

P4 Integrating Physical and Digital in Context

The body is the ultimate instrument of all our external knowledge, whether intellectual or practical experience [is] always in terms of the world to which we are attending from our body. -- *Michael Polanyi*

Physical media and electronic media have powerful but distinct sets of affordances. Today, our physical devices and electronic devices are proximate yet unaware of each other. However, our experiences in the world beyond the PC engage our entire bodies. This project is about putting mind and body, bits and atoms back together. You will use sensing and actuation technologies (mechatronics) to transcend the confines of the desktop and engage the user and their environment more fully or creating mobile technologies to provide situated interactions that depend on your place and activity in the world.

You will be working in groups of four. Based on the results of a P3 prototype (not necessarily your own), form a group, and extend your chosen connection with a tangible or mobile interface. We have offered labs on mobile technologies and are doing two labs next week on physical device technologies, but you are welcome to use any mobile devices or physical interface components you are comfortable with.

The *skills* we will learn in this project are

Production Until now, we have concentrated mostly on ideation and prototyping. In P4, completeness and patience count.

User Testing Testing is an essential part of user-centered design, and a good way to get empirical information about how real users work with interactive systems.

Physical UIs This project will focus on the *controls* and *displays* that your user interface provides. We will learn both the technology and the design skills for creating these interfaces.

Teamwork This is the most comprehensive project of the course, and to make it work, you will need to work together as a team to acquire new skills and complete the assignment.

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 2/19/2008 Initial Proposal and Critique

Using the results of a P3 prototype as a starting point, form a group of four.

Write in your Idea Log one critique of a P3 project you are building on, and one inspiration that seeing the prototype gave you (this will not be collected)

Come with a storyboard of your physical interaction design in your Idea Log. This will not be collected, but will be discussed during the studio.

Thurs 2/21/2008 Prototype

Your first pass at prototyping the next iteration should make use of whatever best lets you start envisioning and testing out what the interaction will be in practice. Be prepared to discuss what questions you want your prototype to answer.

Tues 2/26/2008 User Test Plan

Bring your current prototype and an initial plan for how you will conduct user testing (who will be the testers, what they will test, and how you will conduct it). It should be specific about the initial round and have ideas we can review for the following rounds. Turn in a copy of this plan at the end of class.

Thurs 2/28/2008 Initial User Test Results

Conduct a user test, recruiting 4-5 participants from outside the class (Stanford students are okay).

Bring the results of from your user test plan and your physical prototype.

Tues 3/4/2008 Prototypes and Idea Logs

While you are getting your refined prototype ready, we'll look over the idea logs.

Thurs 3/6/2008 Prototypes and Test results

For discussion and guidance on what to do to finish

Tues 3/11/2008 Refined Prototype and test results [Graded]

Half of your grade will be based on your project as reviewed in studio in this class; this is to insure that you have sufficient preparation time for the project fair.

Thurs 3/13/2008 Initial Presentation Pitch

Be prepared to give a 1 minute "pitch" that has the main point of your design. This can include some illustrative videos or photos, but not slick powerpoint slides, which you can do in the final week.

You'll have studio time to work on your presentation.

Monday 3/17/2008 Project Fair

Two minute madness: Prepare a two minute presentation describing your group's work. By 6am, email *one slide* for this presentation as a 1024x768 PNG or JPEG file to cs247@cs. We will assemble all slides into a single, timed deck. Please make sure that your slide works on a standard Windows XP installation with MS PowerPoint.

- Have project available for walk-up use by presentation attendees
- Demonstrate features and functionality
- Prepare a poster showing inspiration, final designs, alternatives considered, testing results.
- There will be outside visitors (and food!); feel free to invite friends, family, ...

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

Preparing your final Idea Logs to hand in by the time of the Project Fair

- We will look to them for insight into your individual engagement and participation in this project, as well as the course as a whole.
- Recall the basic definition of an Idea Log: *A comprehensive and highly graphic record of all your thinking on the project.*
- Use the log to show off all your ideas that didn't make it into the project, and all the work that may not be evident in the final presentation.
- Give your idea log a "user interface," adding things that make it accessible to someone else.
 - Maybe go through with a different colored marker to add highlights and annotation that will help us find our way around and make sure we notice things that are important.
 - Paste the critical emails and add your annotation.
 - Include group meeting notes, and add your own annotation.
 - Use digital annotations or paper post-it flags major signposts throughout the document.
 - Find a way to bind it together into one piece, not a collection of loose pages.
 - Provide cues or pointers to make it a little more coherent for us.
- Highlight instances of reflection on your Idea Log. Use post-its to highlight the pages that you came back to several times, with a sentence that us how your ideas and concepts changed as a result of reflecting on your notes/drawings. That is, the times that you went through your own and your teammates' notes and decided, without user tests or new information, to change your design, even slightly.
- Add your own final reflection on the final project and the course as a whole. How did your practice as a designer evolve through the course? What new tools did you learn that you will carry through your everyday activities in the future? What worked for you, what didn't, and how did you turn around those experiences in the end?" Let us know how the idea log exercise worked, or didn't, for you.