
Software Requirements Document for Attendance by Face Recognition System.

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1 Introduction

1.1 PURPOSE

The purpose of this document is to provide detailed requirements information about Face Recognition System

1.2 SCOPE

This document will describe the use cases and features of the Face Recognition System.

1.3 DEFINITIONS, ACRONYMS, ABBREVIATIONS

Term	Description
Admin	Administrates all the content and users of the system, can do everything
Instructor	Manages the system. Modifies, adds/deletes information about student, can view student's information.
Student	User who can register to the system. Student can mark him/herself by taking photo.
List	List of the students
Attendance	Attendance table where list of the students with their attendance marks are filled.
Login	Process by which instructor can access to his profile
Face Recognition	The system which recognizes face
Modify	The process which allows instructor to change, edit data
Registration	The procedure of registering
Group	Collective of students defined by university
Subject	Current course of that period

1.4 REFERENCES

Google API: <https://code.google.com/p/attendanceby-face-recognition/>
<http://docs.opencv.org>

1.5 OVERVIEW

[OMIT]

2 Overall Description

Attendance by Face Recognition System. The main function of this system is to automatically identify or verify individuals in institutions (or universities, colleges, offices and other places) where the presence or attendance is to be controlled. This will help to increase the productivity and reduce extra paper work. Places where our system will be used will save their time.

2.1 PRODUCT PERSPECTIVE

There are several face recognition applications, but for now we don't know such application which is for attendance checking system. As we mentioned previously this app helps to increase the productivity of attendance checking system in the university. Target user is university students and instructors

Concept of Operations

The Face Recognition System Application will run on any computer device which has web-Camera. The recognizing of taken photo is done with Eigenfaces algorithm which is taken from OpenCV library. In order to use this library in java we will use connector library JavaCV.

Major User Interfaces

See appendix A (Screenflow)

See appendix B (screenshots)

Hardware Interfaces

This application requires standard personal computer peripherals with web camera, and also it must be connected to the Internet. The web-site requires standard personal computer peripherals. MySQL database is used for storing data on the server.

Software Interfaces

// example: CGI-URL or function signatures etc (OMIT for now).

Communication Interfaces

// example: modem etc (OMIT for now)

Memory Constraints

// RAM, and other storage constraints (OMIT for now)

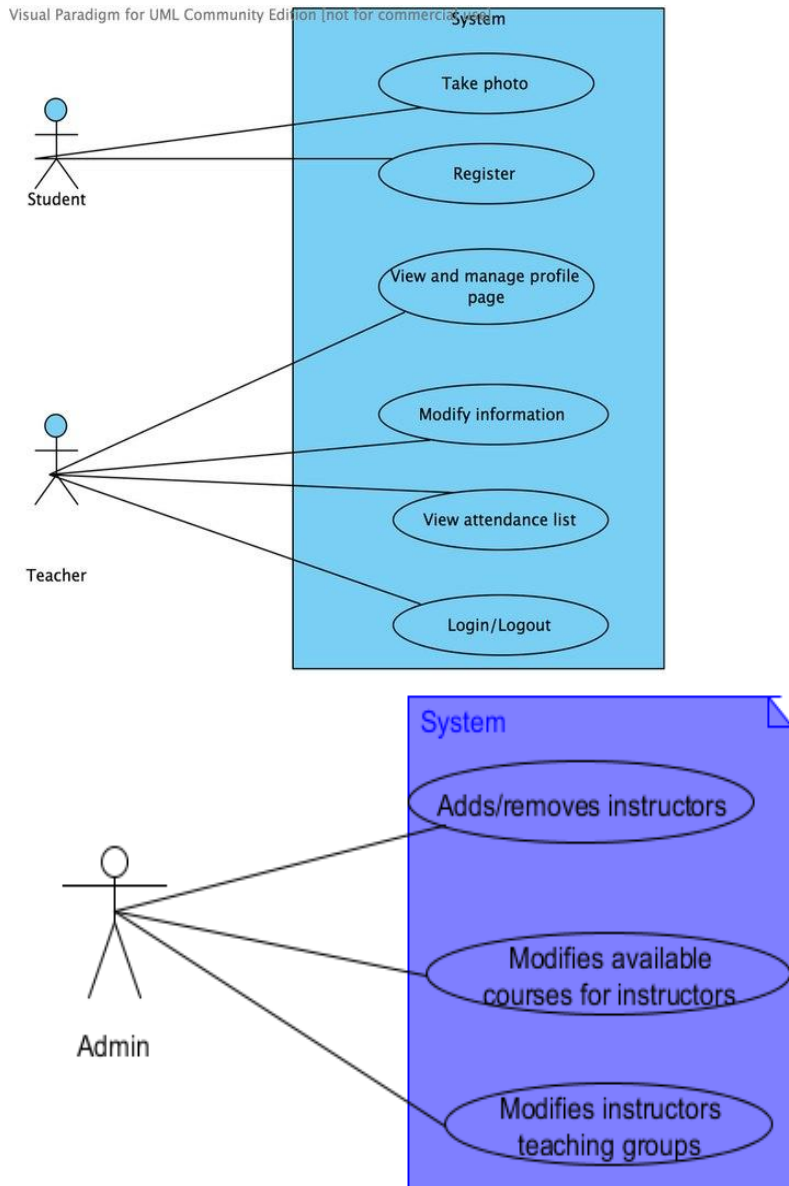
Operations

// special operations (if any) (OMIT for now)

Site Adaptation Requirements

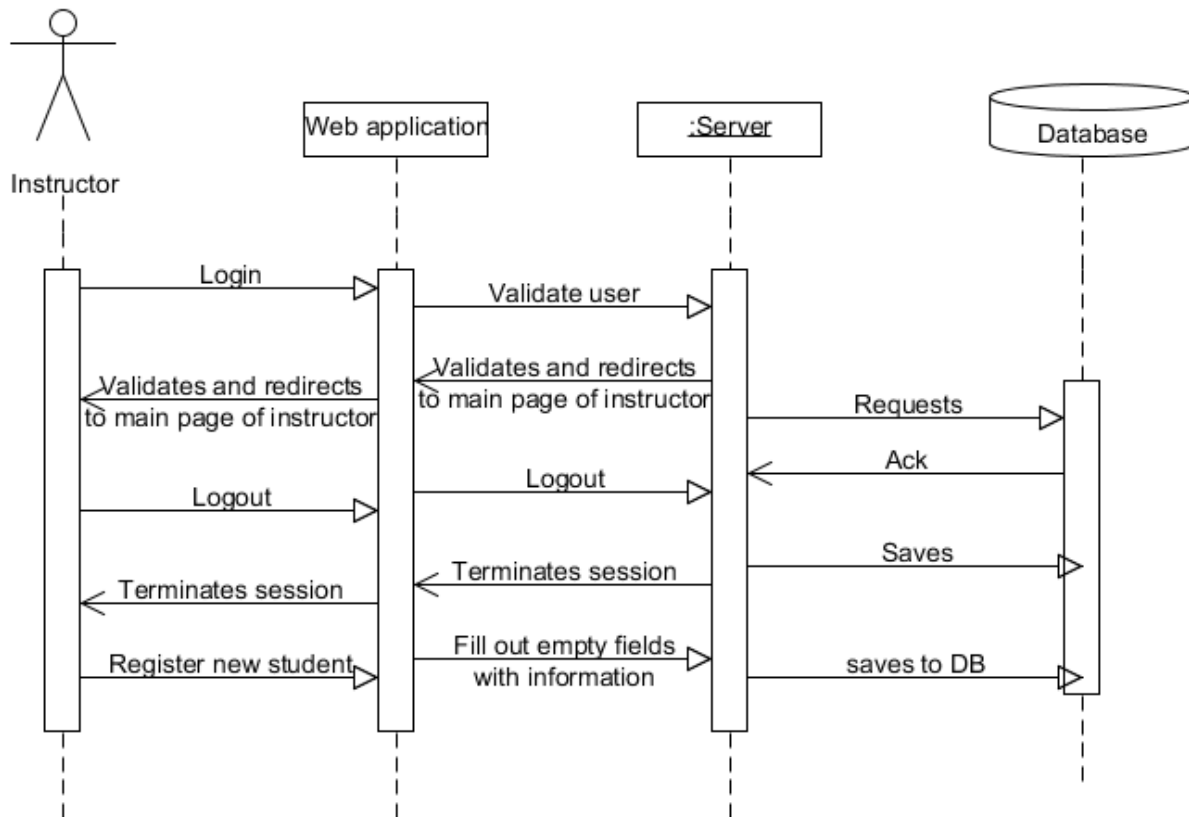
//ex: Japanese language etc (OMIT for now)

2.2 PRODUCT FUNCTIONS



- View and manage profile page
 - View all information about student (id, name, surname, faculty, specialty, group, photo)
 - View presence and absence list of students
 - Can modify information fields (absence and presence list)
-
- **Student:**
 - Registration
 - Take photo for the attendance

Login Page (IM)



2.2.1 Login page

Description: For instructors to login and for students for register themselves to the system.

Actors: Instructor, student

Main flow:

2.2.1.1 This page is opened in the web application.

2.2.1.2 Instructor fills Login/password fields. If authentication is successful, instructors profile page is opened.

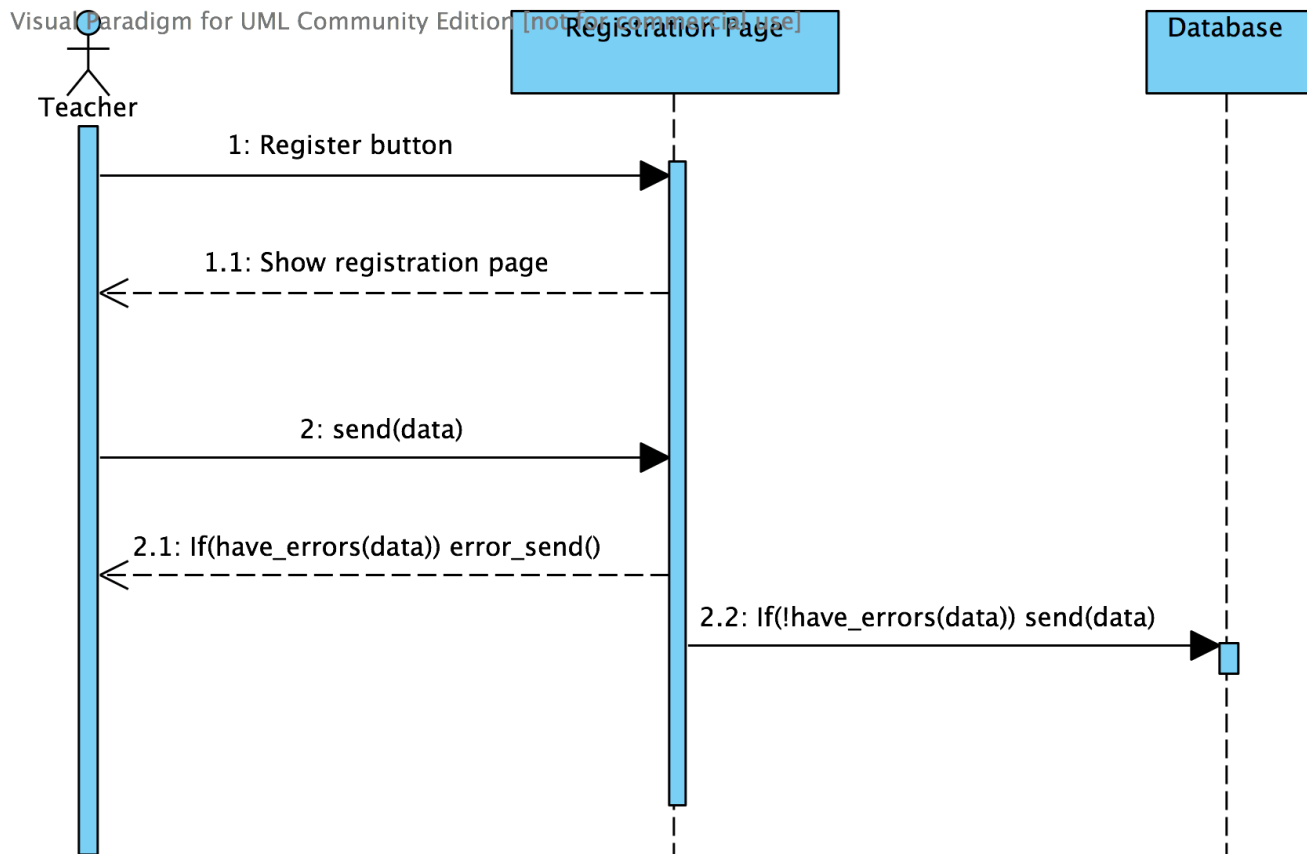
2.2.1.3 Students clicks applies empty fields with needed information (faculty, specialty, id, group, name, surname, photo) and clicks save button. The information about the student are sent to database

Alternate flow:

2.2.1.4 Error can occur if login/password are incorrect, the system will request again to fill login/password correctly.

Preconditions: The browser application is opened with an internet connection

2.2.2 Student registration page (YK)



Description: For students to register to the system so that they could use the face recognition system. General information (id, name, surname, faculty, specialty, group, photo) is added, so that system could recognize the following students by their photo and sign them like “attended” in student attendance list.

Actors: student

Main flow:

2.2.2.1 This page is opened in the web application after student clicks on a register button in the login page.

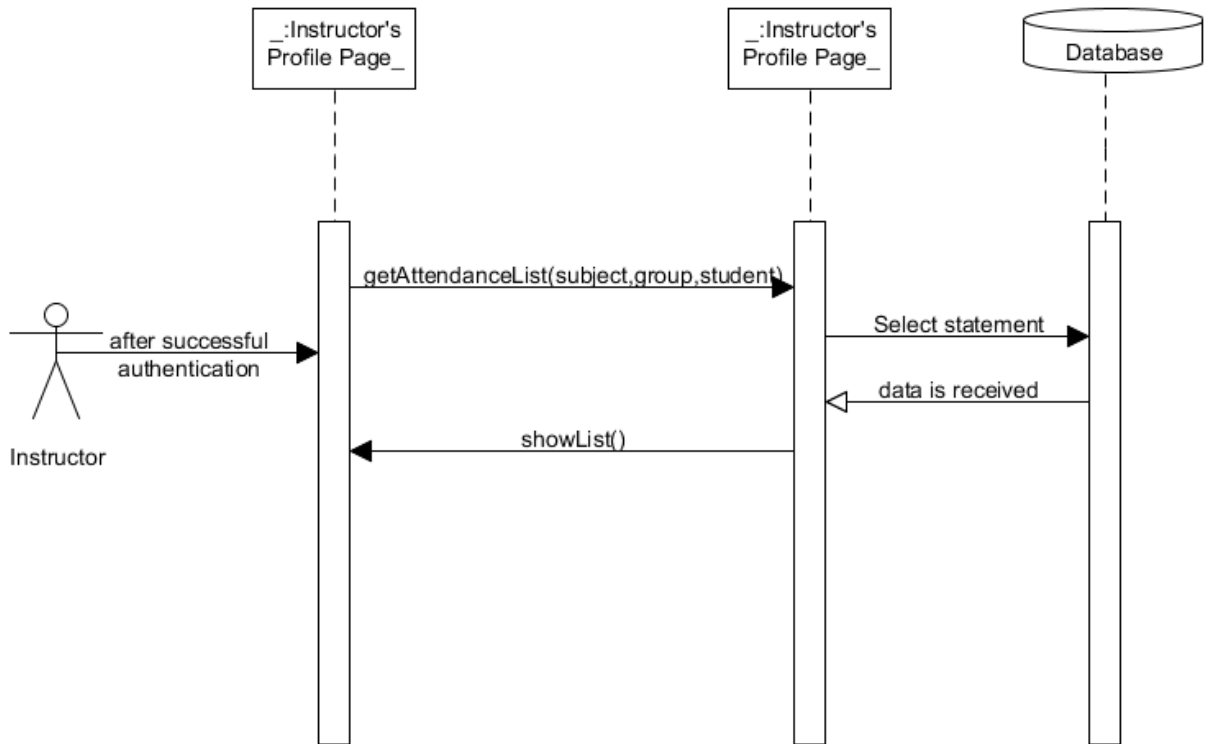
2.2.2.2 Student fills all required fields with his information and clicks “register” button

Alternate flow:

2.2.2.3 Error can occur if id of the following student is same with previously registered students’ id.

Preconditions: “Register ” button must be clicked in the login page

2.2.3 Instructor's profile page(MA)



Description: For instructors to view and get information about students

Actors: Instructor

Main flow:

2.2.3.1 This page is opened after instructors authentication in the login page is successful.

2.2.3.2 After that the instructor has option to select group he can view (for each instructor related groups are viewable. This means the following instructor can view only those groups whom he teaches)

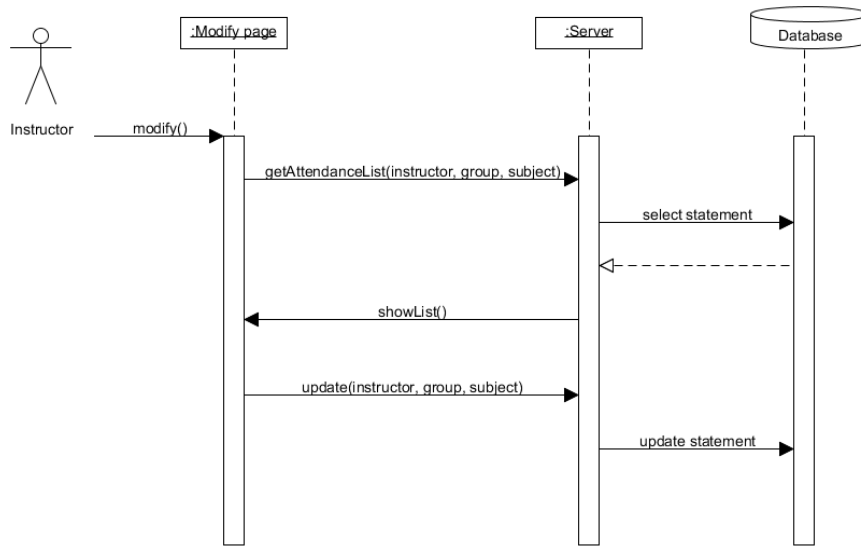
2.2.3.3 After selecting one group, the attendance list table of that group is viewed with date/time.

Alternate flow:

2.2.3.4 Error can occur if login/password are incorrect, the system will request again to fill login/password correctly.

Preconditions: The browser application is opened with an internet connection

2.2.4 Instructor's Modify Page (KM)



Description: Teacher will check attendance list, if student was absent but has permission teacher can edit attendance student list by signing them as attendant.

Actors: Teacher

Main flow:

2.2.4.1. This page is opened after teacher clicks the “modify” button which is in the instructor’s profile page.

2.2.4.2. After that the instructor has options to select groups, students which he wants to edit.

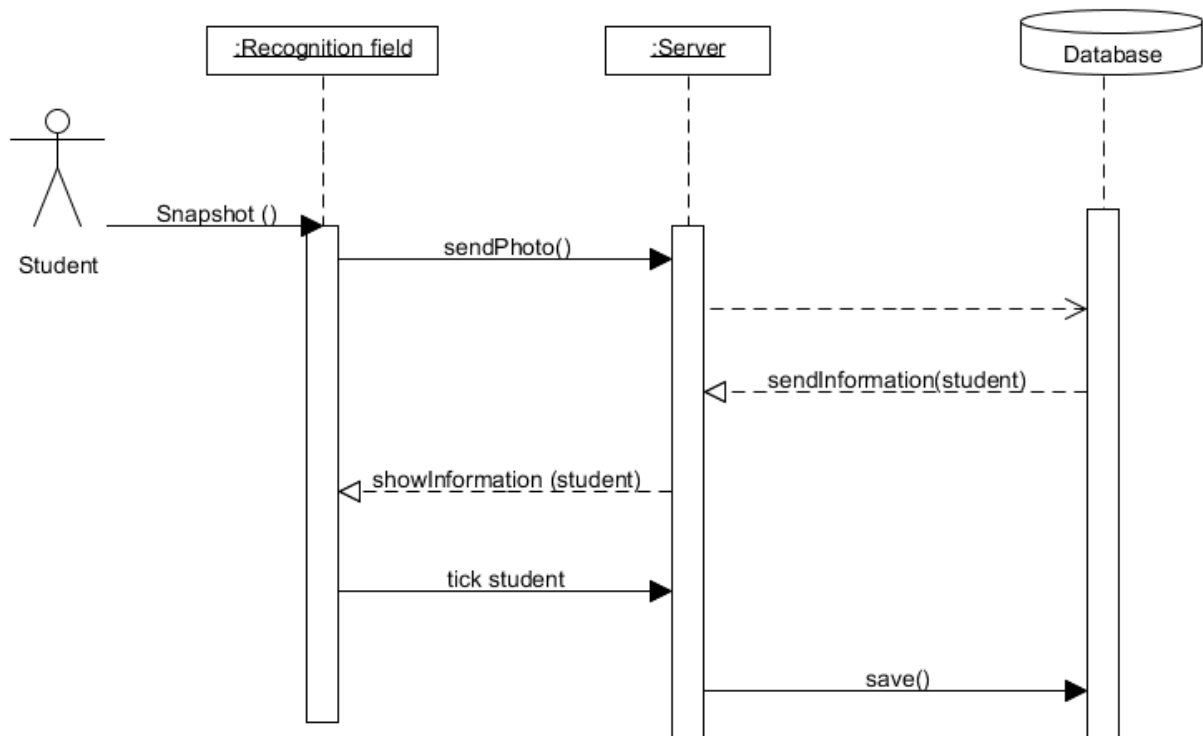
2.2.4.3. After selecting the group attendance list table, following table becomes editable/modifiable. He can add/remove attendance marks and saves.

Alternate flow: If instructor clicked “modify” button after selecting the group he wanted to edit, needed group list will be viewed in the modify page automatically.

Preconditions: Instructor must click on the “modify” button in the instructor’s profile page

Post conditions:

2.2.5 Recognition Page(desktop application) (MS)



Description: Application page where student can take himself to photo for attendance mark.

Actors: Student

Main flow:

2.2.4.1. Camera display and “shot” button is displayed in this application page.

2.2.4.2. Student will take himself to photo. After this process, taken photo is sent to database, if it matches with existing student’s photo in db, attendance mark is added to corresponding student.

Alternate flow: If there’s no matching photo in db error message occurs and system prompts student to try again or to call administrator.

2.3 USER CHARACTERISTICS

Types	Characteristics	Usage frequency
Student	Someone who attends university	High
Instructor	User who checks, modifies the presence/absence of student	High
Admin	Adds/removes users,	Low

2.4 CONSTRAINTS

- The system is used mainly by university students and instructors/teachers.
- This is an application for university.
- This application is used for attendance checking system of the university.

2.5 ASSUMPTIONS AND DEPENDENCIES

- 2.5.1 It is assumed that our desktop application will already be installed on computer in lecture/class/lab rooms.

3 Specific Requirements

// Here you need to put in details (if any). Mark items [None] if you do not have any information.

3.1 EXTERNAL INTERFACE REQUIREMENTS

User Interfaces

Hardware Interfaces

Software Interfaces

None

Communications Interfaces

3.2 FEATURES

3.2.1 Face detection

3.2.1.1 Takes photo and recognizes whether it matches with photo from db or not.

3.2.1.2 Matched (or recognized) photo will take information about that student from db and put presence mark for corresponding student.

3.2.2 View student info(for instructors only)

3.2.3 Modify student info(for instructors only)

3.2.3.1 Instructor can modify presence/absence list of any of his students

3.2.4 Login

3.2.4.1 Authenticated users(instructors/teachers) can access managing options like data view, data modify.

3.2.4a Error handling requests:

3.2.4.1a If one or more fields in the registration form is missed error message occurs

3.2.4.2a If id of new student is already exists error message occurs

3.2.4.3a If login/password is filled incorrectly error message occurs

3.2.4.4a In face recognition page, after student has taken himself to photo, system sends the photo to db, after all of these processes if there's no matching photo in db, error message occurs and system prompts student to take again or to call administrator.

3.3 DESIGN CONSTRAINTS

Java, PHP, MySQL, OpenCV

3.4 SOFTWARE SYSTEM ATTRIBUTES

Reliability

Availability

Security

Maintainability

Portability