

SAVE PLANET EARTH

By ACA ENGINEERS:

- Anissa Harricharan:
816008114
- Celine Ganar:
816008305
- Aakil Ramlogan:
816007871

INFO3604: Project



Department of Computing
and Information Technology
(DCIT)

LECTURER:
Ms. Cynthia Cudjoe

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2. ABSTRACT

The objective of this report is to highlight a problem, outline a solution, plan, and implement the solution using SCRUM Methodology. As citizens of Trinidad and Tobago, we are aware of the widespread pollution in the drains, roads, and the overall lack of environmental consciousness the society has. As eco-friendly citizens, we observed an urgent need for education and action to conserve the environment for present and future generations. The solution proposed ‘Save Planet Earth’ is therefore targeted to the entire public and aims towards the common goal of awareness and actions to protect the environment. It was decided to target the public via a website, however, it is developed cross-platform and works as an application on mobile devices (Android, IOS). The implemented solution is a cross-platform website that allows users to register for accounts using valid email addresses or log in with Facebook and access various functionalities to aid in combatting against pollution and depletion of the earth. These features include an Events page that has a feed where users can) create an event or view upcoming events (beach clean-ups; a Tasks / Challenges Page where there are daily green tasks and challenges for users to participate in to win points; a Carbon Tracker Page where users can track the carbon emissions from their vehicle, compare their CO₂ emissions per year and track via a progress chart and also, track footsteps daily; obtain education via the Articles Page where articles are uploaded weekly for awareness and contact information is posted for recycling companies; advertisements are displayed on the pages as the advertisers sponsor rewards for users; lastly, the user’s Profile displays points accumulated from tasks/challenges and gives users the opportunity to win rewards as incentives to continue the initiative.

3. INTRODUCTION

Problem Description

Trinidad and Tobago has a significant garbage problem in which litter is widespread on this island. Disposables and other waste can be found along roadsides, in drains and even on beaches. In 2018, over a half-a-ton of garbage was removed from Invaders Bay, Port-of-Spain. Littering reveals the lack of environmental consciousness the society has. As such, Save Planet Earth aims to promote awareness to the citizens of T&T about the impact they have on the environment in a fun and creative way. It aims to promote an eco-friendlier lifestyle with the use of incentives and rewards to users of the application and overall, a cleaner environment for citizens to live in.

Positioning

Problem Statement

The problem of	Garbage is widespread in Trinidad where waste and other disposables can be found along roadways, in drains and on beaches.
Affects	Citizens of the country.
The impact of which is	Environment and health issues which come along with the improper disposal of waste.
A successful solution would be	To allow users to live a healthier eco-friendly lifestyle and a platform to post events such as beach clean-ups, monitor users' daily carbon emission levels in which they can carpool with other users, calculate their daily number of footsteps. Daily tasks and challenges can also be given to users via the application and incentives and rewards such as vouchers and gift certificates can be distributed for encouragement.

Product Position Statement

For	Citizens of Trinidad.
Who	Wish to live an eco-friendlier lifestyle.
The Product	Website
That	Allows users the opportunity to live a healthier, more eco-friendly lifestyle by attending events such as beach clean-ups, monitor daily carbon emissions, calculate their daily number of footsteps.

Unlike	Other individual pages allocated for one specific clean-up group, this application can host a variety and all groups which enables a larger platform that can be reached out to easily.
Our Product	Will be free to use and a non-profit organisation for anyone in Trinidad to use by ensuring a valid email address and contact number is used to provide safety and reliability. It will be available over any smartphone device.

Stakeholder Descriptions

User Stakeholders

These individuals are persons from Trinidad interested in living a healthier and more eco-friendly lifestyle. Understanding their interests are vital since it could mean the wrong solution is built.

Non-User Stakeholders

Our project team stands to lose if the wrong solution is built. Tasks will be split amongst the team. Communication must be utilized extensively to ensure all members are on the same page. All the major decisions in this project will ultimately be decided by the project team.

User Environment

New frameworks are being developed which allow cross platform development to be much less timely and more streamlined. Materialize is one such framework. The application will be able to run on both iOS and Android and will be accessible to any person from Trinidad with a smart device and internet connection.

Product Overview

Product Perspective

This application will be a platform using Materialize. This is a modern responsive CSS framework based on Material Design by Google. Materialize will assist in ensuring that the interface has a similar touch to other android applications which would make the application easier for new users to handle.

4. REQUIREMENTS SPECIFICATION

Functional Requirements:

These are also the core functionalities of the application:

- The system shall allow the user to login using their credentials that were used when signing up.
- The system shall allow the user to create events such as beach clean-ups, planting of trees.
- The system shall be able to calculate the amount of carbon emissions produced from vehicles and therefore, be a means of car-pooling and encourage users to carpool.
- The system shall allow users to track their carbon emissions in lbs per year and via a progress chart.
- The users shall be able to monitor and calculate their footsteps throughout the day and be self-rewarded if satisfied.
- The system shall provide users with useful tasks for a cleaner eco-lifestyle and earn points on their profile as well as physical rewards such as vouchers, gift certificates.
- The system shall allow users to take part in challenges and each user is able to track progress on his/her Profile when he/she successfully completes eco-friendly challenges and tasks.
- The system shall display business' advertisements as these businesses would sponsor rewards for the users of the application.

Additional Features:

- The system shall provide information about environmental protection and conservation as well as contact information for iCareTT and other garbage collectors.
- The system shall also allow users to indicate their attendance to the events posted.

Non-Functional Requirements:

Performance/Efficiency

- Maximum application start-up time of 5 seconds.
- Real-time event updates/refreshes at one second intervals.

Scalability and Capacity

- Able to host at least 10000 (expandable with app and user growth) user profiles in database system storage.

Safety/Security

- Event meetups can only be viewed by members of the application.
- Users should only agree to carpool with mutual friends or persons they have met and know from clean-ups etc.
- Car-pooled pick-ups and drop-off locations are ensured to occur in safe, well-lit public areas.
- The user's basic profile information can only be viewed by each other or a system administrator providing no access to personal information by persons ineligible to use the application.

Accessibility and Usability

- UI easily understood by people ranging from ages 16 and above with the ability to be easily navigated and utilized.
- Homogeneity between both Android and iOS applications, both applications provide the same easy-to-access UI and provides the same feature set.

User Stories

As a/an	I would like to	So that
User	Register and create a secure profile.	I can identify myself and others and view my points on my Profile.
User	Create Events and post to Feed.	I can encourage others to attend and participate in conserving the environment.
User	Track my daily number of footsteps.	I can aim to be fitter, more active and healthier.
User	Track carbon emissions of my vehicle daily and calculate the reduction.	I can carpool with others.
User	Participate in the daily green tasks/challenges to win points.	I can help conserve the environment in a fun way.
User	Submit form when a challenge is completed.	To win rewards.
User	Win rewards for the participation/victory on completing the green tasks/challenges.	I can enjoy rewards while creating an eco-friendly environment.
User	Obtain information on the iCareTT bins location, other garbage collectors as well as environment conservation and protection.	I can be more eco-friendly aware and bring awareness, education to others.
Sponsor	Advertise my business/company in return for being a sponsor of the application.	I can gain more customers who use the application.

System Diagram

Outlines the attributes, methods and interactions of the major classes/modules in the system.

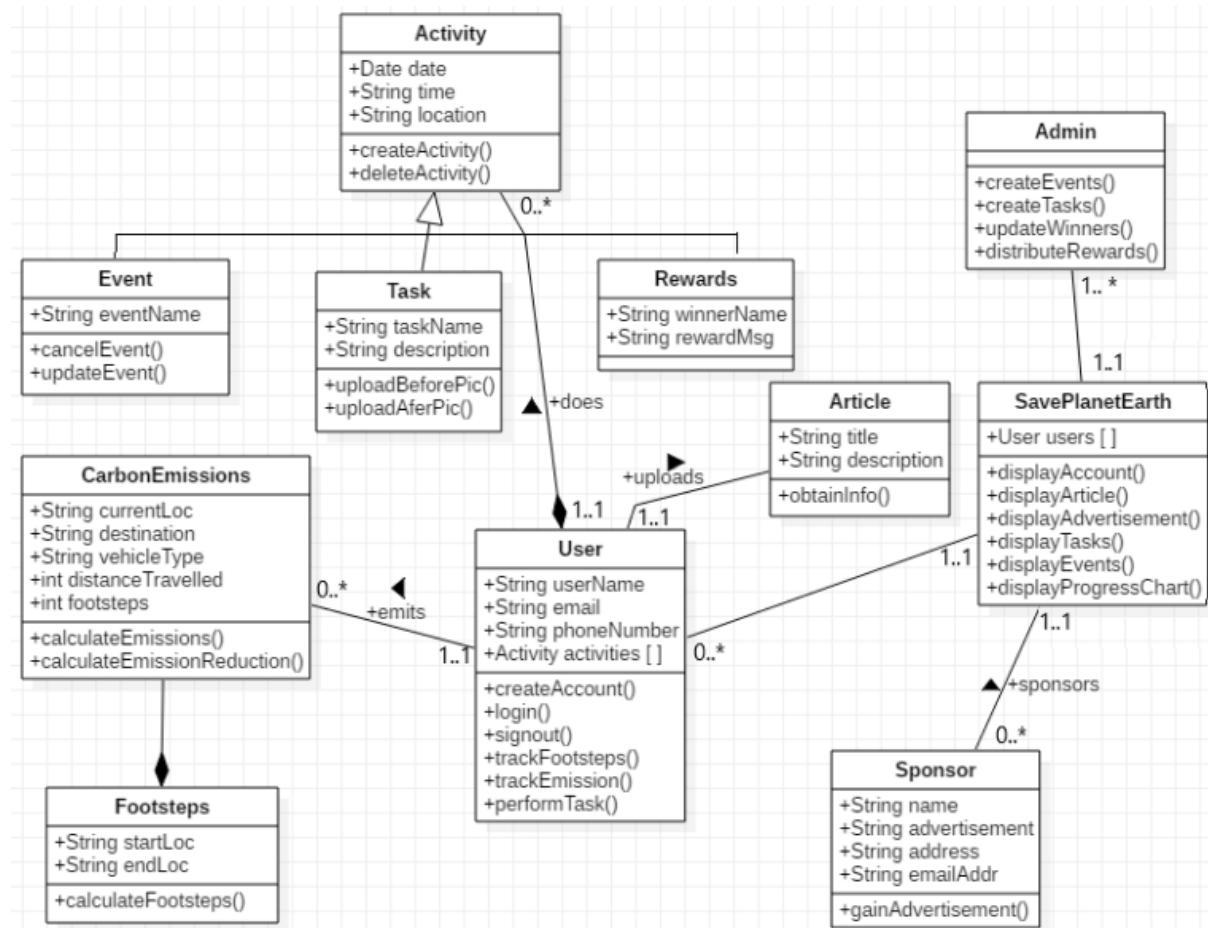


Figure 1.0: Showing the System Diagram of the entire Save Planet Earth System.

Use Case Diagram

Models the functionality of a system using actors and use cases.

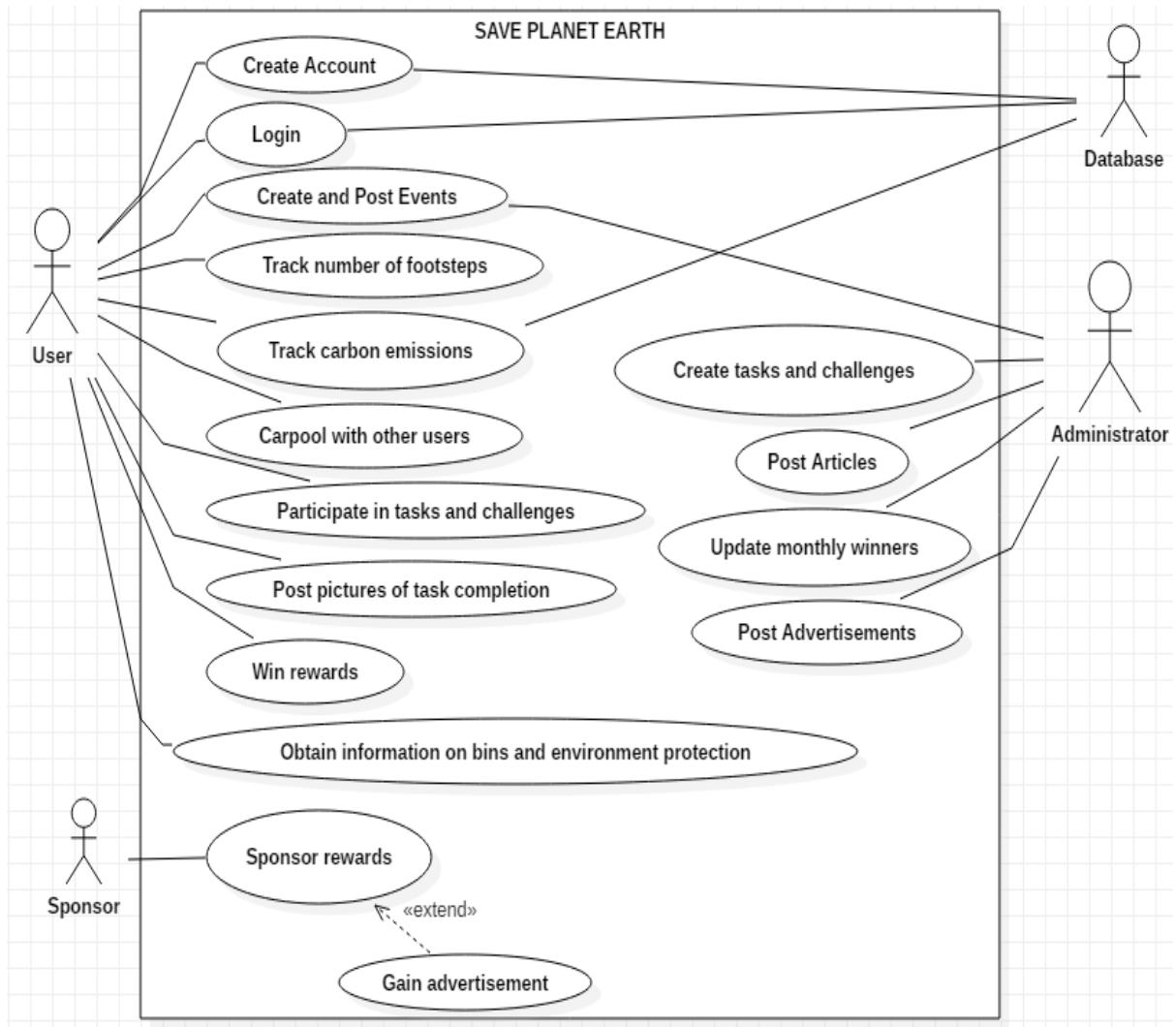


Figure 2.0: Showing the Use Case Diagram of the entire Save Planet Earth System.

Entity Relationship Model Diagram

Specifies the entities, datatypes and relationships that are important for the project domain.

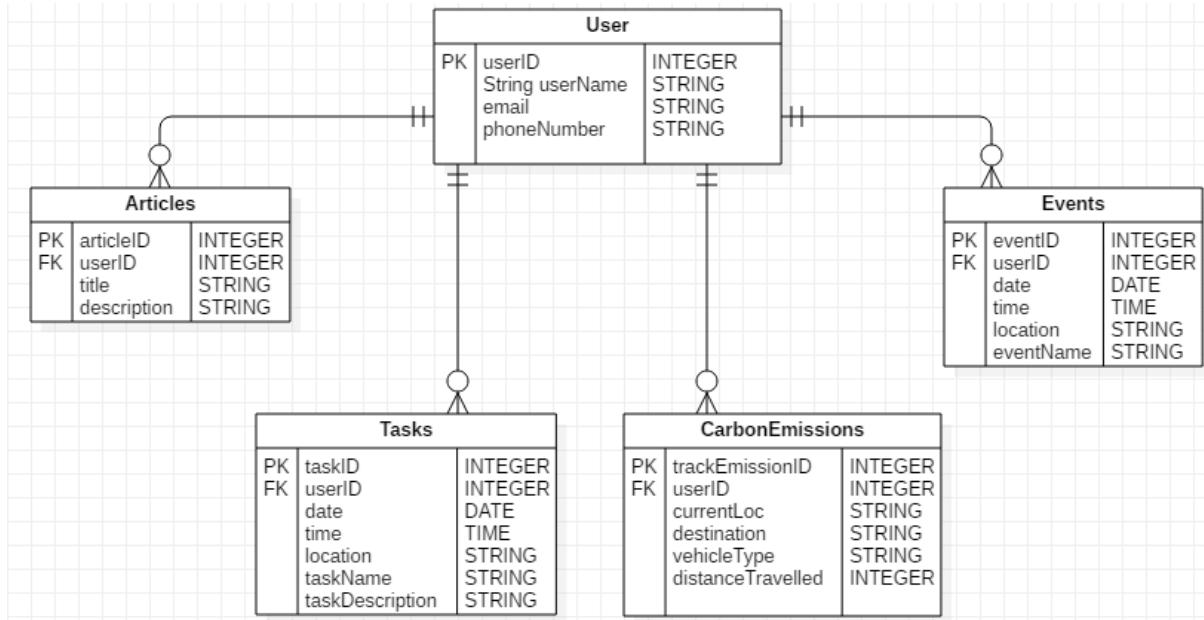


Figure 3.0: Showing the Entity Relationship Model Diagram of the major relationships of the Save Planet Earth System.

Technical Constraints

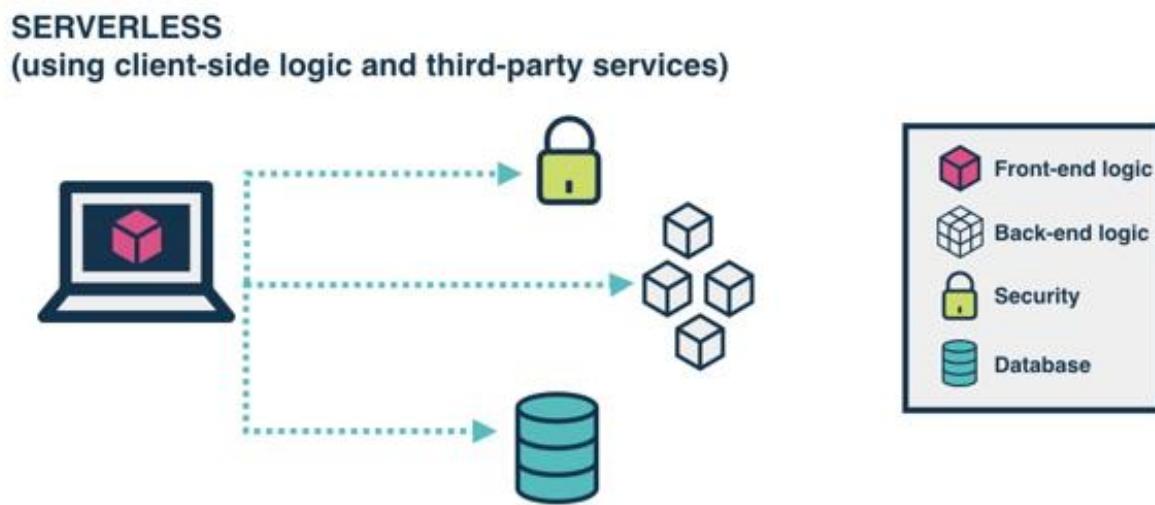
- Users: valid email address.
- Database: Firebase for authentication, storage.
- Framework: Materialize.
- Platforms (Cross): Personal Computers (PCs), Android, IOS.

5. DESIGN SPECIFICATION

System Architectural Design

Chosen System Architecture

Serverless Architecture saves a lot of time taking care and fixing bugs of deployment and servers regular tasks. Serverless architecture (also known as function as a service, FaaS) is a software design pattern where applications are hosted by a third-party service, eliminating the need for server software and hardware management by the developer.



We are using Contentful in our application, a serverless architecture, which makes it as easy as making an API call. Using a serverless architecture means that it will not have problems dealing with provisioning and maintaining servers, even when production peaks are hit. There is focus on content, rather than servers and maintenance with this Serverless Architecture, Contentful. The benefits include:

- Focuses on coding and producing content, not maintaining backend databases.
- Boosts effectiveness and speed of cross-platform development using microservices.
- Easily scalable, flexible and customizable with features such as UI extensions.

Source website: <https://www.contentful.com/r/knowledgebase/serverless-architecture/#serverless-architecture-by-example>

Discussion of Alternative Designs

1. Model View Presenter (MVP): a design pattern that separates the code for a functionality into the model (data model is defined), view (logic for UI, data visualization) and presenter (logic of functionality such as data storing, application events).

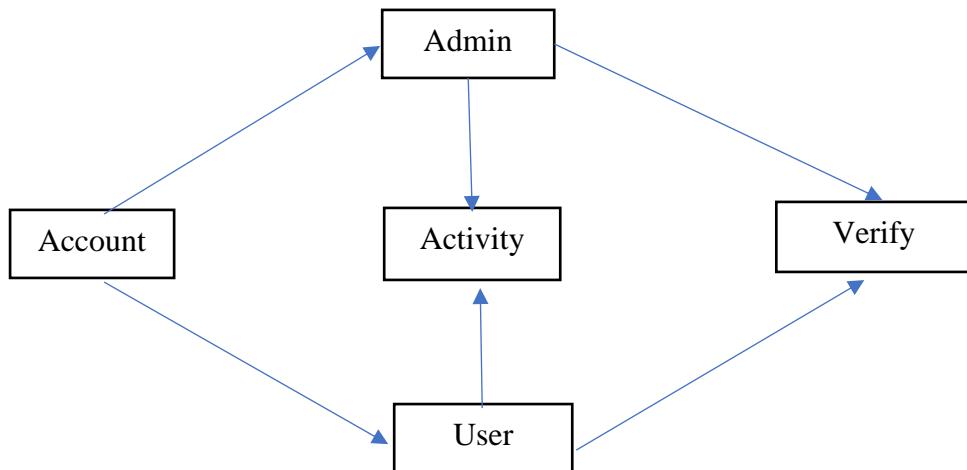
2. Model-View-ViewModel (MVVM): allows the creation of View-specific subsets of a Model which represents data storage and the View acts as the presenter. The entire Model is not exposed to a View which has less logic in the code behind it. A ViewModel is not required to reference a View and is responsible for the conversion data objects from the model into objects that can be easily reseated.

System Interface Description

The system can be operational any personal computer. It is cross-platformed to be functional on Android or IOS mobile devices and an internet connection is required.

Detailed Description of Components / Subsystems

Component 1 – n



The components of the system are:

- Account: an account is required to login and access all the functionality. The user may either be an admin or user of the website and his/her information is stored on their account.
- Admin: the admin is a user and must sign in to access all the functionality. The admin determines what activities (tasks) are to be done and stores it. The admin also verifies information received from the form submitted after completing a challenge and stores in account.
- User (participant): users participate in the activities and points rewarded are stored.
- Verify: the details of the activities and completion is verified by the admin and then points are awarded to the user's account.

User Interface Design

Description of the User Interface

When the website is opened, the user is met with a login form; users who are registered would enter their relevant information. There is a Register option or Login with Facebook for new users. Once logged in, the user reaches their profile which displays their points accumulation total. There is a navigation bar which consists of pages such as Home, Events, Challenges, Articles, Carbon Tracker, Login/Sign up and any one of these hyperlinks can be clicked and the user would be taken to the relevant page. The Home page consists of the reason why the system was an important solution and the goals of the system as well as a register option. The Events page consists of a list of upcoming events as well as users can create a new event by filling out the relevant information from the form. The Challenges page has a button, when clicked, a random daily green task can be generated for one-point accumulation on their profile. Additionally, the challenges are more difficult tasks and proof of completion is required to be uploaded by means of a form which has to be submitted; this awards the user five-points on their profile. The Articles page is an informative section to promote environment awareness and education where you can scroll and read articles as well as click hyperlinks to be redirected to the full article. There is also information about garbage collectors and iCareTT included. Another page is Carbon Tracker which has two steps: calculating CO₂ emissions and tracking individual progress. The CO₂ Calculator consists of various steps to fill out such as Lifestyle, Vehicle, Household and Results. The results of carbon footprint are displayed on charts. There is a button to reduce the user's carbon footprint in various ways and comparisons/results can be displayed via a pie chart. A user can also track their footsteps daily. Lastly, advertisements of sponsors are displayed on various pages. The headers and footers are consistent throughout the pages for uniformity as well as the colours demonstrate an environment theme throughout the website for user appeal.

Objects and Action

Objects:

1. User
 - Participant
 - Admin

2. Activities

Actions:

1. Create Event
2. Participate in Tasks/Challenges
 - ⊕ Carpool etc
3. Win Rewards (gift certificates, vouchers)
4. Track Carbon Footprint via charts
5. Track Footsteps
6. Sponsor rewards
7. View Articles and contact information
8. View User Profile with points

6. IMPLEMENTATION

Technologies / Libraries

- ✚ EventBrite (API): used to create the Events page.
- ✚ Angular: used for data binding.
- ✚ Postman: create complex HTTPs requests and read their responses.
- ✚ Contentful: headless CMS.
- ✚ Materialize: User Interface library created with CSS, HTML, JavaScript.
- ✚ Firebase: used for user authentication, cloud database, storage and hosting of the web application.

Languages

HTML, CSS, JavaScript, and TypeScript was used.

Methodology

For our software development, SCRUM Methodology was utilised. SCRUM is the ideal framework as it displays iterative progress towards the goal of completing the software. The software tasks were divided into five sprints and the amount of time we believe would be necessary for them to be completed. Each iteration included new features (from the tasks) and built upon the previous iteration/s. SCRUM meetings were conducted weekly, progress was tracked, and necessary adjustments were made.

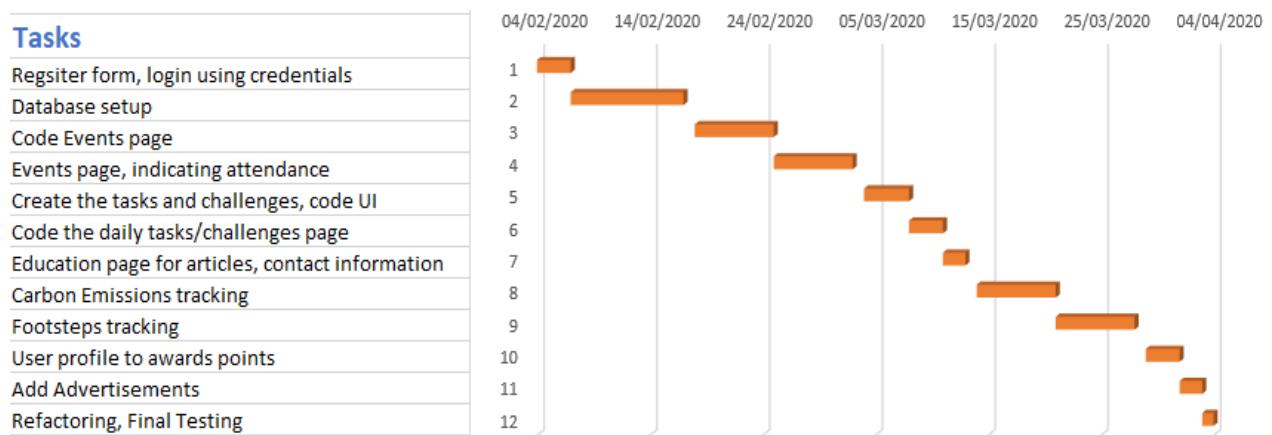
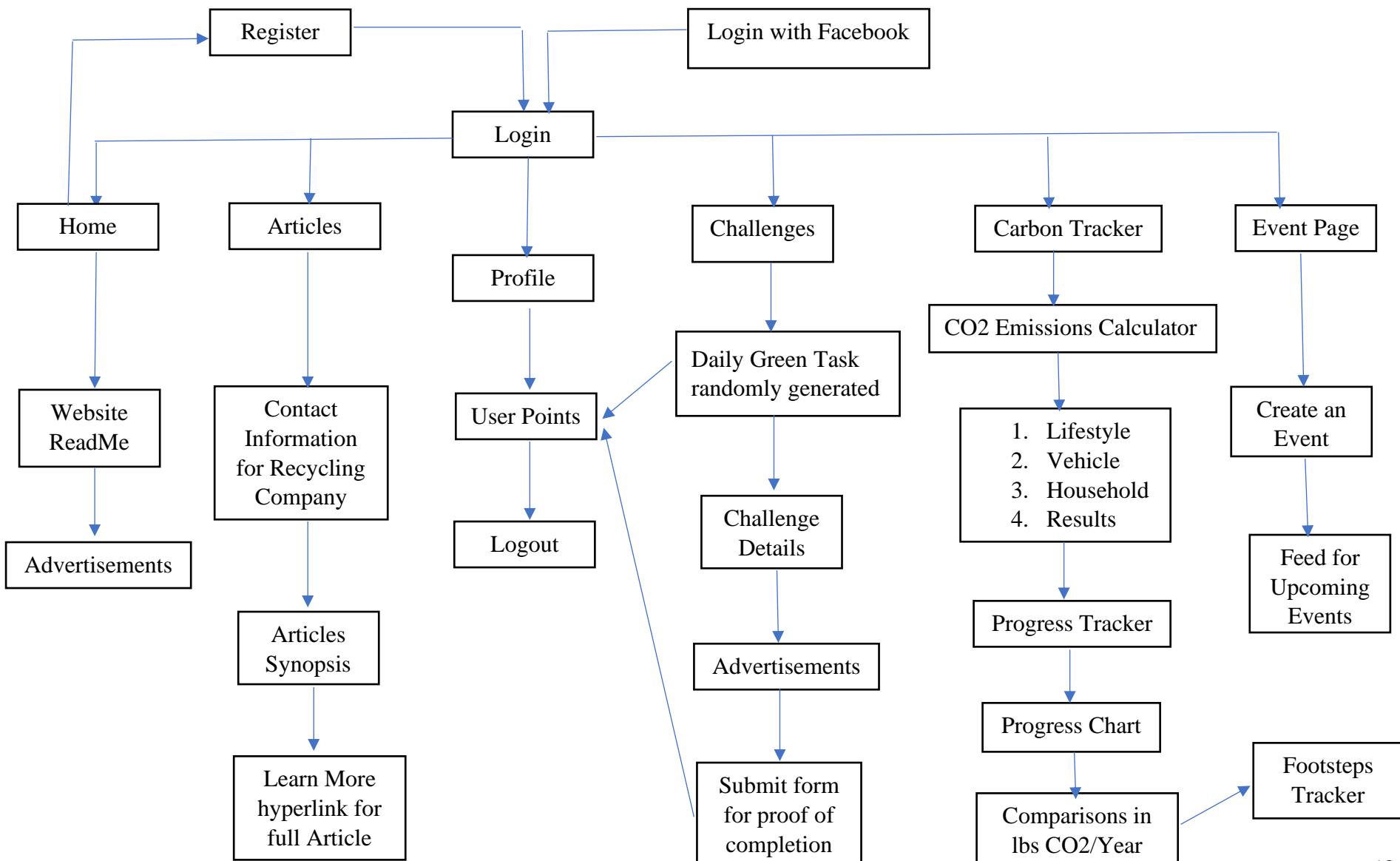


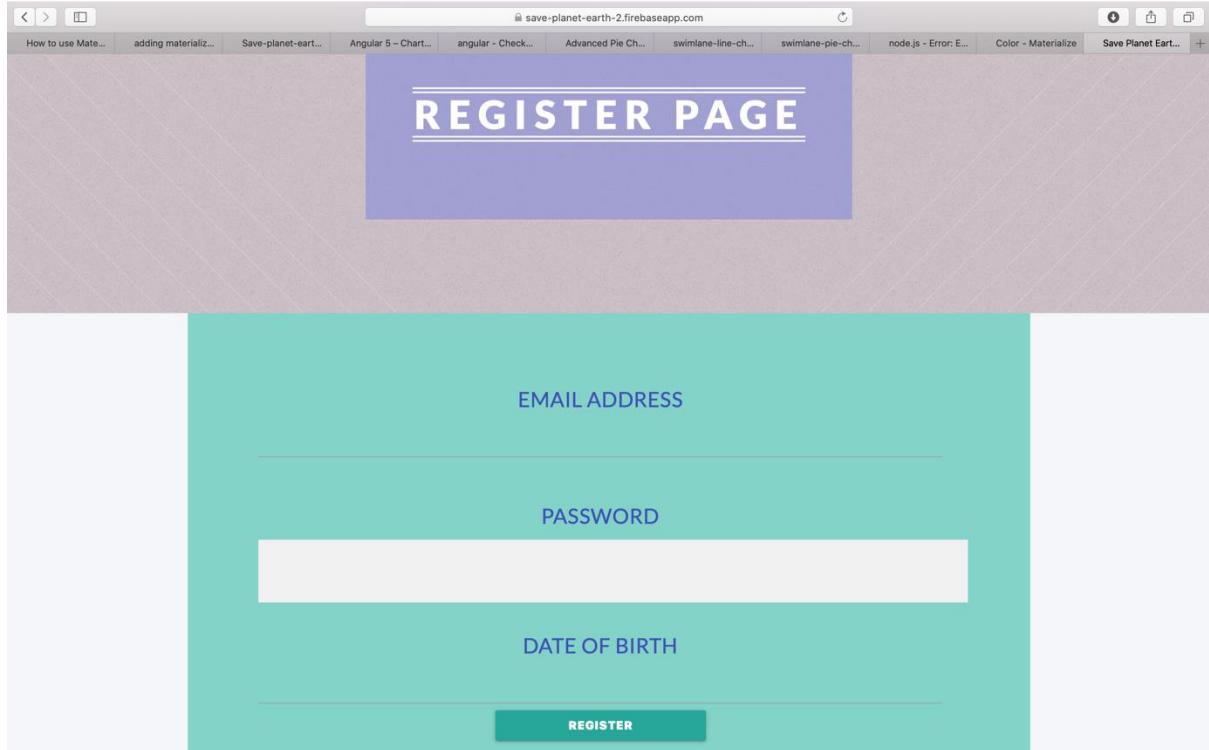
Figure 4.0: Showing a Gantt Chart of the Expected Time Frame for Each Task.

Navigation Map

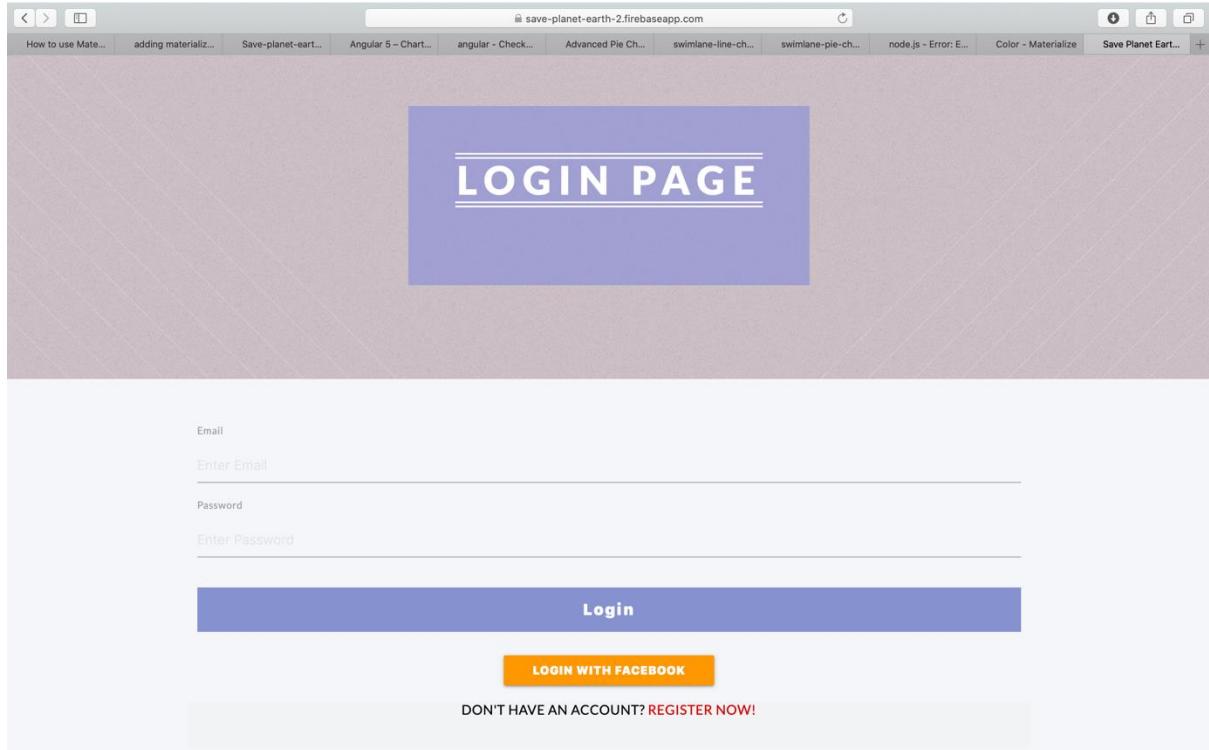


Screenshots

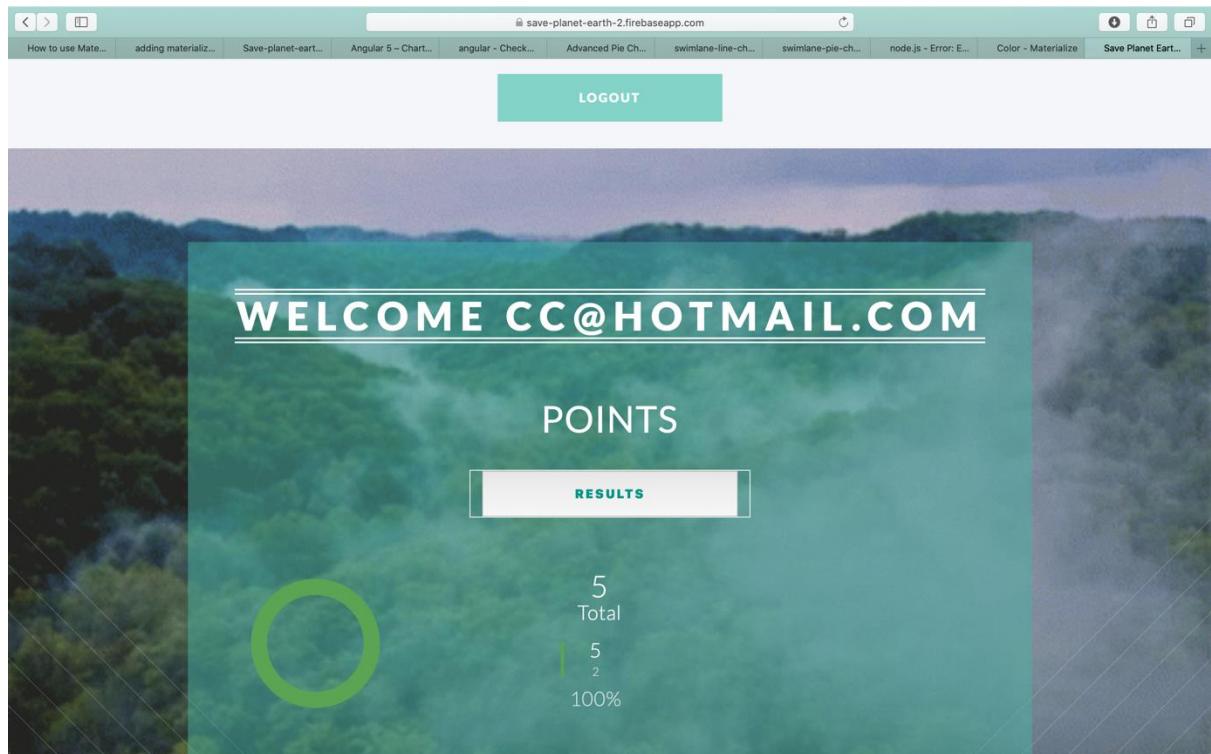
Register Page



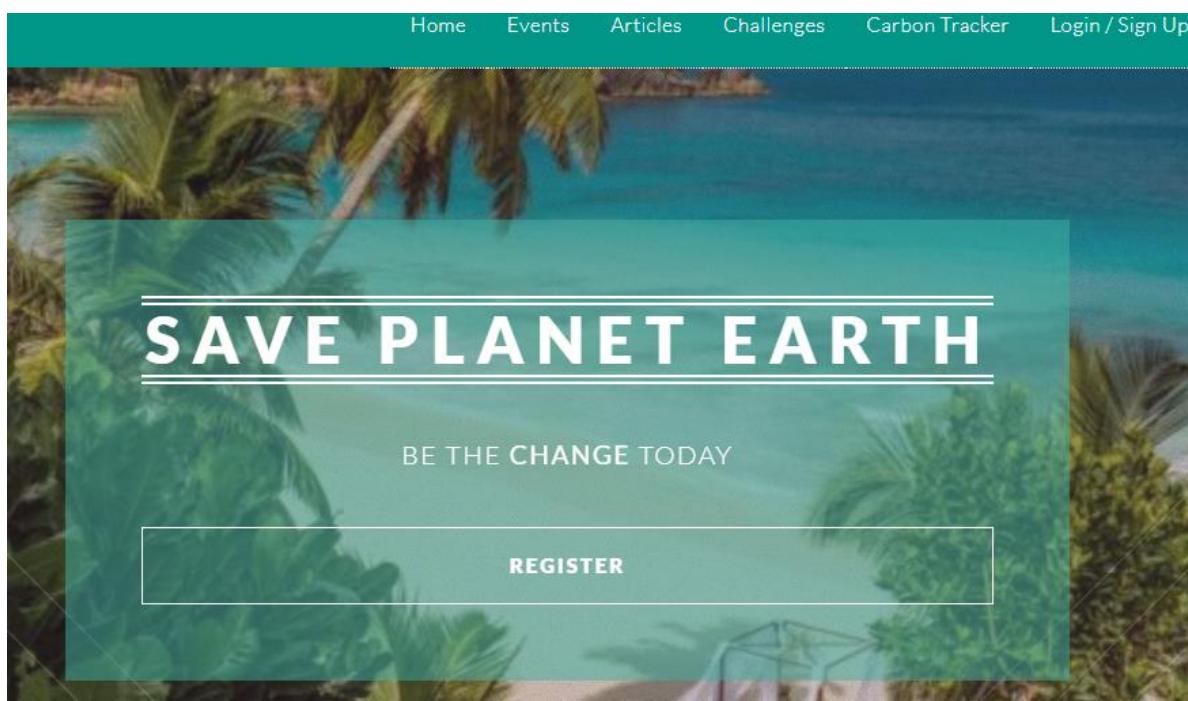
Login Page



User Profile



Home Page



Home Events Articles Challenges Carbon Tracker Login / Sign Up

SAVE PLANET EARTH

BE THE CHANGE TODAY

REGISTER

TRINIDAD AND TOBAGO HAS A SIGNIFICANT GARBAGE PROBLEM.

Litter is **widespread** on this island. In 2018, over a half-a-ton of garbage was removed from Invaders Bay, **Port-of-Spain**.

Littering reveals the **lack of** environmental consciousness the society has.

SAVE PLANET EARTH

Aims to promote awareness to the citizens of **T&T** about the impact they have on the **Environment**



ATTEND ECO-EVENTS

A platform where users can post events such as beach cleanups, planting of trees, and indicate their attendance to the event.



LEARN MORE ABOUT AN ECO-LIFESTYLE

The application will provide information about environmental protection and conservation as well as contact information on iCareTT and other garbage collectors.



CHALLENGE YOURSELF!

Users can take part in challenges and earn a badge on the website as well as physical rewards such as vouchers, gift certificates etc.

Events Page

The screenshot displays the Events Page of a website. At the top center is a large grey calendar icon. Above it, a green button with white text reads "CREATE AN EVENT!" followed by a small calendar icon. Below the calendar icon is a white rectangular box containing a thumbnail image of an event poster. The poster features the text "Sunday 2nd August 10am-5pm Eddie Hart Grounds, Tacarigua" and "Admission is free!". To the right of the text is the "Mango Melee" logo with a yellow mango graphic, and below it is the text "The Harvest" and the tagline "Giving back to our community". To the right of the poster, there is a vertical column of partially visible text: "Co", "Bes", "D", "Co", "Be", "Dat", and "Faste". Below the thumbnail is the text "MANGO MELEE TT" in a large, bold, teal font. The main content area is a form titled "CREATE EVENTS" with the sub-instruction "BE THE CHANGE TODAY". The form fields include "Event Name" (with a placeholder "Event Name"), "Start Timezone" (with a placeholder "Start Timezone"), "End Timezone" (with a placeholder "End Timezone"), "Currency" (with a placeholder "Currency"), "Start UTC" (with a placeholder "Start UTC"), and "End UTC" (with a placeholder "End UTC"). At the bottom of the form is a green "SUBMIT" button with a white arrow pointing to the right.

Figure 5.0: Showing the form prompting for details to create an event.

Articles Page



CONSERVING THE EARTH BY NATIONAL GEOGRAPHIC

The Earth's natural resources include air, water, soil, minerals, plants, and animals. Conservation is the practice of caring for these resources so all living

GOING GREEN: CLEANING UP IS EVERYONE'S RESPONSIBILITY

"Plastics continue to be a problem. We've just finished a weekend assisting with the International Coastal Clean-up and I want to thank the volunteers for doing the work and gathering important data on the amount of waste being collected, because it's not just about cleaning up but gathering baseline data to determine what are the types of items are polluting the environment."

[LEARN MORE](#)

CAUSE AND EFFECT ANALYSIS OF LITTERING IN TRINIDAD AND TOBAGO

Littering is a very serious problem in Trinidad and Tobago. Almost everywhere you turn garbage is present – on the highways, in communities, seas and rivers. Our once pristine parks and beaches are now filled with various types of plastic, Styrofoam containers, and glass bottles.

[LEARN MORE](#)

RECYCLING COMPANIES AND GARBAGE COLLECTORS:

SWMCOL'S VISION

SWMCOL's Vision is to become the provider of choice for integrated environmental services in the region, with a reputation for rendering highly reliable services at competitive prices, and for ensuring the satisfaction of the customer.

SWMCOL Head Office #2A

NO COW NECESSARY: HERE'S HOW TO MAKE PLANT-BASED MILK

Home baristas have made soy, oat and almond milk hard to find in stores. You can make them in your kitchen, and cut your carbon footprint at the same time. Here's one thing that's a lot harder to find in stores these days: alternative milks. Sales of oat milk, for example, recently jumped more than 350 percent as coffee shop regulars, cut off from their baristas, started making their brews at home.

[LEARN MORE](#)

Challenges Page

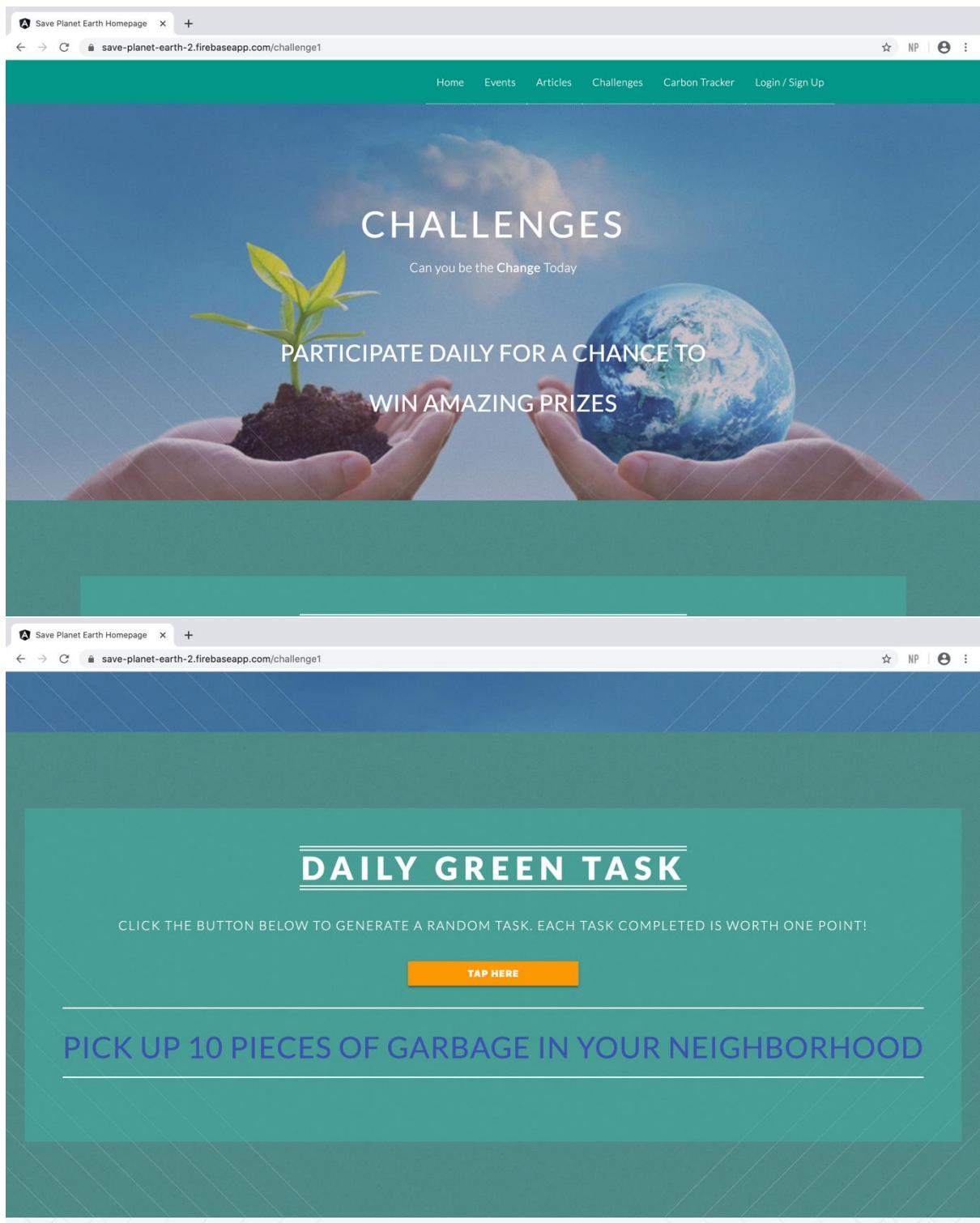


Figure 6.0: Showing the Daily Green Task Section where a task is randomly generated when “Tap Here” is clicked.

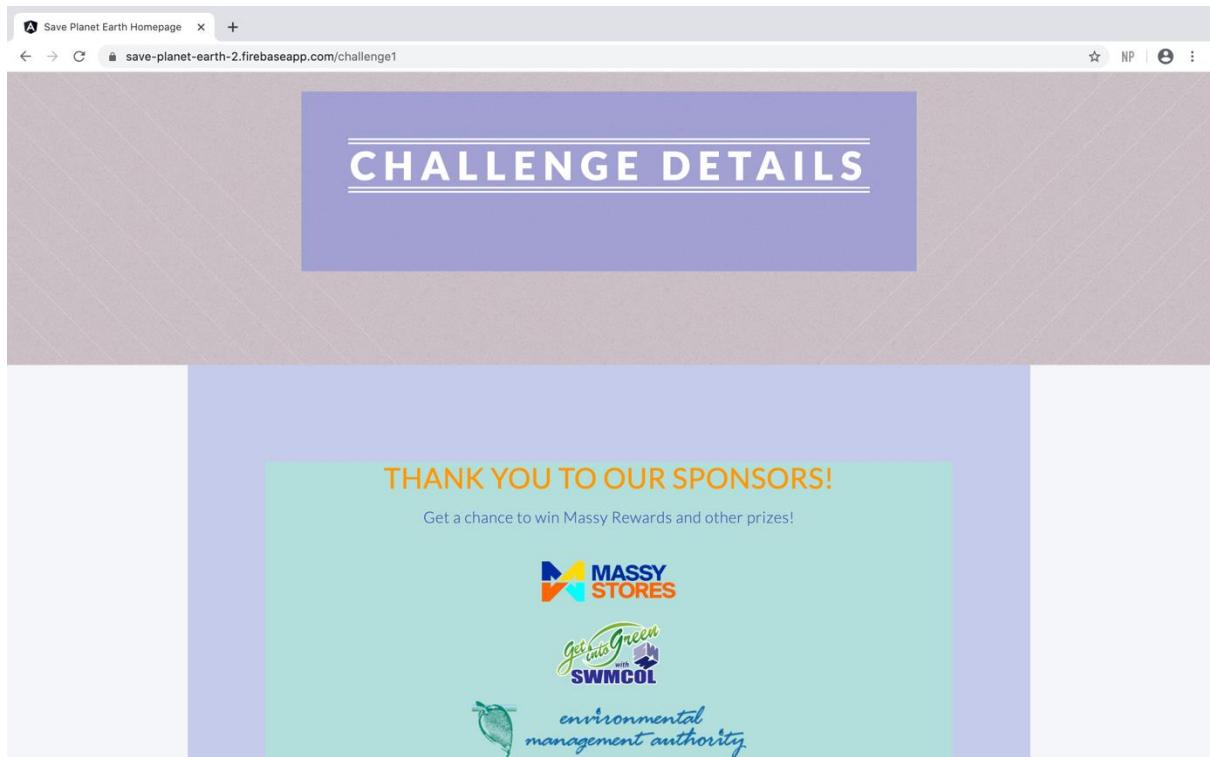
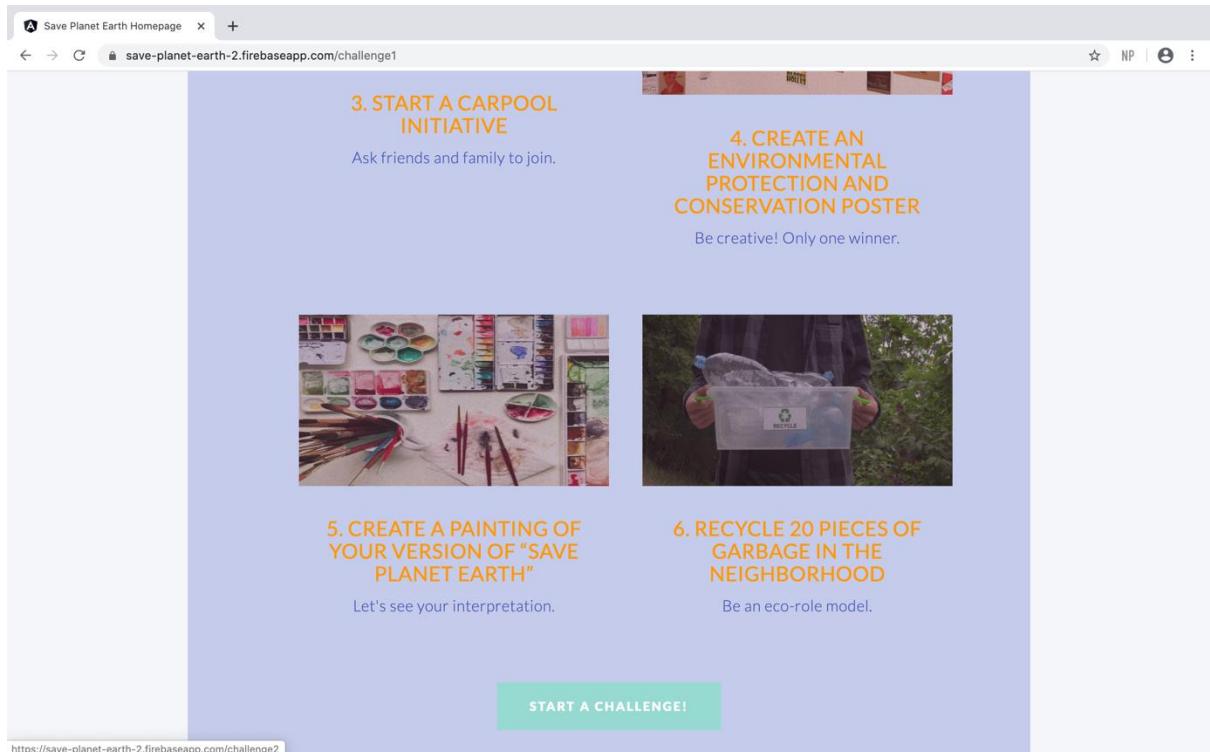


Figure 6.1: Showing the Challenge Details as well as Advertisements for our current Sponsors.



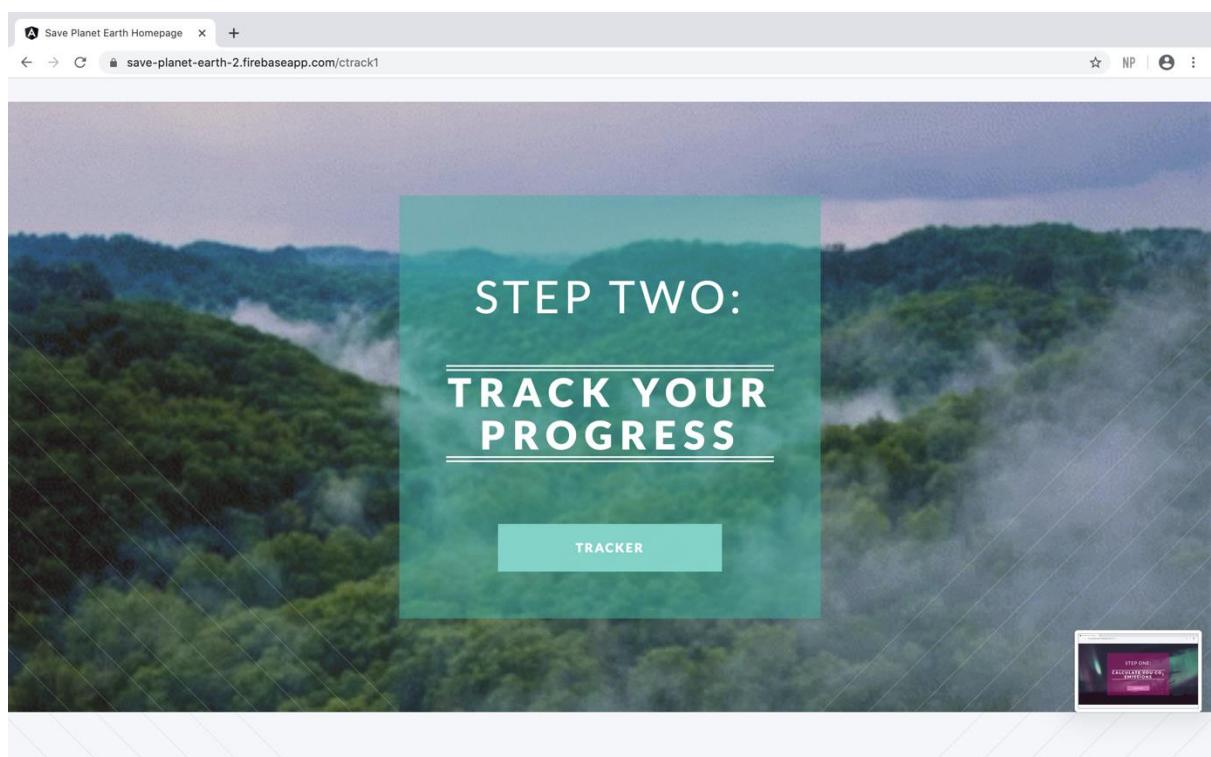
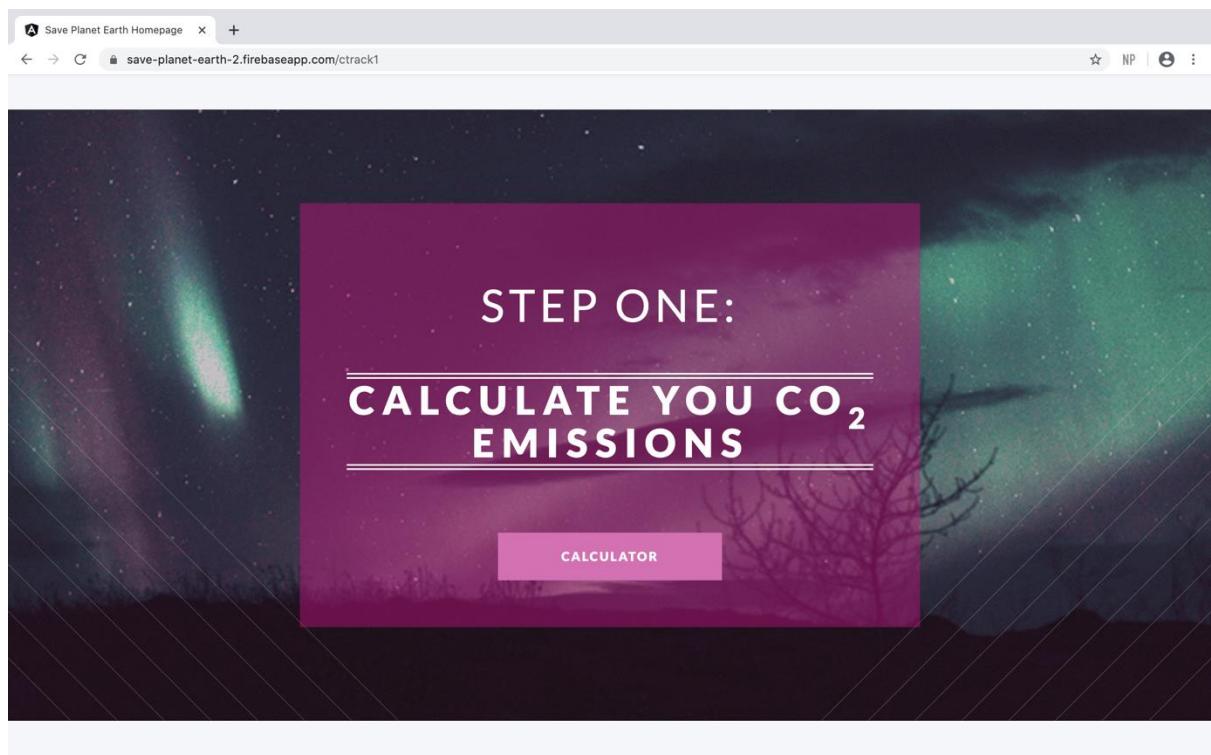
The image shows two screenshots of a website titled "Save Planet Earth".

Top Screenshot: A teal-colored box with white text. The title "HOW MUCH DO YOU IMPACT THE ENVIRONMENT" is centered. Below it is a descriptive paragraph: "Climate change is one of the world's most pressing challenges. Tracking your carbon footprint is a way to prepare for the future. With this carbon tracker, you can have a good understanding of where your emissions are and how to manage them."

Bottom Screenshot: A blue-themed section titled "CHALLENGES" with the subtitle "Can you be the Change Today". It features a photograph of a small green plant growing from a rock against a blue sky with clouds. Below this, a teal box contains the text "FILL OUT AND UPLOAD THE FORM AFTER COMPLETING A CHALLENGE". An input field is labeled "1. CHALLENGE NAME" with a placeholder text area.

Figure 6.2: Showing the beginning of Challenge form to complete for proof of participation and award of 5 points.

Carbon Tracker Page



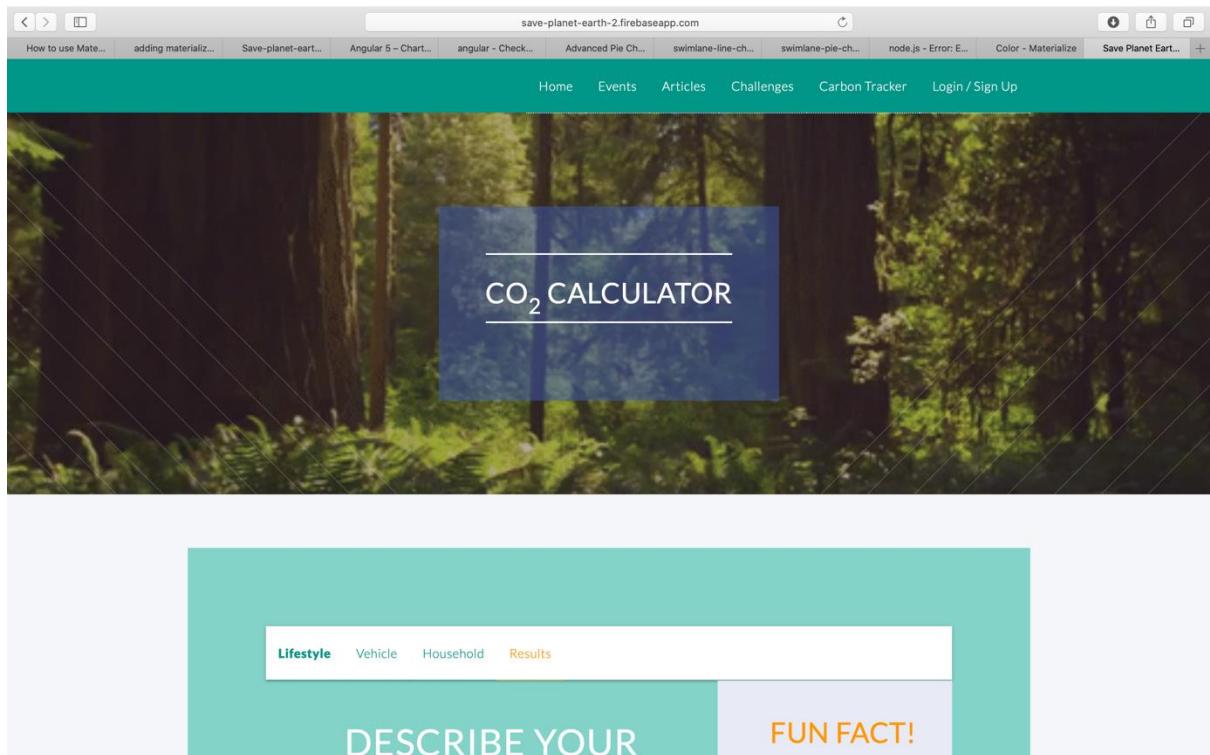


Figure 7.0: Showing the Carbon dioxide calculator

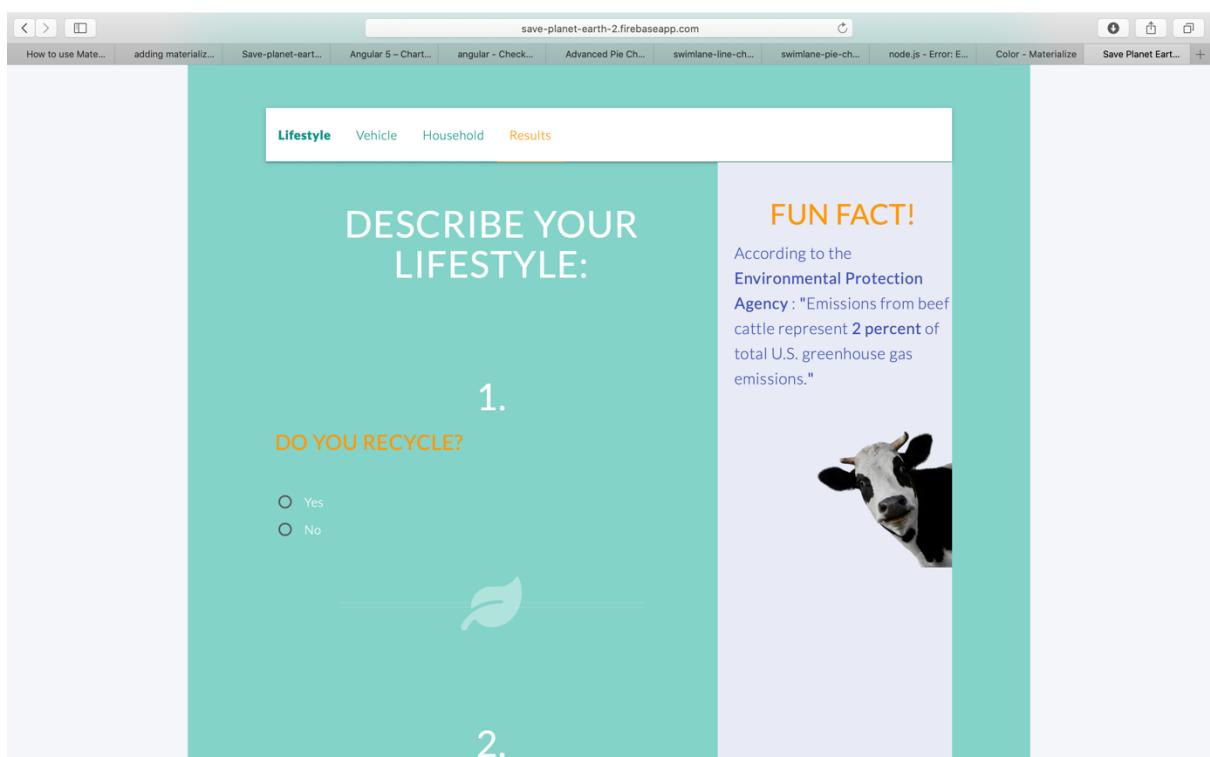


Figure 7.1: Showing simple questions pertaining user's lifestyle to calculate carbon emissions.

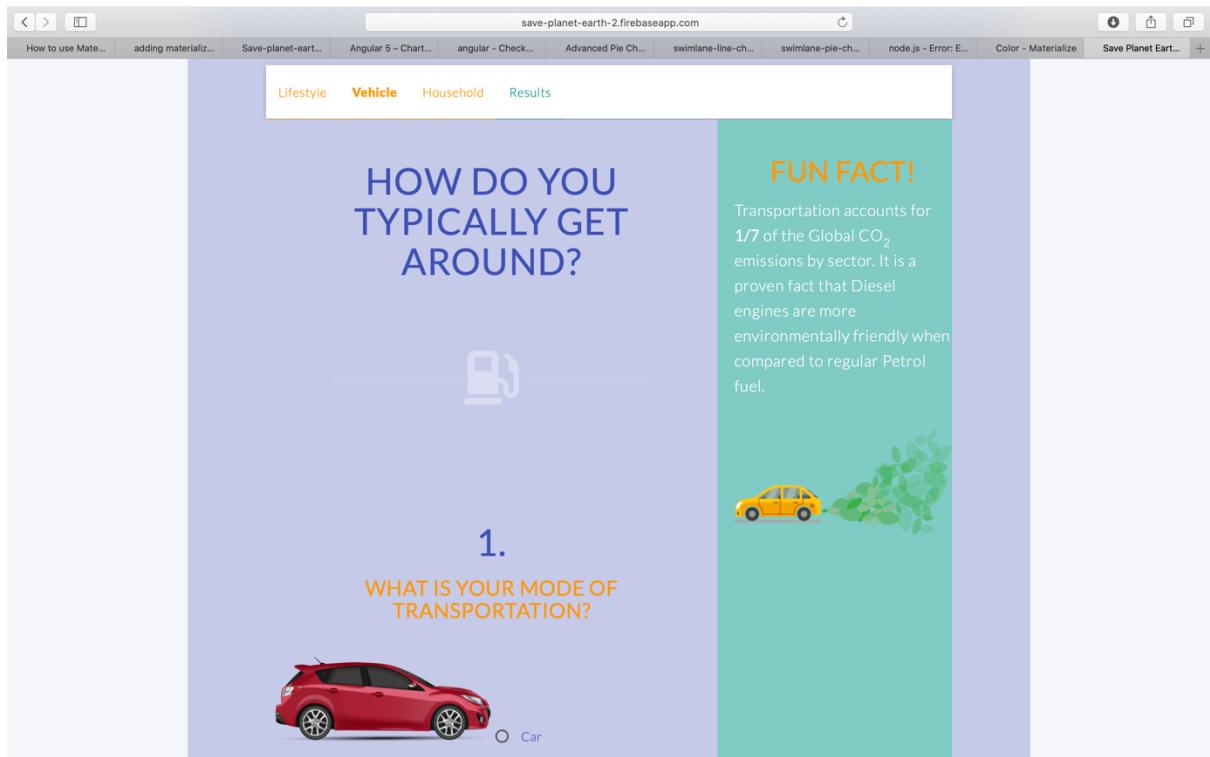


Figure 7.2: Showing simple questions pertaining user's vehicle to calculate carbon emissions.

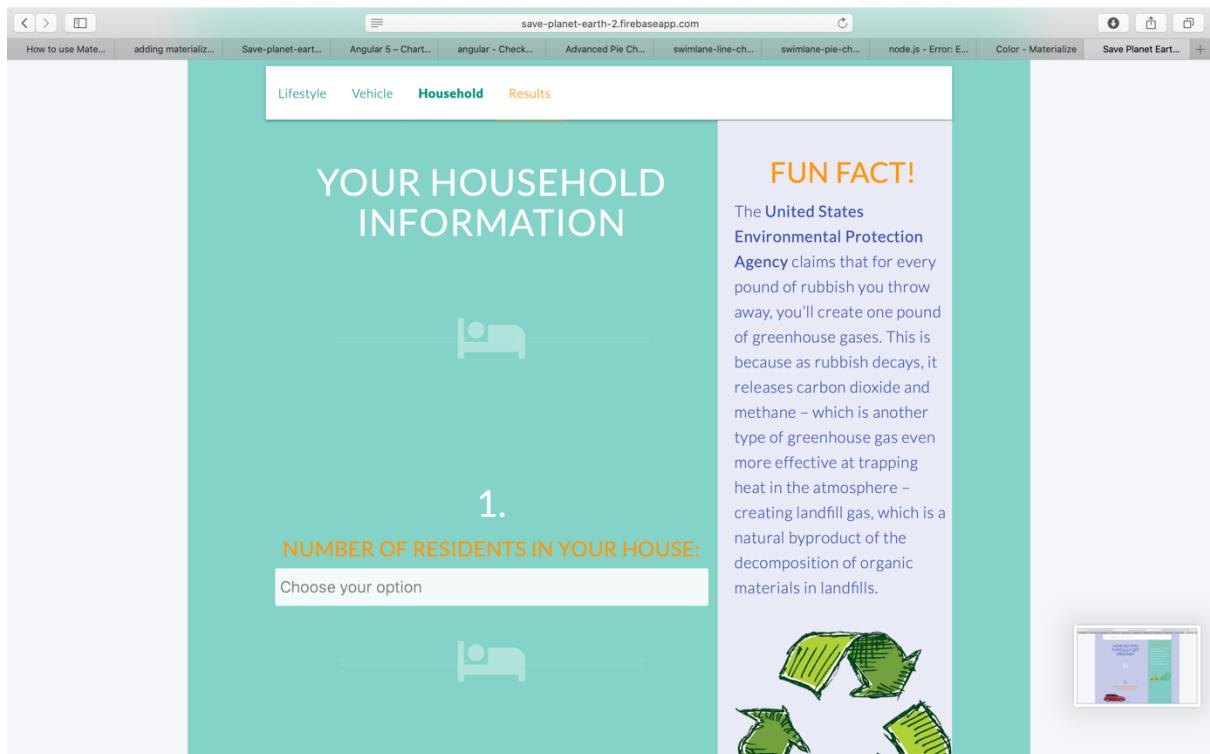


Figure 7.3: Showing simple questions pertaining user's household to calculate carbon emissions.

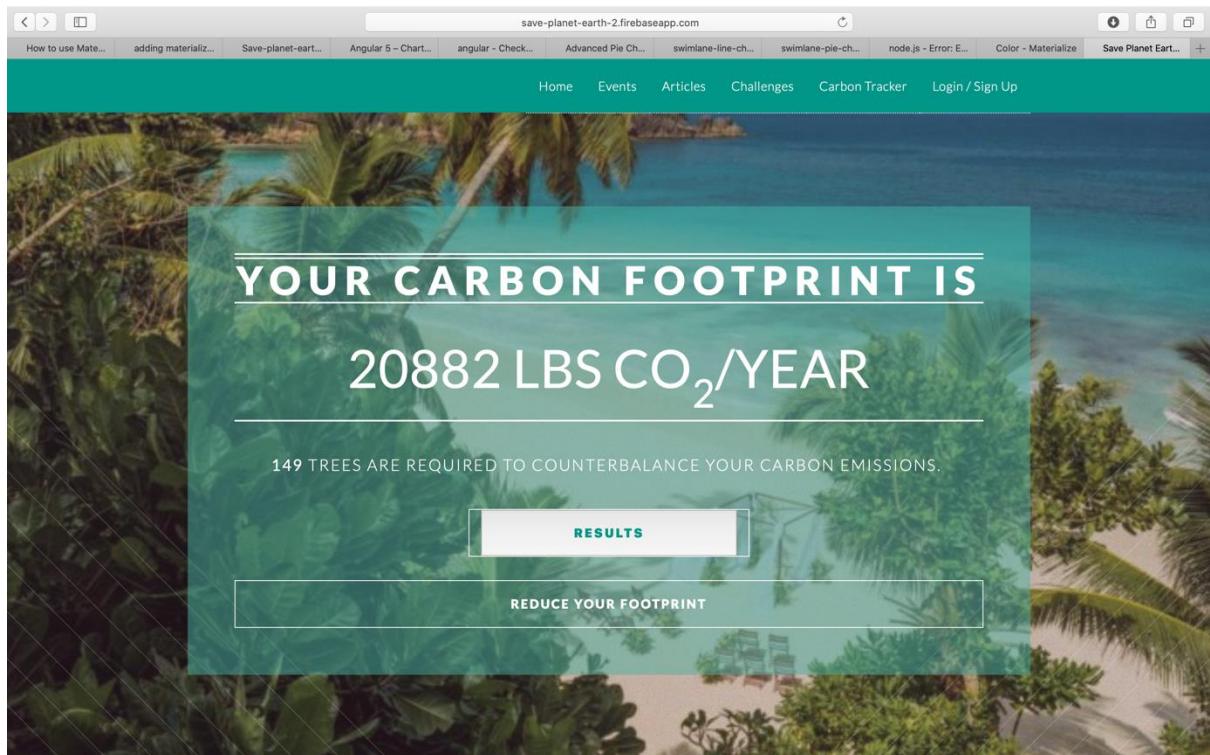


Figure 7.4

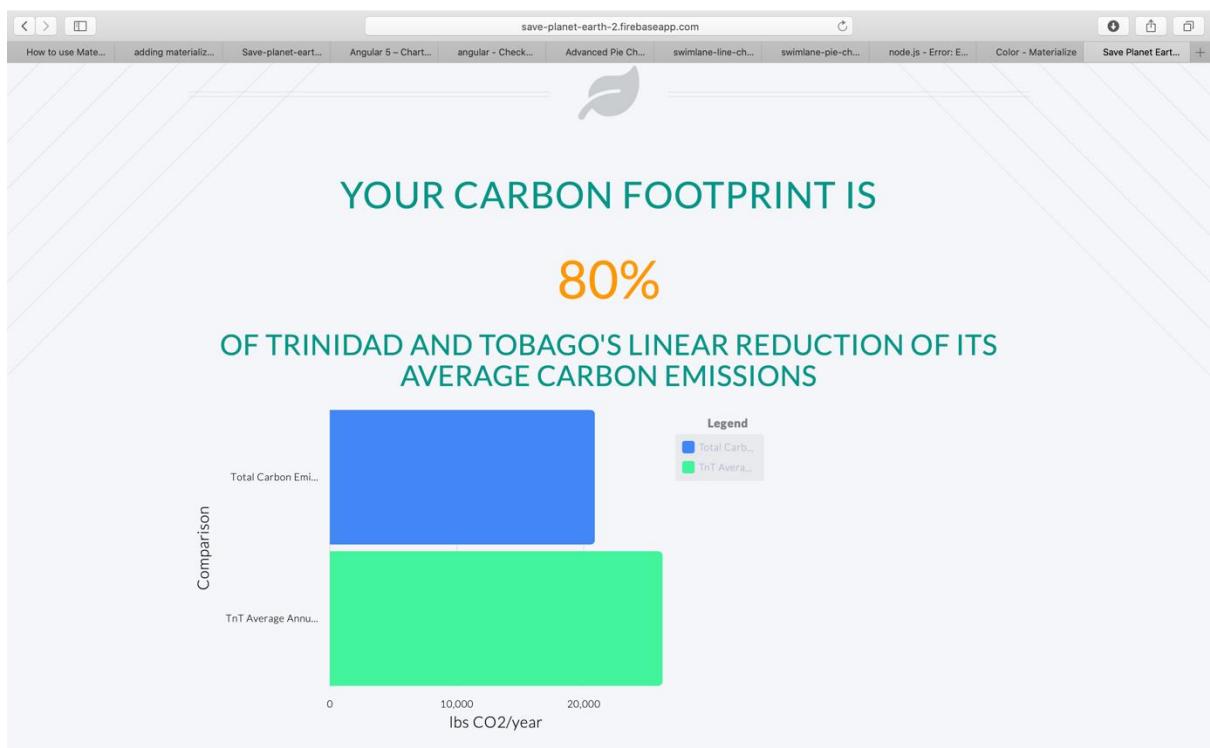


Figure 7.5

Figure 7.4 & 7.5: Showing results of carbon emissions of the user per year.

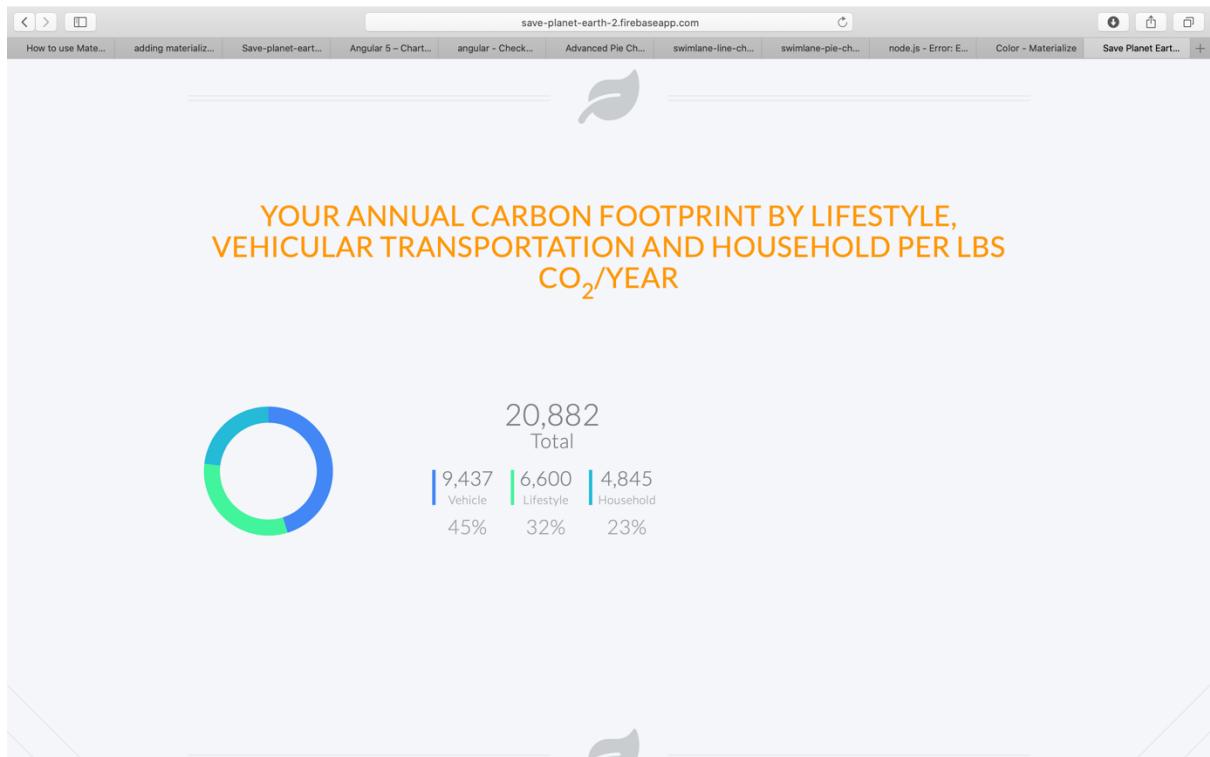


Figure 7.6: Showing results of carbon emissions of the user's answers pertaining to lifestyle, vehicle and household per year.

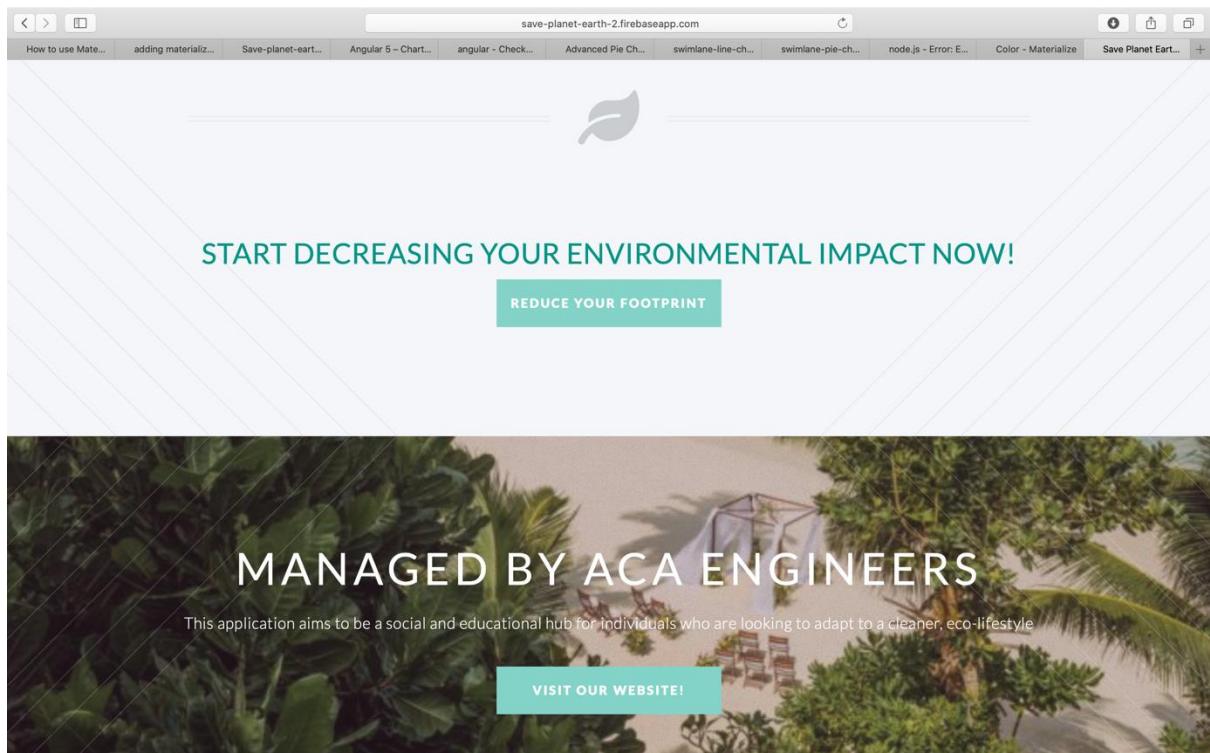
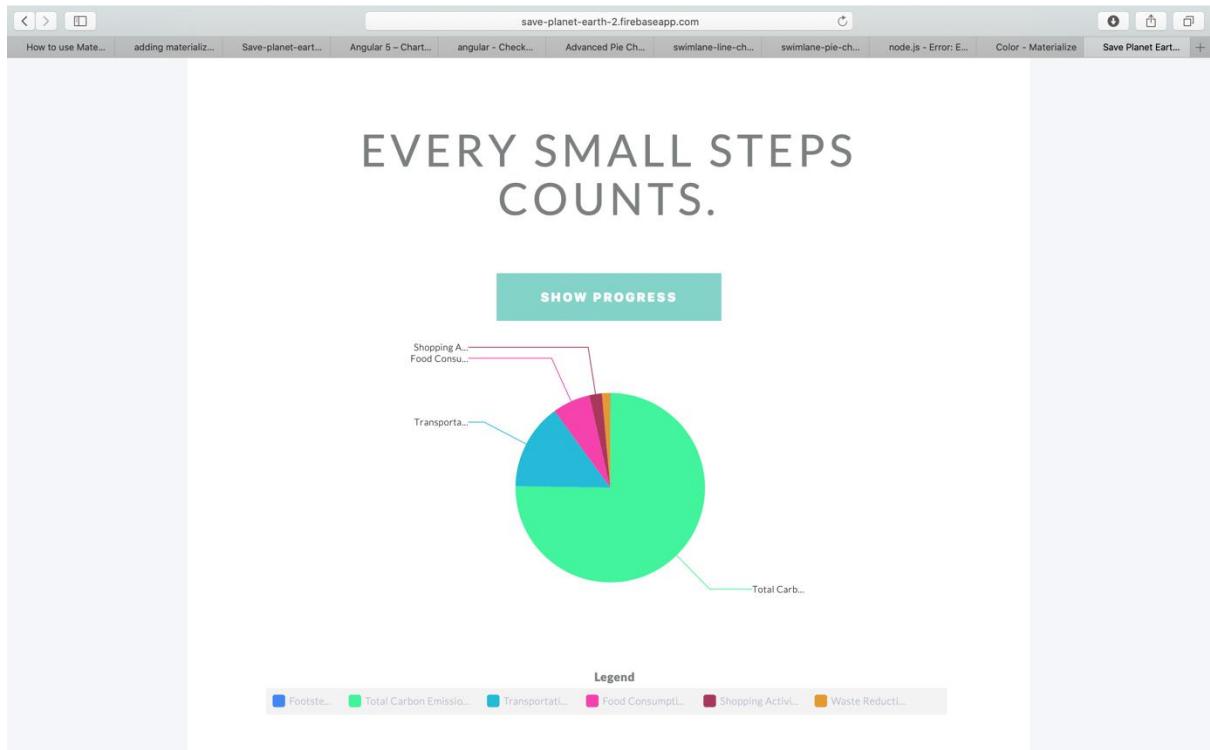


Figure 7.7: Showing “Reduce Your Footprint” button.

The following screenshots display the page when the “Reduce Your Footprint” button is clicked and activities that can be done to reduce the carbon footprint.



A screenshot of a web browser displaying two sections for reducing carbon footprint. On the left, under "FOOD CONSUMPTION", there is a photo of a group of people eating at a long table with various dishes. Below the photo is text: "Food production is responsible for one-quarter of the world's greenhouse gas emissions. Try a new activity to lead a healthier lifestyle." Below this is a "Choose an option:" section with a button: "Become Vegetarian: -1784 lbs CO₂". Below that is a teal "REDUCE" button. On the right, under "TRAVEL ACTIVITIES", there is a photo of a busy highway at night with blurred lights from cars. Below the photo is text: "Emissions from the transport sector are a major contributor to climate change. You can do your part and offset some of your CO₂ emissions." Below this is a "Choose an option:" section with a button: "Switch to an Electric vehicle: -4100 lbs". Below that is a teal "REDUCE" button.

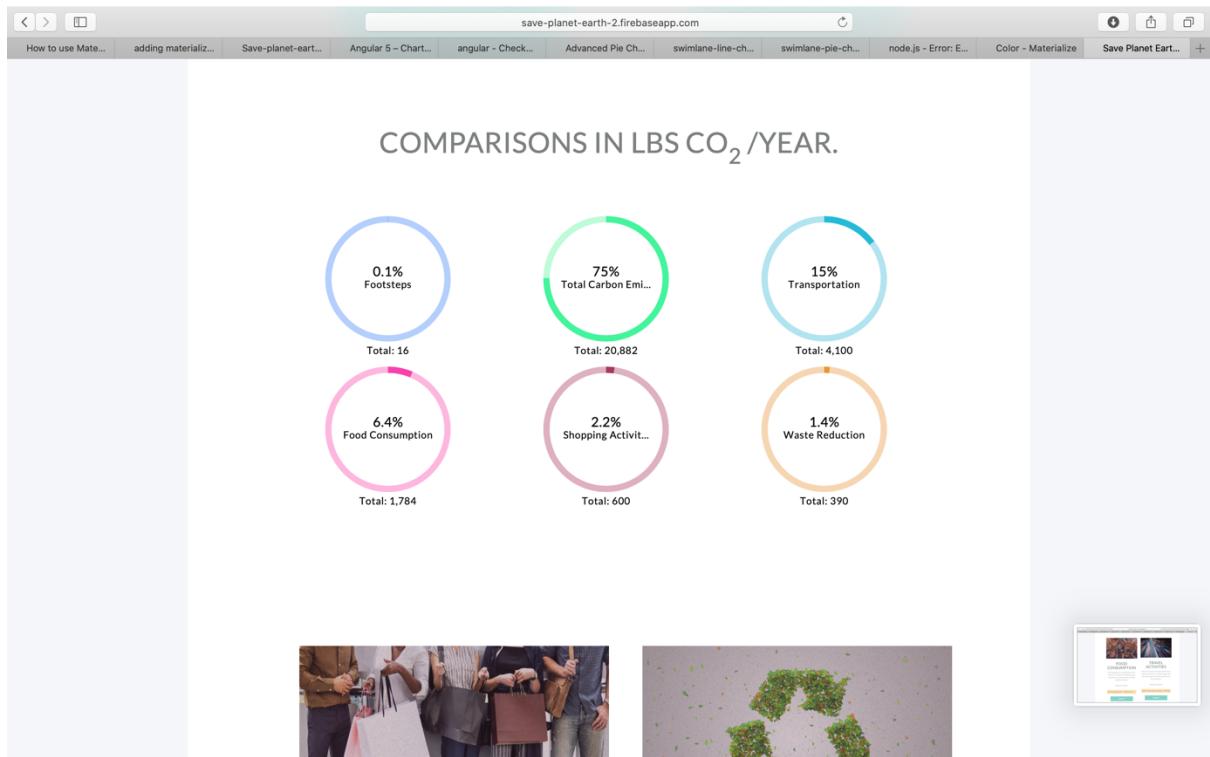


Figure 7.8: Showing results/comparisons of user's carbon footprint for the various activities per year.

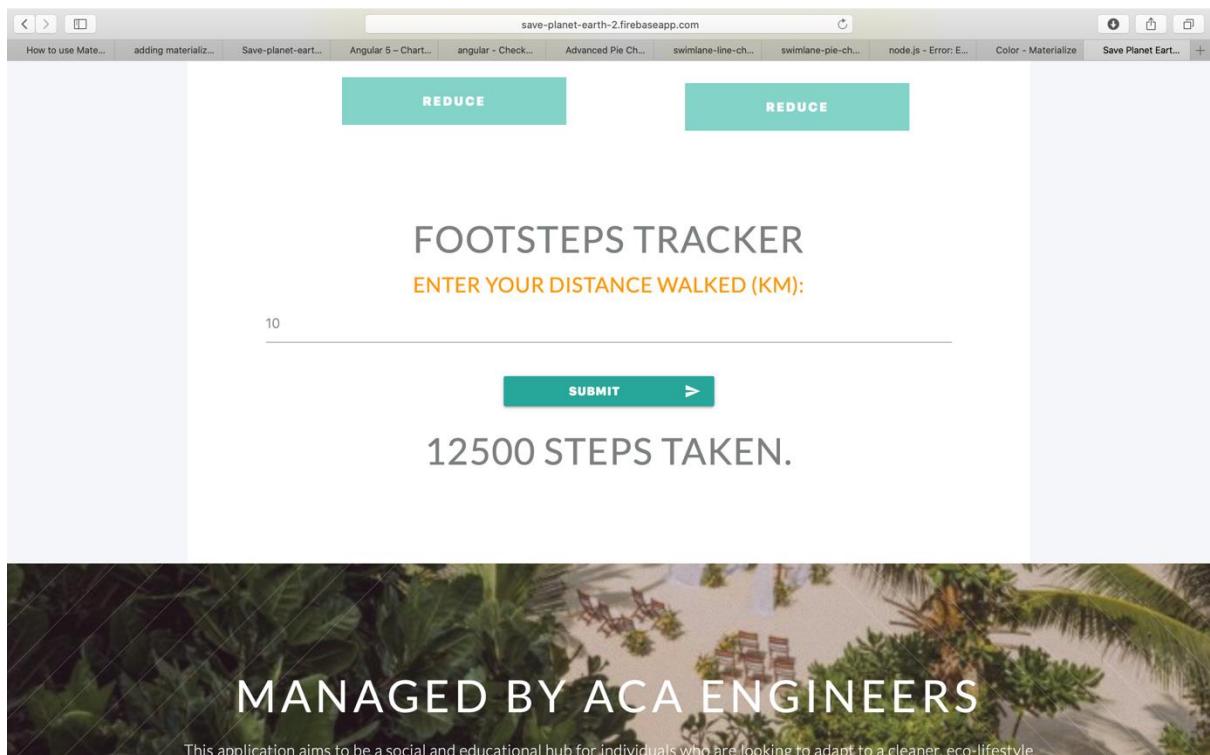


Figure 7.9: Showing Footsteps Tracker.

Additional Screenshots for Proof of working software:

The screenshot shows the results of a mobile-friendliness test for the URL <https://save-planet-earth-2.firebaseioapp.com/>. The test was conducted on May 15, 2020, at 7:03 PM. The results indicate that the page is mobile friendly, with no loading issues. The rendered page is shown as a smartphone screen displaying a purple "LOGIN PAGE" with a green header and a pink footer. A "Color - Materialize" watermark is visible in the top left corner of the phone screen. Below the phone are links to open a site-wide mobile usability report, learn more about mobile-friendly pages, and post comments or questions to a discussion group. At the bottom, there are links for Privacy and Terms.

Figure 8.0: Showing Responsiveness Test for Login Page.



Figure 8.1: Showing layout of Responsiveness Test.

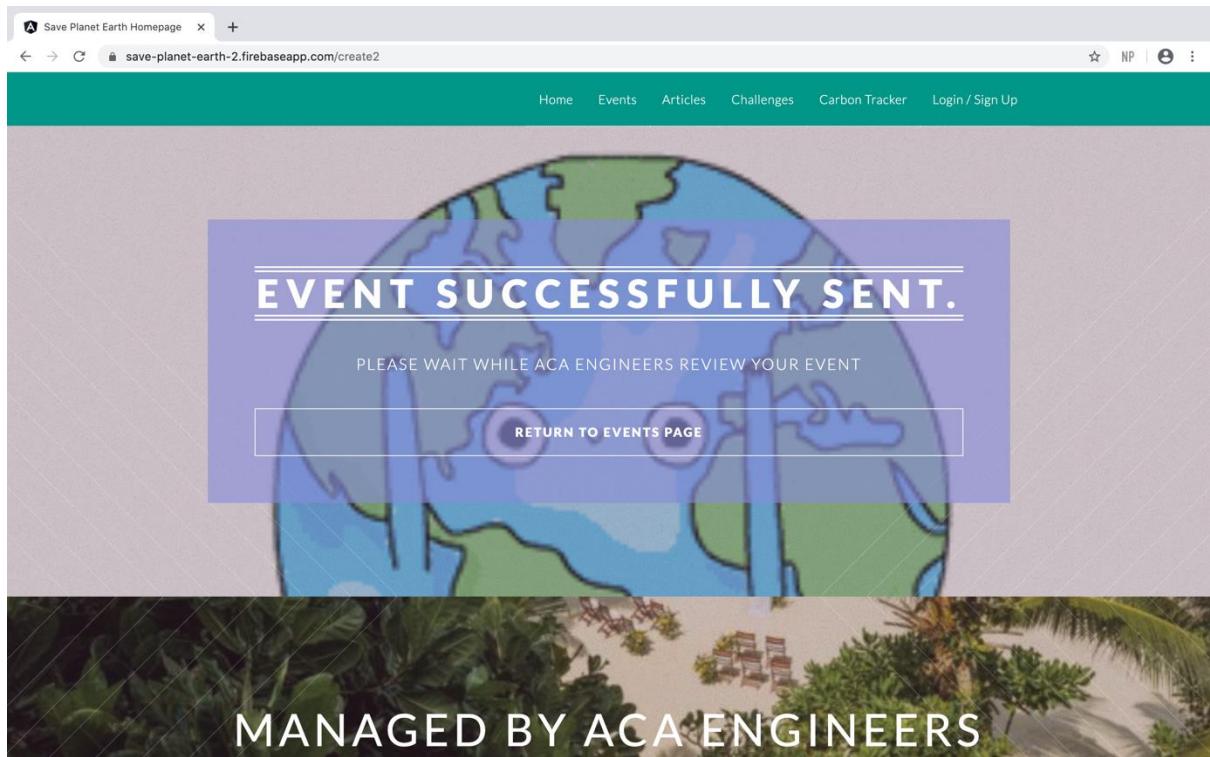


Figure 8.2: Showing the successful creation of an event.

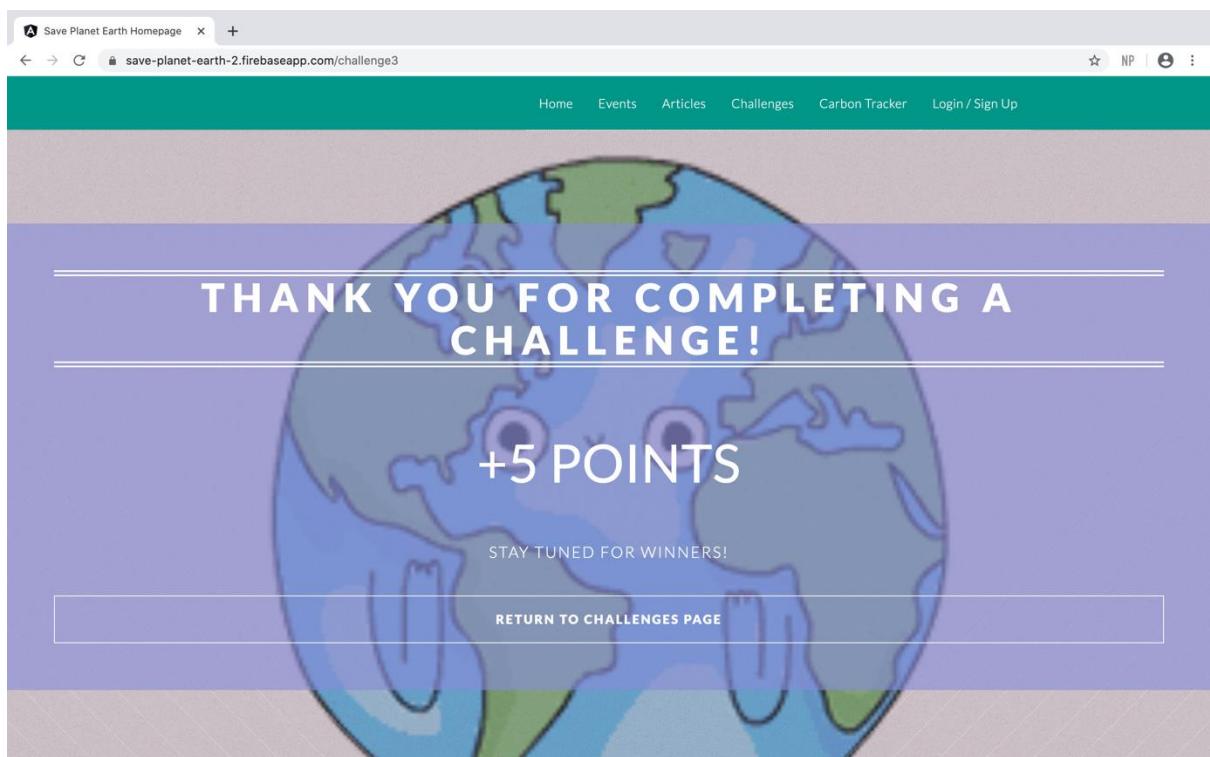
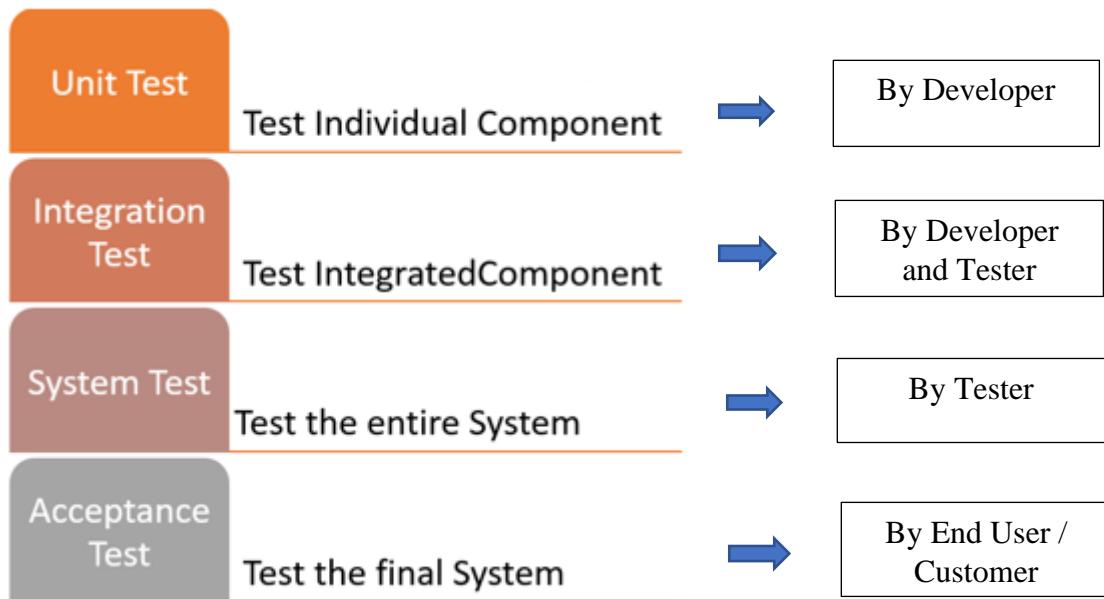


Figure 8.3: Showing the completion of a challenge when form was submitted and 5 points are rewarded to user's profile.

7. TEST

Test Plan



Test Approach

- ✚ Unit Test: testing the individual components (Done by Developer).
- ✚ Integration Test: testing integrated components (Done by Developer and Tester).
- ✚ System Test: testing the entire system (Done by the Tester).
- ✚ Acceptance Test: testing the final system to match requirements (Done by End User/ Customer).
- ✚ Responsiveness Test.

Features Tested

- ✚ Creating an account with a valid email.
- ✚ Logging into created email / signing out.
- ✚ Creating an Event.
- ✚ Completing a Challenge and filling out form.
- ✚ Tracking Carbon Emissions and viewing results on chart.
- ✚ Tracking carbon footprint and viewing comparisons/results on chart.
- ✚ Tracking daily Footsteps.
- ✚ Updating User profile with points after completing tasks/challenges.
- ✚ Viewing a full Article via hyperlink.

Features Not Tested

- ✚ Completing a Task.

8. BUSINESS ASPECTS

Market and Economic Outlook

It is clearly visible that pollution is rampant in Trinidad and Tobago which concerns the entire public as it hampers with the well-being of the environment as well as humans. As a country we all need to take responsibility for our own actions, and we must be the change that we want to see. Currently, there are environment conservation groups that organise clean-ups or hikes, but this system is aimed to target a wider population in working towards the common goal of saving the environment. Citizens and sponsors should grasp the opportunity to capitalize on this market and we hope that it continues to expand and target many sponsors which can increase rewards to users who participate as incentive.

Novel Features of Service, Competitive Landscape and Alternatives Differences

This system aims to:

- Target a wider population as compared to smaller environment conservation groups that currently exist.
- It is a unique system as there are multiple features incorporated in it since current websites or applications would only have one main functionality. However, this is a combination of many different features such as a hosting environment for Events and anyone (user or admin) can create these; this solution encourages users to be active daily by participating in green tasks and challenges which is a fun and creative way of conserving the environment to earn points in the user's profile; informative articles are uploaded to promote environment awareness as well as information on garbage collectors / recycling companies; it tracks the user's carbon footprint, display progress charts and therefore, promotes car-pooling with other members; tracks the number of footsteps the user accomplishes daily which promotes motivation for a healthier lifestyle; the user Profile displays the points accumulated for a chance to win rewards (gift certificates, vouchers) monthly; displays advertisements for sponsors who sponsor rewards.
- Different from alternatives since it is cross-platformed so it can be used on a personal computer as well as compatible on mobile devices (Android, IOS).

This system includes all the above features which current alternatives do not offer. One of the alternatives is the Go Green Challenge which is an application that allows weekly tasks for the users the complete. Another alternative is a Facebook group, Trinidad Environment Awareness which organises events for the members to attend and uploads articles. This alternative is inefficient compared to ours as we aim target a larger audience and offer a vast number of features.

Investment Potential (IP) or Patent Issues

This cross-platformed system combines various features that all encourage and promote users to live in a healthy environment and healthier lifestyle. Since all the features are laid out in a clear and simple navigation bar, it is easy for the users to understand and therefore, they do not need to use multiple applications or websites to complete their goal as this system has it all. There is opportunity for stakeholders and sponsors to make revenue as there are

advertisements sections throughout. Additionally, users of this system would more than likely choose to support businesses who care about the environment and who are eco-friendly which makes the advertisements section essential.

Projected Clients / Customers

The clients of this project can be members of the public who are interested in doing a little part daily to assist in saving the environment. Clients can also be companies and businesses who wish to support this initiative by sponsoring rewards (gift certificates, vouchers) to participants who accumulate the most points monthly. This is to encourage them to continue working assiduously as well as encourage new users to work hard to accomplish rewards.

9. INDIVIDUAL CONTRIBUTIONS

Anissa Harricharan

- Project Leader
- Weekly Status Reports
- All Documents (Google Drive-Final report, implementation, requirements, project proposal)
- Developer
- Mid – Course / Final Presentation Slides

Celine Ganar

- Project Website (GitHub)
- Main Developer
- Tester (User, Acceptance)
- Weekly Status Reports
- Mid – Course / Final Presentation Slides

Aakil Ramlogan

- WordPress
- Main Developer
- Database
- Tester (Integration)
- Mid – Course / Final Presentation Slides

10. FINANCIAL CONSIDERATION

Project Budget

ITEM	COST IN USD (\$)	TOTAL COST IN USD (\$)
Marketing	1 500	1 500
Maintenance	1 500	1 500
Developer (3) Salary for 3 months	6 000 (3)	18 000
Testing	1 000	1 000
Cross-Platform Integration	500	500
Publish website to Google	1 500	1 500
		24 000

Cost Projection

Profit Option

Revenue is generated using advertisements for Sponsors.

This is used for:

- Maintenance, Upgrades, Scaling
- Staff
- Profit for Stakeholders

Non- Profit Option

No money would be taken from Sponsors and funds for initial start up of the system would need to be obtained from other means such as donations.

11. CONCLUSIONS, LESSONS LEARNED AND RECOMMENDATIONS

State of Completion

This cross-platform website allows users to create an account using a valid email address and they can now have access to all features. Upon logging in, the user is directed to his/her profile where his/her total points are displayed. The user can create events for other users to attend by submitting the form or view/attend upcoming events from the feed. Additionally, users can participate in daily green tasks which accumulate one point each as well as participate in challenges where five points are awarded for a chance to win rewards. These points can be updated and viewed on each user's profile. Users can calculate their CO₂ emissions as well as track their individual progress. Users can track their carbon footprint after answering a few simple questions in different categories and the results are displayed on charts. In addition, the website allows users the option to reduce their carbon footprints in various ways and the comparisons/results are displayed on a pie chart. Users are allowed to track their footsteps daily to lead not only an eco-friendly lifestyle but a healthy and fit lifestyle. In addition, users can view articles on environment conservation to promote awareness and knowledge and obtain contact information on garbage collectors and recycling companies. Lastly, users can view advertisements of sponsors and support them as the sponsors show their care for the environment and its protection.

Lessons Learnt

The group's main challenge was completing all the weekly sprints and tasks on time. This is because managing the project which required daily attention was difficult while completing four other courses. The time estimated in the Gantt Chart was not sufficient to complete the project with its core functionalities but since more time was given, all the functionalities were finished. We believe that the main goals of our cross-platform website were accomplished. In conclusion, this was great experience and we hope that in future, we are better able to manage our time and produce better software as there is always room for knowledge and improvements.

Summary of Feasibility

This website contains all the core functionalities which we envisioned, and we hope that the public utilises it to conserve the environment for present and future generations. This website can now be published to Google and faster target the audience (public of Trinidad and Tobago).

Future Work

Currently, the cross-platform website is fully functional, one feature that was not included is users being able to indicate their attendance to events. Completing this feature would be top priority in future as well as targeting a wider range of advertisers to sponsor rewards for users.

How the Project may be Extended

1. Users shall be able to indicate their attendance to events.
2. Points on User Profile can be visualized via charts.
3. Targeting a wider range of advertisers to sponsor rewards for users and gain profit.
4. Include a high security (monitoring) system to detect suspicious activity.

12. REFERENCES

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<https://www.contentful.com/>

<https://www.eventbrite.com/platform/docs/introduction>

<https://www.contentful.com/r/knowledgebase/serverless-architecture/#serverless-architecture-by-example>

<http://www.roypeled.com/an-mvp-guide-to-javascript-model-view-presenter/>

<https://adduosmani.com/blog/understanding-mvvm-a-guide-for-javascript-developers/>

13. APPENDIX

Link to GitHub (documentation):

<https://github.com/celineganar/saveplanetearth>

Link to GitHub (code):

<https://github.com/celineganar/Saveplanetearthwebsite>

Link to Google Drive (proposal, deliverables, final report etc):

https://myuwi-my.sharepoint.com/:f/g/personal/anissa_harricharan_my_uwi_edu/EtG9mOXNK0FBt26bMd00AokBwU9oYkickCilbqp5sypekQ?e=Ba3fp3

Link to WordPress:

<https://saveplanetearth.design.blog/>

Link to Cross-Platform Website:

<https://save-planet-earth-2.firebaseioapp.com/>

Link to Video:

<https://youtu.be/Vpk-xjPFhss>