FACE RECOGNITION ATTENDANCE SYSTEM

A Project Report of Capstone Project - 2

Submitted by

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In partial fulfillment for the award of the
degree of

BACHELOR OF TECHNOLOGY

IN
COMPUTER SCIENCE ENGINEERING

SCHOOL OF COMPUTER SCIENCE ENGINEERING

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APRIL / MAY - 2020

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BONAFIDE CERTIFICATE

Certified that this project report "**FACE RECOGNITION SYSTEM** "is the Bonafide work of "NIKHIL RAWAT (1613101443)" who carried out the project work under my supervision.

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Abstract

The face is one of the easiest ways to distinguish the individual identity of each other. Face recognition is a personal identification system that uses personal characteristics of a person to identify the person's identity. Human face recognition procedure basically consists of two phases, namely face detection, where this process takes place very rapidly in humans, except under conditions where the object is located at a short distance away, the next is the introduction, which recognize a face as individuals. Stage is then replicated and developed as a model for facial image recognition (face recognition) is one of the much-studied biometrics technologies and developed by experts. The main aim of developing this java application is to provide a complete automated attendance management system for students and profile system for staff and management. The system is developed for deploying an easy and a secure way of taking down attendance. The software first captures an image of all the authorized persons and stores the information into database. The system then stores the image by mapping it into a face coordinate structure. Next time whenever the registered person enters the premises the system recognizes the person and marks his attendance along with the time. If the person arrives late than his reporting time, the system speaks a warning "you are xx minutes late! Do not repeat this. This system will developed using NETBEANS, WAMP, JVM, JSP.

Keywords: - NETBEANS, WAMP, JVM, JSP.

TABLE OF CONTENTS

CHAPTER NO.	TITLE	PAGE NO.

LIST OF TABLES

LIST OF FIGURES

Introduction

Image Processing is a type of processing a signal for which the requirements are photograph, video frame or an image. There are two types of Image processing: Analog and digital processing. Analogue image processing is an image processing technique which can be used for hard copies such as photographs and Printouts. Digital image processing involves manipulation of the digital images by using Pc's. Now a day's Student or attendance plays a significant role in many college, universities and schools.

There can be two types of attendance:

1. Manual attendance system

2. Automated attendance system

Automated attendance system will excerpt the image when person comes in the classroom and will accordingly mark the attendance. On the other hand, manual attendance system will verify and manage each and every record of student in paper which requires more time and effort of the faculty or staff and also chances of proxies are also more in manual attendance. This system will be efficient and more user friendly as it can be run on devices which everyone has now a day. This study is the first attempt to provide an automated attendance system that identifies students using face recognition technology through an image or video stream for recording attendance in any classroom environment or and estimating the efficiency accordingly. Through constantly detecting of facial info, this method will resolve less efficiency of technologies which already exist, and advance the accurateness of recognition of faces. We studied and planned a technique or way that mark the presence or attendance using face recognition constructed on non-

stop surveillance. In this proposed method or paper, our aim and purpose is to gain the images or video of the students face, their position and attendance which are beneficial info in the lecture or classroom environment.

I.   Overall Description

The main aim of developing this java application is to provide a complete school or college-based attendance management system for students and profile system for staff and management. Faculty information is to be maintained securely and should be accessible only to the respective faculty and the administrator when required. Student's daily attendance should be entered by the faculty and should be managed perfectly. In the existing system manually, the corresponding faculty will enter attendance details in files. If the administrator or faculty want to know the student information, he must able to search the sheets, this consumes a lot of time. Here the project eliminates that problem and makes the process automation. The Student Attendance and Staff Profile project mainly focus on maintaining of faculty profile, student daily attendance in which different levels of users are restricted to access the database. We can make the users access the data but they can't modify or update the database. Only the authorized faculty and administrator can access and update the database. Each faculty and administrator should log in to get the details of the faculty and student attendance.

II.   Purpose

•   Complete automation is possible in this sector, which is against the main disadvantage namely time-consuming.

•   Can maintain company faculty details and student details.

•   Any kind of information based on faculty profile or student attendance can be retrieved within less time.

•   Only authorized faculty or administrator can access the database by providing necessary information.

III.   Motivation and scope

Currently the attendance system involve a lot of paper work and there is a good chance of maximum proxies because of the fact that there is no automated system to identify students and a single teaching faculty can't recognize all the students by their unique id. The unique id can be student roll no. , full name. Student makes proxies for false attendance. It's unfair for students which are regular and it's hard for teachers to maintain such record in the paper. Hence our product provides a fair and efficient way to mark attendance for students in school and college environment.

LITERATURE SURVEY

Matthew Turk; Alex P. Pentland, both of Cambridge, Massachusetts Institute of Technology, Cambridge, Mass. A recognition system for identifying members of an audience, the system including an imaging system which generates an image of the audience; a selector module for selecting a portion of the generated image; a detection means which analyzes the selected image portion to determine whether an image of a person is present; and a recognition module responsive to the detection means for determining whether a detected image of a person identified by the detection means resembles one of a reference set of images of individuals. This project is based on Eigen faces Algorithm. This system has around 40%-60% accuracy in scanning and recognizing faces

Yang Li, Sangwhan Cha, PhD., Assistant Professor of Computer Science. In this paper, facial features are extracted by merging and comparing multiple models, and then a deep neural network is constructed to train and construct the combined features. In this way, the advantages of multiple models can be combined to mention the recognition accuracy. After getting a model with high accuracy, we build a product model. This article compares the pure-client model with the server client model, analyzes the pros and cons of the two models, and analyzes the various commercial products that are required for the server-client model. Deep neural network, face recognition, server-client model, business model, deep multi-model fusion, convolution neural network.

Liton Chandra Paul, Abdulla Al Sumam2 Electronics and Telecommunication Engineering1, 2 Rajshahi Universities of Engineering and Technology. This paper mainly addresses the building of face recognition system by using Principal Component Analysis (PCA). PCA is a statistical approach used for reducing the number of variables in face recognition. In PCA, every image in the training set is represented as a linear combination of weighted eigenvectors called eigenfaces. These eigenvectors are obtained from covariance matrix of a training image set. The weights are found out after selecting a set of most relevant Eigen faces. Recognition is performed by projecting a test image onto the subspace spanned by the eigenfaces and then classification is done by measuring minimum Euclidean distance.

Table Design

1. Teacher Table

S.No.	Field name	Data Type	Description
1.	User name	Text	Store user name for checking correct username
2.	Password	Text	Store password corresponding to username
3.	User Type	Text	User Type Administrator or User

2. Attendance Table

S.No.	Field name	Data Type	Description
1.	Student Name	Text	Name of Student
2.	Status	Number	Total number classes attended by particular Student
3.	Semester	Text	In which Semester Student is Studying
4.	Subject	Text	The Subject Wise Attendance Is maintained
5.	Month	Text	The Month Wise Attendance is maintained where total working days in month=20

3. Student Table

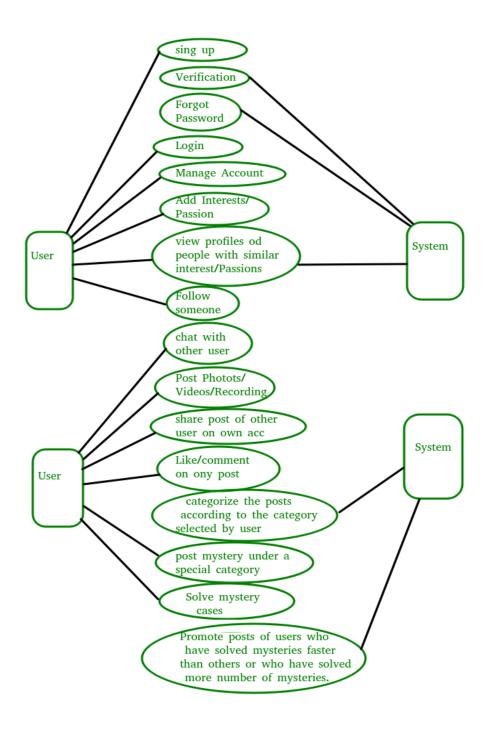| S.No.	Field name	Data Type	Description
1.	Student ID	Number	This is the roll no of the student
2.	Student Name	Text	This is the name of student
3.	Course	Text	This is the course in which the students are studying.
4.	Semester	Text	This is the semester in which Students are Studying.

Design

1. USE CASE DIAGRAM

Fig .1 USE CASE DIAGRAM
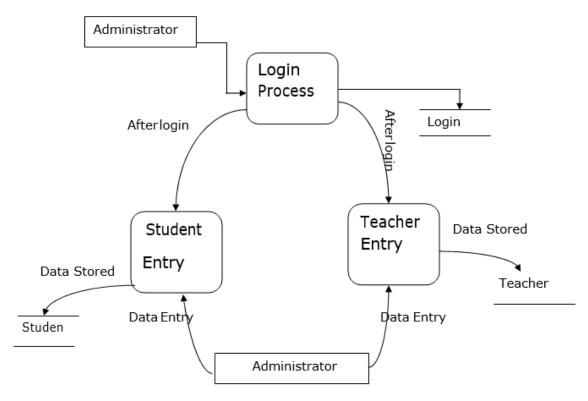
2. DATA FLOW DIAGRAM

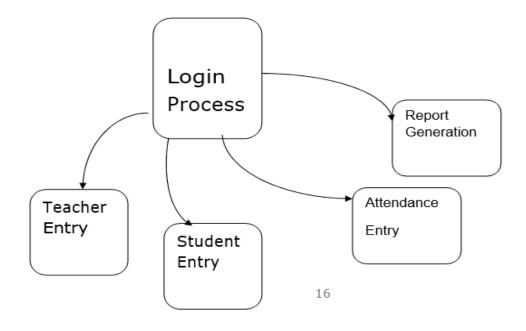
Fig.2 DATA FLOW DIAGRAM

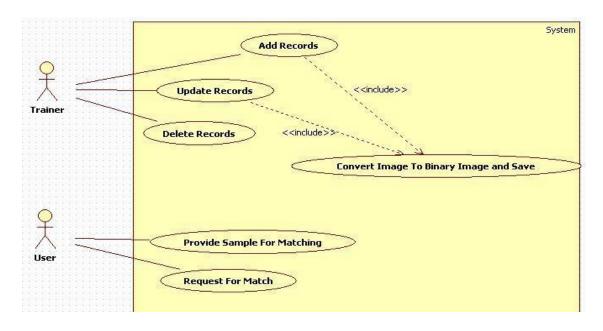3. Level DFD

Fig.3 LEVEL DFD

4. UML DIAGRAM

Fig.4 UML DIAGRAM

IMPLEMENTATION

The process starts with training the system with face of students/employees for whom the attendance has to be marked in the near future. Different faces are assigned different names in the system. The period decides the threshold time limit within which the student will be marked present. Once the threshold limit is crossed is crossed the student will not be marked absent in the system for that particular period Algorithms such as PCA, LDA and LBPH can be used in varying light scenarios, as light plays an important role in image processing. Also, a webcam with high specifications should be used as it plays a key role in face detection and recognition. Hence, the better is the webcam used, the more is the efficiency in the system attained.
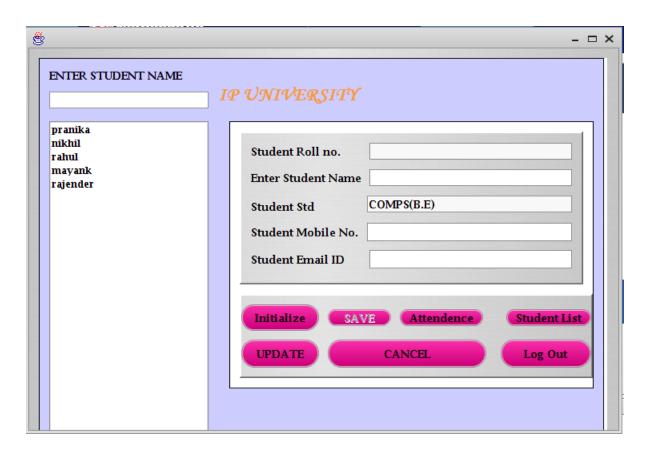

Fig.5 LOGIN PAGE

FIG.6 STUDENT ENROLLMENT PAGE

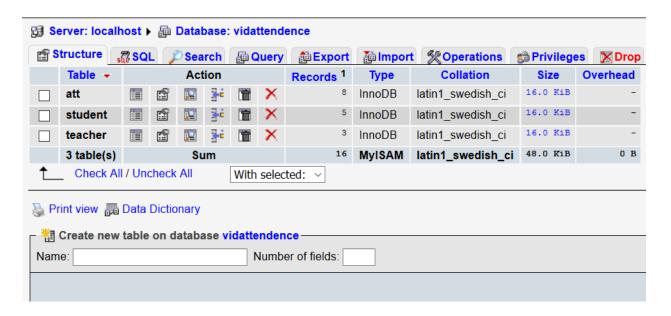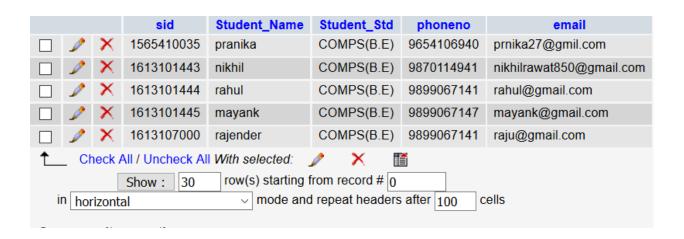FIG. 7 CAMERA OPENS AND MARK ATTENDANCE

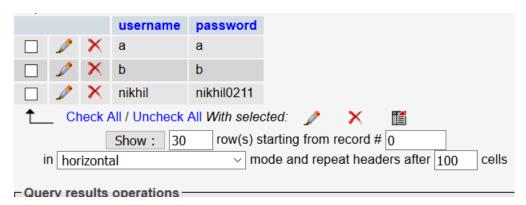FIG.8 WAMP SERVER DATABASE
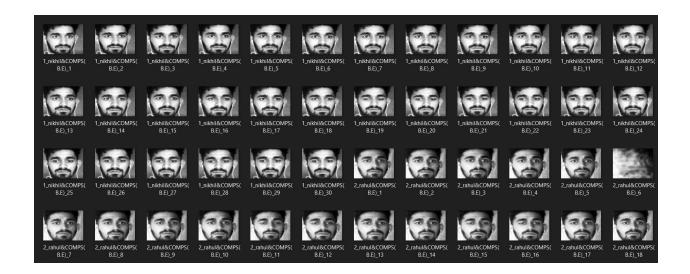

FIG. 9 STUDENTS DATABASE

FIG.10 STAFF DATABASE

FIG.11 IMAGAE SAVES AS .JPG IN CLOUD

CONCLUSION

This idea has been proposed for maintaining and marking the attendance record. The need behind developing this software is to eliminate all the drawbacks which were associated with manual attendance system. The drawbacks starting from wastage of your time and paper, till the proxy issues arising in an exceedingly order in class will completely be eliminated. Hence, desired results with user friendly interface are expected within the future, from the system. The efficiency of the system could even be increased by integrating various steps and techniques within the future developing stages of the system.

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