

# Human Computer Interaction & Usability Testing

## Design Support Document

### Green Storm Water



# Team 3

## **UX Consultants :**

1. Soufia Bahmani
2. Aditya Patil
3. Aakash Gunda

## **Developers:**

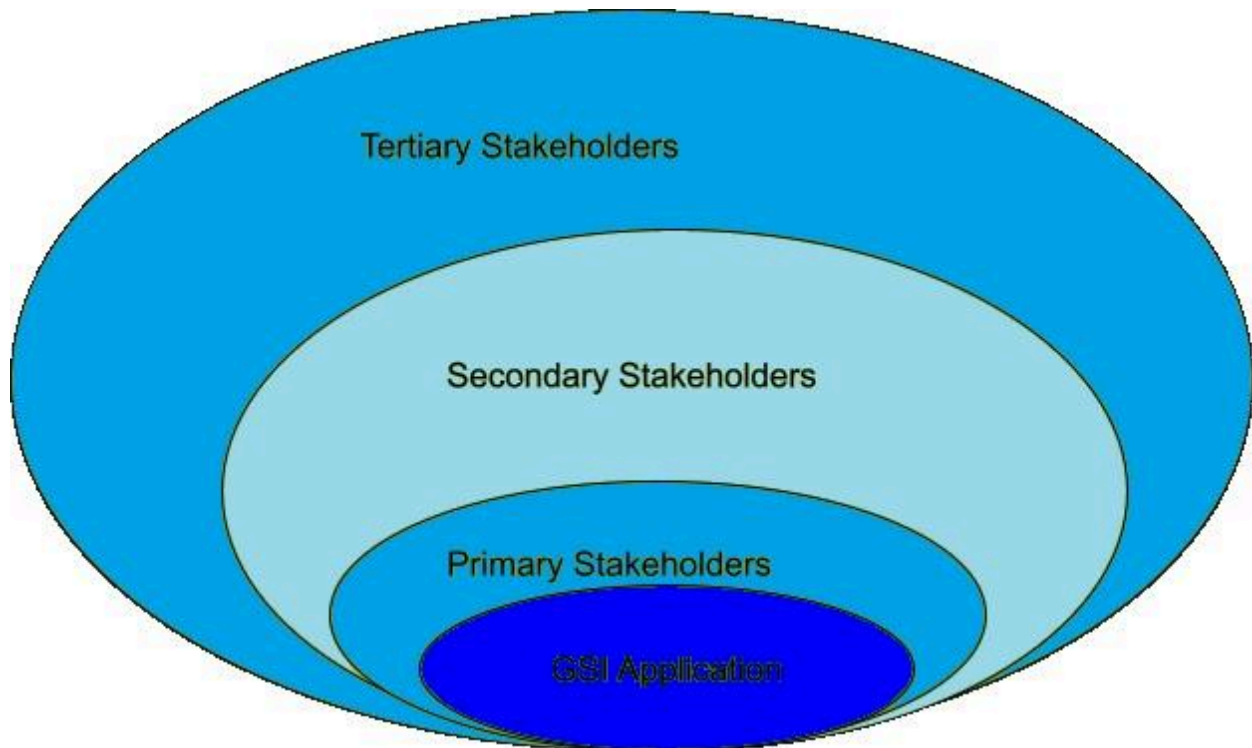
1. Kevin Bak
2. Patrick Janssen
3. Sean McFall
4. Andrew Koman
5. Leela Root
6. Matthew Cronin
7. Maxim Reuchlein

## **Scientist:**

1. Jessica Alger

## App description:

The app idea, as outlined in the "GSI App Description" document, is centered around educating users about Green Stormwater Infrastructure (GSI) in Southeast Michigan. It aims to increase awareness and understanding of GSI's role in urban stormwater management, especially in the context of changing weather patterns. The app features educational content and an interactive map to engage various user types. Through this app, users can learn about GSI, contribute data, and potentially influence urban planning decisions regarding stormwater management. The app is designed to increase awareness about the role of green infrastructure in urban stormwater management, especially under the challenges posed by increasingly unpredictable weather patterns. Its features include an educational section providing insights into soil infiltration and different stormwater management infrastructures, and a map showing the locations of green infrastructure in the area. The app's primary goals are to educate users, encourage the identification of new green infrastructure sites, and support urban planning efforts to mitigate flooding.



## Stakeholders Description

### **1)Primary Stakeholders:**

High School Students: They are the main users of the app, expected to engage with its content to learn about Green Stormwater Infrastructure (GSI). Their interaction with the app includes uploading and analyzing green space data.

High School Teachers: They facilitate the use of the app as a learning tool in their curriculum, guiding students on how to use the app effectively for educational purposes.

General Public: This group includes environmentally conscious citizens and other individuals interested in urban planning and sustainable practices. They use the app to gain knowledge about GSI and to view green spaces on the interactive map.

### **2)Secondary Stakeholders:**

Community College Students and Instructors: They are likely to use the app for more advanced educational purposes, possibly for research projects or as part of environmental studies courses.

MTU Environmental Engineering Students: They might use the app for fieldwork, contributing to and analyzing data, and as a resource in their academic work.

Amateur Scientists: This group contributes to citizen science aspects of the app, using it to provide data and insights based on their personal observations and experiments.

### **3)Tertiary Stakeholders:**

Urban Planners: Professionals in urban development might use the app's data to inform planning decisions and understand public sentiment around GSI.

Environmental Scientists: They have an interest in the data collected and shared through the app for research into the effectiveness of GSI.

App Developers: They are responsible for the technical development and maintenance of the app, ensuring it meets the needs of other stakeholders.

## Stakeholders' goal-influence table:

Stakeholder	Goals	Contributing Influences	Constraining Influences
High School Students	Learn about GSI, contribute data	School curriculum, teacher support, app usability	Limited time, lack of interest, poor app interface
High School Teachers	Educate students, facilitate app usage	Educational content of the app, training in app usage	Curriculum constraints, lack of resources
General Public	Gain knowledge about GSI, access green space information	Public interest in sustainability, ease of app access	Lack of awareness of the app, disinterest in environmental issues
Community College Students	Apply learning in real-world settings, contribute to research	Coursework alignment, research opportunities	Academic workload, lack of practical application
Community College Instructors	Teach about GSI, use app for coursework	Academic freedom, availability of educational resources	Institutional restrictions, time constraints
MTU Environmental Engineering Students	Utilize app for studies, contribute data	Academic projects, interest in sustainable practices	Limited real-world application, theoretical focus

<b>Amateur Scientists</b>	<b>Engage in citizen science, support GSI research</b>	<b>Personal interest, community of practice</b>	<b>Limited recognition, lack of collaboration with professionals</b>
<b>Urban Planners</b>	<b>Use data for urban planning, improve stormwater management</b>	<b>Access to diverse data sets, community engagement</b>	<b>Political constraints, budget limitations</b>
<b>Environmental Scientists</b>	<b>Research GSI effectiveness, publish findings</b>	<b>Academic grants, research interest in GSI</b>	<b>Limited public data, funding restrictions</b>
<b>App Developers</b>	<b>Create a useful and engaging app, maintain functionality</b>	<b>Technological expertise, user feedback</b>	<b>Technical limitations, budget constraints</b>

**Persons:**

**1)Persona for High School Student: Emily**

Demographic Information:

- Age: 15 years old
- Grade: Sophomore in high school
- Interests: Environmental science, photography, and social media

Goals:

- Learn more about environmental conservation efforts, specifically Green Stormwater Infrastructure (GSI)
- Contribute positively to her community by participating in environmental projects
- Share her experiences and findings with peers to raise awareness

#### Motivations:

- A strong desire to contribute to environmental sustainability
- Interest in using technology to connect with like-minded individuals and share information
- Curiosity about the impact of GSI on her community's well-being

#### Frustrations:

- Lack of accessible, engaging platforms to learn about and contribute to environmental projects
- Difficulty in finding opportunities for hands-on involvement in her community's environmental efforts

#### Interaction with the App:

- Uses the app to locate GSI projects near her home and school
- Takes and uploads photos of green areas, adding information about the area's environmental importance
- Views other users' submissions to learn about different GSI locations and their benefits
- Shares her contributions and interesting findings on social media to encourage her peers to participate

## **2) Persona for High School Teacher: Mr. Thompson**

#### Demographic Information:

- Age: 42 years old
- Occupation: High School Science Teacher
- Interests: Teaching, environmental activism, community gardening

#### Goals:

- Educate students about environmental issues and solutions, focusing on Green Stormwater Infrastructure (GSI)
- Encourage hands-on learning through community engagement and technology
- Foster a sense of environmental stewardship among students

#### Motivations:

- Passion for teaching and making a difference in students' awareness and actions regarding environmental challenges
- Belief in the importance of practical, real-world applications of classroom lessons
- Desire to integrate technology into education to enhance learning experiences

#### Frustrations:

- Limited resources and platforms for effectively teaching complex environmental concepts
- Finding engaging ways to involve students in environmental initiatives outside the classroom

#### Interaction with the App:

- Guides students in using the app to discover and document GSI projects
- Organizes class projects around uploading and discussing GSI sites
- Utilizes app data for lesson planning and to spark discussions on environmental impact and sustainability
- Acts as a mentor, encouraging students to explore and contribute to the app's GSI database

### **3)Persona for Scientist: Dr. Jessica Alger**

#### Demographic Information:

- Age: 38 years old
- Occupation: Environmental Scientist specializing in urban sustainability
- Interests: Research on sustainable urban development, community engagement in environmental initiatives

#### Goals:

- Promote the implementation and understanding of Green Stormwater Infrastructure (GSI) in urban areas
- Engage with the public and educational institutions to spread awareness about environmental sustainability
- Monitor and evaluate the effectiveness of GSI projects in Southeast Michigan

#### Motivations:



- A deep commitment to environmental conservation and sustainable urban planning
- Desire to leverage her expertise to facilitate community involvement in environmental projects
- Interest in gathering and analyzing data to support GSI benefits and improvements

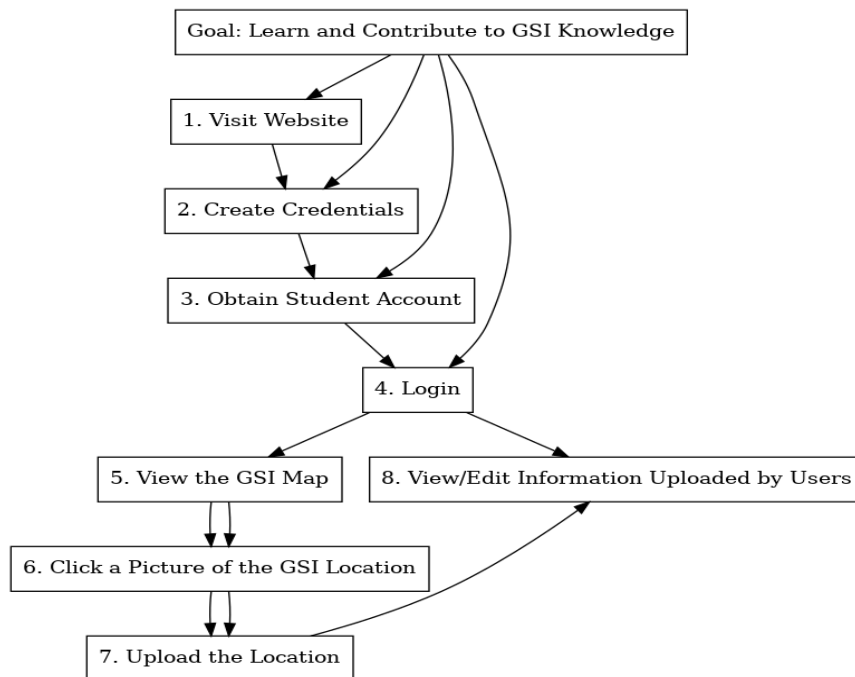
Frustrations:

- Challenges in communicating complex scientific concepts to a non-expert audience
- Limited public awareness and participation in local environmental initiatives

Interaction with the App:

- Moderates submissions to ensure accurate and valuable information about GSI locations is shared
- Provides expert insights and feedback on GSI projects submitted by users
- Uses the app to disseminate research findings and promote educational content on GSI benefits

### Hierarchical Task Analysis for Green StormWater App Usage



## Meeting Notes:

### **User Accounts:**

- Implementation of a moderator login plus a generic login for users.
- The system will allow multiple simultaneous logins.
- Viewing capabilities without login; uploading pictures requires user authentication.

### **Content Moderation:**

- Moderation will primarily involve the removal of inappropriate content.
- The moderator account will have the capability to easily remove content.

### **User Information Requirements:**

- Only the name of the high school is required from the uploaders.

### **Platform Focus:**

- Primary development focuses on mobile usability.
- Ensure compatibility with desktop platforms as a secondary objective.

### **Location Data Specification:**

- Use point coordinates for location data.
- Detailed viewing is enabled through map zoom functionality.

### **Design Preferences:**

- Preference for a white background color; no specific requirements for other colors.
- There are no particular requirements for a background image, with openness to suggestions.