Bowdoin Campus Navigational App

John Visentin, 2014

When every smartphone doubles as a powerful GPS unit, using paper maps and books to navigate Bowdoin campus can feel cumbersome and outdated. Even using Bowdoin’s online resources, information is scattered, and in some cases not available. This summer I worked on development of an app that provides the standard navigational assistance of a paper map, as well as uses GPS to show where the user is on campus. Additionally, the app provides relevant information about the campus: building descriptions, addresses, and hours, as well as department locations*. The app runs on both iPhones and iPads running iOS 5.0 or later and is written in the objective-C programming language.

I began work on this project in the fall semester of 2011, with co-developer Steph Bond ’13, as a project for Professor Chown’s Mobile Computing course (CS281). There we developed a simple prototype that featured the new 3D-style map of campus, as well as some basic building information, on a standard Apple UI. I started this summer by refactoring the code for this prototype so that it would be a better base to build on in the future. I then added a powerful search feature to the app, allowing users to search for buildings based on any phrase contained in the building’s name, departments, description, or address field. I thought this capability would be especially useful to visiting families, who could search, for example, “chemistry” to find Druckenmiller Hall, or “music” to find Studzinski, Gibson, and others. I also revamped the user interface to give it a more “Bowdoin” feel.

The bulk of my summer was spent working on the informational aspect of the app. Ideally, accurate and approved building descriptions, hours, names, etc. would be available somewhere, and the app would simply pull the information from these existing sources. This was not the case. I met with numerous people around campus, including head of security Randy Nichols and the college’s editor, Susan Danforth. Everyone I met with was very helpful in providing what information they had, but in the end it appears that there is work to be done, especially on building descriptions, to fill the app with the information it needs.

I also worked on the backend of the app, or where the information is actually stored on the server. I set up a MySQL database to house the information in the app, and wrote the interface to the app. The app, upon launching attempts to sync itself with the database if the device is connected to the Internet via a wireless or cellular connection. It queries the database for all records updated since the last sync, and then stores the current timestamp as the new “last sync” time. If any updated records were returned, the app saves a copy of the information it has to the local device. This method of syncing allows the app to keep itself up to date, as well as run using previously loaded information if the user is no longer connected to the Internet.

My goal this summer was to build a base upon which future work could be done, with the intent that the app ultimately appear in the app store. I plan to follow this project to completion, and to continue work on it this coming academic year.

Faculty Mentor: Eric Chown

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*screenshots provided on the following page
Search results on the building list view

A view of Bowdoin campus map.
Tapping on a pin shows more information about the building

Details about Adam’s Hall