

# Phase 3: User Interface & User Experience

## Overview:

The design of your device should make it easy for the user to understand how they should be using and interacting with your device, and difficult for the user to use it incorrectly. Your device should be easy for the user to incorporate into a situation described by your use case and should mark clearly the ways it is expected to be used. The best devices are useless if the user will not (or cannot) use them. A well-designed device will not encumber the user, but enhance their experience with minimal effort on their part.

## Considerations:

Consider the following as you work on this phase (should be included in your Project Proposal):

### The User

- Who is your target audience?
  - What can we infer about our users?
- When will they be engaging in an activity that your device is designed to be used in?
- How will they integrate it into their habituated interactions with their environment?
- How will they be inclined to interact with your device in these situations? How *should* they interact with your device in these situations?

### Device Form & Placement

- Where will the device be situated on the body?
  - Is it on a joint (elbow, wrist) that may be seeing a lot of movement? How might that influence your design?
- How will it be fastened?
- Can more modular parts of the device be accessed quickly / easily?
  - Can I change the battery quickly and easily without disassembling the entire device?
- Are critical parts of the device well secured/protected?

### Materials

- In what ways is the construction of [the materials used for] your device best suited for this use case?
  - A device that's going to be directly adhered to the body in a place that will be seeing a lot of movement may not want to have a rigid (eg 3D printed) form as it will likely not be comfortable to wear. A device that could get knocked around quite a bit may want that more rigid form to protect the hardware. Be able to justify the tradeoffs you make here
- Does the form of your device leave any vulnerabilities? Where might they be and how will you address them?
  - If I'm sewing a part of my circuit, do I ensure that I cannot create a short circuit if the fabric moves a particular way?
  - Does the device's housing in any way inhibit it from sending/receiving a critical signal that you may be relying on?

- Do you optimize the tradeoffs between the comfort of the user and the functionality of the device?

## Device Interaction

- Is it obvious to the average person how they should interact with your device?
- Is there a learning-curve associated with using your device? How do you account for that?
- What are the critical tasks a user will be engaging with your device for? Are these obvious points of interaction? Are they easy to accomplish?
- What are the different 'states' your device can be in? Is it important that the user be aware of the state? How is the 'state' communicated to the user?

## User Testing:

Your device's purpose is catering to the needs of some user base, so its important that we test that it effectively accomplishes the intended task, and that it does so without asking too much of the user. You will be conducting user testing as a portion of this phase to check that users are able to get it to function correctly.

## Questions

You will write up a series of questions, prompts, or tasks that you will ask the user to answer or perform. The goal of these is to give the user a broad sense of the interaction that you want to prompt, without explicitly telling them how to perform it. This will give you a sense of whether your device's interactions are intuitive or not, and also how complicated they are for the user to perform.

## Deliverables:

### Mon, April 25 (7:00am)—Preliminary Design Submitted

We will be checking in with each team on Monday, and would like to see some body of work from your team that we can give you feedback on. A preliminary (preferably digital) **model of your device** should be handed in, along with **materials** you will be using. The model of your design might be a light sketch or a full-scale CAD mockup; in either case we expect that it depicts the measurements of your device and that they are all clearly labeled on the diagram.

**provide comp50wd proj3.3\_prelim <your files here>**

### Fri, April 29 (5:00pm)—Phase 3 Deliverables

Your final deliverables for this phase are as follows:

1. **Digital model** of physical device design
  - Can be a technical drawing, CAD model, etc. It should indicate a thoughtful, planned design and should include dimensions of your device. It should model the most up-to-date version of the device you've built.

2. [if iOS app] **Screenshots** of each of your storyboards; a **flow diagram** of the app's traversal; **executable** of the app for us to run
  - Function is more important than form in this submission. The aesthetic appeal / clarity of your app will be considered in the final presentation, though.
3. **User Testing Results**
  - What interactions did you prompt users to
  - Feedback from users
  - Images of the device being tested
4. **status\_update.pdf** which includes the following:
  - What work did you get done in this phase?
    - Who worked on what?
  - How does the work you got done compare to the goals you outlined in your Project Proposal for this phase
  - What is working as expected?
    - If anything is not working as you had hoped, what do you plan to do in order to fix it?
  - How did you test your code independent of your hardware?
  - Directions for how we should...
    - Set up your device / code
    - Test your device / code
    - Anything we may need to set up or download

These files should be provided no later than 5:00pm on Friday

**provide comp50wd proj3.3 status\_update.pdf <your files here>**