Evaluation Assignment 6

Usability Test Report for

http://cshci-dev.mtu.edu:8085/ObservAnt/
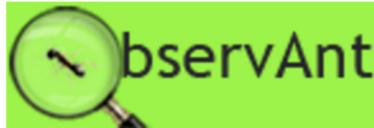
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http://www.csl.mtu.edu/classes/cs4760/www/projects/s16/group5/www/

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Table of Content

1. Introduction

1.1. UI Description

ObservAnt is a mobile application designed to well equip scientists to conduct their researches in recognizing North America ants' behavior. To learn more about ants' behavior, scientists need to gather more information about ant mounds. This app is designed for mid/high school students in the first place, but generally everyone interested in the forestry and geology may find this app useful. The app requires the user to login to his account and then start a new Transect Path. Now he explores the forest and once he found an ant mound he starts a new Transect. For this Transect he may record one or multiple mounds information which includes mound's photos (surrounding area, undisturbed mound and mound with first layer gone) and dimension in centimeter. When he is done with that area he may submit that Transect after taking a photo of area around Transect. At this point he may decide to explore another area which requires to start over another Transect or finish and exit the app.

1.2. Test Goals

Usability test is a well-planned process with multiple benefits. First it makes sure that the fundamental functionality of the app is achieved. Also the development team is interested to figure out any application bugs and errors in practice. For this project the goal is to learn more about experience of using this app; easy to use, enjoyable, self-explanatory, difficulties/complicated tasks, missing features and current limitations, recovery from errors, receiving different points of views and feedbacks and reveal any ignored bug.

1.3. Tests Description

Usability tests are conducted by the UX expert and assistance of the development team members. They prepared six test sessions, well conducted each test scenario and recorded all the test results. Participants are CS2321 and CS3425 students. When they arrived at the test session and after greeting, they read and signed the consent form and answered the pre-test questionnaire. Then they received information about the ObservAnt project and the test scenarios to follow and perform the required tasks. After finishing the test scenarios, they filed the post-test questionnaire and gave us some feedbacks.

2. Usability Test Plan

2.1. Test Scenarios

Two test scenarios are considered for each test session. Scenarios are designed based on the current version of the app which is more focused on the main task which means a lack of: review/edit page, sign up page, interactions with database to store/change an already submitted transect, help and immediate feedback for taps on the screen. As a result, the only task to be done is: start a new Transect, enter the requested information and submit it. So to meet the requirement of at least two scenarios, I decided to design two scenarios with different conditions;

2.2. Scenario 1: Create and submit one Transect (no instructions)

Test Goals for Scenario 1: In this first scenario, the test conductor describes the general idea and purpose of the app but doesn't provide any specific instruction or demo about how to create and submit a Transect. In this scenario the user will be asked to complete one transect including one mound. The goal is to determine how much the first-time user of app could understand the app environment and its employment and complete the main task without assistant.

Scenario Description: You are a high school student and you along with your classmates are in a forest for one of the science classes. You are requested to explore the forest and record any observed ant mound's information. So you should login to the app using default username: "user" and password: "password", start a transect, enter all information for one mound, submit the transect and exit the app.

Task List:

1. Login to the app using default account information

2. Start the "Transect Path"

3. Start a new "Transect"

4. Start "record ant mound"

5. Take photo of "surrounding area", "undistributed mound" and "mound with first layer(s) gone"

6. Enter "longest diameter", "shortest diameter" and "height"

7. "Submit mound"

8. "End transect"

9. "Submit Transect"

10. "Finish"

Quantitative Measurement List:

1. The participant could finish the task or not

2. Time to complete the task

3. Number of times the participant asked for help/assistance

4. Number of wrong taps/errors in entering data

Qualitative Measurement List:

1. The confusing pages/tasks for the participant

2. The reason that the participant asked for assistance/help

3. Facial and verbal expression

2.3. **Scenario 2:** Create and submit two Transects (with instructions and demos)

Test Goals for Scenario 2: In this scenario, the test conductor provides a full instruction and demos for the app employment. The user will complete two transects each of them records one mound. The goal is to determine effects of instructions and demos on the user's ability to correctly employ the app. So if there is a significant difference between scenario one and two's results, the corresponding "Help" or "FAQ" should be added. Also to discover whether the user can distinguish between one transect with two mounds and two transects each of which with one mound, this time he will be asked to submit two Transects while each one records a single mound.

Scenario Description: You are an enthusiast citizen interested in forestry. You are in a forest, you have the app installed on your device and you know how to employ it. When you find the first mound, you login to the app, start the first transect and record the mound's information. Then you continue your exploration and you will find the second mound, you start the second transect, record the mound's information and finally submit the two transects and exit the app.

Task List:

1. Login to the app using default account information
2. Start the "Transect Path"
3. Start a new "Transect"
4. Start "record ant mound"
5. Take photo of "surrounding area", "undistributed mound" and "mound with first layer(s) gone"
6. Enter "longest diameter", "shortest diameter" and "height"

7. "Submit mound"

8. "End transect"

9. "Submit Transect"

10. Start a new "Transect"

11. Start "record ant mound"

12. Take photo of "surrounding area", "undistributed mound" and "mound with first layer(s) gone"

13. Enter "longest diameter", "shortest diameter" and "height"

14. "Submit mound"

15. "End transect"

16. "Submit Transect"

17. "Finish"

Quantitative Measurement List:

1. The participant could finish the task or not

2. Time to complete the first transect

3. Time to complete the task

4. Number of times the participant asked for help/assistance

5. Number of wrong taps/errors in entering data

Qualitative Measurement List:

1. The confusing pages/tasks for the participant

2. The reason that the participant looked for assistance/help

2.4. Potential observations of participant

We could expect to see some issues when user interacts with the app, because:

1. Lack of immediate feedback

2. Lack of help/FAQ

3. Many tasks to be done in one page

4. Improper size and position of buttons

5. Lack of edit page

6. Lack of exit from app

7. Inappropriate names for buttons and pages

8. **Too many steps to complete a task**

2.5. Pre-Test Questionnaire

1. How many years have you used a smart phone?

2. Please indicate your level of agreement to the following statement:

   I am very interested in the testing of this android application.

   1) Strongly agree

   2) Agree

   3) Neutral

   4) Disagree

   5) Strongly disagree

3. Please indicate your level of agreement to the following statement:

   Usability test uncovers bugs and errors of the app.

   1) Strongly agree

   2) Agree

3) Neutral

4) Disagree

5) Strongly disagree

4. Please indicate your level of agreement to the following statement:

I feel comfortable to use new technology.

1) Strongly agree

2) Agree

3) Neutral

4) Disagree

5) Strongly disagree

2.6. Post-Test Questionnaire

1. Please indicate your level of agreement to the following statement:

Overall, this mobile application was easy to perform the task.

1) Strongly agree

2) Agree

3) Neutral

4) Disagree

5) Strongly disagree

2. Please indicate your level of agreement to the following statement:

I enjoy using this mobile application.

1) Very much

2) A little bit

3) Neutral

4) Not very much

5) Not at all

3. Please indicate your level of agreement to the following statement:

I would use this mobile application again.

    1) Strongly agree

    2) Agree

    3) Neutral

    4) Disagree

    5) Strongly disagree

4. Please indicate your level of agreement to the following statement:

The terminology used throughout the app is self-explanatory and clear.

    1) Strongly agree

    2) Agree

    3) Neutral

    4) Disagree

    5) Strongly disagree

5. Please indicate your level of agreement to the following statement:

The app provides enough feedback and help to guide new users.

    1) Strongly agree

    2) Agree

    3) Neutral

    4) Disagree

    5) Strongly disagree

6. Please indicate your level of agreement to the following statement:

I understand the difference between "Submit Mound" and "Submit Transect".

1) Strongly agree

2) Agree

3) Neutral

4) Disagree

5) Strongly disagree

7. Please indicate your level of agreement to the following statement:

Number of steps to submit a transect are reasonable.

1) Strongly agree

2) Agree

3) Neutral

4) Disagree

5) Strongly disagree

8. Please indicate your level of agreement to the following statement:

Adding review/edit page before submitting a transect would be helpful.

1) Strongly agree

2) Agree

3) Neutral

4) Disagree

5) Strongly disagree

9. Describe any difficulties you had during the whole test.

10. Do you have any suggestions or comments which make using this app better/easier?

3. Results

3.1. Pre-test Questionnaire Results
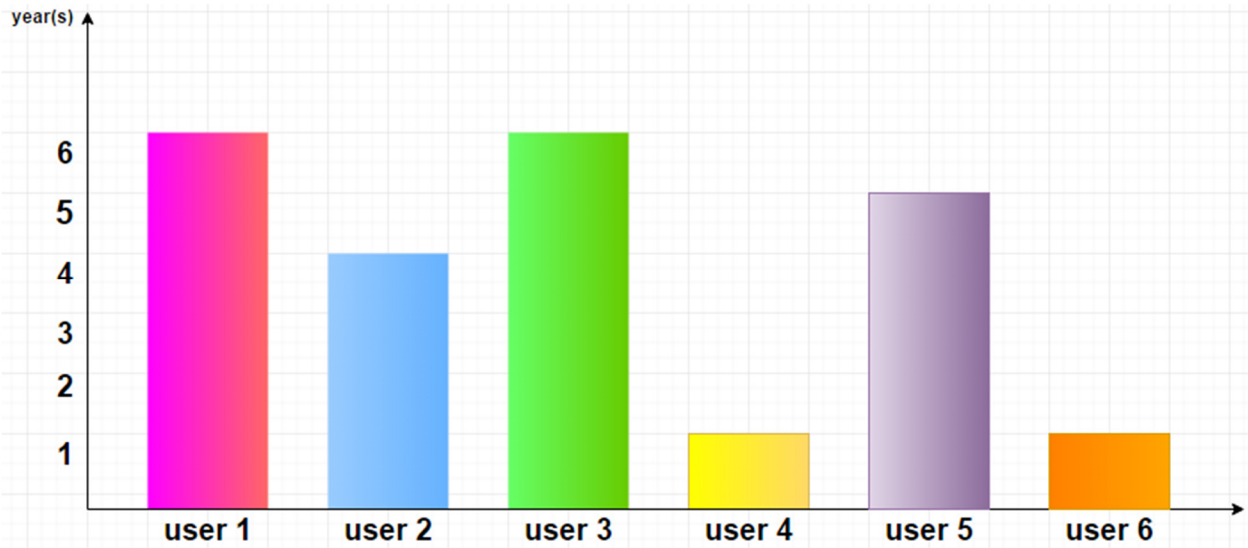
Figure 1. How many years have you used a smartphone?

Two of our users have only one year experience of using smartphone which make them ideal cases for us. Since this is close to experience of mid/high school students which would be the main users of this app.
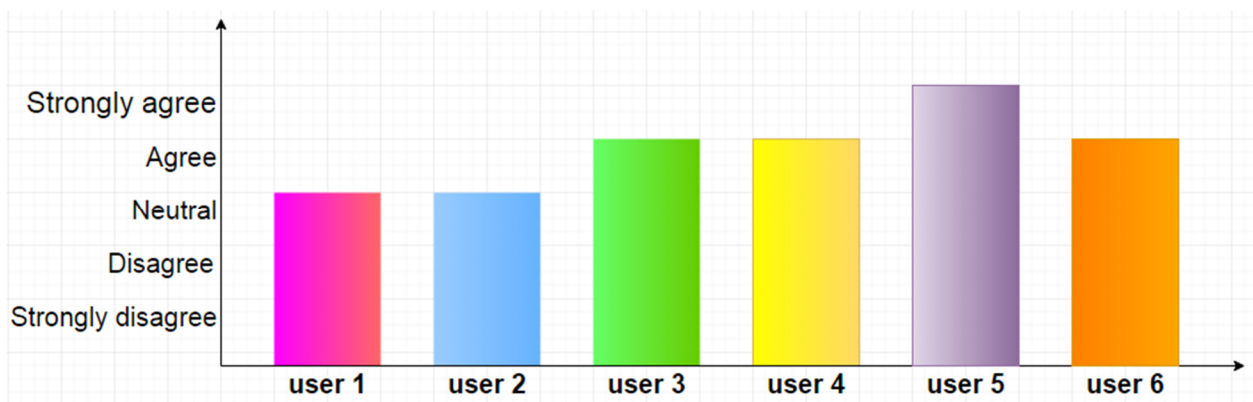

Figure 2. I am very interested in the testing of this android application.

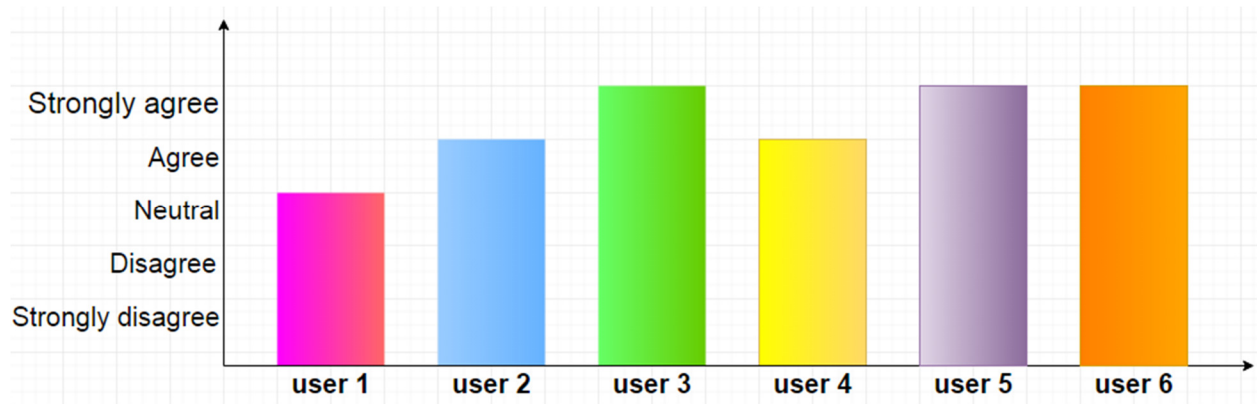Half of the users agree with this, two neutral and one strongly agree.

Figure 3. Usability test uncovers bugs and errors of the app.

Half of the users strongly agree with this argument, two of them agree and one neutral.
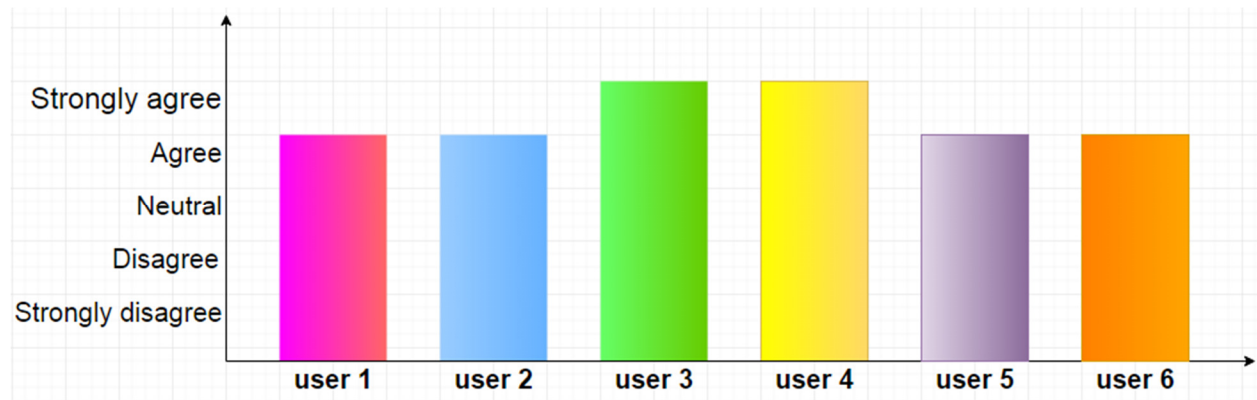
Figure 4. I feel comfortable to use new technology.

Four of the users agree with this argument and two of them strongly agree.
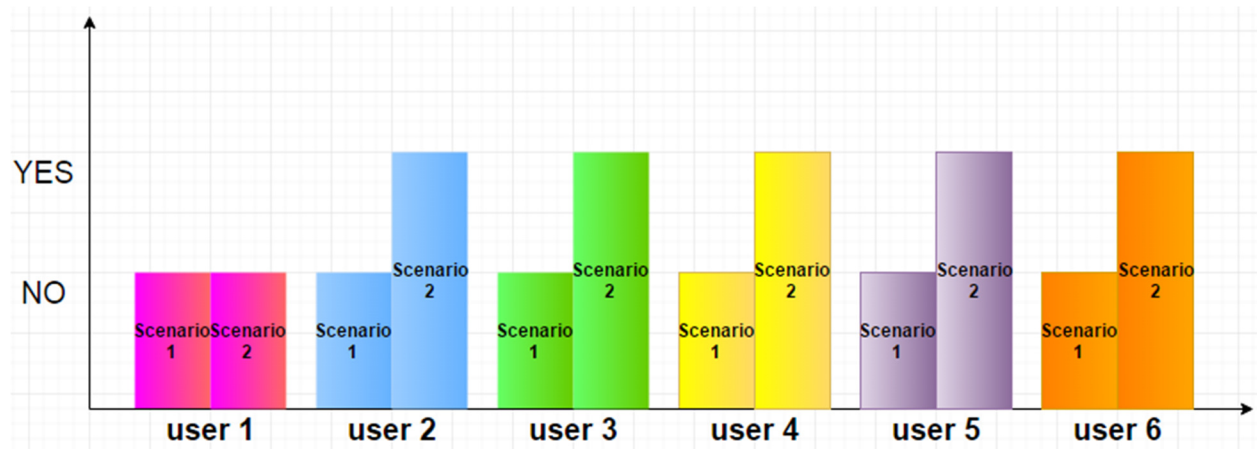
3.2. Quantitative Measurements

Figure 5. Could user accomplish all the requested tasks in the scenario?

None of the users could finish all the requested tasks in scenario 1. Only one user couldn't accomplish all the requested tasks in the scenario 2. The reasons of these failures are in section 3.3 (Qualitative Measurements).
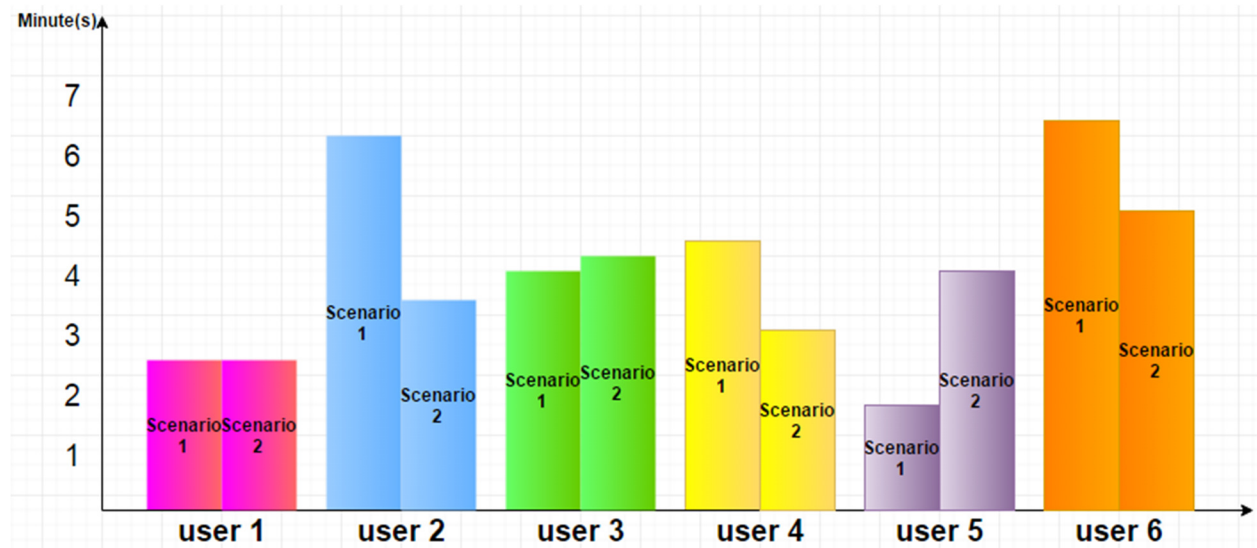

Figure 6. Time to finish the scenario

Although in the second scenario they were required to submit one transect more than the first scenario, but other than one case, the time to finish the second scenario is less than/equal to the first one.
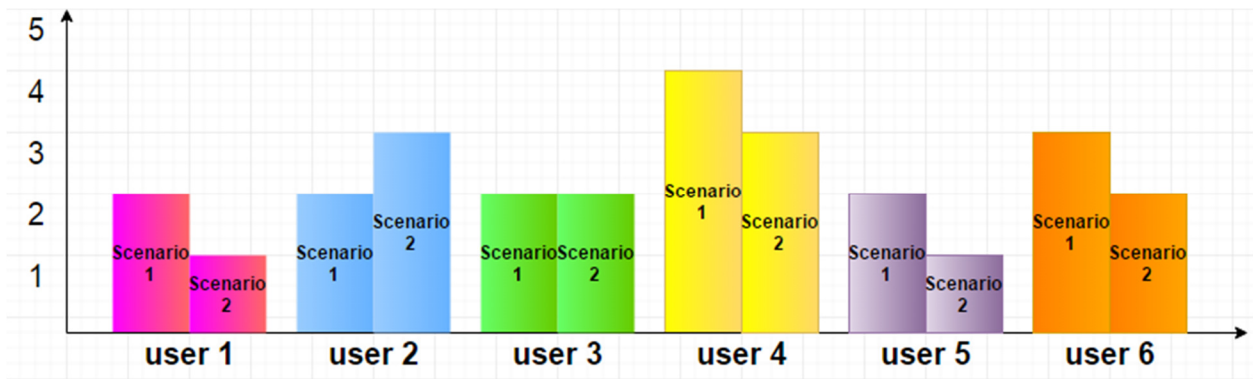
Figure 7. Number of wrong taps or errors in entering data in each scenario

Other than one case, number of errors is equal/decreased in the scenario two.

Descriptions of these errors are in the section 3.3 (Qualitative Measurements).
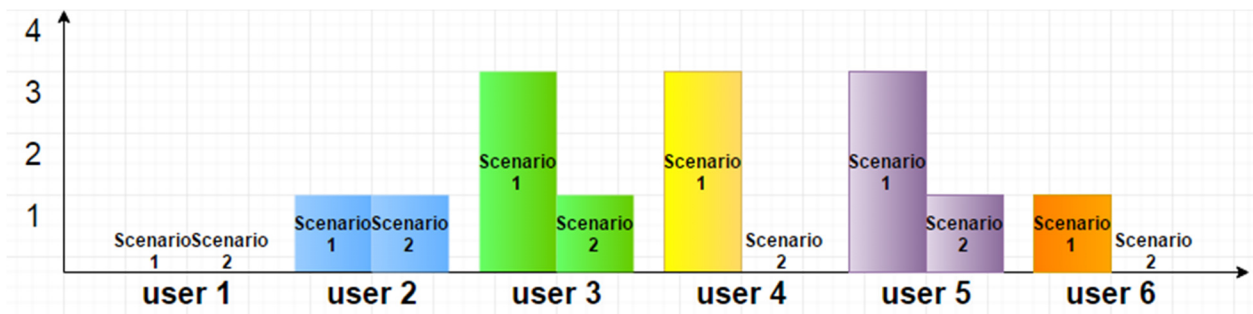

Figure 8. Number of times user asked for help/assistance in each scenario

Number of times users asked for help/assistance is equal/decreased in the second scenario. Descriptions are in the section 3.3 (Qualitative Measurements).

3.3. Qualitative Measurements

User	The tasks that the user couldn't accomplish in the scenario
1	Scenario 1 & 2: Didn't take all the required photos
2	Scenario 1 : Didn't take all the required photos
3	Scenario 1 : Didn't take all the required photos
4	Scenario 1 : Didn't take all the required photos
5	Scenario 1 : Didn't take all the required photos

6	Didn't take all the required photos

User	The confusing pages/tasks and the wrong taps/errors
1	**Scenario 1:** Page 5: Didn't take photos of "undisturbed mound" and "mound with first layer(s) gone" Page 7: Didn't take "photos of area around Transect" **Scenario 2:** Page 7: Didn't take "photos of area around Transect" for second Transect Page 8: Review page was confusing; he tried to edit the Transect which has no photo, but it was unsuccessful
2	**Scenario 1:** Page 4: He worked with the map for some seconds and expected to be interactive, but finally he found it just shows the current location Page 5: Didn't take photos of "undisturbed mound" and "mound with first layer(s) gone" Page 6: Started to record the second mound (which is not requested), because mound counter showed: 0 (bug) **Scenario 2:** Page 6: Started to record the second mound while he was requested to submit two Transects each of them with a single mound Page 8: He figured out his error in page 6, and started the second Transect
3	**Scenario 1:** Page 2: Instead of "Transect Path", he tapped the "Transect" in the middle of page multiple times to start Page 6: Looking for instruction; Should I "Record …" or "End …" ?

	Page 7: Didn't take "photos of area around Transect" Page 8: Didn't tap the "finish" to complete the task Scenario 2: Page 6: Started to record the second mound while he was requested to submit two Transects each of them with a single mound Page 8: Didn't tap the "finish" to complete the task
4	Scenario 1: Page 2: Instead of "Transect Path", he tapped the "Transect" in the middle of page multiple times to start Page 4: Failed to begin: instead of "record ant mound", taped: "end transect" Page 5: Problem to figure out the dimension in centimeter Page 6: Started to record the second mound (which is not requested), because mound counter showed: 0 (bug) Page 7: Didn't take "photos of area around Transect" Scenario 2: Page 6: confused recording the new mound with new Transect Page 8: Didn't tap the "finish" to complete the task
5	Scenario 1: Page 4: He worked with the map for some seconds and expected to be interactive, but finally he found it just shows the current location Page 5: Didn't take photos of "undisturbed mound" and "mound with first layer(s) gone" Page 7: Didn't take "photos of area around Transect" Scenario 2: Page 6: Started to record the second mound while he was requested to submit two Transects each of them with a single mound

6	**Scenario 1:**
	Page 4: He worked with the map for some seconds and expected to be interactive, but finally he found it just shows the current location
	Page 5: No idea about differences between photos being taken
	Page 5: Unintentionally overwritten the already taken photos
	Page 5: Problem with the slider to precisely set the measurement
	Page 5: To scroll the page he changed the slider unintentionally
	Page 6: Started to record the second mound (which is not requested), because mound counter showed: 0 (bug)
	Scenario 2:
	Page 5: Problem with the slider to precisely set the measurement
	Page 6: Started to record the second mound while he was requested to submit two Transects each of them with a single mound
	Page 8: He figured out his error in page 6, and started the second Transect

User	The reason of asking for help/assistance
1	-
2	**Scenario 1:**
	Page 3: What is the correct selection?
	Scenario 2:
	Page 8: When he found his error in recording two mounds instead of two Transects, he asked how to correct it?
3	**Scenario 1:**
	Page 5: Asked about difference between photos?
	Page 6: How to proceed?
	Page 8: What should I do with this page?

	Scenario 2:
	Page 7: When he found his error in recording two mounds instead of two Transects, he asked how to correct it?
4	Scenario 1:
	Page 5: Asked about difference between photos?
	Page 5: What is correct dimension of mounds?
	Page 8: Should I record multiple Transects?
5	Scenario 1:
	Page 2: How to Start?
	Page 3: How to proceed?
	Page 6: Record another mound or finish Transect?
	Scenario 2:
	Page 8: When he found his error in recording two mounds instead of two Transects, he asked how to correct it?
6	Scenario 1:
	Page 5: What is correct dimension of mounds?

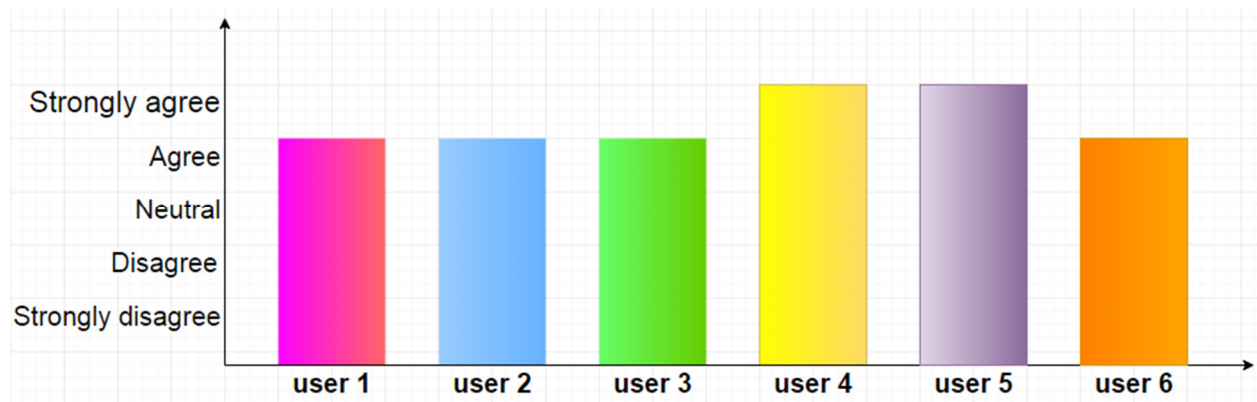### 3.4. Post-Test Questionnaire Results

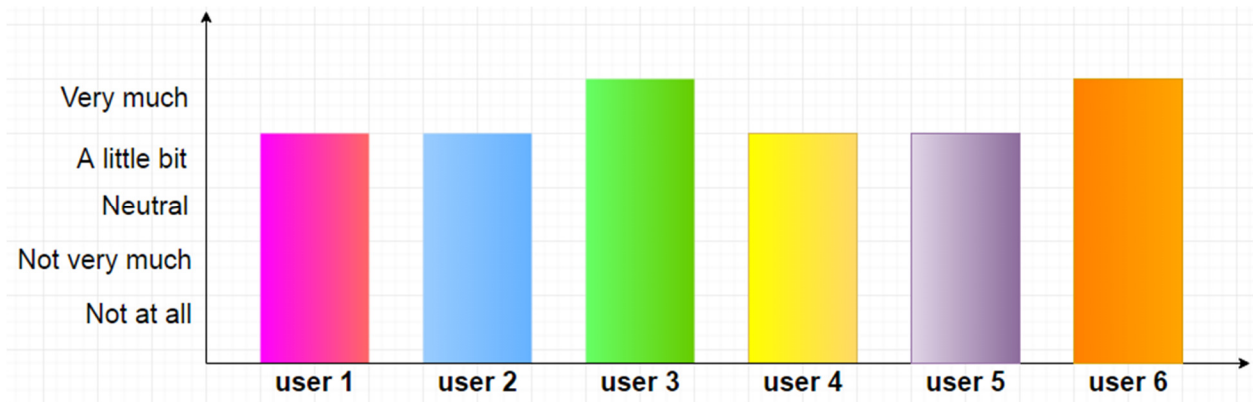Figure 9. Overall, this mobile application was easy to perform the task.

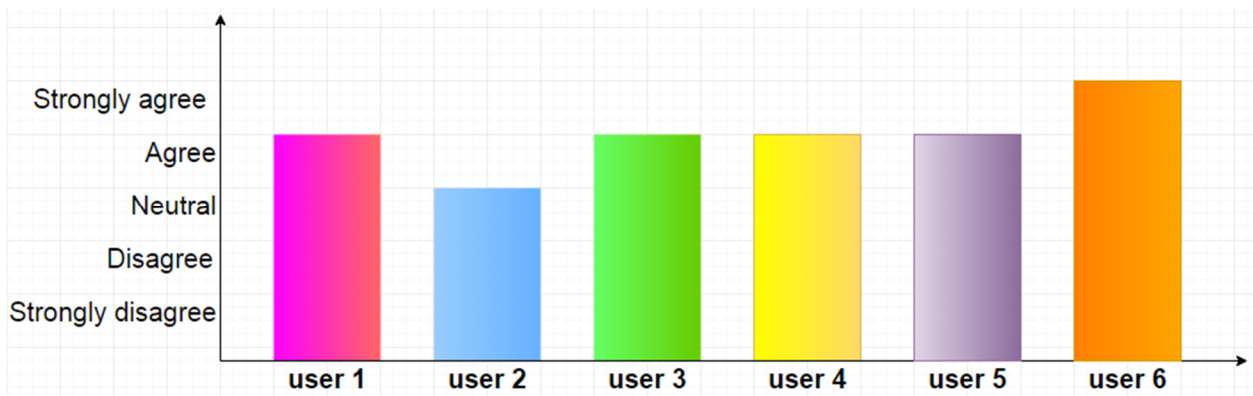Figure 10. I enjoy using this mobile application.

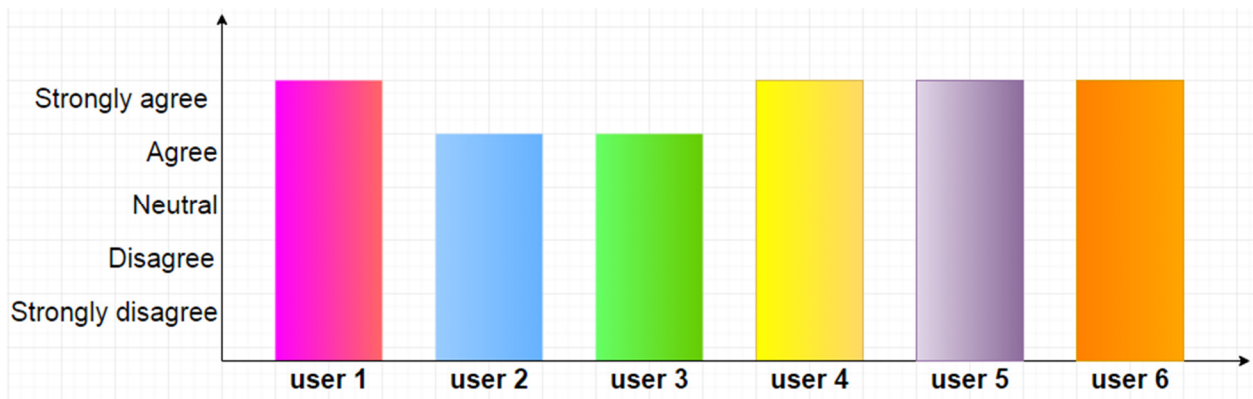Figure 11. I would use this mobile application again.

Figure 12. The terminology used throughout the app is self-explanatory and clear.
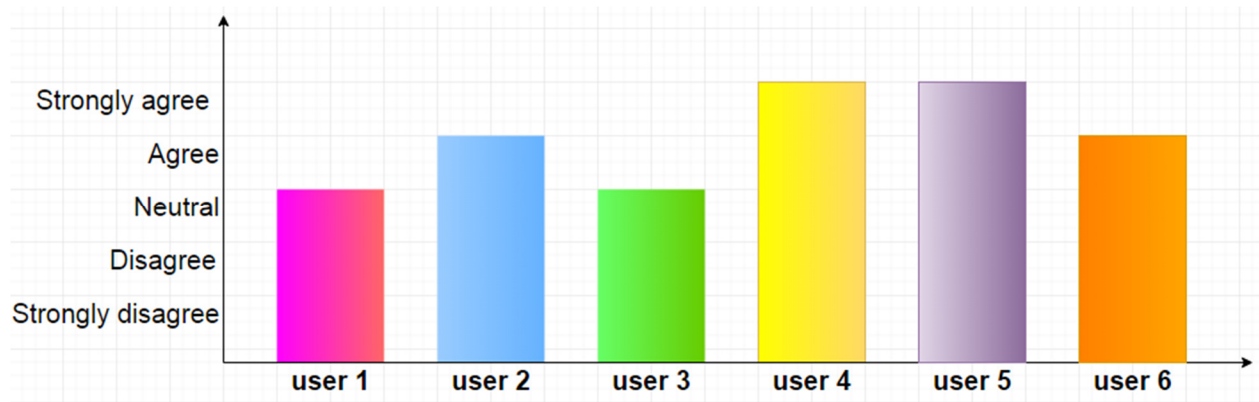
Figure 13. The app provides enough feedback and help to guide new users.
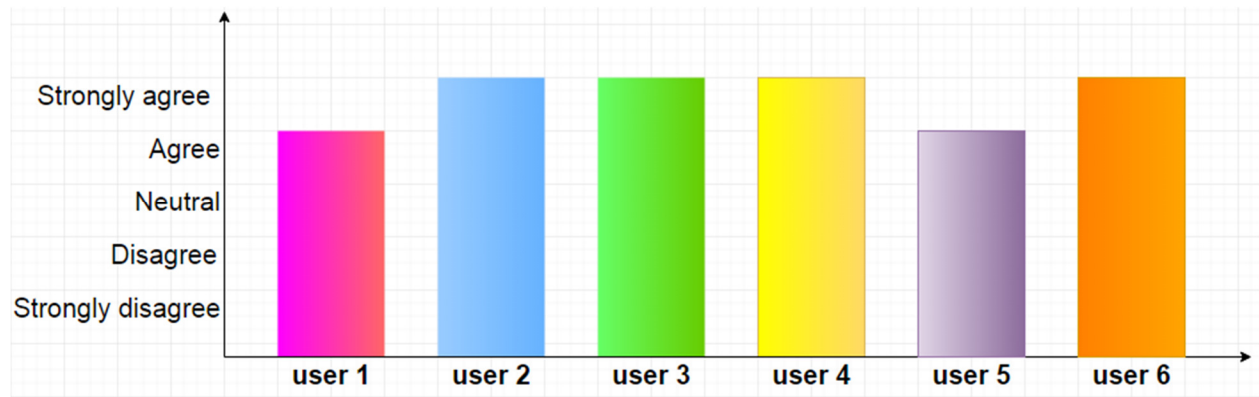

Figure 14. I understand the difference between "Submit Mound" and "Submit Transect".
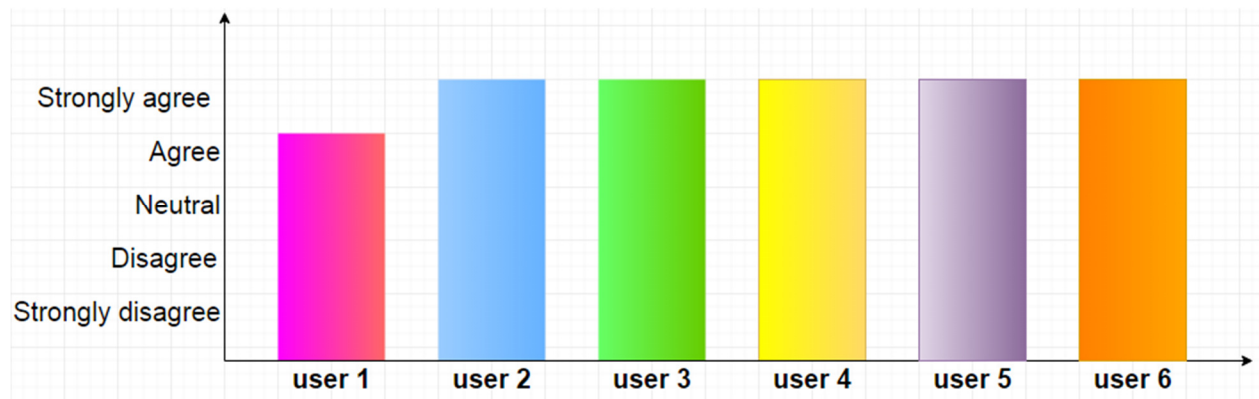

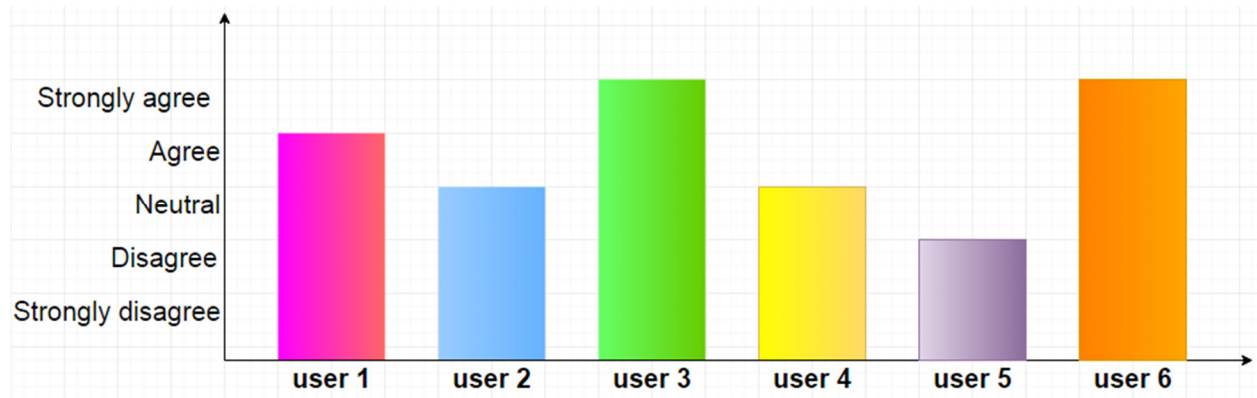Figure 15. Number of steps to submit a transect are reasonable.

Figure 16. Adding review/edit page before submitting a transect would be helpful.

User	Describe any difficulties you had during the whole test.
1	-
2	Mound counter stuck in 0
3	-
4	Mound counter stuck in 0
5	-
6	Problem with slider for measurement Inadvertently overwritten the already taken photo

User	Any suggestions or comments which make using this app better/easier?
1	Add review/edit page before submitting a transect
2	Make mound counter to count.
3	Add review/edit page before submitting a transect
4	-
5	Add review/edit page before submitting a transect
6	Add text box to the slider for measurement Add warnings before overwriting photos Scroll down the page to the second photo, when the first on is taken

4. Conclusions

Usability Problems and Suggestions

1. Page 2: Some users tapped the "Transect" in the middle of the page, instead of "Transect Path" at the bottom to start the Transect. So it would be helpful to place the "Transect Path" in the middle of the page, and information about "What is a Transect?" at the corner.

2. Page 3: Some users asked questions about how to proceed with this page. The idea of "Finish" Transect before start recording mound information should be described in this page.

3. Page 4: The map in this page is not interactive and just shows the current location and user's movement. This should be cleared for user, so they do not spend time to work with it.

4. Page 4: Mound counter in this page doesn't count (bug), which should be fixed

5. Page 4: Some users for adding a new Transect, inadvertently added a new mound instead. So in addition to the mound counter, there should be a counter for Transects showing the current Transect.

6. Page 5: Although the picture in the middle of the page is not interactive, users spent some time and worked with it.

7. Page 5: Buttons for photos being taken are close to each other such that some users overwritten the previous photo. So either their position should be rearranged or there should be warnings to avoid overwriting previous photos inadvertently.

8. Page 5: Some users ignored to take all the photos, although we mentioned that they are mandatory. So there should be notifications avoiding this.

9. Page5: When the first photo is taken, the page scroll down and stop on the second photo to be taken. It adds more convenience.

10. Page 5: Some users had no idea about dimension in centimeter. The corresponding instruction should be useful.

11. Page 5: Some users had difficulties to precisely adjust the slider for measurement. Adding text box may be useful.

12. Page 5: After adjusting the slider and when the user tried to scroll the page, he inadvertently changed the measurement. Again Adding text box may solve it.

13. Page 6: The same with Page 4.

14. Page 7: The map in this page is not interactive and just shows the current location and user's movement. This should be cleared for user, so they do not spend time to work with it.

15. Page 7: Many users ignored to take photo of this page because it is attached to the map and looks like a description for the map. So placing it in the middle of the page would be useful.

16. Page 8: Some users in this page figured out that they had errors in previous pages, but there is no way to edit that. So adding editing feature would be useful.

17. Page 8: Some users in this page ignored to tap "Finish". There should be notifications to remind them.

18. Adding "Exit" from the app would be helpful.

19. Adding "Sign out" from the user's account would be helpful.

5. Appendix A

Development team members attended in the Usability testing:

Team Members' Name	Number of attended test sessions
Matthew Kersten	1
Colin Hogue	0
Evelyn Adler	5
Joau Perez Guenero	1
Tory Taggart	6
Kate Van Susante	0

6. Appendix B

Bug Report Form:

Number	Name	Uniqueness	Location	Description
1	Mound Counter	*	Page 6	Doesn't count number of submitted mounds