

A Project Report

On

STUDENT ATTENDANCE SYSTEM USING FACE RECOGNITION

**Submitted in partial fulfillment of the
requirement for the award of the degree
of**

B.Tech in Computer Science



(Established under Galgotias University Uttar Pradesh Act No. 14 of 2011)

Under The Supervision of

Name of Supervisor :

Dr. Shrddha Sagar

Designation : Professor

Submitted By

(BT4035)

Ayush Singh-

18SCSE1010226

Rohan Moyee

18SCSE1010340

**SCHOOL OF COMPUTING SCIENCE AND ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
GALGOTIAS UNIVERSITY, GREATER NOIDA
INDIA
DECEMBER, 2021**



**SCHOOL OF COMPUTING SCIENCE AND ENGINEERING
GALGOTIAS UNIVERSITY, GREATER NOIDA
CANDIDATE'S DECLARATION**

I/We hereby certify that the work which is being presented in the thesis/project/dissertation, entitled “PREDICTING STUDENT PERFORMANCE WITH DEEP NEURAL NETWORKS” in partial fulfillment of the requirements for the award of the Bachelor of Technology submitted in the School of Computing Science and Engineering of Galgotias University, Greater Noida, is an original work carried out during the period of month, Year to Month and Year, under the supervision of Name... Designation, Department of Computer Science and Engineering/Computer Application and Information and Science, of School of Computing Science and Engineering , Galgotias University, Greater Noida

The matter presented in the thesis/project/dissertation has not been submitted by me/us for the award of any other degree of this or any other places.

Ayush Singh 18SCSE1010226
Rohan Moye 18SCSE1010340

This is to certify that the above statement made by the candidates is correct to the best of my knowledge.

Supervisor Name-Dr. Shreddha Sagar
Designation-Associate Professor

CERTIFICATE

The Final Thesis/Project/ Dissertation Viva-Voce examination of Ayush Singh 18SCSE1010226 and Rohan Moye 18SCSE1010340 has been held on _____ and his/her work is recommended for the award of Bachelor of Technology.

Signature of Examiner(s)

Signature of Supervisor(s)

Signature of Project Coordinator

Signature of Dean

Date: 3 December, 2021

Table of Contents

Title	STUDENT ATTENDENCE SYSTEM USING FACE RECOGNITION	Page No.
Chapter 1	Abstract	1
Chapter 2	Introduction	2-7
	2.1 Defination	
	2.2 Purpose	
	2.3 Scope	
	2.4 Overview	
	2.5 Refrences	
Chapter 3	Literature Survey.	8-11
	3.1 Product Perspective	
	3.2 Product Functions	
	3.3 User Characteristics	
	3.4 Constraints	
	3.5 Assumptions and dependencies	
Chapter 4	Project Design include the diagrams such as DFD, UML, Architectural, Flowchart. Use Cases, ER.	12
Chapter 5	Modules Description	13-14
4 Chapter 6	Results	15
Chapter 7	Conclusion	16
Chapter 8	Reference	17

Abstract

Face recognition is among the most productive image processing applications and has a pivotal role in the technical field. Recognition of the human face is an active issue for authentication purposes specifically in the context of attendance of students. Attendance system using face recognition is a procedure of recognizing students by using face biostatistics based on the high definition monitoring and other computer technologies. The development of this system is aimed to accomplish digitization of the traditional system of taking attendance by calling names and maintaining pen-paper records. Present strategies for taking attendance are tedious and time-consuming. Attendance records can be easily manipulated by manual recording. The traditional process of making attendance and present biometric systems are vulnerable to proxies. This paper is therefore proposed to tackle all these problems. The proposed system makes the use of Haar classifiers, KNN, CNN, SVM, Generative adversarial networks, and Gabor filters. After face recognition attendance reports will be generated and stored in excel format. The system is tested under various conditions like illumination, head movements, the variation of distance between the student and cameras. After vigorous testing overall complexity and accuracy are calculated. The Proposed system proved to be an efficient and robust device for taking attendance in a classroom without any time consumption and manual work. The system developed is cost-efficient and need less installation.

CHAPTER - 2

Introduction

This section will introduce the background and problem statement of this study as well as the formulated research questions.

The most common means of tracking student attendance in the classroom is by enforcing the students to sign the attendance sheet, which is normally passed around the classroom while the lecturer is conducting the lecture. There are numerous disadvantages of using such system. For instance, lecturers with a large class may find the hassle of having the attendance sheet being passed around the class and the manual signing of attendance by students are burdensome and most likely distract them from teaching [1]. Besides, as the attendance sheet is passed around the class, some students may accidentally sign another student's name. The first case leads to a student missing out their name, while the latter leads to a false attendance record. Another issue of having the attendance record in a hardcopy form is that a lecturer may lose the sheet [2]. As a consequence of that, lecturer can no longer trace the students overall attendance record throughout the particular year. Apart from that, a lecturer also has limited access to the single-copy record. In terms of attendance analysis, the lecturer also has to perform manual computation to obtain the students' attendance percentage, which normally consume a lot of time. The limitations imposed by the conventional attendance recording system, we propose a solution in the form of an attendance tracking system based on RFID technology. The main idea behind the system is to capture student attendance in a semi-automated way where the students are required to flash their card at the RFID reader upon entering the classroom. But the RFID based student attendance system requires students to manually handle the RFID card every time they attend a class. The RFID card may get lost. Face recognition helps to recognize the facial image in more efficient and accurate in order to match with the identity stored in the database. Having said the limitations imposed by the RFID attendance recording system, we propose a solution in the form of an attendance tracking system based on Face recognition and authentication technology [3]. As such, the objective of our project is to implement a still-image based face recognition algorithm by using web cam(i-ball). After extensive research into the field of face recognition, we have found that there is ample room for improving upon currently available face recognition systems. These improvements range from the robustness of the design to the speed of the system. An RGB camera can provide us with the necessary resources to achieve such improvements in face recognition. These resources include various camera (iball), GSM board, Personal Computer.

2.1 Defination

Attendance Management System is software developed for daily student attendance in schools, colleges and institutes. It facilitates to access the attendance information of a particular student in a particular class. The information is sorted by the operators, which will be provided by the teacher for a particular class. This system will also help in evaluating attendance eligibility criteria of a student.

2.2 Purpose

The purpose of developing attendance management system is to computerized way of taking attendance. Another purpose for developing this software is to generate the report automatically at the end of the session or in the between of the session.

2.3 Scope

The scope of the project is the system on which the software is installed, i.e. the project is developed as a web application, and it will work for a particular institute. But later on the project can be modified to operate it online.

2.4 Overview

Attendance management System basically has two main modules for proper functioning: -

First module is admin which has right for creating space for new batch. Any entry of new faculty, Updating in subject if necessary, and sending notice.

Second module is handled by the user which can be a faculty or an operator. User has a right of making daily attendance, generating report.

2.5 References

An Integrated approach to Software Engineering Approach- Dr. Bharat Bhushan Agrawal And the other contents to different SRS's report.

CHAPTER - 3

Literature Survey

The following section will start with an overview of the current state of EDM. This will be followed by an analysis of Neural Networks.

Using a GSM board we can send a message to any mobile number which are stored into a database. By interfacing the GSM modem with a PC containing MATLAB code.

GSM MODEM, PC, SIM, LCD (Liquid Crystal Display), microcontroller, power supply and also some connecting wires are the common peripherals required for developing GSM based applications.

GSM Based.

Software used

1. **AT Commands:** AT commands are instructions used to control a modem. AT is the abbreviation of Attention. Every command line starts with "AT" or "at". That's why modem commands are called AT commands. Many of the commands that are used to control wired dial-up modems, such as ATD, ATA, ATH and ATO, are also supported by GSM modems and mobile phones.
2. **PC (MATLAB):** We are using a Personal Computer. In that system MATLAB code is used. MATLAB is a high-level technical computing language and interactive environment for algorithm development, data visualization, data analysis and numeric computation.

The control panel can be interpreted as different parts; the Web-Cam control I/O and the processing unit. The first part receives an input image through the camera.

The selection of a device from the list indicates Web-Cam activation. The square frame is designed to surround the facial area as to relocate the prospective area and separate the facial area. After the Capture button is pressed, the interrupt signal is sent to our Web-Cam, which has now stopped its task since the prospective image is obtained. This process captures only the facial part of the image. Later, control point detection techniques are applied to the image. In order to compare the similarity measurement with the database image, or reference point is based on the distance between extracted features.

Distance between control points of the obtained image is matched with the distance between control points of the previous image which are stored in the database. After that the matching keeps continuously updating its score. Depending on the value of the score, it gives the result about matching in the form of a message. i.e. face matched with user1. After getting the result, MATLAB code gives some particular ID to the microcontroller. The controller detects the

signal which is coming from PC. In such a way controller sends message to the other student who are absent in the class. Message sending is done with the help of GSM board.

3.1 Product Perspective: -

The product Attendances Management system is an independent product and does not depend on any other product or system. The product will automate various tasks associated with handling student details and better organizing the stored information and optimum performance, thus helping the Colleges to ensure smooth working of these processes.

3.2 Product Functions: -

Our system has two types of accessing modes: -

- i. Administrator
- ii. User

 Teacher

 Student

(i) Administrator

Administrator have rights to manage student details, add a new student, provide register number for all students, assign each student a course etc., Administrator can update his profile, and also can give help to the teachers and students.

(ii) User: There are two users: -

 **Student:** -Student do the login and see profile, Attendance Details etc.

 **Teacher:** -Add student, view the student details and take attendance student.

3.3 User Characteristics: -

This software gives access to two kinds of users.

Administrator:

The administrators have features access to add, delete and modify information stored in the database. Authorized User: Teaching staffs have access to view the data stored in the database and can update the student's attendance in the form of formatted reports.

3.4

Student has access to view the data stored in the database Constraints: -

Interface is only in English; no other language option is available.

User can login with his assigned username and password, no guest facilities is available.

3.5

Assumptions and Dependencies: -

We assume that the Office personnel do all the data entry based and the correct values obtained from forms and registers.

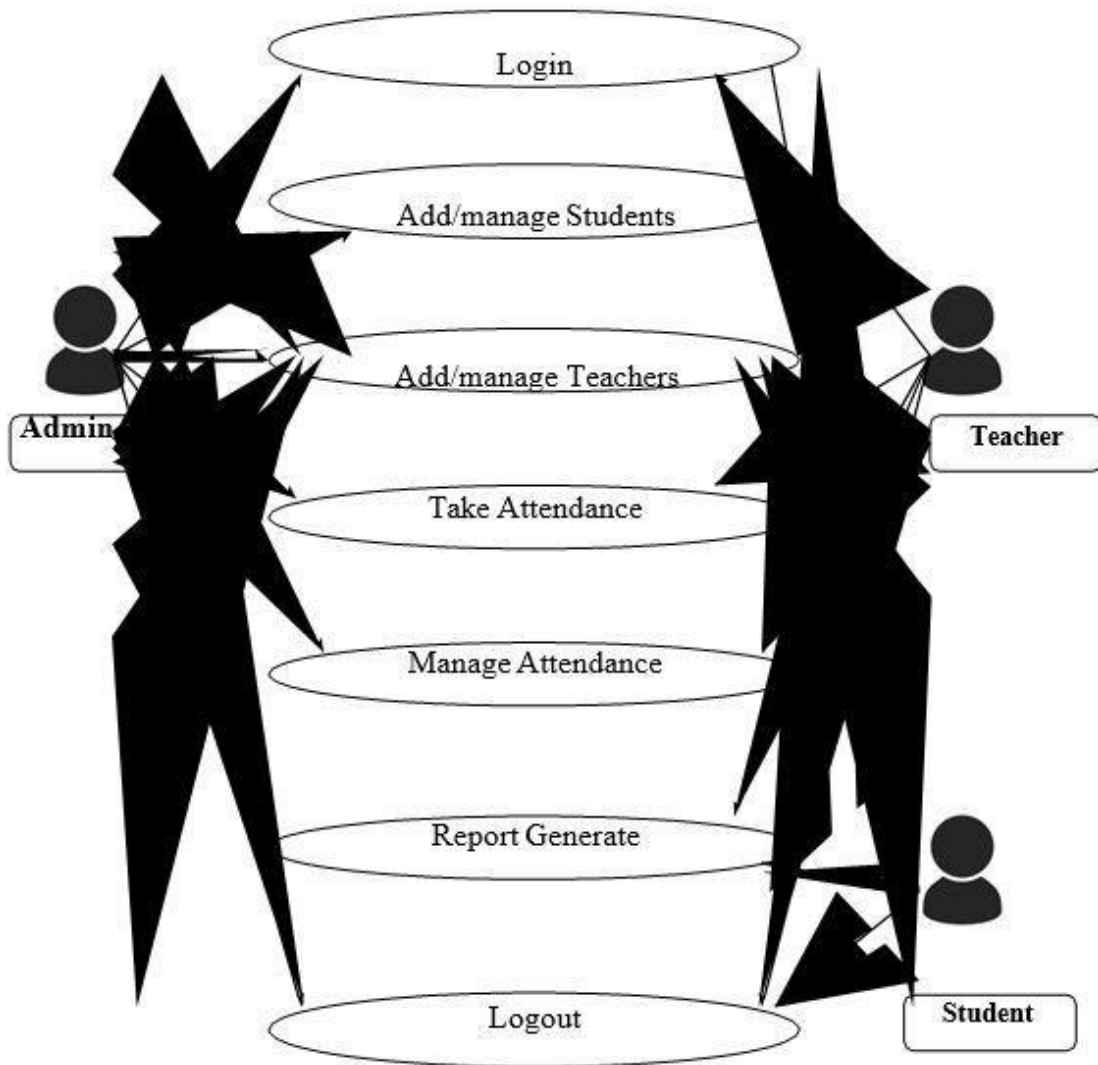
We assume that the computers that will use the software will be part of the college LAN.

Users with administrator access should be careful in deleting or modifying any information knowingly or unknowingly which will lead to inconsistency of the database.

The end users of this software are assumed to have basic level of computer knowledge i.e. point and click.

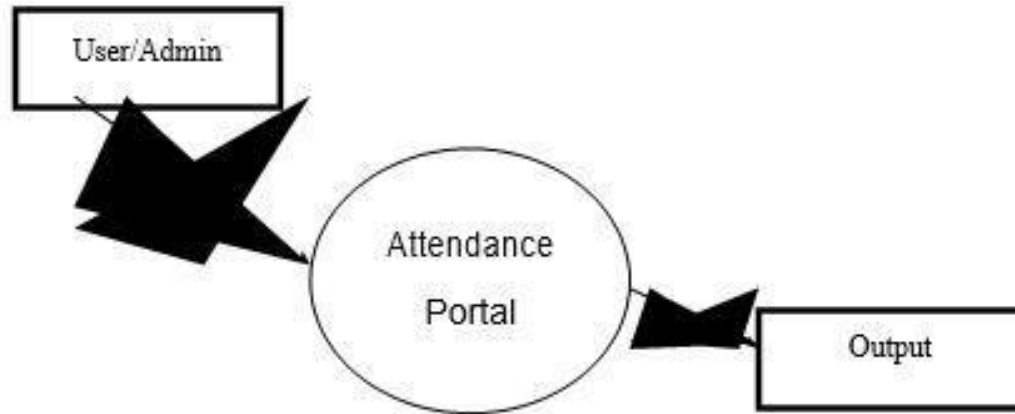
Chapter – 4

Project Design include the diagrams

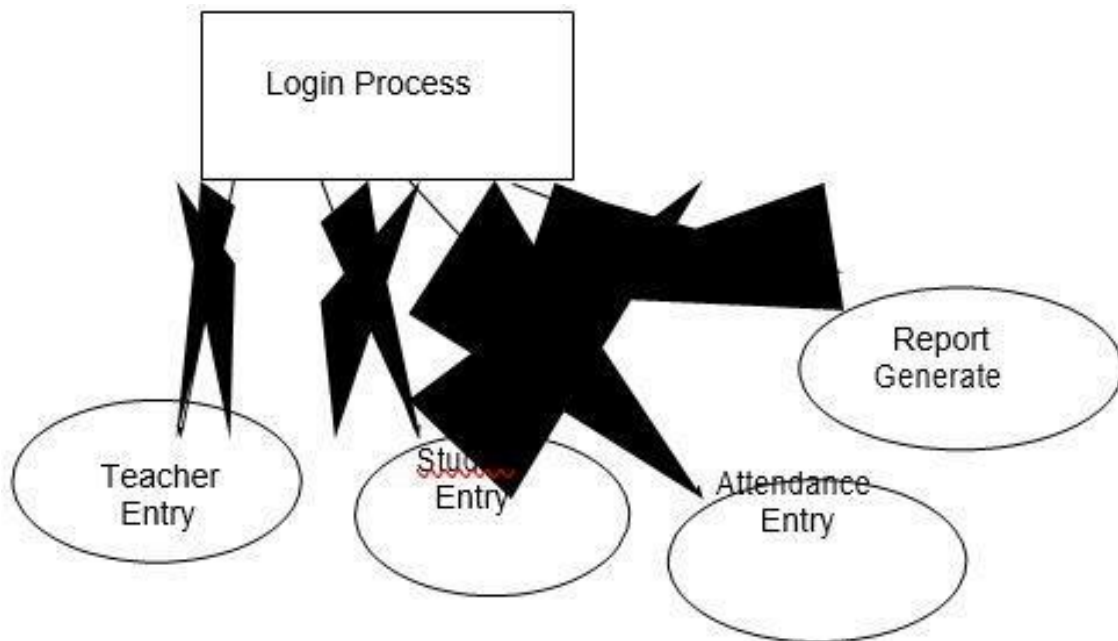


4.1 Data Flow Diagram

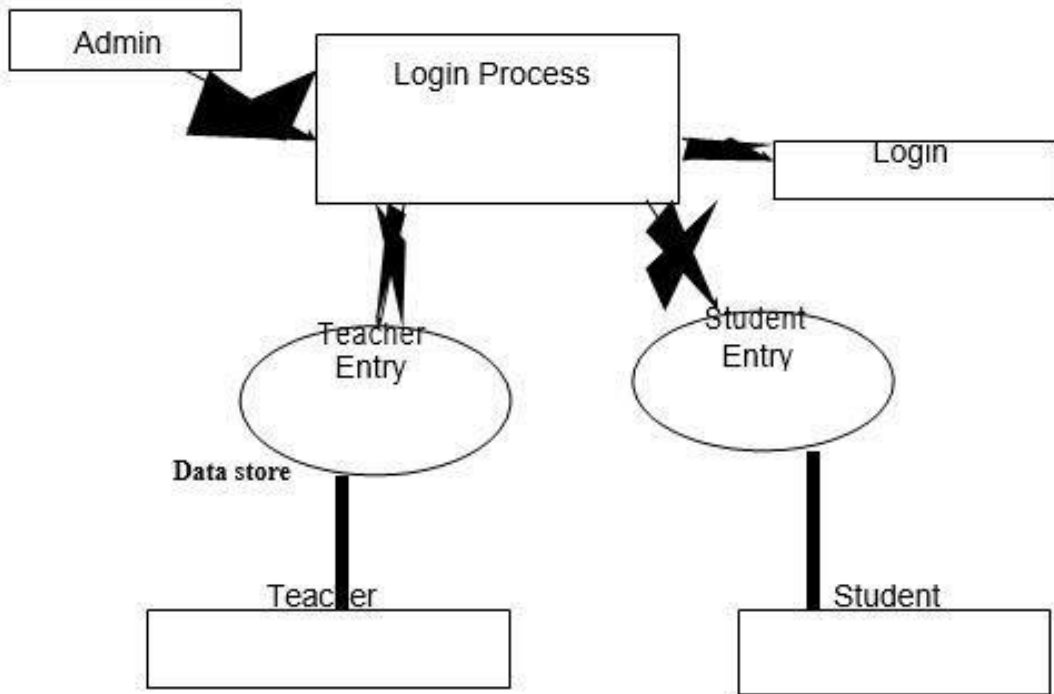
0 – LEVEL DFD



1- LEVEL DFD



2 - LEVEL DFD



4.1 Input Design:

Input design is part of overall system design that requires special attention designing input data is to make the data entered easy and free from errors. The input forms are designed using the controls available in .NET framework.

Input design is the process of converting the user originated inputs to a computer-based format. A system user interacting through a workstation must be able to tell the system whether to accept the input to produce reports. The collection of input data is considered to be most expensive part of the system design. Since the input has to be planned in such a manner so as to get relevant information, extreme care is taken to obtain pertinent information

This project first will enter to the input of allocation forms it will be created on student details form and subject entry form, time table form. It will help to calculate subject wise attendance system

4.2 Input Design:

Output design this application “Student Attendance management system” generally refers to the results and information that are generated by the system for many end-users; output is the main reason for developing the system and the basis on which they evaluate the usefulness of the application.

The output is designed in such a that it is attractive, convenient and informative. Forms are designed with various features, which make the console output more pleasing.

As the outputs are the most important sources of information to the users, better design should improve the system’s relationships with us and also will help in decision making. Form design elaborates the way output is presented and the layout available for capturing information.

One of the most important factors of the system is the output it produces. This system refers to the results and information generated. Basically, the output from a computer system is used to communicate the result of processing to the user.

Attendance management system to show the report subject wise attendance maintaining by staffs. Taken as a whole report obtains on a administrator privileges only.

CHAPTER -5

MODULE DESCRIPTION

The system should be designed in such a way that only authorized people should be allowed to access some particular modules. The records should be modified by only administrators and no one else. The user should always be in control of the application and not the vice versa.

The user interface should be consistent so that the user can handle the application with ease and speed. The application should be visually, conceptually clear.

5.1 Administrator module

System Details

In this module deals with the allocation of roll no and personal details for new batch. It will generate of personal details and academic details of the students.

Teacher Details

It helps to allot the subject and the subject code to the particular staffs. It provides the facility to have a user name and password to the staffs.

Report details

Report can be taken by daily, weekly and consolidate:

Weekly report gets all hour details of attendance starting date to ending date and display the status Consolidate report get all student attendance details starting date to ending date status help for the eligibility criteria of the student to attend the examination.

5.2 Teacher Module

Attendance details

It assists the staff to mark attendance to the students for their subject. This will authenticate the staff before making the entry.

Report Deatils

Weekly report gets details of attendance from starting date to ending date and display the status. Consolidate report get all student attendance details from starting date to ending date status help for the eligibility criteria of the student to attend the examination.

5.3Student Module

Generate report; get details of attendance from starting date to ending date and display the status

Chapter – 6

Results

FAMS-Face Recognition Based Attendance Management System

Face-Recognition-Based-Attendance-Management-System

Enter Enrollment

Clear

Enter Name

Clear

Check Register students

Take Images

Train Images

Automatic Attendance

Manually Fill Attendance

Chapter -7

Conclusion

The Attendance Management System is developed using Visual Basic.NET fully meets the objectives of the system which it has been developed. The system has reached a steady state where all bugs have been eliminated. The system is operated at a high level of efficiency and all the teachers and user associated with the system understands its advantage. The system solves the problem. It was intended to solve as requirement specification.

The project has a very vast scope in future. The project can be implemented on intranet in future. Project can be updated in near future as and when requirement for the same arises, as it is very flexible in terms of expansion. With the proposed software of database Space Manager ready and fully functional the client is now able to manage and hence run the entire work in a much better, accurate and error free manner.

Chapter 8

References

1. Declaration ---<https://www.slideshare.net>
2. Introduction to visual studio [Microsoft.com/Wikipedia.com](https://www.microsoft.com/Wikipedia.com)
3. Introduction to mysql <https://www.tutorialsworld.com>
4. homepage Design <https://meeraacademy.com/>
5. pictures/images Google Image Search
6. Sql Database WampServer
7. Some contents of Youtube.