SWAMI KESHVANAND INSTITUTE OF TECHNOLOGY, MANAGEMENT & GRAMOTHAN, JAIPUR

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Branch: CS

Subject: Software Engineering Lab

Project: SRS on Automated Student's Activity Tracking System during online classes

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Software Requirements Specification For

< Automated Student Tracking System >

Version 1.0 approved

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1. Introduction

1.1 Purpose

The purpose of this document is to build an online system to help teachers to track the activities of the student during online classes.

1.2 Intended Audience and Reading Suggestions

This document is a prototype for educational institutions project and is implemented under the guidance of educational institutions faculty. The following sections and subsections of SRS document provides an overview of entire project and helps the user to understand the functionality of the project.

1.3 Product scope

Due to recent spread of COVID-19, the new normal is online classes and this software is largely useful for teachers and Institutes to automatically track the activity of students during online classes. It is designed to improve focus of students towards their lectures.

1.4 References

https://www.myeducomm.com/blog/how-to-track-student-attendance-during-online-learning/

https://elearningindustry.com/online-students-stay-focused-nowadays-ways

https://imotions.com/blog/eye-tracking-work/

2. Overall Description

2.1 Product Perspective

The automated student's activity tracking system can be thought of as a program that basically detects the applications running on the student's device and also uses the webcam to check if the student is focusing on the screen or not. This and similar systems are used in many areas employee tracking etc. but has not been achieved common use.

2.2 Product Functions

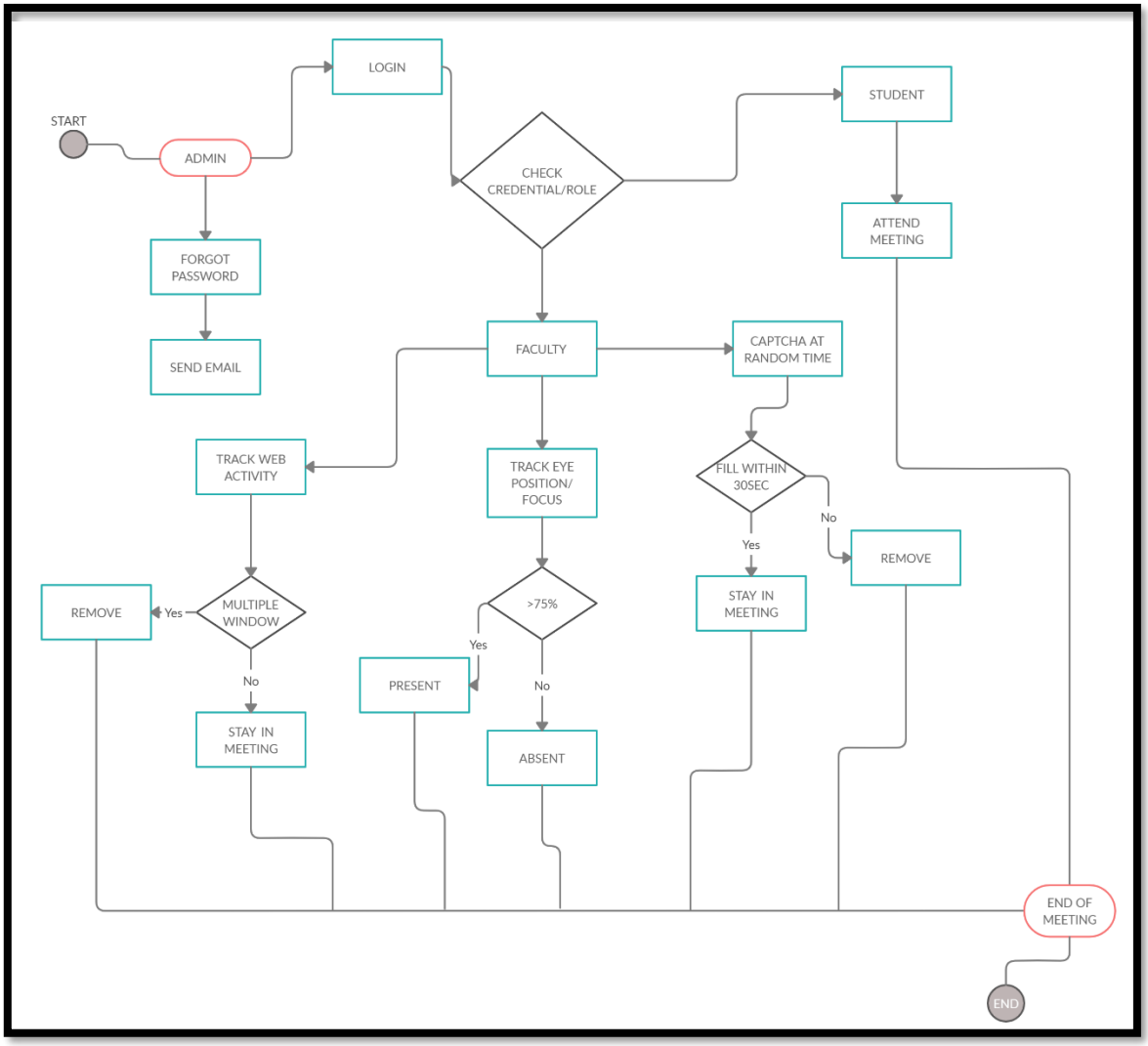

Fig 1: State Diagram

2.3 User Classes and Characteristics

Users are classified as: Educational institutions, teachers etc....
And user characteristics are: He/She should have complete knowledge of the software

2.4 Operating Environment

Operating requirements for the automated student's activity tracking system are there will be student database, teacher database.

The student database will contain students name, class, attendance, email address, address, and phone number. The teacher database will contain teachers name, class taught, e-mail address, phone number.

2.5 Design and Implementation Constraints

- Client-server internet connection
- Should have a web cam.
- Should have Windows operating system.
- The project uses SQL commands to maintain database.

2.6 User Documentation

- We will provide online help to the user if he/she faces any issue regarding details on our site at any point of time.
- Terms and Conditions will be made visible to user at the time of login.
- Contact us page will provide the user the means to send E-Mail to web-site's administrator.

2.7 Assumptions and Dependencies

We assume that the connection between the student and client server doesn't break at any time in between the class. The quality of webcam is high enough to detect eye positioning to track focus of the student. Even if student is not looking at his/her screen doesn't mean that he/she is not paying attention to the class. It is also highly dependent on the

3. External interface requirement

3.1 User Interfaces

- Graphic user interface

3.2 Hardware Interfaces

- Processor – i3 or higher
- Hard Disk – 5 GB
- Memory – 4GB RAM or higher

3.3 Software Interfaces

- Windows 7 and above
- SQL
- Visual studio 2010
- Android Development Toolkit(ADT)

3.4 Communication Interfaces

This project supports all types of web browsers. It must follow the client-server model.

4. System Features

4.1 Eye tracking

4.1.1 Description and priority

It tracks the eyes of the student to determine weather he/she is focused on the screen or not by use of OpenCV. It is of low priority because it is not fool proof.

4.1.2 Response sequence

If the test passes certain conditions then student is eligible to get attendance.

4.1.3 Functional requirement

Takes input from webcam and determines the amount of time the student's eyes were focused on the screen and suitably gives output weather test is passed or failed.

4.2 Captcha input

4.2.1 Description and priority

It displays a captcha on the screen of student at random time once during every lecture so that the students that are not viewing their screens can be filtered out. It is of high priority.

4.2.2 Response sequence

If the test passes certain conditions then student is eligible to get attendance and if the conditions are not fulfilled the student will be removed from the class.

4.2.3 Functional requirement

Takes input from keyboard and checks if the enter captcha is correct or not and suitably gives output weather test is passed or failed.

4.3 Background application

4.3.1 Description and priority

It checks if the student has any applications like games, music, web page etc. open in the background which is not related to the lecture. It is of high priority.

4.3.2 Response sequence

If the test passes certain conditions then student is eligible to get attendance and if the conditions are not fulfilled the student will be removed from the class.

4.3.3 Functional requirement

It checks all the processes running on the computer and gives output on the basis of background applications running on the device.

5. Other Non-Functional Requirements

5.1 Performance Requirements :-

Easy tracking of records and updating can be done. There will be no maintenance required for the software. The database is provided by the end user and therefore is maintained by that user itself. There will be a certain downtime of 1 hour every 6 months to check all the attributes of project.

5.2 Availability :-

The software will be available only to authorized users of schools and colleges like teachers to track the activities.

5.3 Security Requirements :-

The security requirements deal with the primary security. The software should be handled only by the administrator and authorized users. Only the administrator has right to assign permission like creating new accounts and generating password. Only authorized users can access the system with username and password.

5.4 Software Quality Attributes :-

Software Quality Attributes are: Correctness, Reliability, Portability, Adequacy, Learn ability, Robustness, Maintainability, Readability, Extensibility, Testability, Efficiency. Independence of the actual application of the software system.

5.5 Business Rules :-

No such business rules.

6. Other Requirements

A bachelors degree in CSE/IT is required for entry level position in this field, but Masters or M.S in the CSE/IT with a good knowledge of programming language, AI and software implementation will offer you a higher position.