

# Heuristic Evaluation

## Green Space Team

### **Team members:**

#### Undergrad students:

- Austin Gennrich
- Michael Romero
- Colin Dohne
- Jordan Bramer
- Kyle McIntyre
- Sid Regmi

#### Grad students

- Haoyang Chen
- Ram Sudda

By Haoyang Chen

## **App description:**

This app allows users to locate and track green spaces such as wetlands, public gardens, greenways, etc. Users can upload information such as photos, location, green space categorization to update the database of the app. There are several purposes of the app: 1) improve general population's knowledge and awareness about the green infrastructure; 2) improve the quality of data points from users via the user interaction; 3) provide a large amount of high-quality data for research in term of wetland map, indicators, and model.

## **User Interface (UI) Domain:**

Given that the main purpose of this App is to improve general population's knowledge and awareness about the green infrastructure, and the secondary purpose is to collect data points for green space environmental research. The UI domain can be identified as "web app for green environmental education".

## **Heuristic Usability Principles:**

Visibility of system status:

When the user searches the green space in the app, the corresponding green space should be displayed within reasonable time on the map.

When the user completes a quiz, a feedback or correct answer should be showed to the user.

When the user uploaded some photos, a feedback to tell whether the photos are accepted should be showed.

Match between system and real world:

The app should use the standard English for any page and tag, and other language version (e.g., Spanish, Chinese) can be considered to provide.

The App should avoid using too many professional terminologies.

User control and freedom:

At any specific page (no matter the map page or photo uploading page or other pages), a "return" or "cancel" button should be always along with which, so that the user can escape from the mistake.

Constancy and standards:

Making sure all terminologies about green space that using in the App as easy to understand as possible and are constancy under different circumstances.

Keep the style of App in all pages and subtabs.

Error prevention:

Different functionalities tab or page should be clear enough and prevent error from occurring so that provide users with smooth experience. Avoiding using confused descriptions.

Recognition rather than recall:

The color and style of different tabs should be significant. Avoid using confused icon or too small tab for different functionalities.

In the map page, if a user located a place, more information should be visible on that page.

Flexibility and efficiency of use:

Provide as many as possible shortcuts for user in the App between different functionalities tabs. For example, if a user wants to take a quiz immediately when he or she is searching for location on the map tab, the quiz page should be able to reach in less than two steps.

Aesthetic and minimalist design:

Because the App is mainly for educational purposes, the most important thing for the App is the make sure all the content and information provided by the App is correct. Especially for the category, location, and description to the corresponding photo.

Help users recognize, diagnose and recover from errors:

Provide enough information for user when they have mistaken behaviors in the App.

If an user search a location that does not exist, useful information should be showed. If the App cannot provide corresponding information, it can provide correlated suggestions.

Help and documentation:

The app should include a help section that explains how to use. The statement should be simple to read and free of complexity and technical terminology.

For research user, there should be a clear instruction for them about how to attain the data.

## **Potential Usability Problems:**

1. The landing page style and color contraction maybe not that good and user friendly enough to be visible easily. The arrangement is not that concise enough and the layout can be further modified.
2. The landing page should list all subtabs or options shortcut for different functionalities to increase user efficiency.
3. If the quiz does not provide feedback or correct answer, it may do harm to the effect of education.
4. There is no "return" or "cancel" button in any step of the photo upload page, this is a serious problem related to user control principle.

5. If the App allow users to add their own category labels to the certain photo, there would be a disaster effect to the data quality. This violates the Aesthetic and minimalist design principle.
6. In the page of infrastructure description, the shortcut to other subtab or page is not significantly visible
7. There is not a Help and documentation page for new users who has no idea about how to utilize this App.

## Critical Usability Concerns:

- There is no “return” or “cancel” button in any step of the photo upload page.

Scenario: Joe is a new user of this App. After a week’s familiar with the contents on the App, he learned a lot about green space infrastructure. He becomes a big fan about the this now, and decide to make more contributions to the community. He now want to upload some green space he found around him. When clicking into the upload page, when finished uploading, he doesn’t know how he should categorize the photo, so he wants to return to see how others label the photo. However, he finds that he has no way to cancel the uploading process or return to the homepage.

- The data point would be not that high quality if the App allows user to tag or categorize the photo with their own words.

Scenario: Mike is a researcher user of this App. He recently is doing environmental research on public green space and infrastructure. He wants to build an image recognition model that can classify different type of green space photo. One of the difficulties that he is facing is the lack of a large volume of labeled green space image dataset. Knowing about this App, he decides to get data from this App. However, the data on this App disappointed him because he finds that photo on the App have different categorize labels rather than fix unified labels. Such kind of data is not that useful for classification problem.