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# SOFTWARE REQUIREMENTS SPECIFICATION

for

## AI-based Attendance Registration System

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June 1, 2023

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# **1 Introduction**

## **1.1 Purpose**

The purpose of this system is to enhance the academic experience by enabling students to view their grades, communicate with the headmaster and teachers, stay updated with school news, and participate in the educational process. Headmasters, teachers, and parents can efficiently manage the system, add users, and ensure effective communication.

## **1.2 Intended Audience and Reading Suggestions**

This SRS is for developers, project managers, users and testers. Further the discussion will provide all the internal, external, functional and also non-functional information about "AI-based Attendance System".

## **1.3 Project Scope**

"The system focuses on improving the attendance marking system where a user had to manually mark the attendance and can create proxy attendances as well. With this system, AI will automatically register the face and will take attendance through face only, so that no proxy attendance can be marked and the process can be automated. The system also insures that the data is not duplicate and securely saved into the database in .csv format. The data then can be verified by the admin if required and can check the facial image as well for cross-verification. It uses nltk as library and Kneighbour algorithm for best results.

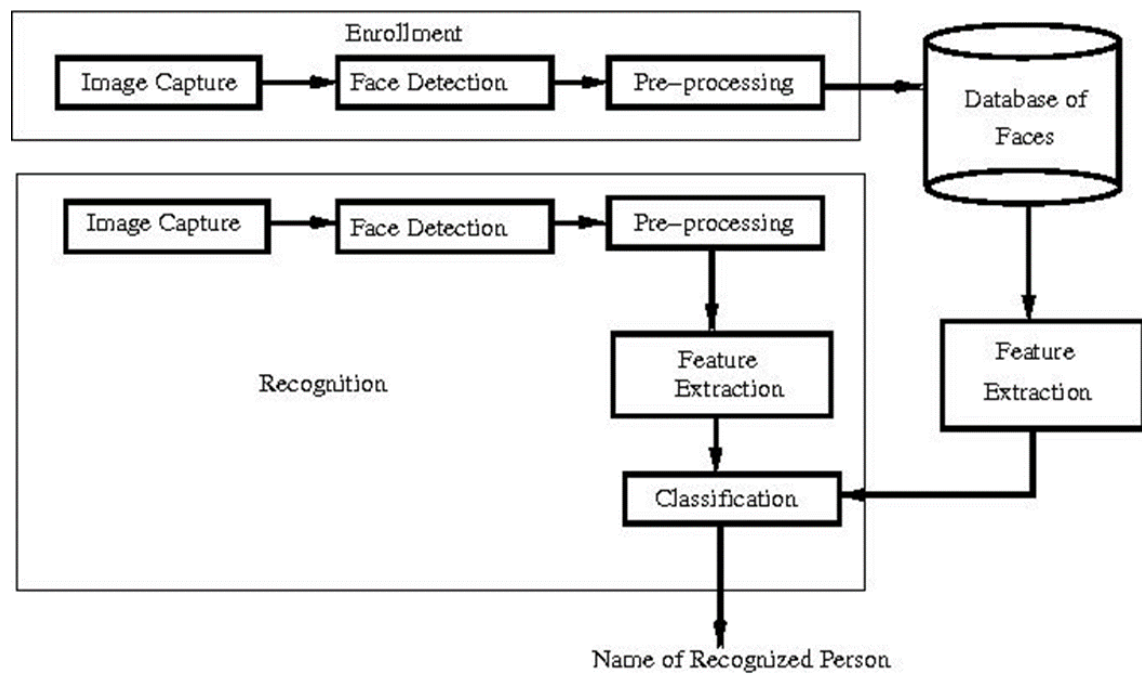


Figure 1.1: Entire work-flow

## 2 Overall Description

### 2.1 Product Perspective

This chapter provides an overview of the concepts and functionalities of the AI-based Face Attendance Registration System for management, users and employees. It also discusses the related works and their advantages.

### 2.2 User Classes and Characteristics

"AI-based Registration System" has basically 2 types of users.

- Employees
  - Director
  - Manager
- Staff

Employees has 2 types - Director defines the complete attendance system and maintains the record. Manager fulfill all the requirements like- making sure to mark attendance, informations can take advantages of the system.

### 2.3 Product Functions

"AI-based Attendance Registration System" store all the data of the employees of a company PGD, MIT. Also others programs can be included if necessary. Before using the main function of the software result process, users have to be registered.

All users have - login\_parameter, first\_name, last\_name, user\_id.

User Registration: The system allows administrators to register users (students, employees, etc.) into the system, creating unique user profiles with relevant information.

Attendance Marking: Users can mark their attendance using various methods, such as facial recognition, biometric scans, QR codes, or geolocation-based check-ins.

Real-Time Monitoring: The system provides real-time monitoring of attendance, allowing administrators and teachers to view attendance updates as they happen.

Attendance Tracking: The system tracks and records attendance data for each user, including date, time, and duration of attendance.

Absence Management: Users can report absences or request leaves through the system, and administrators can manage and track these requests efficiently.

Reporting and Analytics: The system generates comprehensive attendance reports and

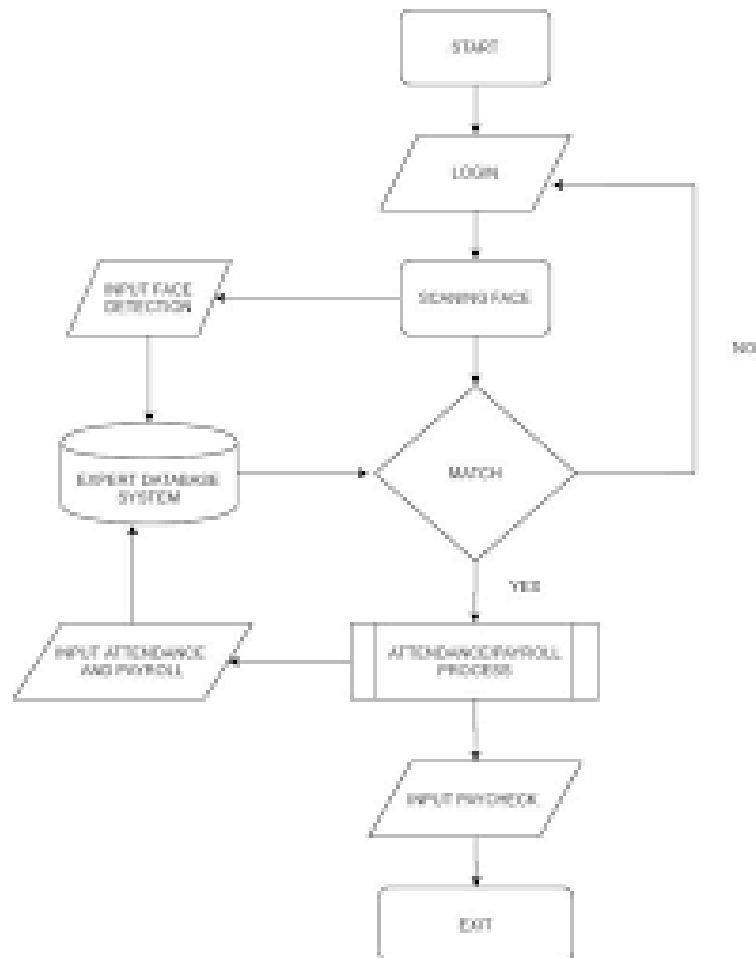


Figure 2.1: Data Flow Diagram

analytics, providing insights into attendance patterns, trends, and statistics for individual users, groups, or entire organizations.

## 2.4 Operating Environment

The website will be operate in any Operating Environment - Mac, Windows, Linux etc.

## 2.5 Design

User activity have 3 steps -

- Open the portal
- Register the face in database

- Mark the attendance

User has to register their face in database and look for the name and their roll no., it should be correct otherwise the attendance will be marked for someone else. After that user can mark the attendance for themselves.

Every profile contains his/her personal information, face, roll no, name and notice. Notice will contain all the news of Attendance System.

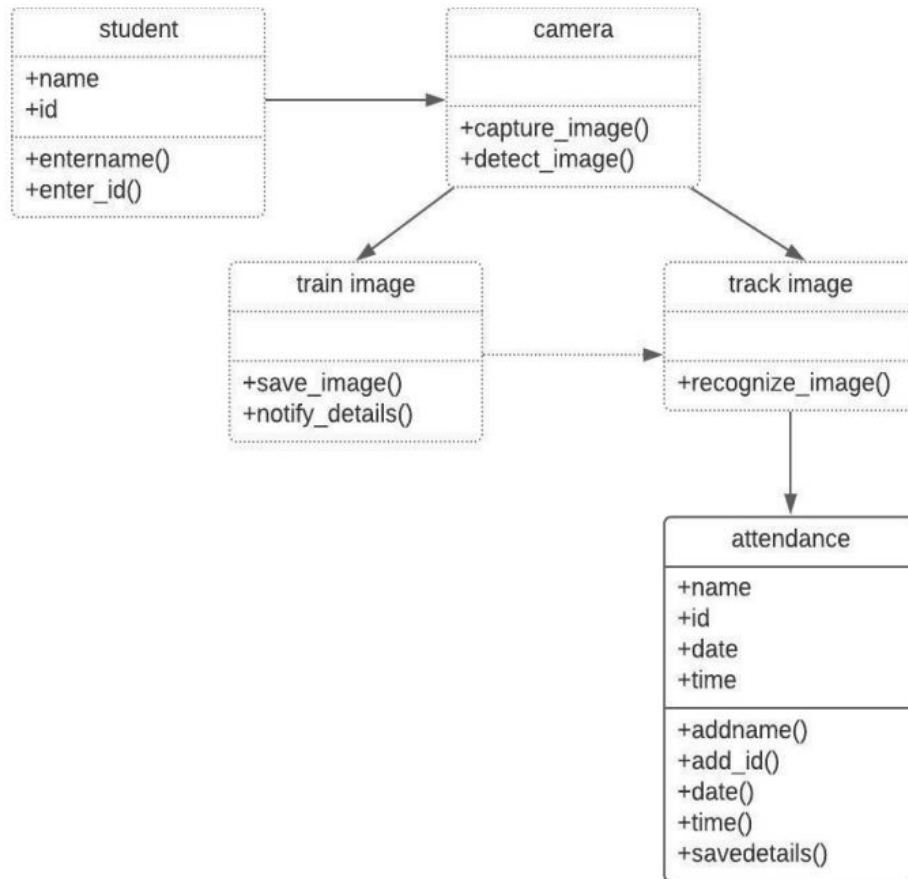


Figure 2.2: Class Diagram

Employee activities have 2 steps -

- Director
- Manager

Director can re-view the data, publish data, give notice and also create employee/users.  
He can also perform other core activities.

Teacher creates results, view students and create notice.

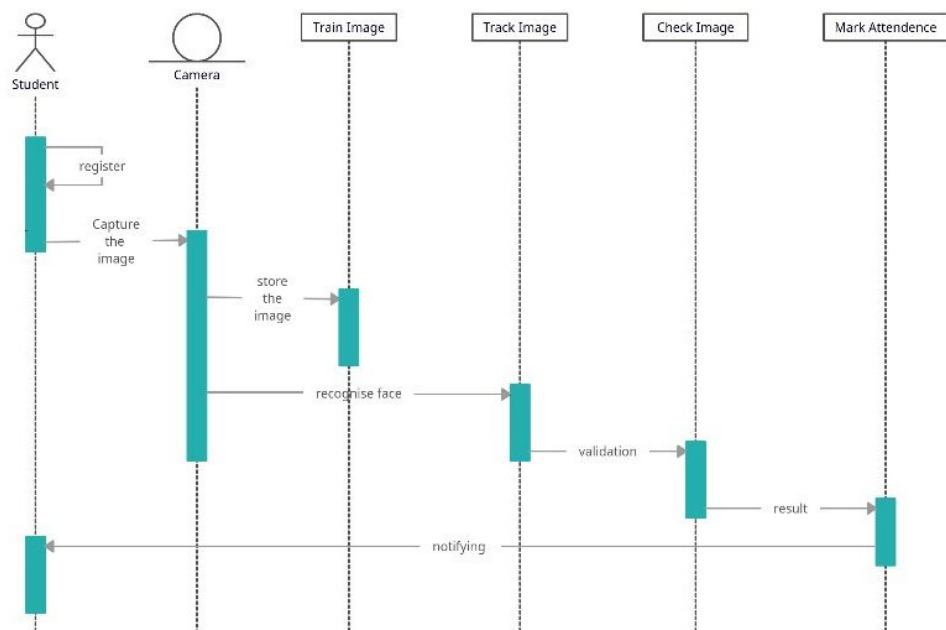


Figure 2.3: Sequence Diagram

Staff has only one activity -

- Notice



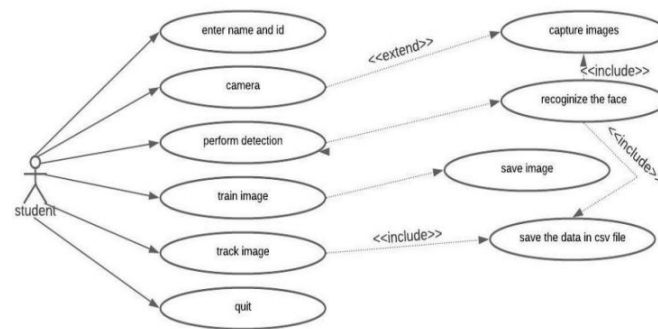


Figure 2.4: Use Case

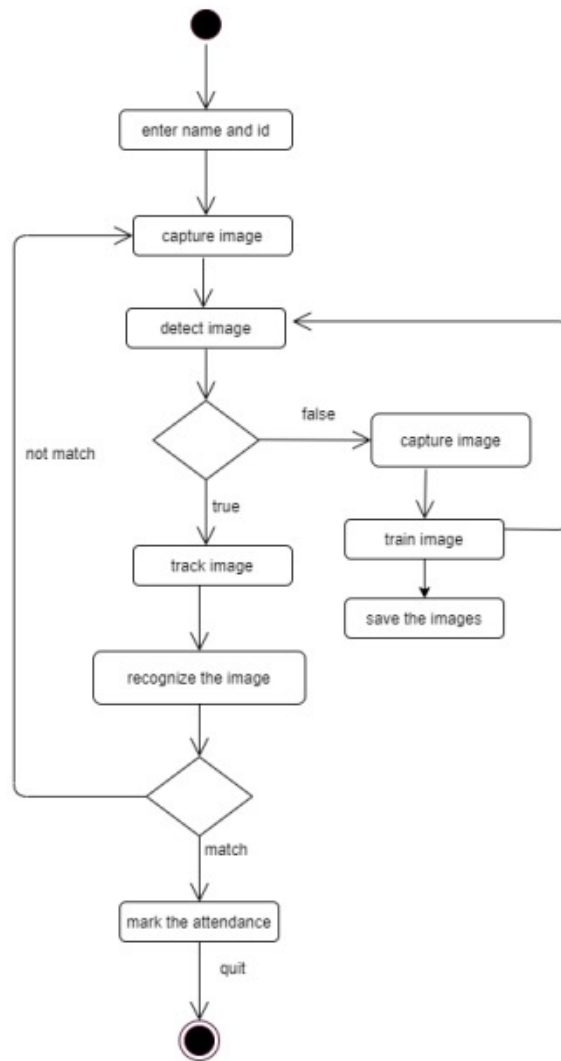


Figure 2.5: Activity Diagram

## 3 System Features

"AI-based Attendance Registration System" is a web based image processing software. So the main art of this product is to enter data of a user and save it.

### 3.1 Description and Priority

"AI-basaed Attendance Registration System" has features that are main and also some are sub. But all the feature is necessary for this software.

The features with priority up to down -

1. Facial Recognition: The system uses AI algorithms to recognize and verify individuals based on their facial features, allowing for accurate identification during the attendance process.
2. Real-Time Attendance Tracking: The system can capture attendance in real-time, eliminating the need for manual entry or sign-in sheets. This provides instant updates on attendance status.
3. Automated Attendance Marking: AI algorithms can automatically mark attendance based on facial recognition, removing the need for manual entry by both employee and Director.
4. Attendance Reports and Analytics: The system generates comprehensive reports and analytics on attendance data, including attendance percentages, patterns, and trends. This helps administrators and teachers make data-driven decisions.
5. Mobile Application Support: Users can access the attendance system through a mobile application, enabling them to mark attendance remotely or receive notifications and updates.
6. Geolocation Tracking: The system can incorporate geolocation data to verify attendance based on the user's physical presence within a predefined location.

### 3.2 Functional Requirements

The "AI-based Attendance Registration System" website is built on Python, Flask, HTML and SQL.

Back-End - Python and Flask.

Font-End - HTML.

Database - SQL / CSV.

## **4 Other Nonfunctional Requirements**

### **4.1 Performance Requirements**

"AI-based Attendance Registration System" will be used for marking attendance system of Users, like - Employees, Directors, etc. So for better integration Flask is used.

### **4.2 Security Requirements**

No user can mark their attendance without registering themselves first. Registration has to be done only once then users can mark attendance. This is a security requirement.

### **4.3 Software Quality Attributes**

In the development phase also testing and conferences of users is been continued. So that the quality of the software is been maintained and all the requirements are been fulfilled.

Database, logical and also UI test is required.

### **4.4 Business Rules**

"AI-based Attendance Registration System" is for storing users facial data and their information so that they can mark their attendance.

Basically save working time and pressure.

## 5 Other Requirements

"AI-based Attendance Registration System" needs maintenance as it is a long process software. It will need re-factoring and further the requirements can be changed as the field is changing frequently.