Assignment 2g: Design Review
CSE 440 Section AB | Distracted Driving

Design & Tasks: Overview

Our group selected the mobile application design that allows users to visualize and share data on driving behavior. We synthesized ideas from two designs and decided to pursue a mobile application design that is supplemented by movement-tracking hardware. We will assume that the hardware is already available so that we can focus on designing the mobile app itself.

Task Analysis

The first task we will be pursuing is processing and visualizing information about driving behavior. In our design research, we found that all of our interview subjects were aware of when they were distracted while driving, but were unsure of the amount of time they were distracted. On the phone itself, our app will passively collect data on how much time a driver spends texting, calling, and interacting with other apps. On the eye and body movement tracker, our hardware will collect data on how much time a driver spends closing their eyes, looking at their car controls, or otherwise diverting their attention from the road. The hardware will be paired wirelessly with the user's phone. With these features, our design will be able to report and visualize important statistics on driving behavior. This can be potentially helpful in motivating safe driving habits.

The second task we will be targeting is sharing and comparing driving habits (Figure 2). Several of our research participants expressed the usefulness of having a passenger in the car with them. In one interview, we learned that some people stop distracting behaviors if they know someone is with them. While we cannot physically emulate a passenger in the car, the concept of having friends aware of our user's behavior can encourage safer driving habits. The social aspect of self-tracking can make the mundane task of driving more exciting for our users.

These tasks stand out as more compelling than others because they provide the most opportunity to reward safe driving habits. Tracking, visualizing, and sharing driving statistics are foundational to the other tasks such as monitoring behavior in employees/children and reporting driving behavior in real time. Providing a platform for driving education is another interesting task, but users can equivalently search the web for this information. Hence, we decided that visualizing and sharing information is the most compelling and unique area to tackle for the problem of distracted driving.

While a web app or other monitoring software are also potential designs, a phone application is better suited for our audience of drivers. Our design research revealed that all our participants use smartphones and bring them along during drives. This motivates our selection of a mobile application, since we can easily use modern phone capabilities (e.g. internal gyroscopes and speedometers) in order to detect when our user is driving.
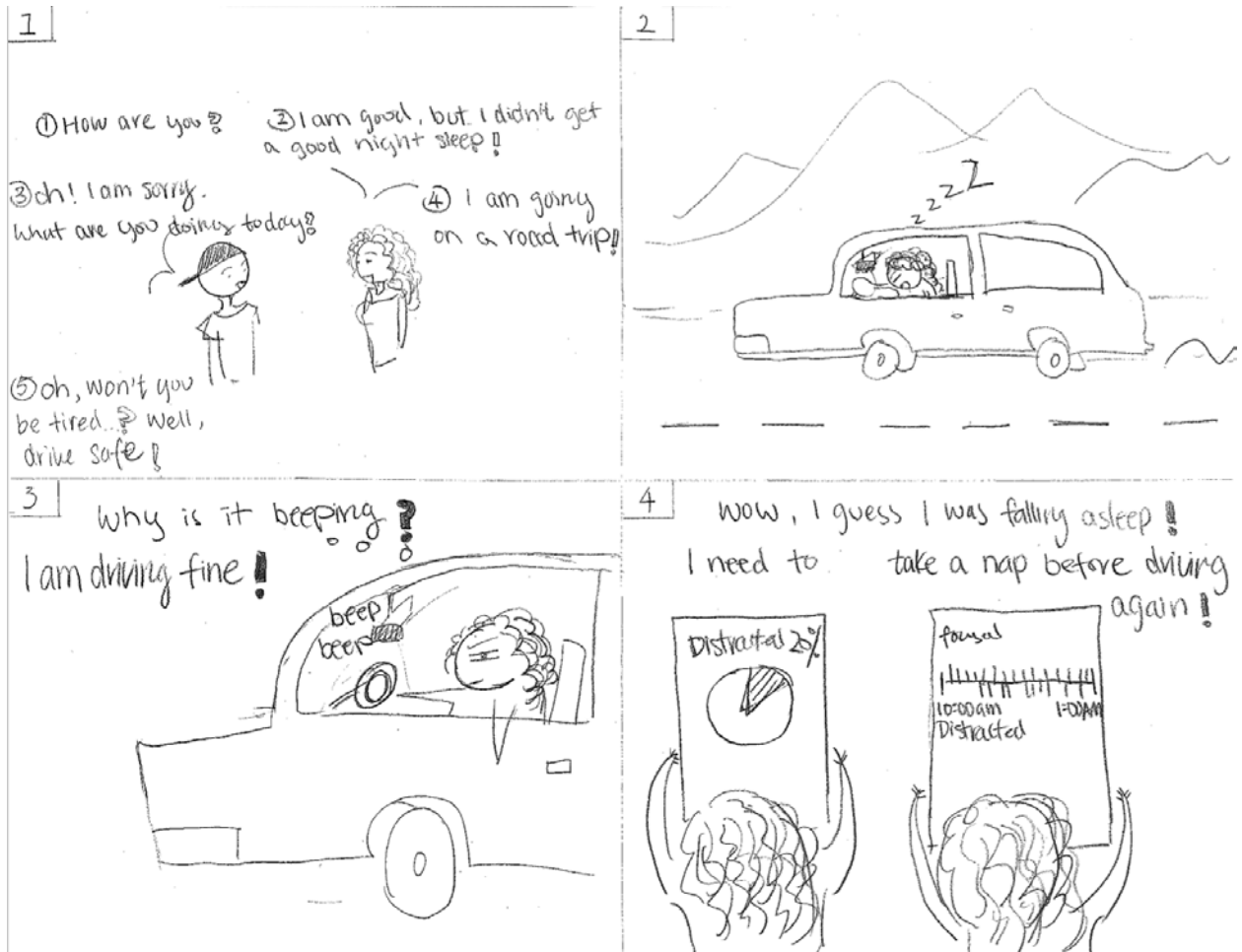
Storyboard: Task 1

Figure 1: Processing and Visualizing Driving Behavior

Storyboard: Task 2

Figure 2: Sharing and Comparing Driving Habits