Design Research

Cole Mystrom - comy7585@colorado.edu : Team Liaison
Drew Gitlin - angi1801@colorado.edu : Assistant to the Team Liaison

The first part of our research was done by Cole Mystrom. This data was collected by doing a group interview with several local college, amateur mechanics. The interview involved 4 male college students of varying background (with 2 in the school of arts and sciences, 1 in the school of engineering, and 1 in the school of business). I conducted this group interview in my own home over the weekend from 11-12 on Saturday, October 27th. Upon asking the group to each describe his workspace I learned that all 3 of the 4 students worked in tight areas that often did not have natural light (except for the garage door in 2 cases [the 3rd workspace was in a basement]). The participants all agreed that searching for tools is a frustrating, time consuming activity that they experience on a daily basis. When asked about the relevance of our tool finding application, only a single member thought it was worth designing at first. As one participant stated, "Losing tools is a part of working in a garage, having another thing to keep track of will not help with organization. It will add to the frustration." I took this remark into consideration and discussed with the group what features would make this tool a feasible invention. Primarily the group said that the tool needed to be a phone based app and that they did not think they would use the tool if they purchased it. However, all participants said that they would try a prototype if one were to be developed. After portraying some of my own arguments about the usefulness of the app, the group seemed more open to discussing the virtues of the device. When asked about visual over audio cues for location, there was a 50 - 50 split between the participants. A consensus was reached that the application would be the most versatile if it provided both alerts. The interviewees did not seem to think that the each tool catalogued in the application needed to have a particular flash or sound. They believe that as long as only 1 tool is supposed be located (and that there is no ambiguity in which tool they are locating with the app) that only 1 set of a preloaded sound and visual alert would be necessary. One said "Giving each tool its own name tag is completely unnecessary and will only add to the confusion when each tool spits out a different sound." I think this is a useful observation and now propose to have only a single audio-visual signal produced by the application (instead of unique to tool alerts). None of the applicants had any sort of opinion on the color scheme of the app and said that they did not think it would impact the usefulness of the device. The group interview provided some useful insight for our team and has helped shaped the design of our tool finding application.

The second part of our research was done by Drew Gitlin. I conducted two 1:1 interviews with two mechanical engineering students in their second and third years at CU. I conducted both interviews on Sunday October 28th, the first from noon to 1:00 and the second at 2:00 to 3:00 in the engineering center. The students were 19 and 20 years old, both male, and they both live off campus in houses on the hill. They both had a garage/shed where they work on projects and were relevant interviewees for our project. One of the students said that their workspace was a bench and table attached to a shed in his backyard. He described his work space as, "usually organized, until I start working on a new project". The second student said that he works in a garage that is very unorganized and cluttered. The garage has one door that allows natural light and another door that is always too hard to get to. When I asked them about losing/misplacing tools while working, they both agreed that they have problems with their placement of tools. The student

who works outside said that he doesn't lose tools too frequently but when he does it is very annoying and is one of his main problems. The student who works in a garage said that he misplaces tools very frequently and has trouble finding them because of how cluttered his work space is. He explained that he has a table that he tries to place everything on, but a majority of the time he does not. After hearing their views on losing tools while working I introduced our idea about making an attachment for tools so we can find them when lost. They were both intrigued with the idea but they had some different opinions for how it would work. The student who works outdoors liked the idea for a small speaker attachment for his tools. He also said that since he worked outside he wouldn't want a light on the tool because it would probably not be bright enough outside to make a difference. The other student who works in a darker garage thought that the light would be helpful but he also thought that a small sound would be sufficient. He said, "Both (light and sound) would be helpful but in this case I would prefer a noise". I agree with his view and think that it would be easier and smaller to have a speaker attachment for the tools. They also agreed that they would prefer a phone app to control the noises on the tools. One of my interviewees said, "I am picturing an app where you can manually enter the tools you own into an inventory". I liked this idea and told him that we wanted each tool to have a separate sound. He responded by telling me that they didn't need to have different sounds because on the app, you should be able to choose which tool you want to find and that one will make a sound. I really agreed with his idea and think that would be best for our group moving forward. As I went into detail about the specifics of the application itself, it seemed like they needed something to look at in order to give me feedback instead of just trying to ask which color scheme would work best. In the end it seems like the two interviewees enjoyed our idea of a tool finding application that would produce a sound when looking for tools. The application would be on a phone and the sound devices would produce the exact same sounds for each tool. The sound would be set off by using the application and the user would choose which tool they want the sound to go off for. I would assume we would be using a soft repeating dinging sound. These interviews allowed me to narrow our idea down and focus on what real people want when using our application.

When our team regrouped and analyzed our findings we found that our results were similar. This was good news for us as it leads us to believe that not much more research will be needed within the customer base since our two random groups seemed to have consensus on the questions that overlapped between interviews. This gave us confidence in deciding our next iterations of our project. We found that both forms of interviews were efficient at gathering our research data. The interviews gave us new and direct perspective to how the app will be used. We believe that other types of research may prove comparatively fruitless due to the non-hypothetical nature of the project. We met on the afternoon of October 28th after the completion of the interviews at around 5pm. Both Cole Mystrom and Drew Gitlin were in attendance at the debrief located at Under The Sun Pizzeria.

Drew's interview script outline:

1. Introduction
    a. Ask about them
    b. Be Friendly
    c. Establish trust
2. Their workspace
    a. Ask about where they work
    b. Natural light
    c. Size
    d. What they work on
3. Problems with losing tools
    a. Find out if they have problems losing tools
    b. What might cause it
4. Introduce our idea
    a. Would they use?
    b. If they think it's good/bad, Why?
    c. Pros/cons

d. Sound/visual

    5. Application questions
    a. Say how we want to format app
    b. Ask what they suggest

Cole's Interview Topics:

- Can you tell me about your workspace environment?
- How do you feel about the tool finding application?
- How often do you lose a tool?
- What helps you find the tool and how could that be implemented?
- Any thoughts on color organization for the app?