I’ve created the following list of ideas as starting points for your semester projects. These ideas tend towards projects for which 1) there is a known or likely customer who would like to have such an app, 2) the app has some “wow” factor because it could have some impact on civic or social issues, or university life, and where appropriate, 3) the app creates and/or uses data that is stored/retrieved off the phone.

Remember, that these projects are only starting points. You will need to flesh out many specifics in order to come up with your actual project. Feel free to suggest other ideas to me, but do so within a week, because we need to get teams assigned and get the projects underway.

Please read over the following list of ideas. With your team member(s) choose your top 5 choices and email them to me by Fri. Sep. 24th, 2010.

1. IRememberUMD.
   Story project for alumni at homecoming. You will need to record people’s short audio recollections about specific locations on campus. You will need to collect information such as year covered by the recollection, the specific location, etc. and all allow tags (“romance”, sports, night-life, etc.) to be added to these recollections.
   Later, users of your app can specify certain tags, dates, etc. and as they walk around campus they can listen to the recollection when they arrive at the location with the recollection.

   UH Dorms will be set up with home energy meters (TED 5000). TED’s are web-accessible.
   Your app will allow students to monitor and interact with the TED 5000 data. It will also collect data that helps the Dorm Energy Challenge managers determine whether and how students change their energy consumption behavior once they have the data.

3. Field data collection tool.
   UM professors and others often survey people.
   Your project should allow someone to define a survey offline. Then a field worker can use the app to interview someone. The worker will see the questions and take responses. The app will upload the answers to a database. You might add a module that drizzles data back to a server over time if the worker is in a low- or no-connectivity environment. You might also consider supporting adaptive questioning, where the respondent’s answers to early questions can change which questions are subsequently asked of them.

4. UMD Paratransit Services.
   UM DOT has an on-demand bus service for students with permanent disabilities. There are multiple steps involved to sign up and to get service. Users, for example, can request a bus at a specific time and place, but then have to call to confirm one hour before.
   Your app should assist Paratransit users in managing their sign-up process, bus request, confirmation, and feedback processes.
   You should also consider special user interface approaches based your customer community (i.e., low sight, hard of hearing, limited fine motor control, etc.)

5. Polling Place.
   Some jurisdictions allow advance voting over a multi-day period. Citizens wishing to vote may need help finding their polling place, determining when it’s a good time to go vote (wait times fluctuate), and understanding their ballot.
   Your app will support at least these three functions. I’m in contact the election commissioner of a jurisdiction in Kansas. His office already collects the raw data needed for this app, but they don’t have a way to get this data to citizens on the move.
6. Augmented Reality Goggles.

Your app will allow users to tag buildings on campus with text messages. Other users can point the phone towards a building and then see on the screen text messages that have been placed there by other users. Start with simple posts, such as the name of the building and upcoming events and then extend the messages to general users. You will have to think about how to deal with large numbers of messages, with profane or indecent posts.

7. Peripatos.

Aristotle taught while strolling with his students. Your app will allow a professor to attach homework questions to physical locations. The questions are viewed and can be answered by students only when the student is in physical proximity to the question’s location.

Project case study. PLSC253 Woody Plants for Mid-Atlantic Landscapes requires students to walk the UM campus, find trees and take inventories of the trees. The professor for this class will provide a checklist of questions for students to answer (in order to identify the tree type). The students will walk through the checklist, determine the tree type based on the checklist answers, and then submit the answers to the professor via a server.

8. Cost of Living Diary.

The World Bank has lots of data on Product Price Parity (PPP), which measures how much things cost in other parts of the world.

Your app will be targeted at middle school or high school children, who will keep a purchase and use diary. Their purchases and use will be analyzed to show them how much these items cost in relation to average local incomes.

This data will then be compared to representative children (or eventually real children) living in other parts of the world. What kinds of things might you be able to learn? What kinds of foods people eat in different parts of the world, which goods are readily / not readily available, how much discretionary income do people have (to spend on music, for example).


Parents often find it hard to evaluate how their children are progressing in school. This problem worsens when the parents are themselves under- or uneducated.

Your app will allow children users to sign up to receive a once-a-day text message (or email if available) containing a problem whose difficulty is roughly appropriate to the child’s age.

The child will do the problem and then send back an answer. Over time, your app should adjust question difficulty to the child’s performance. Your app should also keep statistics at varying geographic granularities. This data will help to create benchmarks detailing what children in different countries learn and know at different stages in their development. Finally, parents should be able to see how their children are performing relative to children in their communities, regions, countries, etc.

You might start by limiting yourself to English-speaking countries and to math problems that involve less region-specific information. Longer term you could think about crowd-sourcing translation of the questions to different languages and you could add a tutoring service (like vark.com) to help children learn how to answer that day’s question.


There’s a web-based game called, Community Clash, in which you try to guess whether your community is more healthy than another along certain measurable dimensions (obesity rates, uninsured rates, smoking rates, etc).

Your app will extend this game 1) by selecting and describing two US communities chosen at random, 2) by showing a health indicator and having the player wager (using virtual chips) on which community is better. However, your app will require not just a decision about which community is higher or lower, but will add point spread(s) (higher or lower by x, y or z percentage points). The payoffs could change based on the spread.

The underlying idea is that people often have incorrect mental models of the world. Can your game help people to see where their mental models diverge from the data?
11. PhotoJigsawPuzzle.
   Take a photo (or image such as a satellite map). Cut it into jigsaw puzzle pieces and allow users to reassemble the jigsaw puzzle on their device.
   To make this more interesting we will make this a collaborative multi-player game for Maryland Day. The photo will be a satellite map of the UM campus.
   Users can work on the part of the puzzle where they are actually standing. Together can all users reassemble the entire UM campus map.
   You could also allow users to sign their completed puzzle and add some text to it.

12. Poor Man’s Thermal Imaging Camera.
   Using the Accessory API, connect an infrared thermometer to an iPhone.
   While using the thermometer to evaluate a house for areas of excessive heat loss, snap a photo, take video, or otherwise indicate areas of excessive heat loss visually.
   The idea is to have a visual record of the heat loss analysis. You’ll need to do some research to figure what what kind of thermometer you will need and whether they are available.

   Your app works in a virtual 2x2 grid. The app displays a pattern like the Simon game. You recreate the pattern by physically gesturing with / moving your phone. If successful the app replays the previous pattern and then adds one more cell.
   Your app will also support a two person game mode. 1st player moves his or her phone to some position in the plane, as above the move selects one of the four grid cells, and then returns to home position. The 2nd player copies the 1st player’s move and then adds a move of his or her choosing. The 1st player responds....

14. Find my Friends Without GPS.
   Your app will allow users to know whether friends are nearby. Users register and identify friends, who can then be invited to become users of the service.
   One catch is that your app is not allowed to use GPS to find friends. The app can only use WiFi (if available) or cell tower movement information. You will need to evaluate and document your app’s power consumption in comparison to a GPS-enabled app.
   Another catch is that your app must work in the background. Users will not have to start up the app each time they move and will not have to check into a location (as with apps like FourSquare).
   Another catch is that since this app works in the background, it has many negative privacy implications. You will need to provide flexible and easy to use ways for app users to control their location information.