System Requirements Specification

for

Smart Attendance System

Prepared by

Rishabh Sukhija 20103067

Tanish Jain 20103063

Barinder Singh 20103010

Arjit Singh 20103071

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1. Introduction

This document is prepared in order to determine a software requirement specification for Smart Attendance System. Smart Attendance System is a website to improve the efficiency of the process of taking attendance. In this website the entities can upload photos and check attendance. In order to gain an overview about the report, firstly the purpose and scope of this document will be given, then an overall description of Smart Attendance System is followed. In addition to these, system features such as uploading photos, adding students and checking attendance are described deeply.

1.1 Purpose

The SRS is needed to evolve as the development of the software product processes. The purpose of this document is to give a complete description about how Smart Attendance System can be developed. This document is to provide information about what the software product is to do to students and teachers. In addition to these, it provides a basis for validation and verification.

1.2 Intended Audience

This document is intended for the developers working on this project and the college instructors to evaluate the project.

1.3 Project Scope

The name of the software is Smart Attendance System. Smart Attendance is a website that helps in connecting students and teachers. The aim of this system is to simplify the tedious task of taking attendance in a class and make it efficient and fast. The users can be of two types, students and teachers/ instructors. The students can use the system to check their attendance record. The teachers can upload student photos, upload classroom photos for marking attendance and check the attendance record.

2. Overall Description

In this section, background information about what type of requirements the system should have will be provided briefly.

2.1 Product Perspective

Smart Attendance System is an independent website which teachers and students can use to maintain and check attendance records. It is not a part of a larger system, it is an independent system.d

2.2 Product Features

After creating a classroom, the first thing the teacher needs to do is add students in the classroom. Then the teacher uploads photos for classroom attendance. Attendance is recorded using the photos and the teachers and students can check the attendance record. Attendance for a specific student can also be checked on the attendance page using the search bar.

2.3 User Classes and Characteristics

Smart Attendance System doesn't require any specific computer knowledge to use it except the developers and the administrators of it. Standard users are thought to be from any age, any gender, any nationality who can just use the computer's browser.
On the other hand, administrators and potential developers need a high level of expertise to understand technologies.

2.4 Design and Implementation Constraints

Attendance is something that can affect a student's grade and by using facial recognition, there might be cases where a face is identified incorrectly and wrong attendance is recorded. Smart Attendance System solves this problem by using a highly accurate face recognition system that can correctly identify faces in a photo with below par clarity.

3. System Features

This section describes the key features and services provided by the product.
<This template illustrates organizing the functional requirements for the product by system features, the major services provided by the product. You may prefer to organize this section by use case, mode of operation, user class, object class, functional hierarchy, or combinations of these, whatever makes the most logical sense for your product.>

3.1 System Feature 1

Check attendance record.

3.1.1 Description

The user can scroll through the student list where the attendance of every student is shown next to their name

3.1.2 Stimulus/Response Sequences

The user opens the website and clicks the **check attendance** button.

3.1.3 Functional Requirements

html, css, js, firebase, python

3.2 System Feature 2

Search for a specific student's attendance record.

3.1.1 Description

The user can search a particular name in the attendance record and the corresponding attendance will be shown there.

3.1.2 Stimulus/Response Sequences

The user opens the website and clicks the check attendance button. Then the user needs to click on the search bar present on the top of the page and enter the student's name there.

3.1.3 Functional Requirements

html, css, js, firebase, python

3.3 System Feature 3

Upload photo for marking attendance.

3.1.1 Description

The teacher/instructor can upload the photo of students in the classroom to mark their attendance.

3.1.2 Stimulus/Response Sequences

The user needs to be logged in as the teacher. Then click on the upload photo button to record attendance for a particular class.

3.1.3 Functional Requirements

html, css, js, firebase, python

4. External Interface Requirements

4.1 User Interfaces

Various interfaces for Smart Attendance System could be:

1. Home Page
2. Teacher Login Page
3. Attendance Page

4. Teacher Portal Page

4.2 Hardware Interfaces

The System must run over the internet, all the hardware is required to be connected to the internet. As for e.g. Modem, WAN-LAN, Ethernet Cross-Cable.

4.3 Software Interfaces

The last user needs a web browser to interact with the system.

4.4 Communications Interfaces

A system with a web browser and stable internet connection is required for the communication purposes.

Communication standards and network communication protocol:
HTTP
HTTPS
FTP

<Describe the requirements associated with any communications functions required by this product, including e-mail, web browser, network server communications protocols, electronic forms, and so on. Define any pertinent message formatting. Identify any communication standards that will be used, such as HTTP. Specify any communication security, data transfer rates, and synchronization mechanisms.>

5. Other Nonfunctional Requirements

5.1 Availability

The system should be available at all times, meaning the user can access it using a web browser, only restricted by the down time of the server on which the system runs. In case of a hardware failure or database corruption, a replacement page will be shown. Also in case of a hardware failure or database corruption, backups of the database should be retrieved from the server and saved by the administrator. Then the service will be restarted. It means 24 X 7 availability.

5.2 Accuracy

The system should be accurate in identifying faces in the photograph and recording their attendance such that no attendance is recorded incorrectly. Attendance is a very crucial data and it needs to be recorded accurately as it can affect a student's grade.

5.3 Reliability

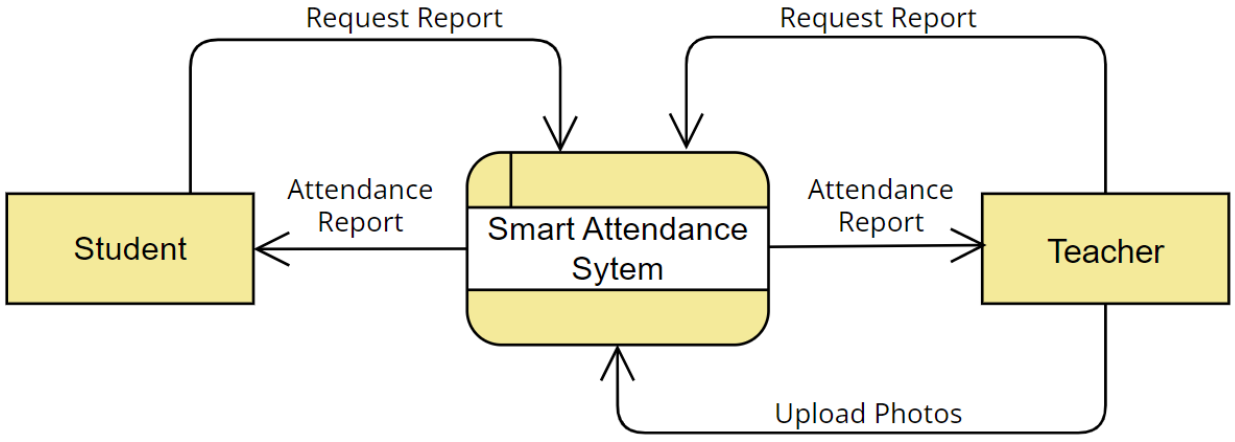
The system provides storage of all databases on redundant computers with automatic switch over. The reliability of the overall program depends on the reliability of the separate components. The main pillar of reliability of the system is the backup of the database which is continuously maintained and updated to reflect the most recent changes. Thus the overall stability of the system depends on the stability of the container and its underlying operating system.

5.4 Portability

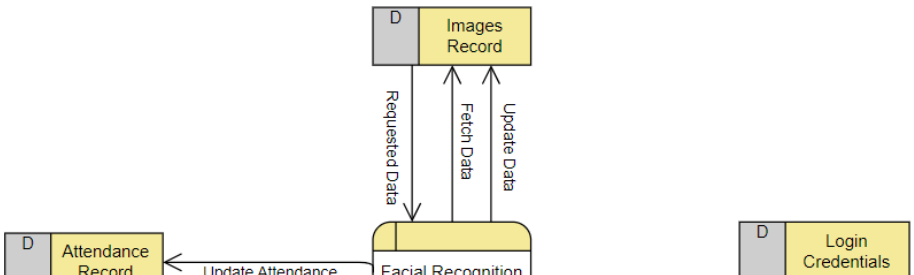
The application is HTML and scripting language based. So That end user part is fully portable and any system using any web browser should be able to use the features of the system, including any hardware platform that is available or will be available in the future. An end-user can use this system on any OS; either it is Windows or Linux. The system shall run on PC, Laptops etc.

Appendix A: Analysis Models

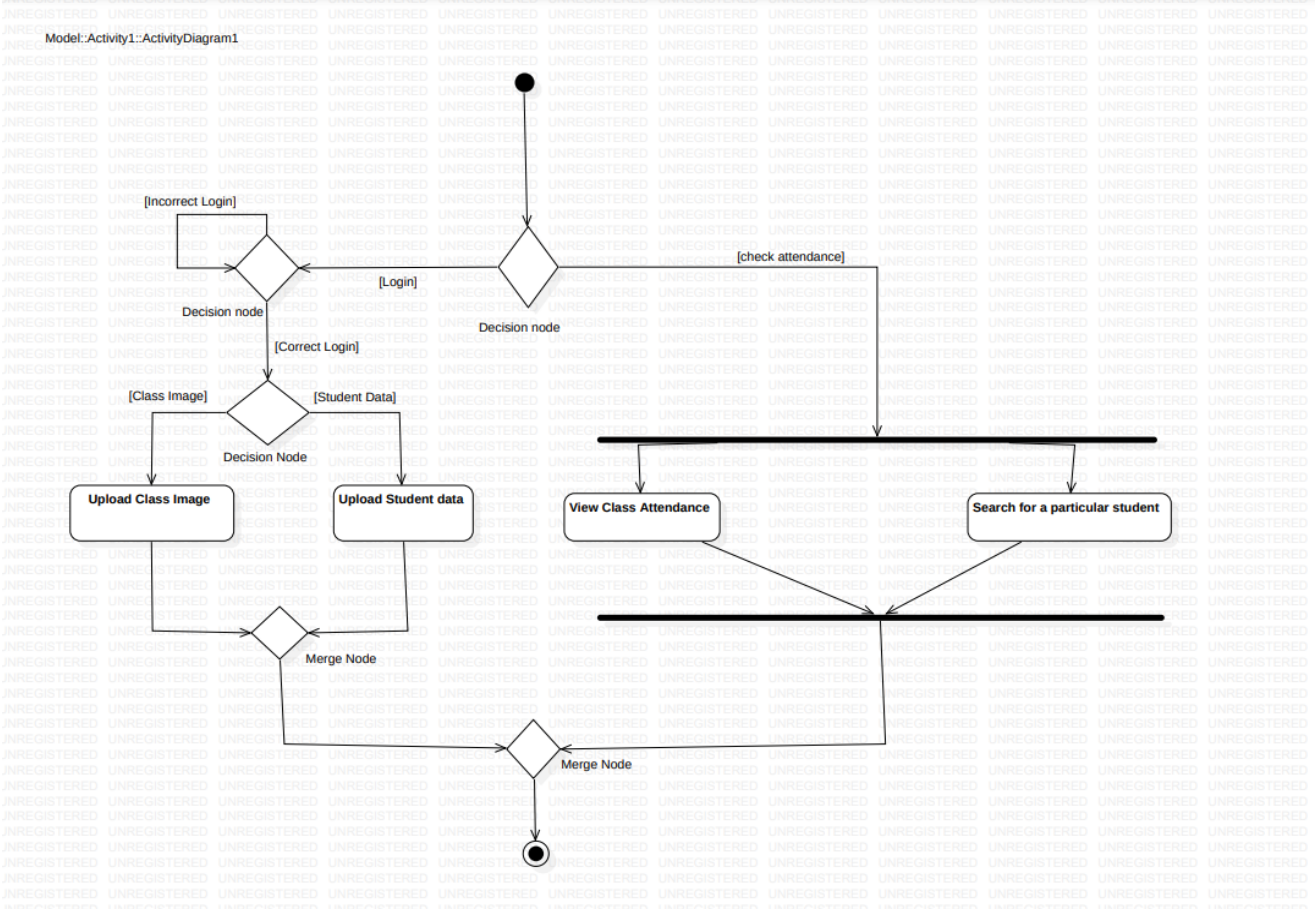
A.1 Level Zero Data Flow Diagram



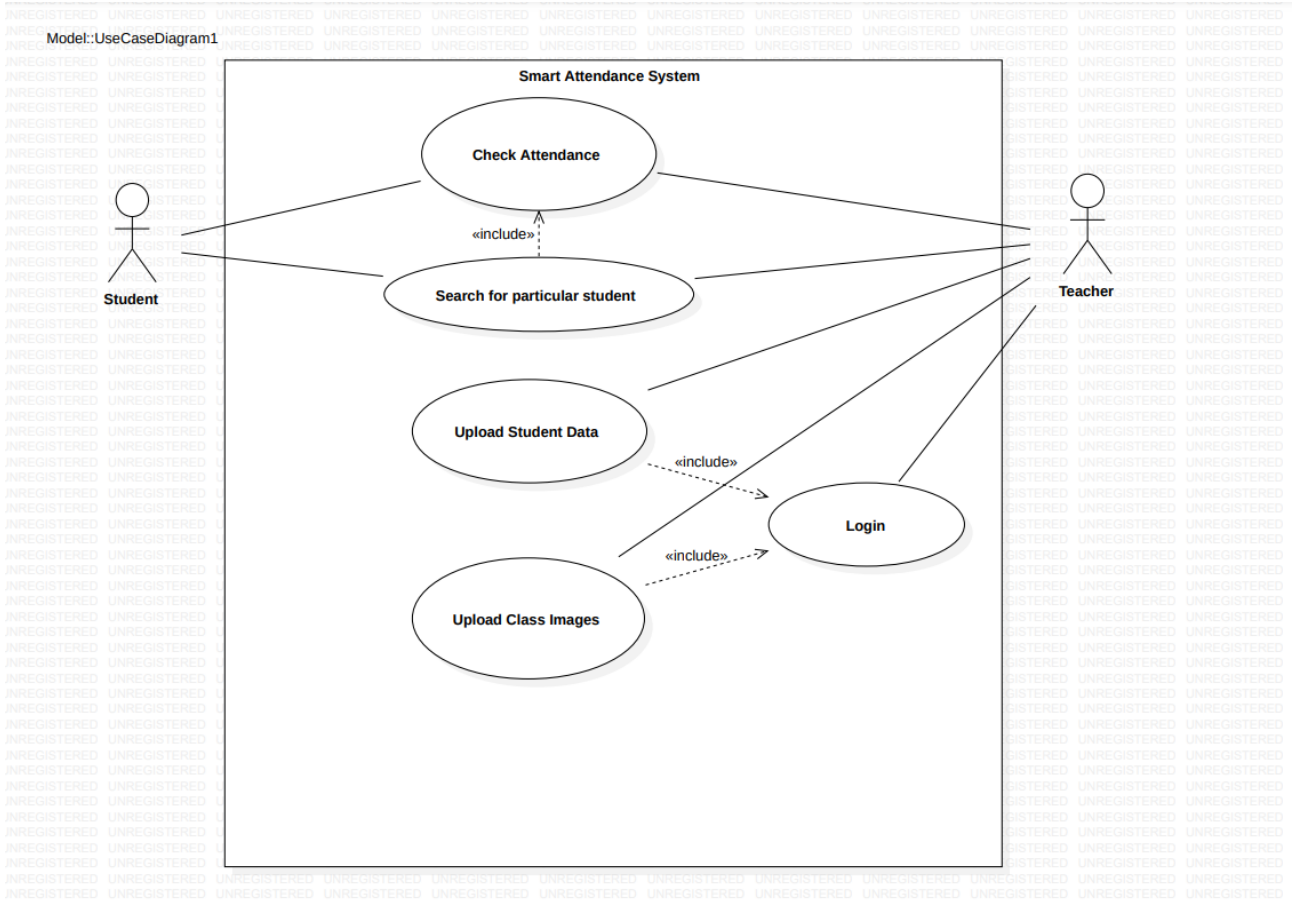
A.2 Level One Data Flow Diagram



A.3 Activity Diagram



A.4 Use Case Diagram



A.5 Class Diagram