work:

Software Requirements Platform:

1. Operating System: Windows OS
2. Programming Language: PYTHON

Hardware Requirements

1. Processor: INTEL Pentium 4 Processor Core
2. Hard Disk: 40 GB (min)
3. RAM: 256 MB or higher

User Interfaces

The user interface for the software shall be compatible to any Android version by which user can access to the system. The user interface shall be implemented using any tool or software package like Android Studio, MYSQL etc.

Hardware Interfaces

Since the application must run over the internet, the hardware shall require to connect internet to the hardware which is android device for the system.

Software Interfaces

This system is a Single-user, multi-tasking environment. It enables the user to interact with the server and attain interact with the server to show the animal information also leaves a record in the inbuilt database. It uses Java and android as the front end programming tool and MySQL as the back end application tool.

Communication Interfaces

The e-store system shall use the HTTP protocol for communication over the internet and for the intranet communication will be through TCP/IP protocol suite.

Performance Requirements

- System can produce results faster on 2GB/4GB of RAM.
- It may take LESS time for peak loads at main node.
- The system will be available 100% of the time. Once there is a fatal error, the system will provide understandable feedback to the user.

Safety and Security Requirements

The system is designed in modules where errors can be detected and fixed easily.
Software Quality Attributes

- **Reliability**: The Client machine will change the status of data indicating successful data transmission.

- **Usability**: The application should be easy to use through interactive interface.

- **Maintainability:** The system will be developed using the standard software development conventions to help in easy review and redesigning of the system.

- **Support ability:** The system will be able to support to transfer different types of SQL Queries

- **Portability**: This software is portable to any system with the requirements specified. There must also be a server where the database can be set-up.

6. Bibliography/References

1) Learning OpenCV –Computer Vision with the OpenCV Library O'Reilly Publication

2) http://www.wordpress.org/

3) http://www.academia.edu/

4) http://www.stackoverflow.com/

5) http://www.iproject.com