

P3 and P4: Getting Rid of More Things

Design to Support Sustainability

Our general theme is sustainability, and we will still be focusing on the topic of getting rid of things so that you may make use of observations and ideas from P2.

For this course, we are violating one of the basic philosophies of user-centered design: avoid starting with a technical solution and pushing it onto needs. However, for learning about interface design, we want you to evaluate potential projects *primarily* based on having a rich potential for interaction that you can design. If you have a brilliant idea for solving a problem without people having to interact, that is a great for a startup, but not right for a HCI Design course. In thinking about the interaction you want to create, look for things that go beyond the obvious mechanisms (e.g., searching a database). Look for opportunities to go "outside the screen" with mobile devices, sensors, environments (what is on the wall), etc.

You should pick an interaction for which you have access to users for testing. Your users might be regular citizens (e.g., your fellow students) or people in the area whom you can talk with and take your designs to for feedback (e.g., someone developing recycling technologies for the new "green dorm").

The Projects

P3 and P4 build off your observations from P2. You will be continuing in the vein of getting rid of things, and now building concrete prototypes and interactions that you can test. Work in pairs for P3, and you will join another pair for P4.

P3 focuses on building a computer interface that has an interesting interaction design:

- **Interaction implementation:** P3 is about software implementation. The primary steps are paper prototyping, implementing an operational software prototype that illustrates and tests some aspect of the larger picture, testing that prototype, and doing a heuristic evaluation. Although P4 will look into beyond-the-screen interactions, it is fine for P3 to make use of any interaction devices (including standard GUI devices).

P4 focuses on computing in the larger context. This includes two aspects:

- **Physicality:** each project should involve interaction that goes beyond the conventional screen. It could be a mobile application, something with sensors, special-purpose physical appliances, environmental actuators, etc. It may have multiple components, such as a screen-based interaction that operates in a larger system with some interaction on a physical device (think iTunes/iPod). Prototyping will be a mixture of creating devices, or mockup devices, and simulating how you would interact with them. There is a variety of different prototyping techniques, depending on the project.
- **Human context:** we want this project to have a plausible "story" about the people who would use it, the benefit they would get from it, and the way it would fit into their lives. This includes testing your prototypes with users who are representative of your target audience.

Skills

The *skills* we will learn in this project are:

- **Mental Models:** What are a user's theories about the design and functioning of your prototype? What organizing principles should structure your design of the prototype, and what mental models do these principles yield?
- **Prototyping:** In P3 we will create an *interactive* prototype. You can use Flash, Java, C#, or any tool with which you feel comfortable.
- **Heuristic Evaluation:** Heuristic evaluation is a usability method that employs "experts" (in this case, your peers) to inspect an interface. Long advocated by Jakob Nielsen, it has gained wide appeal as a "discount" usability method because heuristic evaluation can be much faster and cheaper than traditional usability testing.
- **Iterative Design:** We prototype to gain feedback (from ourselves and others). With that new knowledge, we iterate. We prototype to gain feedback (from ourselves and others)...

Studios

We will be doing the course in studio style as you develop the projects. For each day of class, you will bring in particular artifacts that show your progress. Some part of each class time will be devoted to these milestones, in sections and occasionally with the full class. You will have time in class to see other team projects, get comments by staff and other students, and have time for team activity. We are not grading on these class-by-class milestones, but are using the opportunity to help focus your efforts. You will have some studio time to work with your team, but you will need to work outside of class.

Here is what we are asking you to bring in for discussion each class:

Tues 1/29/2008 Initial Proposal, Related Inspirational Designs

The proposal should describe your point of view: the users, the need, and your basic insight as to what should be the focus of your design. The related designs are existing designs/products/services that you find (in your environment, on the web, etc.) that approach the same task, or that provide interaction ideas that you would like to use and build on. Doing some research on these will help you avoid reinventing the wheel.

Thurs 1/31/2008 Interaction Options on Paper

Your first pass at prototyping the interaction should make use of paper in the form of storyboards, flipbooks, or paper prototypes. For your project you may want to use one or all of these – whatever best lets you start envisioning and testing out what the interaction will be in practice.

Tues 2/5/2008 First Operational Prototype

The initial prototype will test one specific aspect of your overall interaction. Building it will require determining the basic software infrastructure – platform, language, and overall system design. At this point you should have your infrastructure under control and some software running.

Thurs 2/7/2008 Prototype Iteration

You should now know the focus of your prototype you will present for the 2/14 demo, and have realistic goals for the remaining week of implementation. You should be able to state these in a way we can evaluate and discuss.

Tues 2/12/2008 Refined Visual Design

Early prototypes may be "works like" prototypes that test the interaction mechanisms with initial quick visuals. You should now have the final look and feel.

Thurs 2/14/2008 Heuristic Evaluation, Final P3 Presentation/Demonstration

You will present the final prototype along with the results of your heuristic evaluation.

Grading P3

40% Process – how broadly and deeply have you explored your design space and responded to user feedback?

20% Solution – how well does your design solution synthesize the various needs of your users?

30% Implementation – how effectively has your design exploration been grounded in functional prototypes?

10% Presentation – how effectively can you present your design to others?

Grading P4

20% Process – we're still looking for process, but we're more results-oriented

40% Solution – much more important in P4 than P3, design is fundamentally results-oriented

25% Implementation – quality of implementation is important for design

15% Presentation – 5% Talk, 10% Final Project Fair Demonstration