Criterion A: Planning

(529 words)

Current Situation:

All high school 11th and 12th graders are given at least one study hall per semester. Often, these periods fall at the beginning or the end of the day; so, the school administration faces the problem of knowing which students are in school and which are not. This creates a variety of safety implications, especially in a school as large as ours (See Fig. 1). In the case of a fire, for example, it is essential that all students are accounted for. In our initial consultation (see Fig. 1 and Fig. 2 of Appendix_A_Consultations), Mr. Dickinson discussed a possible software solution for knowing where students are in case of such an emergency.
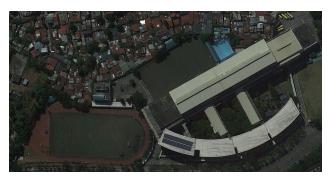

Fig. 1

Client:

As the high school principal, **Mr. Dickinson** is a suitable client. His understanding of the logistics and needs of attendance systems will be helpful in the development process.

Current System:

Mr. Dickinson currently has no reliable method of finding the location of students during their study hall.

Proposed System:

The proposed system is a mobile application that will serve as a student tracker for the school administration. The application will run on student IOS phones and update the location of students relative to 'beacons' hosted on existing MacOS computers throughout the school. This will allow administrators to know the location and past locations of students in an emergency.

Rationale:

Advantages of Proposed System:

- Saves time in an emergency because administrators no longer must search for students.
- Helps administrators keep students safe.

Feasibility of Proposed System
- As an addon to the current system, no major changes must be made.
- The hardware already exists (the student's phones and MacOS computers); no additional costs are incurred.

Choice of Languages:
The languages that will be used are **Python** for the server and **Swift** for an IOS mobile application.
1. **Python** was chosen because of its extensibility. A massively scalable language, it provides a variety of simple networking and database libraries.
2. **Swift** was chosen because the client insisted it run on IOS devices because of the user base. Swift also grants a high degree of control with bluetooth peripherals. This means that I must learn Swift to develop the program.

Success criteria:

	Success criterion
1	Allow students and administrators to login to the application with their email, using the same form.
2	Student view: Display the student's current location with respect to room numbers and beacons within the school.
3	Update location of the student at an interval of five minutes from the IOS application.
4	Administrator view (IOS): Search through a table of students.
5	Administrator view (IOS): Have the ability to click a student for a detail view wherein there is a table of their past locations.
6	Administrator view (IOS): Search through a table of beacons.
7	Administrator view (IOS): Add, edit and delete beacons.
8	Administrator view (MacOS): Select a beacon from a list of defined beacons and serve as the emitter for it.
9*	Administrator view (IOS): View the student's location by highlighting their location on a map of the school.

See Fig. 1 of Appendix_A_Consultations for discussion of criteria and desired outcomes

*Added after a consultation with the client about the prototype.