Smart Classroom Interaction System

## Project Description

Smart classroom interaction system will be a system which will provide ways to enhance the way in which the students and faculty interact during and after a presentation based lecture. It will utilize the students' smartphone and the faculty's system (which is being used to deliver the presentation) to automate certain tasks, such as distribution of presentation document, annotations, references, notifications, assignments, etc.

### Features

Following will be the important features to be implemented:

1. **Automatic distribution/synchronisation of presentation documents, annotations and references to the students present during the lecture**
2. **Overview of the previous slides to the student on his smartphone who enters the lecture late**
3. **A very brief overview of the previous lecture on the mobile of the students, at the beginning of the lecture**
4. **Creation of a discussion thread on a forum about a topic being discussed in the class (with least inputs from the users about creating this forum)**
5. Automatic transition of the presentation depending upon the words being spoken by the speaker (faculty)
6. Popups of references (such as a website like wikipedia) if the faculty talks about the topic external to the presentation text
7. Automatic addition of notifications, both to students and the faculty, about an assignment or task being talked about in the class

## Critical Issues

### Authentication

Below are the various stages requiring authentication:

1. Authentication of student mobile device (client) by the host machine and vice versa.
2. Faculty authentication on the host system (server)
3. Authentication of users on the discussion forum

### Privacy

Handling of privacy is important here both on the host machine as well as on the mobile device

### Protection of data

This sytem relies heavily on the transfer of different types of data, including files, annotations, etc.

### Data transfer

The data transfer will take place from the host system to the students' mobile devices.

### Failure handling

Following are the types of failures which may occur, and need to be handled:

1. Mobile device getting disconnected (e.g. wifi turned off) while the synchronization is going on with the host machine
2. Host machine unexpectedly turned off (e.g. power breakdown)
3. Mobile device unexpectedly turned off (e.g. battery discharge)

### Degree of transparency

Following are the various functionalities which will be performed without any kind of user intervention, thus giving an idea about the degree of transparency in the system:

1. When the user enters the classroom/presentation room, the application will automatically disover user's device's presence, and the synchronization will start. This assumes the user has the client app installed, the wifi on the device is turned on and the device gets connected to the classroom's wifi automatically.
2. The presenter/faculty does not have to explicitly issue command (voice or otherwise) for performing transition of the slides while delivering the presentation. The system recognizes when the transition is required.
3. Any assignment or task being discussed in the class is automatically added to the calendar of the clients (student mobile devices)

## Division of roles

|  |  |  |
| --- | --- | --- |
| Name | ID | Role |
| Kartik Somani | 2013H103110P |  |
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