

MIT WORLD PEACE UNIVERSITY

Software Engineering and Testing
Second Year B. Tech, Semester 4

SOFTWARE REQUIREMENT SPECIFICATION - **SRS**
FOR *"The Puzzlelists Arcade"*

ASSIGNMENT 1

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1 Purpose

The Aim of SRS is to specify the software product in details. In other words, it contains all necessary and important information that the product team should be aware of in order to create the software. This document explains this with respect to the **Application Software** in Question - *Attendance Assistant*. The Purpose is to solve the below mentioned Problem statement. The Proposed solution is to create an App, that would run on Android and iOS, to facially recognize the faces of students, thereby making the process of recording their presence faster than the conventional methods.

2 Problem Statement

The Purpose of an Attendance Assistant App is to help reduce the time taken for recording the attendance of a classroom in a school or college. The app will be able to record the attendance of a class in a matter of a few Seconds with minimum Energy Expended. It will record data on cloud, and be accessible to all the Teachers.

3 Requirements

3.1 Functional Requirements

The Attendance Assistant must :

1. Be able to record the attendance of a class in a matter of Seconds.
2. Must allow different Privileges for different Teachers, and Coordinators of a School or University
3. Incorporate a Database to store the attendance of a class, that must have a backup in case of a system failure.
4. Have a User Interface that is easy to use, and is intuitive.
5. Be able to be used on a variety of Operating Systems, and be able to be used on a variety of devices.
6. Be able to store the Records in a Cloud Database, as well as a Local one in case of a Poor internet Connection.
7. Be able to read the face of a person from a distance of 1-2 meters.
8. Be able to communicate and Auto update the Attendance in the ERP management of the School or University.
9. Be able to share the data through usual Messaging apps and save to local storage in an excel file.

3.2 Performance Requirements

1. Verifying Face Data is a CPU intensive process. Therefore, it must be as optimized as possible.
2. The Faces of each student must be logged beforehand, and the processed app data can be stored on the cloud. This will reduce the redundant processing on the face data.
3. The App must incorporate multithreading, and use the CPU and GPU present on modern smartphones to its full potential.

4 Design Constraints

The System is constrained in the following places:

- The Presence of a Smartphone.
- The presence of a good Camera on the Smartphone.
 - Greater than 8 MP
 - Having Some form of Stabalization, Optical or Electronic.
- Having a decent CPU and GPU being present on the Smartphone.
 - Freaquency of 1.5 GHz or more.
 - Multi Core.
- Having a good internet connection, or a local database to store the data.
- The Operating System of the Smartphone must be Android or iOS.

5 Proposed Idea

Developing a Multi OS app, that can:

1. Run on Android and iOS.
2. Facially identify the students in a class.
3. Store the Information Locally and on Cloud.

6 Validation and Testing

6.1 Testing

1. The App will have to be tested rigorously on a variety of devices, and operating systems.
2. It will also have to be tested for facial recognition from various angles and distances.
3. It will have to be tested for a variety of faces and skin tones.

6.2 Validation

1. Validation of the Data will ultimately have to be done by teachers, and those taking the attendance.
2. Further Validation can be done by the students, when they are able to see their attendance on the ERP of the School or University.

7 Design

8 Tables Generated

8.1 Students

| Sr. No | Name of the Student | Face of the Student | Roll Number of the Student | PRN of the student |
|--------|---------------------|-------------------------|----------------------------|--------------------|
| 1 | Krishnaraj Thadesar | <face_data_from_opencv> | 20 | 1032210888 |
| 2 | Devanshu Surana | <face_data_from_opencv> | 37 | 1032201654 |
| 3 | Parth Zarekar | <face_data_from_opencv> | 15 | 1032210846 |
| 4 | Rohit Jobish | <face_data_from_opencv> | 89 | 1032210658 |

9 Classes

| Class ID | School | Section | Panel |
|----------|--------|----------|-------|
| 1001 | SCET | CSE | A |
| 1002 | SCET | CSF | A |
| 1003 | SCME | Robotics | A |

10 Programs

| P. No | School | Program Name | Number of Panels |
|-------|--------|------------------------------------|------------------|
| 1 | SCET | Computer Science and CyberSecurity | 1 |
| 2 | SCET | CSE Artificial Intelligence and DS | 2 |

11 Professors

| Professor ID | School | Subjets Taught | Name of Professor |
|--------------|--------|----------------|-------------------|
| 1001 | SCET | CN | Lalit Kulkarni |
| 1002 | SCET | [OS, SET] | Jyoti Gavhane |

12 Subjects

| Professor ID | School | Subjets Taught | Name of Professor |
|--------------|--------|----------------|-------------------|
| 1001 | SCET | CN | Lalit Kulkarni |
| 1002 | SCET | [OS, SET] | Jyoti Gavhane |

13 Attendance

| A.ID | Date | Subject Name | PRN of Present Students | PRN of Absent Students |
|------|-----------|----------------------------------|--|-------------------------|
| 1 | 25/2/2023 | Software Engineering and Testing | [1032210888, 1032210553, 1032210937,1032210432] | [1032133234, 122312345] |
| 2 | 25/2/2023 | Advanced Data Structures | [1032210888, 1032210553, 1032210937,1032210432] | [1032133234, 122312345] |

14 Delivery: Sent for Approval