# Chapter 3 Development Process

In this work, the development process consisted of two development stages: the user experience (UX) design process and the Scrum Process. The User Experience (UX) Design Process is a structured approach to creating products (especially digital ones like websites) that are easy, enjoyable, and effective for users. The Scrum process on the other hand is a framework used in Agile software development. It helps teams work together to deliver products in short, iterative cycles called sprints. The User Experience (UX) Design Process was used to design the website while the Scrum process was used to develop the website. This chapter outlines what was done during each development stage to bring the website from concept to implementation.

## 3.1 User experience (UX) design process

## 3.1.1 Research

The development commenced with a research phase to get insights into users, their needs, behavior and some of the barriers that are likely to hinder them to engage in sustainability actions. They were done in two main ways:

1. Interview: Interview by the Head of the Green Campus Initiative in the university conducted on Wednesday, 20 November, 11 AM, at the Rhetoric Building, 2 nd floor. This was done to know challenges that organizations experience in ensuring sustainability and to know the service gap. The barriers to adoption, reward systems and improvements required were addressed as questions. Some of the main insights were the absence of user-friendly platforms and the necessity of feedback and recognition of sustainable actions.
2. Focus Group: Held in the group of 17 people (8 boys and 9 girls), aged 19-46. The members of the public and university students were the participants. The group talked about what would make them act sustainably, or not, how they would like to do so, and what would they require in a digital platform. The majority of respondents said they wanted to do something but were not able to find available and visible platforms to follow their will.

The main insights were that individuals would like to participate in sustainable activities but they require a centralized, straightforward, and entertaining platform that enables them to easily do and monitor the impact. These lessons were used as basis in other design process.

## 3.1.2 Define Problem

Based on the results of the interviews and the focus groups, the ultimate problem was defined as “The collective, publicly available platform through which individuals or organizations can engage in sustainability targets in a transparent and measurable manner does not exist.” In order to interpret and solve this problem:

Two personas were created:

• A User Persona of ordinary persons who are interested in becoming contributing to sustainability.

• A Corporate Persona that applies to organizations that strive to have sustainable strategy in place.

Based on these personas, Red Routes were designed on both user and corporate journeys to determine the most valuable actions such as signing up, donating, viewing impact and volunteering. These helped prioritize the core features in development.

## 3.1.3 Ideate

After the identification of the problems and goals, the ideation phase started:

* Approximately 15 low-fidelity wireframes were drawn on A4 pieces of paper as a way of sketching layout, buttons, and structure.
* Such sketches assisted in discussion of the possibilities of streamlining the user experience and pointing out the possible flaws in the interface early.
* During the development, the design was changed and modified- e.g. changing a traditional navbar into one Start Here button to simplify navigation.
* Real websites such as GoFundMe and Ecosia were additionally used as inspiration, particularly due to uncomplicated design, light color palette, and straightforward user navigation.

## 3.1.4 Prototype

After sketching:

* Figma was used to create high-fidelity wireframes demonstrating end-result color schemes and components, as well as interactiveness.
* Lucidchart was also used to create a functional website layout diagram on how each page would expand.
* These tools have served the purpose of making the design consistent, simple and in accordance with what the users would have expected of the platform.

## 3.1.5 Test

The prototypes of the early websites were tested among 6-7 MSc Computer Science students, who were asked to provide feedback in terms of usability. Key learnings from testing:

* There were too many buttons, and this confused the users hence simplification of navigation.
* Feedback provided contributed to bringing AI-based recommendations to the activity, which directs the users based on their performance.
* A voice activated emoji welcome option was provided to increase engagement.

This feedback allowed to streamline the design into a nicer more usable design.

## 3.1.6 Implement

After finalizing the design:

* It was constructed with a React.js (Frontend), the Node.js and Express (Middleware), and Supabase (Database).
* The system made sure that all the design, functionality and features were correctly coded.
* The mobile app is being developed by another member of the team, and the projects have a common backend and database, which guarantees the seamless user experience on both platforms.

## 3.2 SCRUM process

## 3.2.1 Product Backlog.

A complete Product Backlog was developed (in the appendices), and all the user and corporate stories, technical tasks and even anticipated bugs are listed. The tasks were ranked on the basis of importance and technical complexity. The product backlog made sure development of key elements such as user login, donation pages, dashboards and analytics were implemented at the beginning.

## 3.2.2 Sprint Planning

Planning of stunts was carried out on a regular basis and involved meetings with the App Researcher and the project supervisor.

* The platform was divided into two big modules, User Side and Organization Side.
* The first was the User Side, which was then further subdivided into such individual features as Donation, Volunteering, Advocate, Reuse-Reduce-Recycle, Protect Wildlife and Strengthen Body-Mind-Sprit.
* Meetings were taken with Mobile App Developer and the supervisor twice a week to organize feature alignment and to share the responsibilities.
* The data obtained in the app and the site should be kept in sync hence the design of the backend database tables to cater to both platforms.

## 3.2.3 Weekly Scrum Meetings and Sprint Reviews

* Sprints were reviewed every two weeks with the supervisor, where the work done was presented and feedback obtained.
* Questions like What should we do next? and Is this feature clear enough? and How can we make it better? were discussed in these sessions.
* Then the changes were implemented in the following sprint cycle.
* Although the mobile app was a separate project, there was always direct communication with the team, which made coordination, compatibility, and understanding.

## 3.3 Final Product Testing and Evaluation

After development:

* The system was tested on 5 MSc students who were asked to complete simple activities such as registering, making a donation, looking at dashboards and viewing recommended actions.
* Feedback focused on:
  + - Button visibility and layout clarity
    - The helpfulness of AI recommendations
    - Speed and responsiveness of pages
* With this, slight CSS adjustments were performed in order to enhance font sizes, spacing of buttons and page alignment.

The analytics functions were also utilized to track the interaction of users after testing and this will still be used to update the future.