

P3 (Nearly) Invisible computing

Due Tuesday, February 15

There is more to life than interacting with computers, and it's time for computer designers to deal with it. As computers become smaller and more ubiquitous, migrating from the desktop to your home, your car, or even your back pocket, it is increasingly important that their interactions be designed in ways that do not require your undivided attention. At the same time, it is also important for the computer to be able to get your attention at the appropriate moment. An interaction that does a good job of choreographing the user's attention can be immensely helpful; a poorly choreographed interaction can be enormously irritating and even dangerous.

Another aspect of limited attention is the limited bandwidth the computer has to communicate how it works. A good metaphor, well-organized visual design, and clear concept can help users understand how to get what they want out of the interaction without holding them up.

Challenge

Select a scenario in which a computing device needs to command a variable amount of a user's attention. Represent the task and the user's changing attentional and cognitive state. Explore and develop an interface with variable visibility that adapts to the dynamics of the situation and is easy to understand.

Goals

The goals for this project are to gain experience in —

- Developing attentional models through observation, participation and interrogation
- Identifying mental models and eliciting them from other people
- Finding and creating appropriate metaphors, conceptual models and organizing principles
- Designing an interactive techniques to grab attention and let it go
- Constructing a working interactive prototype that someone else can use.

Schedule

Thursday, January 27

Proposal

- Brainstorm at least 30 ideas for a simple concept, process or phenomenon related to (nearly) invisible computing that you would like to explore. Express these schematic form and record them in your idea log.
- Bring in a simple one-page text-graphic proposal describing your favorite concept or process from your list. Include a brief outline of your target scenario.

Tuesday, February 1

Models and Metaphors

- In your idea log explore alternatives for organizing principles, metaphors, models, and representations that might be used for organizing your selected application.
- Identify content elements (text, images, simulations) that might support your interactive experience.
- Formulate a structure for organizing the content and interactive components, and represent this structure in a simple diagram.
- Explore in sketch form a range of ideas for interaction models and how they could work to create insight. Move from simple page-turning to simulations and interactive games

Thursday, February 3

Storyboard and Flipbook

- Describe your interactive experience in the form of a storyboard. Show what the parts are, how they work together and the inputs and controls that we use to make it all work. Incorporate the user's attention and mental states in the storyboard.
- Create a flipbook that can be used in class to demonstrate and test your project idea on other class members.

Thursday, February 10

Functional Prototype

- Translate your interaction sequence into an interactive experience that conveys the core concept of your project.
- After class, refine this component and add supporting material as needed.

Tuesday, February 15

Working Prototype

- Present your project for demonstration. In class it will be 'driven' by another person, who must be able to have a complete experience in no more than 5 minutes.
- Turn in an updated storyboard showing the final interaction sequence.
- In your idea log: Record a reflection on your own experience working on this project.

Optional Readings

Nielsen, J. Noncommand User Interfaces. *Commun. ACM* 36, 4, (1993) 82-99.

Weiser, M. The Computer for the 21st Century. *Scientific American*, 1991, 265 (3), pp. 94-104.

Wisneski, C., Ishii, H., Dahley, A., Gorbet, M., Brave, S., Ullmer, B. and Yarin, P. "Ambient Displays: Turning Architectural Space into an Interface between People and Digital Information." In *Proceedings of International Workshop on Cooperative Buildings (CoBuild '98)*, (Darmstadt, Germany, February 1998), Springer Press, pp. 22-32.