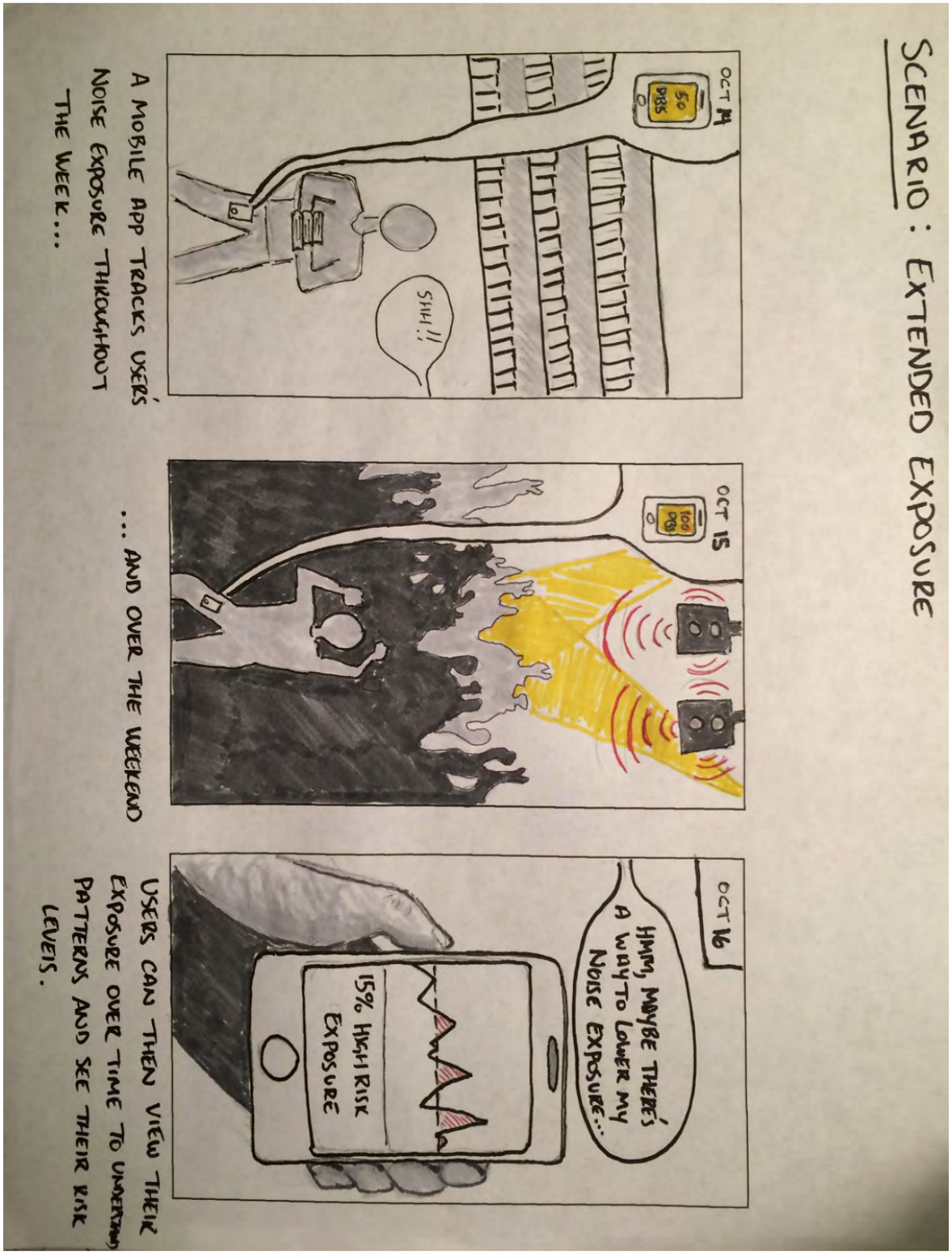
Chris Jung, Garrick Li, Luyi Lu, Grant Neubauer
CSE 440 - Autumn 2014
2g: Design Review

Drawing on the feedback from our in-class critiques and the responses from our contextual inquiries, we have decided to move forward with our Design #2, a noise-tracking smartphone application that uses the built-in microphone of the mobile device. Of our three designs--a combined headphone/microphone setup, a mobile app, and a wearable smartwatch interface--the mobile app was the only one that provided an obvious approach to our problem of noise exposure *and* satisfied the needs of our contextual inquiry participants. While the adaptive headphone design would provide the most accurate noise data using a dedicated microphone, many of our interviewees brought up the concern that limiting their ability to hear ambient sounds was simply not an option. While great for commuters and those already listening to music, many people need to stay aware of their current environment (loud noises and all) and this design would not work for them. Design #3 had a different problem. All of our contextual inquiries were strongly against the need to buy a secondary device to help them track noise. They didn't want the extra inconvenience nor did they want to spend the money, and all of them preferred a design that worked with their existing technology. While a smartwatch noise tracking application is still a possibility once the devices are more widely adopted, it's currently not feasible for the bulk of our potential users. A smartphone application is the only design that avoids the need of extra devices by working with existing technology, maximizes the number of users by limiting the dangers of blocking out environmental noise, and still has the hardware capabilities that will allow it to accurately and reliably track noise exposure over time.

For our smartphone app design, we decided to focus on tasks that prioritize giving the user feedback through personal informatics. One of the main problems we've faced throughout this process has been trying to create a compelling story or scenario to help raise awareness of user health as it relates to noise exposure. We wanted to illustrate two of these potential scenarios with our design and chosen tasks. The first task (shown in Figure 1: Extended Exposure), details how the design will function during normal use over several days and how the information will be reflected in the interface. This task emphasizes the tracking of noise exposure over an extended period. Users can check on their data at any time, and when they do so, they are presented with the risks associated with their recent exposure. This method deals primarily with user education, and encouraging people to recognize dangerous exposure in their day-to-day life. The second task (Figure 2: Tracking Zen), is similar in that it also tracks noise exposure, but the data is presented in a way that emphasizes decreasing excessive environmental sound and increasing quieter periods ("zen") throughout the day. Instead of highlighting the risks associated with loud noises it focuses on more goal-oriented process that helps people track exposure, recognize potentially harmful environments, and influence the users to make conscious lifestyle choices to increase their "zen". These two functionalities provide methods for users to gain a complete understanding of sound in their environments (which include both the beneficial and detrimental aspects) and give them increased control over their aural input.

Figure 1: Extended Exposure



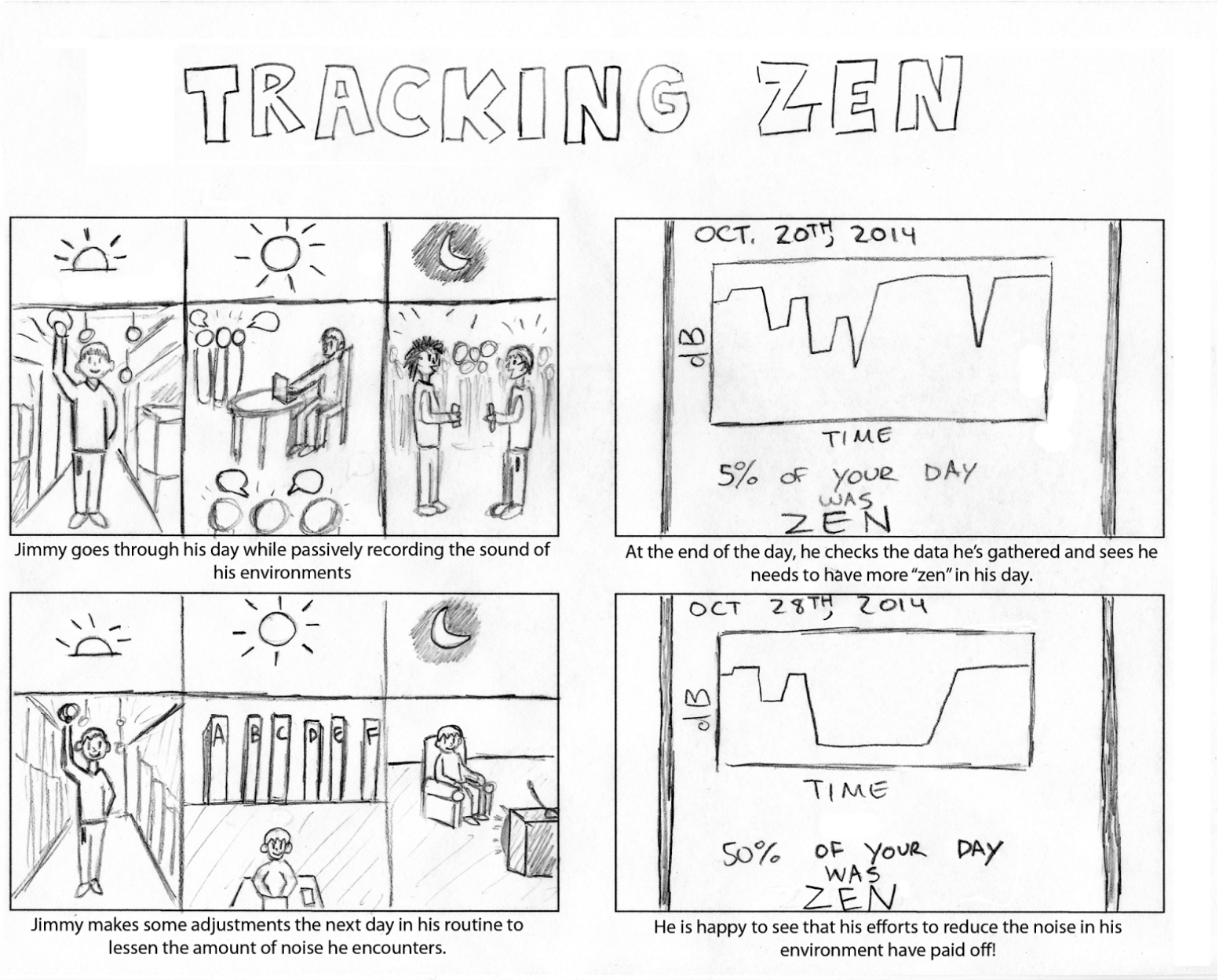


Figure 2: Tracking Zen