

SOIL INFILTRATION

Evaluation Assignment 7-Usability Test Plan

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1. Introduction:

This document provides a detailed usability test plan for the application called SOIL INFILTRATION developed by undergraduate student Team4: Loam Intruders. The team has developed a website to calculate the hydration of soil and saves the time of the researcher. The document first describes the application briefly. Then it outlines the usability test events such as instructions, questionnaires, consent form, test scenarios and bug report.

2. Application Description :

Soil Infiltration is a web application which is designed to be accessed from desktop or mobile. The primary focus of this project is to help soil researcher to enter accurate values and save their time. The idea behind the application is allowing a user to get more accurate and precise measurements when it comes to recording information. We will build the app so that it will initially allow the user to set the time intervals they want to, then gets notified when the selected time intervals finally come into fruition. When the user gets notified, it will prompt them to enter the volumetric information that the soil infiltrometer shows (please note that the user will have to manually enter the information in and the time is still static during the interval). The app will show a table below that will dynamically auto-populate the information and create several different charts and graphs based-off of the recorded/calculated values.

3. Test Schedule:

There are six sessions scheduled, at least two undergraduate students will be present at each testing session to observe and assist in the testing process. The graduate student will act as the test administrator. The zoom link is scheduled and undergraduates have access to it. Administrator and undergraduate group members should arrive to the Zoom meeting early. Everyone participating (graduate, undergraduate, and testers) are expected to have access to a mic, camera, and Zoom. The Zoom meeting will be recorded for future reference. Below is the scheduled dates and time, test location and team members.

Test	Test dates and time	Test Location	Development Team Members Assisting
Test 1	13/04/2021 4pm	zoom	Franklin Van Hove, Bryan Wandrych
Test 2	14/04/2021 3pm	zoom	Nathan Kenwabikise
Test 3	14/04/2021 4pm	zoom	John Bland
Test 4	14/04/2021 5pm	zoom	Franklin Van Hove, Bryan Wandrych
Test 5	15/04/2021 4pm	zoom	Nathan Kenwabikise, Paul Rayment
Test 6	15/04/2021 5pm	zoom	John Bland, Paul Rayment

The testing session consists of two testing scenarios. Each scenario should take 15-20 minutes each. Including the pre-test and post-test surveys, the entire user testing session should take around 50 minutes.

4. TEST PROCESS:

In each session the procedure is as below

1. Pre-Test
 - (A) Instructions to participants
 - (B) Signing consent form
 - (C) Pre-Test questionnaire
2. Usability Testing
3. Post-Test
 - (A) Post-Test questionnaire
 - (B) Bug Report Form
 - (C) Testing Challenges

4.1 Pre-Test:

A. Instructions to participants:

Before starting the experiment, Once the participant arrives, the administrator will greet them and explain to them the purpose and procedure of the testing and will mention that the confidentiality of the participants will be maintained. A team member, will explain the goals and objectives of the app, then the tasks that they have to perform will be

explained briefly. Then the participants will be asked if they have any questions regarding the usability tasks.

B. Signing consent form:

Share below consent form link with the participant and once he/she accepts it, then proceed with the Pre-Test questionnaire.

<https://forms.gle/RjLRJLvWDXDEBYB77>

C. Pre-Test questionnaire:

The participant requires to complete this Pre-Test questionnaire before the usability test, he/she will be given enough time to fill this form before proceeding further.

<https://forms.gle/N7o66c6TXtYA4eV37>

Pre-Test Questions

1. Name
2. Are you interested in testing this app
 - A. Yes
 - B. No
3. Do you use smart phone/Computer
 - A. Yes
 - B. No
4. how many year have you used a smart phone/computer
5. do you prefer mobile app / web app , mention your reason
 - A. Mobile app
 - B. Web app
6. Are you research student/professor/professional (if none-mention below)
 - A. research student
 - B. Professor
 - C. Profession
 - D. Other....
7. Reason for using this app

8. Are you familiar with soil infiltration?

A. Yes

B. No

4.2 Usability testing:

Once completed, the participant will be given the link to the application. They will be asked to click the link and share their screen.

The following steps will be repeated for each scenario:

- a. The administrator will read the current scenario to the participant.
- b. The participant will then attempt to complete the scenario as described to the best of their ability, and will be encouraged to think aloud throughout.
- c. A post-scenario series of questions (content detailed later in this document) will then be asked to the participant and responses will be recorded.
- d. If this was not the final scenario, the participant will then be instructed to close out of the application and click the link again to restart the application

4.3 Post-Test:

A. Post-Test questionnaire:

After Usability Testing, another link is given to the participant as a Post-Test questionnaire. Here is the link for the questionnaire

<https://forms.gle/kEtoqEKUZE48seAm8>

Post-Test Questions:

1. Name

2. Is the application easy to navigate
(rate below: 1-low, 10 - high)

1 - 10 ()

3. Is this app useful

1. Yes

2. No

3. Maybe

3. will you use this app again

- A. Yes
- B. No
- C. Maybe

4. Do you recommend this app to your friends/colleagues

- A. Yes
- B. No
- C. Maybe

5. How is your over all experience

(Rate below : 1-low, 10-high)

1-10 ()

6. If given a chance what will you change about the app

7. For whatever reason you wanna use this app, did this met your expectation

- A. Yes
- B.No
- C.Maybe

B. Bug Report Form:

Bugs are errors in the program. Every time a user encounters a bug, unique bug number is given and the bug name. For multiple occurrences of the same bug, no description is written except the bug name and number. Here is link for bug reporting form

https://docs.google.com/spreadsheets/d/11XXkn30CnmZsvHr0UrtGb6vGrIyf7FS54IV_R5z8e9s/edit?usp=sharing

Bug Number: A bug number is an identifier provided by the usability test administrator when a user encounter a bug

Bug Names: the name of an encounter bug

Bug Description: a formal description of the bug that has been encountered

Bug number	Bug name	Bug description

C. Testing Challenges:

Testing challenges are difficulty that you or the participant might had with the testing environment not involve the app. For example a testing challenge might be a participant having difficulty sharing their screen using Zoom. Here is the link for testing challenges reporting form <https://docs.google.com/spreadsheets/d/1tOcknfMn0N39EQig1SoMHknYd4RAKRieGJynUhTUYRE/edit?usp=sharing>

Challenge number : this is a unique number for each challenge.

Challenge name : this a short name given to the challenge and used to tag the challenge.

Challenge description : this is a short description of the bug, 1 or 2 sentences.

Challenge number	Challenge name	Challenge description

5. Testing Scenarios:

Scenario1: Non Student

Scenario description:

You are a road engineer who want to test soil before constructing a road to check if that place is compatible for construction. So you wanted an app to record the data and need to analyse it by your team after research. Hence you decided to use Soil Infiltration app for this, so you are checking what is this app and how to use.

Task goals:

- Check whether user is able to enter data quickly
- Check if the user can use the app easily or is it difficult / confusing to navigate
- Check if user is able to understand what each input means
- User should be able to see his entered data
- Decide is this the reason he needed app for?

Task List:

1. Open the app from the given link
2. read popup
3. go to the instruction page to learn about app
4. and go to instruction page to learn how to use the app

Quantitative Measurement List:

- The amount of time participant spent completing the first scenario.
- Number of question asked by participant.
- No. of text fields in which participant can input arbitrary data
- Number of events when participant didn't receive any feedback for entering invalid data.
- Number of events when the app crashed for invalid input.

Qualitative Measurement List:

- Time taken
- Facial expression
- Verbal comments

Potential Observations of Participant:

- Status of the participant on successful/unsuccessful completion of test- happy/exited/confused/sad
- Level of confusion
- Overall feedback from participant

Scenario2: Professor

Scenario description:

You are a soil research student who wants an app to enter the researched data and to store it. Also you want to analyse the data at the end of the day. So you decided to use soil infiltration app for the test. Now will be testing how do you going use the app.

Task goals:

- Check whether user is able to enter data quickly and easily
- Check if the data is able to export into the sheet
- Check if the exported data is has graphs to analyse the data

Task List:

1. Open the app from the given link
2. there will be a pop up, take your time and read it
3. In welcome to soil infiltration page enter the given input
time interval in seconds -----15
soil infiltrrometer radius ----mini disk
soil type -----sandy clay
suction ----- -3
4. Enter the 5 volumetric data after the time interval.

quickly enter volumetric data
enter volumetric data : 50

quickly enter volumetric data
enter volumetric data : 40

quickly enter volumetric data
enter volumetric data : 30

quickly enter volumetric data
enter volumetric data : 20

quickly enter volumetric data

enter volumetric data : 0

5. Submit volume and check entered data in the below table

6. once the data gathering is completed,

enter title as Test,

enter Gps location :

longitude : -83

latitude : 42

save and return to main page.

Quantitative Measurement List:

- The amount of time participant spent completing the scenario.
- Number of question asked by participant.
- The number of attempts taken before completing the first scenario
- No. of text fields in which participant can input arbitrary data
- Number of events when participant didn't receive any feedback for entering invalid data.
- The time spent by participants for looking around the website before completing the task
- Number of events when the app crashed for invalid input.

Qualitative Measurement List:

- Time taken
- Facial expression
- Verbal comments

Potential Observations of Participant:

- Status of the participant on successful/unsuccessful completion of test- happy/exited/confused/sad
- Level of confusion
- Overall feedback from participant

Scenario3: Non student

Scenario description:

your a soil research student who wants an app to enter the researched data and to store it. Also you want to analyse the data at the end of the day. So

you decided to use soil infiltration app for the test. Now will be testing how do you going use the app.

Task goals:

- Check whether user is able to enter data quickly and easily
- Check if the data is able to export into the sheet and share it
- Check if the exported data is has graphs to analyse the data

Task List:

1. open previous test data
2. edit test name as 'Tested', save and return.
3. review it.

Quantitative Measurement List:

- The amount of time participant spent completing the scenario.
- Number of question asked by participant.
- The number of attempts taken before completing the first scenario
- No. of text fields in which participant can input arbitrary data
- Number of events when participant didn't receive any feedback for entering invalid data.
- The time spent by participants for looking around the website before completing the task
- Number of events when the app crashed for invalid input.

Qualitative Measurement List:

- Time taken
- Facial expression
- Verbal comments

Potential Observations of Participant:

- Status of the participant on successful/unsuccessful completion of test- happy/exited/confused/sad
- Level of confusion
- Overall feedback from participant