Individual Brainstorming and Project Proposal

Due: Email to kotaro@cs.umd.edu and jonfroehlich@gmail.com by February 5th, 11:59PM

Assignment Overview
This assignment has four parts:

1. Brainstorm and document particular social problem domains (higher level categories of problem spaces). I prefer that this be done on paper, but you have your choice about what medium to use. (Expected time: 20 minutes)
2. Brainstorm and document particular project ideas. Apply the brainstorm strategies from class and from the readings. Push yourself to think creatively about the problem space and how technology may play a role in solving the problem. Again, I prefer actual paper here but use what you prefer. Remember: bounce ideas of your friends, search Google, taxonomize your ideas, try to brainstorm multiple times at different times of day and in different moods, etc. (Expected time: 1-3 hours)
3. Select two specific ideas from your “project ideas” list. (Expected time: 15 minutes)
4. Write-up a small “elevator pitch” for those two ideas. For each idea, the pitch should be no longer than two paragraphs though I strongly encourage you to write just one paragraph (there really is no reason to go over to two paragraphs). (Expected time: 2-5 hours)

A Place to Start
Some potential questions and/or websites to get you started and the creative juices flowing (this list, in part, thanks to Professor Dow at CMU):

1. How can design help address the UN Millennium Goals? (INDEX: Award)
2. How can technology enhance our domestic experience? (CHI 2012 Student Design Challenge)
3. How can we promote action for clean water? (Clean Water Action)
4. How can design help raise awareness for cleaner air? (Group Against Smog and Pollution)
5. How can create value from sensors embedded in mobile phones? (Nokia Mobile Data Challenge)
6. How can technology help promote transparency in governments? (The Economist)
7. How can technology make it easier to understand the Wealth gap? (BBC)
8. How can we empower patients to get healthy and improve their heart health? (Million Hearts initiative)
9. How can we help policymakers track progress on leading health indicators in local communities? (Healthy People 2020 initiative)
10. How can we encourage kids to eat healthier? (Let’s Move initiative)
11. How can we make voting technology more accessible for Americans with disabilities? (Accessible Voting Technology Initiative)
12. How can we reinvent sanitation systems for regions without water infrastructure? (Gates Foundation)
13. How can people save energy and money through interventions in the home? (US Department of Energy)
14. How can we reduce the spread of germs by encouraging hand washing? (Center for Disease Control)
15. Go Viral to Improve Health
16. Instructables Go Green! Contest

The “Elevator Pitch”
Each pitch should contain (these may come in any order but the order below is fairly standard):

1. A title
2. A sentence motivating the problem that you’re trying to solve
3. A problem statement (what is the problem specifically)?
4. A taste of past solutions to said problem and where they may be limited
5. Your proposed solution and what makes it unique
6. Who this will benefit and why

The writing doesn’t have to be perfect. We are most interested in the idea and the ways in which you’ve thought about the idea. You are likely going to have to cite academic and/or news articles in your proposal to help substantiate the problem. Thus, you need to have a works cited at the end of the pitch with a list of references (where applicable). You can also use images in the pitch (as many as you want).

Example Pitch
Here’s an example 212 word "elevator pitch" for a project on water sensing and feedback to encourage water conservation in the home:

Empowering Home Owners to Use Less Water through Better Information

Cities across the world are facing an escalating demand for potable water due to growing populations, higher population densities and warmer climates [2]. As new sources of water become more environmentally and economically costly to extract, water suppliers and governments are shifting their focus from finding new supplies to using existing supplies more efficiently [3]. One challenge in improving residential efficiency, however, is the lack of awareness that occupants have about their in-home water consumption habits. This disconnect makes it difficult, even for motivated individuals, to make informed decisions about what steps can be taken to conserve [1]. In this project, we propose a new type of feedback mechanism for residential water consumption that leverages emerging sensors that monitor water usage at individual fixtures with only one or a few low-cost sensors [2]. Unlike
past water usage feedback systems which only provide one number per month on consumption (e.g., a water bill), our system provides real-time feedback on all water fixture usages across the home via a live HTML5 website that can be viewed on mobile phones or traditional web browsers. Our system promises to help better inform residents about wasteful water usage practices (e.g., leaky toilets) as well as to help inform new government codes about plumbing, water heating and low-flow fixtures.

References

Analyzing the Example Pitch
If you break down the above pitch statement into parts, you get:

**Problem background/motivation:** Cities across the world are facing an escalating demand for potable water due to growing populations, higher population densities and warmer climates [2]. As new sources of water become more environmentally and economically costly to extract, water suppliers and governments are shifting their focus from finding new supplies to using existing supplies more efficiently [3].

**More specific problem statement:** One challenge in improving residential efficiency, however, is the lack of awareness that occupants have about their in-home water consumption habits. This disconnect makes it difficult, even for motivated individuals, to make informed decisions about what steps can be taken to conserve [1].

**Proposed solution:** In this project, we propose a new type of feedback mechanism for residential water consumption that leverages emerging sensors that monitor water usage at individual fixtures with only one or a few low-cost sensors [2].

**Differentiation to past solutions:** Unlike past water usage feedback systems which only provide one number per month on consumption (e.g., a water bill), our system provides real-time feedback on all water fixture usages across the home via a live HTML5 website that can be viewed on mobile phones or traditional web browsers.

**Who benefits and why:** By providing much more temporal and granular data than ever before possible, our system promises to help better inform residents about wasteful water usage practices (e.g., leaky toilets) as well as to help inform new government codes and regulations about plumbing, water heating and low-flow fixtures.

**Deliverables**
Please email these deliverables to kotaro@cs.umd.edu and jonfroehlich@gmail.com by February 5th, 11:59PM:

1. A scanned or otherwise digital version of your social problem domains brainstorm (10% of grade)
2. A scanned or otherwise digital version of your project ideas list (20% of grade)
3. Your two elevator pitches (can both be in the same document). (35% of grade for each)