Water Erosion Prediction Project (WEPP)

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Team 6

DESCRIPTION

- OBJECTIVE: To collect climate, topography, soil, and vegetation properties to predict plant growth, residue decomposition and soil water balance

- Purpose: Predict runoff, erosion and sediment delivery

TESTING PROCEDURE

- Consent Form
- Description of the application and its purpose
- Pre-test Questionnaire
- Predefined set of test scenarios
- Post-test Questionnaire

DATA COLLECTED

▸ QUANTITATIVE MEASUREMENTS

  ▸ Time Taken for each task
  ▸ Number of times participants asked for assistance
  ▸ Number of user errors

▸ QUALITATIVE MEASUREMENTS

  ▸ User's Reaction while performing the task

  ▸ User's Comment after and while performing each task

# TEST RESULTS SUMMARY

- Application easy to use

- Overall performance good, just minor issues

- Instructions clear to understand

- Interactive map but used lots of screen space, difficult to scroll on phones
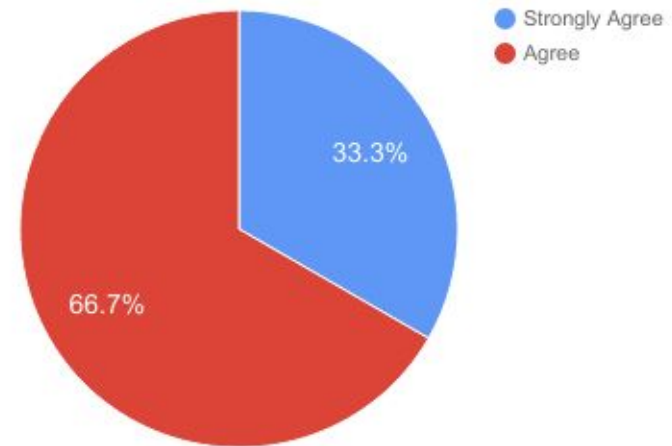
- Permissible range of input field values not given

PRE-TEST QUESTIONNAIRE

▸ Total 6 participants

Aware of the factors having impact on Erosion

● Strongly Agree
● Agree
● Neutral

16.7% 16.7%
66.7%
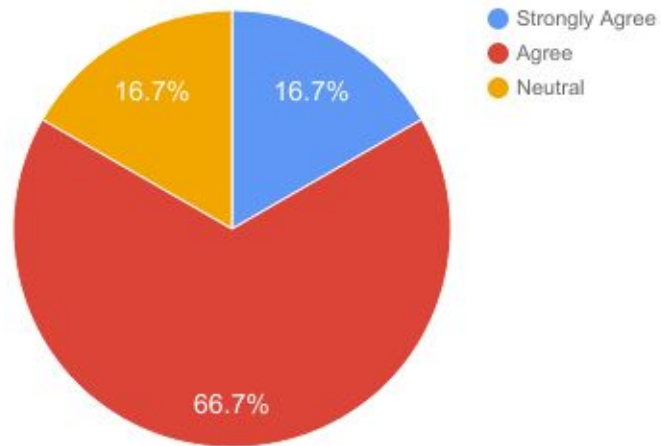
Interested in using the Application
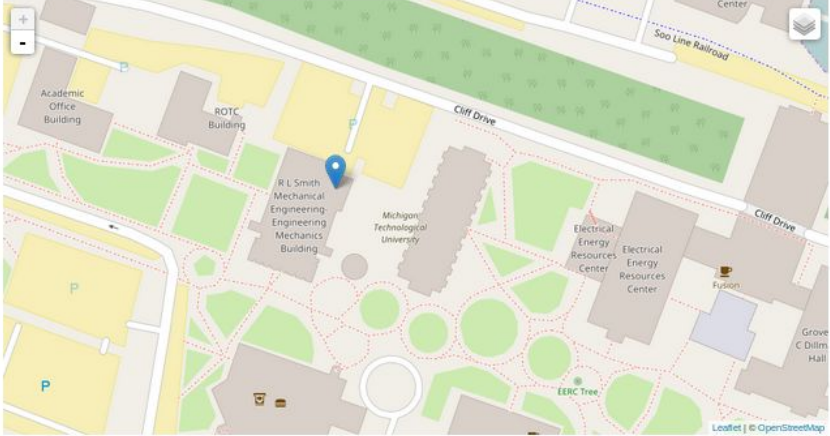
● Strongly Agree
● Agree

33.3%
66.7%

TEST SCENARIOS

▸ Scenario 1: Get latitude and longitude using map and use autofill option to auto populate some of input fields for predefined coordinates

▸ Results:

Avg. time taken (min)	Number of errors	Asked for assistance
<2	0	0

▸ Scenario 2: Fill up using the instructions given

▸ Result:

Avg. time taken (min)	Number of errors	Asked for assistance
<2	0	0

Water Erosion Risk Model

Auto fill form

Soil Texture

Determine which of the following particles make up the majority of the soil (if any): sand, silt, clay: the choice of loam indicates that the soil is composed of roughly equal amounts of clay, silt, and sand. This field can be autofilled via the Autofill button, in the U.S.

clay

Rock Content (%)

The amount of rocks visible on the surface of the hillslope. This field can be autofilled via the Autofill button, in the U.S.

Slope Length (ft)

The horizontal change in the position from the bottom to the top of the hillslope, in feet.

Slope Gradient (%)

The slope is the change in vertical position over the change in horizontal position from the bottom of the hillslope to the top. The slope gradient is the percentage of slope, or slope x 100. This field can be autofilled via the Autofill button, in the U.S.

Vegetation

Choose the best description of the vegetation concentration of the hillslope.

Mature forest

Cover (%)

Describe the percentage of the hillslope soil, which is covered by natural ground covering (vegetation, dead plant material, rocks, etc.). The coverage of a hillslope can be estimated by taking 20 steps accross the hillslope and counting how many times you step on natural ground covering.

Climate

Select the location, which is closest to you. The list is of climate stations, each of which is defined by the location of the station.

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Years to run

Input the number of years between 1 and 200, for which to run the model.

Submit

- Scenario 3: Predicting the input field values of the given picture and use them to predict the erosion of that area

- Result:

| Avg. time taken (min)	Number of errors	Asked for assistance
<5	2	6

BUG SUMMARY

- "Share my location" not working on phone

USABILITY CONCERNS

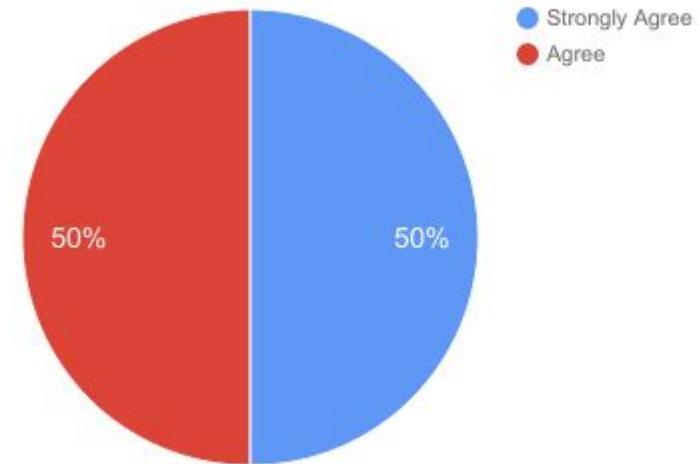- Low Erosion risk message displayed as "Success"

- Output table was partly hidden by the menu bar

- Map occupied most of the screen, difficult to scroll

POST-TEST QUESTIONNAIRE

Satisfied with overall experience of the application

- Strongly Agree
- Agree

33.3%

66.7%

Easy to use

- Strongly Agree
- Agree

50%   50%
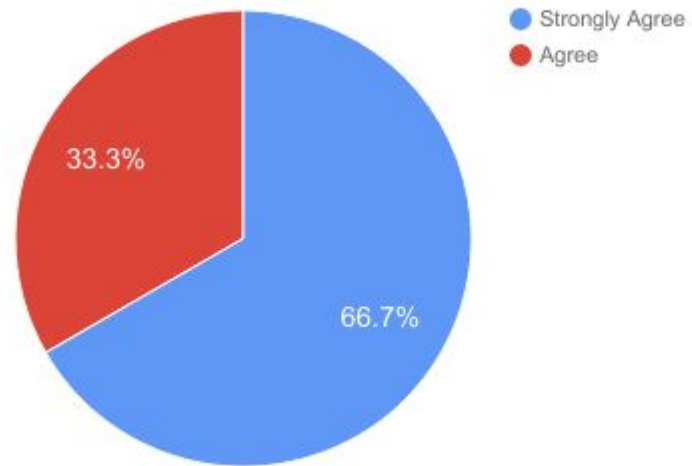
SUGGESTIONS

▸ Use second page for the input field or hide the map after getting latitude and longitude

▸ Mention range of values allowed for each input field

MORE DETAILS

- A more detailed report for usability testing would be posted on my website soon.