**Login Page**

A screenshot of a login screen

Description automatically generated

The login page constitutes the principal entry point for authenticated access to the functionalities of this specific system, which is built using Next.js. This interface, meticulously designed with a rigorous emphasis on security and user experience, allows users to input their credentials, typically consisting of a unique username and a secure password. Advanced encryption protocols are employed to safeguard sensitive information during transmission. Furthermore, it adheres to stringent accessibility standards, ensuring usability for individuals with diverse needs. The login page is an essential component in maintaining the integrity and confidentiality of user data within this system.

**Register Page – User 1**

A screenshot of a computer

Description automatically generated

The register page designed for ordinary users serves as a crucial interface for the initial enrollment into the system, facilitating the capture of essential user information. This page is structured to gather comprehensive personal data, ensuring both the authenticity and accuracy of user profiles. The registration process mandates the input of the following fields: Front Name, Family Name, UserName, IC Number for tax purposes, birthdate, email, Malaysian phone number, and address. Each field is meticulously validated to adhere to regulatory standards and ensure data integrity.

Advanced validation techniques are implemented to ensure the accuracy and consistency of the submitted data. For instance, the Front Name and Family Name fields require alphabetic input, while the UserName field enforces uniqueness within the system. The IC Number is cross-referenced against national databases to authenticate identity for tax purposes. Birthdate validation ensures age appropriateness, and the email field utilizes verification protocols to confirm the authenticity of the email address. The Malaysian phone number is formatted and validated for regional compliance, and the address field supports structured input to enhance geolocation accuracy.

The design of the registration page is informed by principles of usability and accessibility, providing a seamless user experience. The interface is responsive, ensuring compatibility across various devices and screen sizes. Additionally, the registration page complies with accessibility guidelines, featuring keyboard navigability, screen reader compatibility, and alternative text for visual elements.

**Register Page – User 2**

A screenshot of a computer

Description automatically generated

To accommodate users who may have inadvertently navigated to the registration page, a prominent 'Cancel Registration' button is provided. This feature allows users to swiftly return to the login page without losing their previous session. This ensures that users' experience remains fluid and error-free.

Furthermore, the registration process includes the requirement for users to set a secure password. Passwords are encrypted using advanced hashing algorithms, ensuring that even in the unlikely event of a data breach, user passwords remain protected and indecipherable. This commitment to security is paramount, reflecting the system's dedication to safeguarding users' personal information.

The design of the registration page is informed by principles of usability and accessibility, providing a seamless user experience. The interface is responsive, ensuring compatibility across various devices and screen sizes. Additionally, the registration page complies with accessibility guidelines, featuring keyboard navigability, screen reader compatibility, and alternative text for visual elements.

Register Page – Company 1

A screenshot of a computer

Description automatically generated

Register Page – Company 1

The register page for companies and organizations is designed to capture the necessary information for enrolling corporate entities into the system. This page allows users to switch between individual user registration and company/organization registration using a simple toggle feature.

The registration process for companies requires the following fields: Person In Charge Data (name, email, phone), Company Username, Company Name, Company Creation Date, Company Email, Company Phone Number, and Company Registration Number. Each field is validated to ensure accuracy and compliance with standards.

The Person-In-Charge Data section checks the name, email, and phone number for correctness. The Company Username must be unique within the system. The Company Name and Company Creation Date ensure proper identification of the company. The Company Email and Company Phone Number are verified for authenticity, and the Company Registration Number is validated against national databases.

The design of the company registration page focuses on usability and accessibility. The interface is responsive, working well on various devices and screen sizes. The page also supports keyboard navigation, screen readers, and includes alternative text for visual elements.

Register Page – Company 2

A screenshot of a computer

Description automatically generated

To further enhance the registration process, the page also includes a field for the Company Address Line. This field ensures that the physical location of the company is accurately recorded, aiding in precise identification and correspondence. The address field is designed to accommodate various address formats and is validated for completeness and accuracy.

**Home Page – User & Company**

A screenshot of a computer

Description automatically generated

The design and functionalities of the home screen are crafted to enhance user engagement with environmental initiatives. The home screen features personalized welcoming remarks that display the user’s name, creating a friendly and engaging atmosphere. This customization leverages user-specific data from the system's database to generate dynamic greetings.

Central to the home screen is the data visualization of carbon emissions reduced by NOW2. This interactive chart offers an immediate and clear understanding of the environmental impact of the user’s actions. The visual aids are updated in real-time, ensuring that users remain informed and motivated by their contributions to carbon reduction.

Another significant component of the home screen is the visualization of the total amount of money donated by users. This is depicted through pie charts and bar graphs, promoting transparency and accountability. By showcasing the cumulative donations, these visualizations encourage further contributions by highlighting the collective impact.

The home screen also includes a visualization of the user’s progress in donating, calculated using the formula: emissions = activity data x emissions/kg CO2 - Activity Data x Emission Factor. This calculation quantifies the reduction in emissions due to user activities. The progress is depicted through progress bars and percentage indicators, offering a clear and engaging representation of the user’s achievements.

To facilitate further user engagement, the home screen features a prominently placed button labeled “Find landfills near you.” This call-to-action button directs users to a secondary interface where they can locate nearby landfills and initiate donations. The button is designed for ease of use and accessibility, ensuring a seamless navigation experience for users.

Overall, the home screen integrates these features to enhance user engagement and promote sustained participation in environmental initiatives. The personalized welcoming remarks, comprehensive data visualizations, and intuitive interaction mechanisms effectively bridge the gap between awareness and action, encouraging users to actively contribute to environmental conservation efforts.

**Home Page - 2**

A screenshot of a computer

Description automatically generated

As users scroll down the home screen, they are presented with a detailed transactions section, which chronicles their individual contributions and activities. This section is designed to provide a comprehensive overview of all transactions, showcasing each donation and activity in a chronological order.

The transactions are displayed with pertinent details such as the date, type of activity, and the amount donated, presented in a clean and easily readable format. This transparent tracking of contributions not only assures users of their personal impact but also fosters a sense of accomplishment and continuous engagement.

Additionally, the scrolled version of the home screen includes a finished history section. This segment chronicles the user's completed environmental initiatives, offering a retrospective look at their journey and achievements. Each entry in the finished history is accompanied by visual indicators of success, such as badges or stars, symbolizing milestones reached and goals accomplished.

Overall, this enhanced version of the home screen ensures that users have access to all necessary information at their fingertips, promoting ongoing participation and commitment to environmental causes.

**Home Page – Side Navigation**

A screenshot of a computer

Description automatically generated

The navigation bar on the Net Zero Waste Wise platform is designed with simplicity and user-friendliness in mind. The navigation bar includes essential buttons to effortlessly guide users through the platform’s core functionalities.

- Home: Takes users back to the main home screen where they can view their personal dashboard, including their donation progress, transaction history, and other key metrics.

- Donate: Directs users to the donation page, allowing them to contribute to environmental causes or specific projects with ease.

- Settings: Provides access to user settings, enabling customization of the user experience and management of personal preferences.

- Credits: Displays a list of contributors and supporters, recognizing the efforts of those who have made significant impacts.

- Logout: Offers a straightforward way for users to securely sign out of their accounts.

These buttons ensure that users can navigate the platform smoothly and efficiently, enhancing their overall experience and promoting sustained engagement with the platform’s environmental initiatives.

**Choose Landfill Area Page**

A screenshot of a computer

Description automatically generated

Upon activation of either the “find landfills near you” button or the "donate" button within the side navigation, users are systematically redirected to a dedicated interface that facilitates the selection of a proximate landfill area. This redirection mechanism is integral to enhancing user interaction with the platform's geographical data.

**Choose Landfill Page**A screenshot of a computer

Description automatically generated

Upon selecting a specific area, the system dynamically presents a detailed list of landfills located within the chosen geographical region. This presentation employs a card-style format, wherein each landfill is encapsulated within an individual card. Each card is meticulously designed to include comprehensive information about the landfill, such as its name, exact location, and contact number. This layout ensures that users are equipped with all necessary details to make an informed decision regarding their landfill selection.

Moreover, the system integrates the Google Maps API, enhancing user interaction and navigation capabilities. This integration allows users to seamlessly navigate to the selected landfill with a single click. The embedded map feature provides real-time directions and additional geographical information, thereby optimizing the user experience and ensuring efficient navigation. Such a system design not only facilitates the selection process but also promotes user confidence in the accuracy and reliability of the provided information.

**Landfill Details Page**

A screenshot of a computer

Description automatically generated

Upon the user's selection of a specific landfill, the system progresses to the Landfill Details Page. This page is designed to allow users to confirm their selection with precision. The interface presents a locking mechanism, ensuring that users can securely finalize their choice. Subsequently, the system provides an extensive description of the selected landfill.

The Landfill Details Page is meticulously structured to offer comprehensive information about the landfill. This includes detailed data such as the landfill's operational status, capacity, environmental impact, and any ongoing or planned initiatives related to waste management and sustainability. The page also integrates user-generated reviews and ratings, fostering a community-driven evaluation of the landfill's performance and reliability.

By offering a detailed overview, the platform ensures that users are well-informed and confident in their decision-making process. This design not only enhances transparency but also supports the platform's goal of promoting environmental stewardship through informed user engagement.

**Choose Waqf Page**

A screenshot of a video

Description automatically generated

Upon the user's confirmation and locking in of a specific landfill, the system engages a sophisticated caching mechanism to store the associated data locally. This process ensures that all pertinent landfill details are readily accessible for future reference and offline usage, thereby enhancing the overall efficiency and reliability of the platform. The caching of data not only optimizes performance but also mitigates potential disruptions due to connectivity issues, ensuring a seamless user experience.

Subsequently, the system orchestrates a smooth transition to the Waqf Selection Page. This page employs a card-style visualization, mirroring the layout of the previous landfill selection interface. Each waqf is presented within an individual card, meticulously designed to display critical information such as the name, phone number, and address of the waqf. This layout facilitates quick and intuitive access to essential details, enabling users to make informed decisions with minimal effort.

The integration of this card-style visualization, coupled with the local caching of landfill data, exemplifies the platform's commitment to providing a user-centric experience. By ensuring the availability of comprehensive and easily accessible information, the platform effectively supports users in their decision-making processes, promoting both environmental stewardship and community engagement.

**Waqf Details Page**

A screenshot of a computer

Description automatically generated

Upon the user's interaction with a specific waqf card, the system navigates to the Waqf Details Page. This page is meticulously crafted to present additional pertinent information about the selected waqf. The interface is designed to deliver a comprehensive overview of the waqf's objectives and ongoing causes, providing users with an in-depth understanding of its mission and activities. This detailed presentation includes, but is not limited to, the historical background of the waqf, its impact on the community, and the specific projects it supports.

Furthermore, the Waqf Details Page incorporates an interactive element in the form of a button, strategically placed to facilitate user engagement. This button serves as the final step in the user's decision-making process, enabling them to confirm and finalize their choice with a single click. The inclusion of this feature not only streamlines the user experience but also ensures the accuracy and reliability of the user's selection.

The design of the Waqf Details Page emphasizes clarity and accessibility, promoting user confidence through the provision of transparent and comprehensive information. By integrating such a feature, the system aligns with its overarching goal of fostering informed decision-making and active user participation in community-driven initiatives.

**New Transaction Page**

A screenshot of a computer

Description automatically generated

After you've picked your waqf and landfill, you'll land on a final confirmation page. This page is designed to give you a clear summary of your choices, showing the waqf and landfill you've selected. It's all about making sure you're confident in your decisions.

On this final page, there's a box where you can choose the type of transaction you want to make. Alongside this, you'll find a textbox where you can describe the trash you plan to convert into money for donations to the waqfs. This description helps in evaluating the recyclables accurately.

This final page is all about making things easy and clear for you. By letting you provide detailed info about your recyclables, the system can better assess their value, ensuring the maximum amount of money goes to your chosen waqfs. This way, the platform supports your environmental efforts and community contributions efficiently.

**Transaction Successful Page**

A screenshot of a computer

Description automatically generated

Upon the successful completion of a transaction, the platform directs the user to the Transaction Successful Page. This page is meticulously designed to confirm the successful execution of the transaction, providing the user with clear and reassuring feedback. The interface prominently features a confirmation message, which serves to validate the user's actions and affirm that their chosen waqf and landfill selections have been accurately processed.

An integral component of this page is the prompt encouraging the user to continue with their donation process. This prompt is strategically positioned to guide the user towards further engagement, fostering a seamless transition from transaction confirmation to additional philanthropic activities. The interface's design ensures that the user remains informed and confident in their decision-making process.

Moreover, the Transaction Successful Page includes a dedicated button that facilitates navigation back to the Home Page. This button is essential for maintaining user flow, providing a convenient means for the user to return to the main dashboard where they can review their transaction details. The Home Page serves as a central hub, allowing users to access a comprehensive summary of their activities and contributions.

By incorporating these features, the platform not only enhances user satisfaction through clear and immediate feedback but also promotes continued engagement in community-driven initiatives. The design principles of clarity, accessibility, and user empowerment are thereby upheld, aligning with the platform's overarching goals of environmental stewardship and community support.

**Home Page - 3**

A screenshot of a computer

Description automatically generated

The Home Page is a key part of the platform, serving as the main interface for users and a place to keep important transaction records. After finishing a transaction, you can go to the history section at the bottom of the Home Page. This section is neatly organized to give you an easy view of all your past transactions.

In the history section, you have the option to create and download a PDF receipt of your transaction. This receipt includes all the important details, making everything clear and accountable. Having a downloadable receipt is especially useful if you need it for tax purposes.

This feature not only makes the platform more user-friendly by providing clear transaction records, but it also helps you keep track of your financial activities. Adding this function shows the platform's dedication to helping you and supporting community projects.

**Transaction Details Page**

A screenshot of a computer

Description automatically generated

On the Home Page, the platform gives users an easy way to keep track of their transactions. When you click on a transaction card, you're taken to a page that shows all the details of your transaction, making sure everything is clear and easy to understand.

First, you'll see the status of your transaction, so you know if it's still in progress, completed, or needs more action. This helps you stay updated on what's happening with your donation.

Next, you'll find the description you added in the “Details” section, which keeps your personal notes and information right where you can see them.

The page also shows the date of the transaction, helping you keep track of when you made your donation. Plus, you'll see the transaction amount, converted into money to make it easy to understand.

Finally, you'll see a unique transaction ID alongside the WAQF you chose. This helps with keeping everything organized and makes it easy to refer back to your donation details.

Screener Login Page

A screenshot of a computer

Description automatically generated

The Login Page for screeners is a crucial interface designed specifically for entities tasked with screening trash. This page is accessible exclusively through a dedicated URL, provided to each landfill administrator. The unique access URL ensures that only authorized screeners are able to enter the system, maintaining the integrity and security of the screening process.

Upon accessing the URL, screeners are prompted to enter their credentials, which have been pre-assigned by the landfill administration. The login interface is structured to ensure a seamless entry process, minimizing any potential barriers to quick access. This design consideration is vital in ensuring that screeners can promptly begin their evaluations without unnecessary delays.

Once logged in, screeners are presented with a dashboard that provides a comprehensive overview of the screening tasks at hand. This includes a detailed list of trash batches pending review, along with specific parameters that need to be assessed. The intuitive layout of the dashboard facilitates an efficient workflow, enabling screeners to navigate through their tasks with ease.

**Admin – Screener Page**

A screenshot of a computer

Description automatically generated

The Screener Page is designed to help landfill screeners work efficiently. Here, transactions are shown as cards, each representing a different transaction. Each card has a toggle function that lets screeners mark the status of the transaction. This makes it easy for screeners to manage and sort through the transactions, ensuring everything gets done on time.

There's also a bar where screeners can enter how much money might be made from the trash deposited by the user. This helps assess the potential revenue from the landfill operations.

A cool feature of the Screener Page is that when both toggles on a card are turned on, the transaction is automatically removed from the Screener Page. It then moves to the Transformer Page, indicating that all necessary screening steps are complete. This smooth transition ensures the workflow isn't interrupted and transactions move seamlessly to the next phase.

In short, the Screener Page offers a clear view of transactions while helping screeners stay organized and manage landfill tasks effectively.

**Transformer Login Page**

A screenshot of a computer

Description automatically generated

The Login Page for transformers serves as a critical gateway tailored for entities responsible for converting screened trash into reusable materials. This page is accessible solely via a designated URL, provided to each landfill administrator. The unique access URL ensures that only authorized transformers can enter the system, preserving the integrity and security of the conversion process.

Upon accessing the URL, transformers are prompted to input their credentials, which have been pre-assigned by the landfill administration. The login interface is meticulously designed to guarantee a smooth entry process, minimizing potential barriers to swift access. This design consideration is essential in ensuring that transformers can commence their operations without unnecessary delays.

Once logged in, transformers are greeted with a dashboard that offers an extensive overview of the conversion tasks at hand. This includes a detailed list of trash batches ready for transformation, along with specific parameters that need to be evaluated. The user-friendly layout of the dashboard promotes an efficient workflow, allowing transformers to navigate through their tasks effortlessly.

**Admin – Transformer Page**

A screenshot of a computer

Description automatically generated

Admin – Transformer Page

The Transformer Page is a key part of the landfill management system, helping to turn screened waste into reusable materials. This page is designed for administrators who handle the transformation phase. The main function of the Transformer Page is similar to the Screener Page, but with different goals and measurements.

On the Transformer Page, each transaction card shows the actual money made from transforming waste. This lets admins keep track of the financial impact of their conversion work in real-time. Having financial data on the cards gives a clear picture of the money earned from the waste management activities.

Just like on the Screener Page, the Transformer Page uses a dual-toggle system for transaction cards. These toggles show that key transformation steps are done. When both toggles are on, the transaction is automatically taken off the Transformer Page and moved to the user’s home page as a history card.

These history cards on the user’s home page serve as records, keeping a log of completed transactions for future reference. This smooth transition helps maintain a continuous workflow and ensures clear record-keeping. The automatic removal from the Transformer Page and the documentation on the user’s home page show an efficient way to handle the transformation phase of landfill operations.

The Transformer Page, with its mix of financial data and automated workflow updates, makes landfill transformations more organized and informed. By showing real-time revenue data and ensuring easy transition of tasks, it supports a smooth and economically savvy approach to waste conversion.

**Admin Page – Prisma Studio**

A screenshot of a computer

Description automatically generated

**Prisma Studio**

Prisma Studio is an intuitive GUI for the Prisma ORM, designed to streamline database management and development workflows. It provides developers with a visual interface for interacting with their database schema, facilitating operations such as data browsing, editing, and executing queries with enhanced efficiency. The tool is tailored to support robust data handling mechanisms, ensuring that developers can manage their database schema and records with precision and ease.

**Prisma and Prisma Studio in NOW2 System**

The NOW2 system integrates both Prisma and Prisma Studio as its core database management solutions. Prisma, an advanced open-source ORM, offers a state-of-the-art approach to database access and schema management across various database backends. Its architecture is optimized for type safety and performance, making it a suitable choice for managing the intricate database operations within the NOW2 ecosystem. By incorporating Prisma Studio, the system elevates its database interaction capabilities, providing a user-friendly interface that complements the ORM's powerful features.

**Safety and Access Control**

A significant rationale behind the utilization of Prisma Studio within the NOW2 system is the paramount safety it affords. Prisma Studio is designed to restrict database access exclusively to the application developer, thereby ensuring that database operations and administrative functions are conducted within a controlled environment. This restricted access model is pivotal in safeguarding the database from unauthorized intrusion and potential misuse. The configuration of Prisma Studio aligns with the principles of secure database management, where only authenticated and authorized personnel can perform critical administrative and data manipulation tasks. Consequently, this controlled access paradigm enhances the overall security posture of the NOW2 system, assuring stakeholders of the integrity and confidentiality of their data assets.

# Technology Used:

* **Next.js**

Next.js is a React-based framework that enables server-side rendering and static site generation for web applications. It provides optimized performance, SEO benefits, and a simplified development process through built-in features like page routing and API routes. Additionally, Next.js supports internationalization, dynamic imports, and automatic code splitting, making it highly efficient for large-scale applications.

* **TypeScript**

TypeScript is a statically typed superset of JavaScript that adds type definitions, enhancing code quality and maintainability. By catching errors at compile time, it improves the developer experience with better tooling and code intelligence, and ensures more robust code. TypeScript also offers advanced features such as interfaces, enums, and generics, which facilitate scalable and maintainable application development.

* **Tailwind CSS**

Tailwind CSS is a utility-first CSS framework that allows developers to design directly in their markup using pre-defined classes. It offers flexibility and efficiency in styling, reducing the need for custom CSS, and ensuring a consistent design system. With its responsive design utilities and customization options, Tailwind CSS enables developers to create modern, adaptive, and accessible user interfaces swiftly.

* **NextAuth**

NextAuth is an authentication library for Next.js applications, providing an easy way to implement authentication and authorization mechanisms. It simplifies the integration of authentication providers, supports multiple strategies such as OAuth, JWT, and email/password, and secures user data with minimal configuration. NextAuth also handles session management, token refresh, and user roles seamlessly, ensuring a secure and user-friendly authentication process.

* **Prisma**

Prisma is an open-source ORM (Object-Relational Mapping) tool that streamlines database access and schema management. It improves database interactions with type safety, enhances performance, and offers a modern approach to data modeling. Prisma's intuitive schema definition language and powerful query engine facilitate efficient data operations, while its support for various database backends ensures flexibility and scalability in application development.

* **Prisma Studio**

Prisma Studio is a graphical user interface for Prisma ORM, designed to facilitate database management and development workflows. It provides a visual interface for data browsing, editing, and query execution, enhancing efficiency and precision in database operations. Prisma Studio's user-friendly design and real-time data visualization capabilities make it an invaluable tool for developers, enabling seamless interaction with their database schema and records.

* **GitHub**

GitHub is a cloud-based platform for version control and collaboration, utilizing Git for managing source code repositories. It enables seamless collaboration, version tracking, and code sharing among developers, while offering tools for continuous integration and deployment. GitHub's robust features, such as pull requests, code reviews, and issue tracking, foster a collaborative development environment and streamline project management.