

Heuristic Evaluation

CS5760

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Group: Stomp (ObservAnt)

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Team – Stomp (ObservAnt)

The undergrad team is developing an app to facilitate data collection for Dr. Storer, a scientist interested in learning about how local ants are creating their mounds. The primary users of the app are middle and high school students. The primary users are tasked with collecting data about the size of ant mounds and nearby ecology by taking/uploading pictures as well as entering data manually. Teachers and potentially parents are secondary users who could be interested in tracking the past and present position of their students/children as they are collecting data in the woods.

App

The app will be a web-based mobile app for primary users, but there may be a desktop version for teachers, who are likely to have different goals and needs from the app. Each user is expected to “log in” so they can be identified in the data output (necessary for teacher grading). The app is to be used as a tool as users walk through the woods completing “transects”, 20 meter long trails that they comb for evidence of ant mounds. As a person starts a transect he/she will record which tree types are nearby. If a user sees an ant mound he/she will record its dimensions, then scrape away the surface of the ant mound and take a picture with the intention of identifying the material ants are using to create the mounds. Then he/she will manually enter information about the ant mound size. Finally, he/she will complete the transect and take another picture of the nearby flora. That sequence will be repeated several times as students collect data as part of a homework assignment.

Teachers will also use the app. Teachers will use the data to grade students and possibly to monitor their positions as they are collecting data in the woods. They should be able to see a map with the current position of other users and also view a record of their transect data (this part may be best done on a desktop rather than a phone).

Usability Heuristics

1. Visibility of system status

The user receives a “thank at the completion of a transect and lets them review the status of their submission so they can see if they completed a submission correctly. But the system does not indicate past records. It could be hard for students to track their own progress. “How many have I done?”

2. Match between system and the real world

Users workflow is disturbed by the need to transition from app-based data collection to “real-world” data collection, i.e. I can do everything with my phone except measure the ant mounds.

3. User control and freedom

The user can't go back or cancel anything according to the wireframe.

4. Consistency and standards

Sometimes that app says “finish”, sometimes it says “end”. The colors green and brown should be mapped onto the same meaning, which isn’t consistent in the app.

5. Error prevention

There is currently no error prevention mechanism built into the app. For example, you can upload any picture you want. You can enter any character you want (numbers or numbers). There is no guide telling users if their picture was at an appropriate distance.

6. Recognition rather than recall

The tree entry requires students to recall tree types without any guides rather than recognize tree types.

7. Flexibility and efficiency of use

There are redundancies built in the page that slows down data entry. For example, the entire second page can be eliminated with no consequence.

8. Aesthetic and minimalistic design

The landing page is a little bit “full”. Between the student name, teacher name, teacher email, type of forest, and tree types, there are a lot of text boxes.

9. Help users recognize, diagnose, and recover from errors

There is no guide to help users decide if their pictures are good or not. It may be helpful to add an example of an appropriate picture.

10. Help and documentation

App relies heavily on teacher assistance to instruct students about how to use app. It could be helpful to have an “information” or “help” page located on the navigation bar.

Small Usability Issues (and some suggestions)

- What pictures are acceptable? There is no “control” for preventing inappropriate pictures. If that’s not feasible, it could be helpful to have a guide describing what distance a picture should be taken from or what the focus of the picture should be.
- How do I replace a picture if I didn’t like my first one? You may already have a solution in mind, but I just couldn’t see it in the wireframe.
- Where to measure from? The bottom of the ant mound or the top? Consider adding a 3-dimensional visual aid instead of a 2D one to eliminate confusion.

- The login is a little tedious. Creating logins that remember all student information could eliminate that slowdown. Alternatively, we can think of ways to eliminate the need for some of the information, like teacher email.

One idea to make it “cleaner” would be to make separate “windows” that pop up for some of the sections. For example, a login window could ask for the student name and teacher name and the remainder of the app is still visible around the edge of the window so you know you are “inside” a menu. That way, it's easy to understand where you are, you can navigate outside of it easily by clicking away from the window, and it eliminates visual clutter.

- It is not clear that the camera icons are clickable. Consider using a different icon that makes it clearer that you can click on the camera icon to add a picture. For example, a “+” symbol suggests it's possible to add a picture.

Bigger Usability Issues (and some suggestions)

- How to identify tree types? There is no reference. What if I can't see 4 tree types? Consider changing the data entry from radio buttons and text boxes to a set of pictures which can serve as check boxes. Which of the pictured trees can you see? Then you can click all the ones which apply.
- Measuring the ant mounds disrupts task flow. Users need to put their phone in their pocket, take out a measuring tape, measure 1-3 dimensions, memorize them! (can't enter into phone as measuring because it sometimes takes two hands to measure), then take the phone back out of their pocket, open the app, and enter the data. This is at odds with the rest of the app, for which all data can be recorded in the phone without taking breaks. Could we possibly take pictures with things in them for scale (e.g. a ruler, or less precisely, a foot)?
- A student can't track his/her own past data. If a teacher says, “complete 10 transects”, the student has no easy way of using the app to help him/her. Consider having a home page which lists the previous transect data (w/ “add new transect” at the bottom of the list?)
- The second page is totally redundant. It simply adds to the number of clicks I need to do to complete the same task.

Usability Story

Timmy wants to complete 10 transects during a biology class field trip. He goes out into the woods with the rest of his class. He logs in, he looks at the first question... “what trees are around me?.....hmmm...” “conifers, I think?...what are the most abundant tree types?...Do I have to do all four? I don't know the names of these trees? Can't I take a picture? The teacher helps him and he continues his assignment. He starts a transect. He quickly realizes that he needs to set his phone in the dirt because measuring the ant mound takes two hands. He's a little annoyed because it's his brand new phone. After completing a few transects, he realizes that he needs a piece of paper to tally his

completed transects because the app doesn't give him that information. He returns from his biology field trip having completed his assignment, but he has some suggestions for the team of HCI students who built the app he used for class.