# HexalBytes

## Final Presentation


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**CSC318H1: The Design of Interactive Computational Media**
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**December 5th, 2023**

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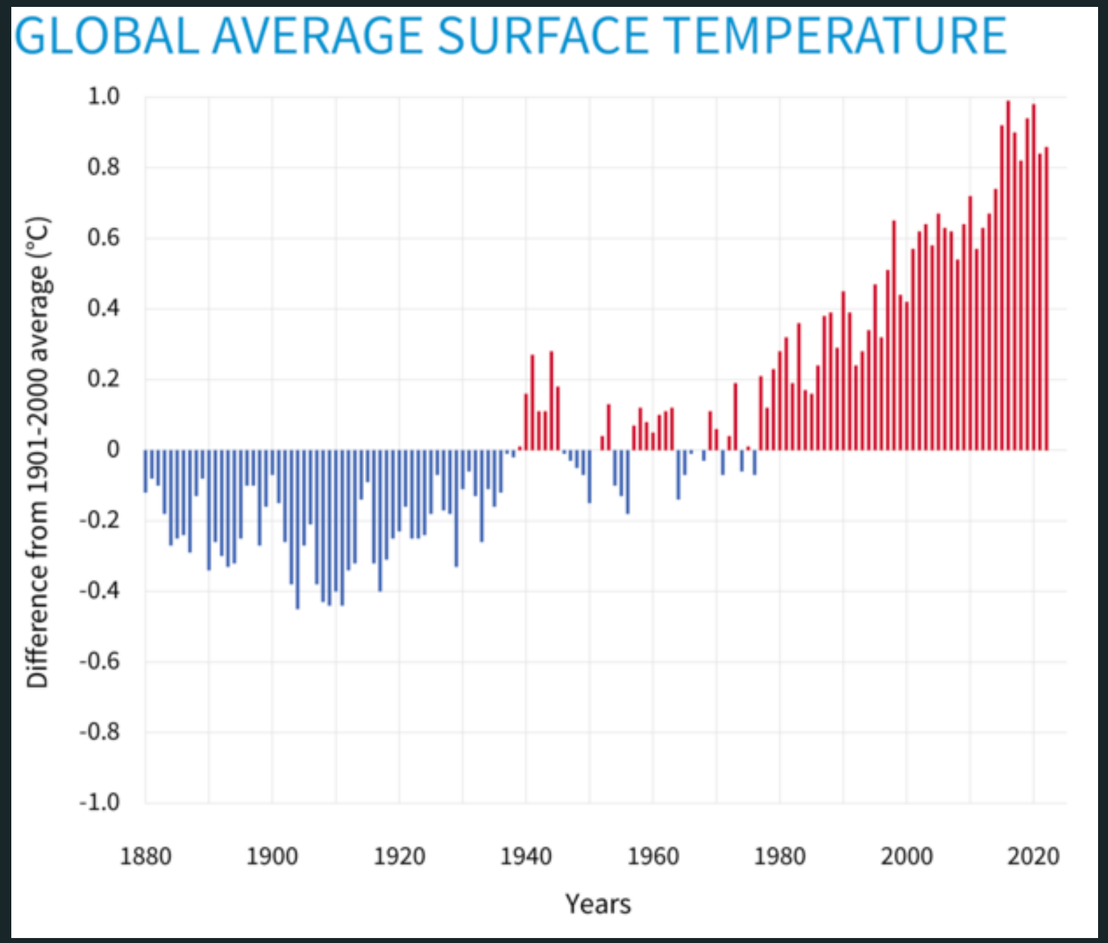
# Part 1:

Problem

# Background Research -- Pain Point

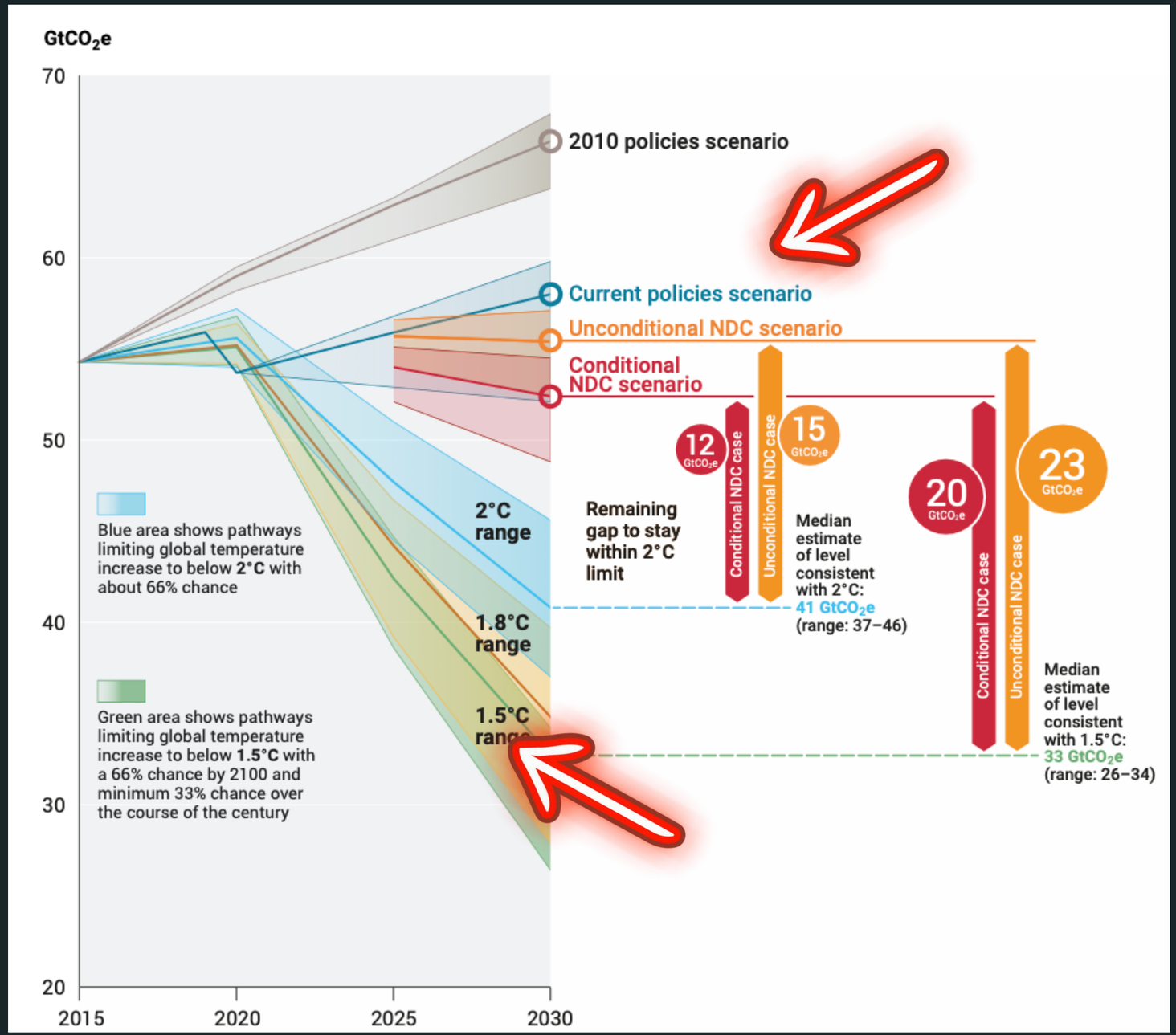
- Increase in Global temperature




[1] Yearly surface temperature compared to the 20th-century average from 1880–2022 [1]

2. Effectiveness of policies are subpar

[2] Net Zero plan propose by International Environmental Angency



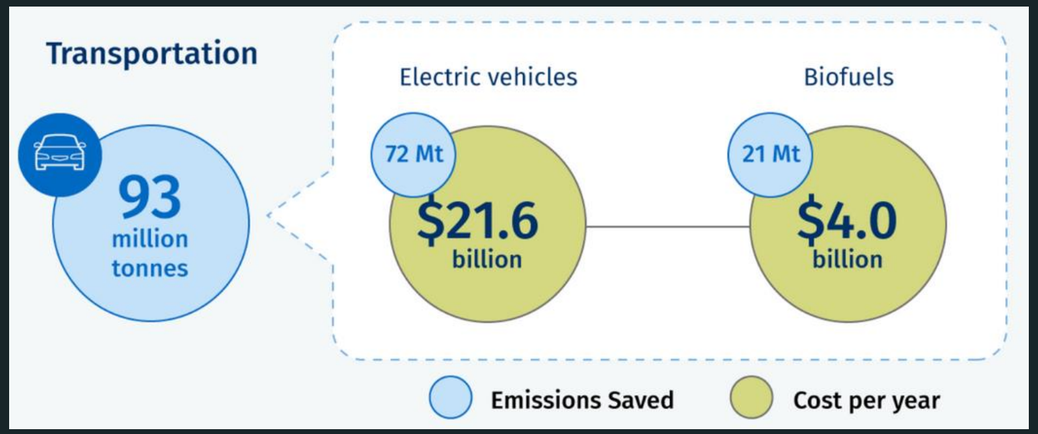

[3] Global GHG emissions under different scenarios and the emissions gap in 2030

If we just keep the current policy, the CO2 emission gap between the ideal stage and reality would be huge.....

It is the time to make some changes!

# 3. Resource-intensive && Large organization’s game

[3] The $2 Trillion Transition: Canada’s Road to Net Zero



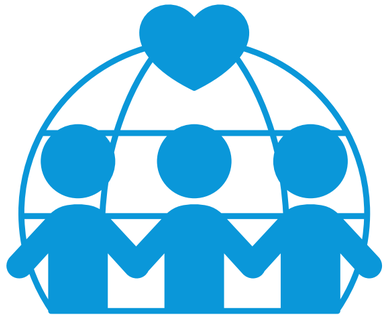

# 4. Many people want to contribute to environmental protection but lack knowledge and tools to take actionable steps.

# StakeHolder

Our Mission: Get everyone involved in protecting the environment to build a better and green world.

## Primary

individuals who are conscious of the need for eco protection but are uncertain about the specific actions they can take.



## Secondary

people who are not only aware of eco issues but have also taken steps towards mitigating them.

## Tertiary

professionals working in environment-related companies that profit from environmental protection actions.

# Summary of Key Findings from Formative Studies
# Target problem is an important one to address

An online environmental protection community can significantly motivate people to take action for environmental conservation

Different stakeholders respond to various forms of motivation, from financial rewards to intrinsic value recognition

Secondary stakeholders often exhibit incomplete eco-friendly behaviours, occasionally engaging in eco-unfriendly actions. We need to strengthen their awareness as well.

These three key findings are vital for shaping the future design requirements of the project

# Part 2:

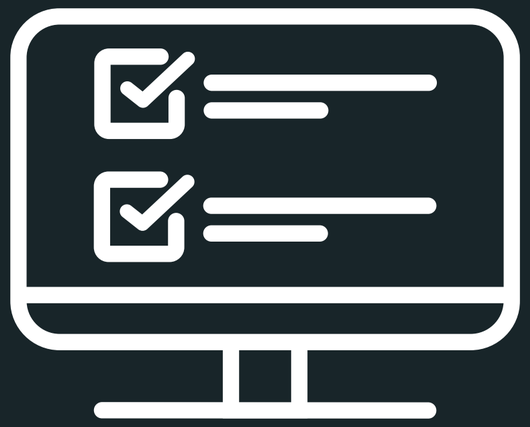
Process

# Formative Studies: Exploring the Scope of Our Design

## Questionnaire

Study Protocol: in the form of an online survey using a google form, participants are taken into different branches based on their answer for certain indicator questions

Key Finding: none of the primary stakeholder participants believe their eco-friendly actions make a significant difference



# Formative Studies: Exploring the Scope of Our Design

## Interview

Study Protocol: a structured type of interview, where questions are planned and flows are set in advance

Key Finding: participants find motivation in concrete incentives as well as the influence of minor, routine environmentally conscious behaviors during interviews

# Formative Studie: Exploring the Scope of Our Designs

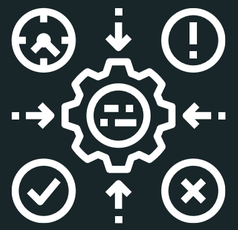
## Observation

Study Protocol: directly engaging with stakeholders during their regular activities and indirectly captures data through reviewing Vlogs, journals, and video records

Key Finding: need to strengthen eco-friendly awareness among primary stakeholders and provide secondary stakeholders with more concrete actions they can take

# Think-aloud Study: Test the Main Functionalities

## Evaluation Protocols



We constructed a total of six contexts, each corresponding to a task, these six scenarios comprehensively cover the main functions of our current prototype

Each participant was informed of multiple contexts or tasks to experience certain main functions and complete specific tasks

We observed and listened to see if the participants could smoothly understand the function of each option and button, successfully complete tasks, and whether the app had the intended effect

# Think-aloud Study: Test the Main Functionalities

## Key Findings

The ambiguity arises in the measurement units when users input environmentally friendly actions into our carbon footprint calculator

The “more” button in reward redeem page are found to be redundant

The extensive rewards list proves cumbersome for users, who find it tiresome to scroll through to locate their desired redemption option

When encountering technical issues, the majority of users tend to instinctively click on the "Settings" option rather than selecting the "?" sign located at the top right corner of the screen for assistance.

# Heuristic Evaluation: Test the Main Functionalities

## Evaluation Protocols

Guided the experts through all the main functions of the prototype we designed

Observed whether the experts could use the prototype smoothly and perform the activities a novice in environmental protectionist would want to undertake

Evaluated which options might be confusing to users based on their self-reported actions and thoughts

Documented suggestions and identified issues based on the experts’responses to our heuristic evaluation table

# Heuristic Evaluation: Test the Main Functionalities

## Key Findings

The interface for the "pull-up" feature within the footprint module can be easily missed

The "add button" located in the top right corner of the "pull-up interface" is relatively small and lacks clear indication of its function

The inclusion of carbon footprint data relies on users actively searching for information, as there is no accompanying guidance provided

The participants were well-versed and skilled in utilizing the comment functions within lectures and news, along with the feature enabling communication with others

# Usability Study: Test the Main Functionalities

## Evaluation Protocols

- Target participants
  - primary stakeholders and secondary stakeholders

Quantitative Objective: completion time and error rate of the“ADD”button

Quantitative Subjective: Likert-scale questionnaire

Qualitative Objective: recorded observations of navigation patterns for“Reward”

# Usability Study: Test the Main Functionalities

## Key Findings

The average time taken by them to successfully add new items in the footprint journey was about 37 seconds, which is relatively long

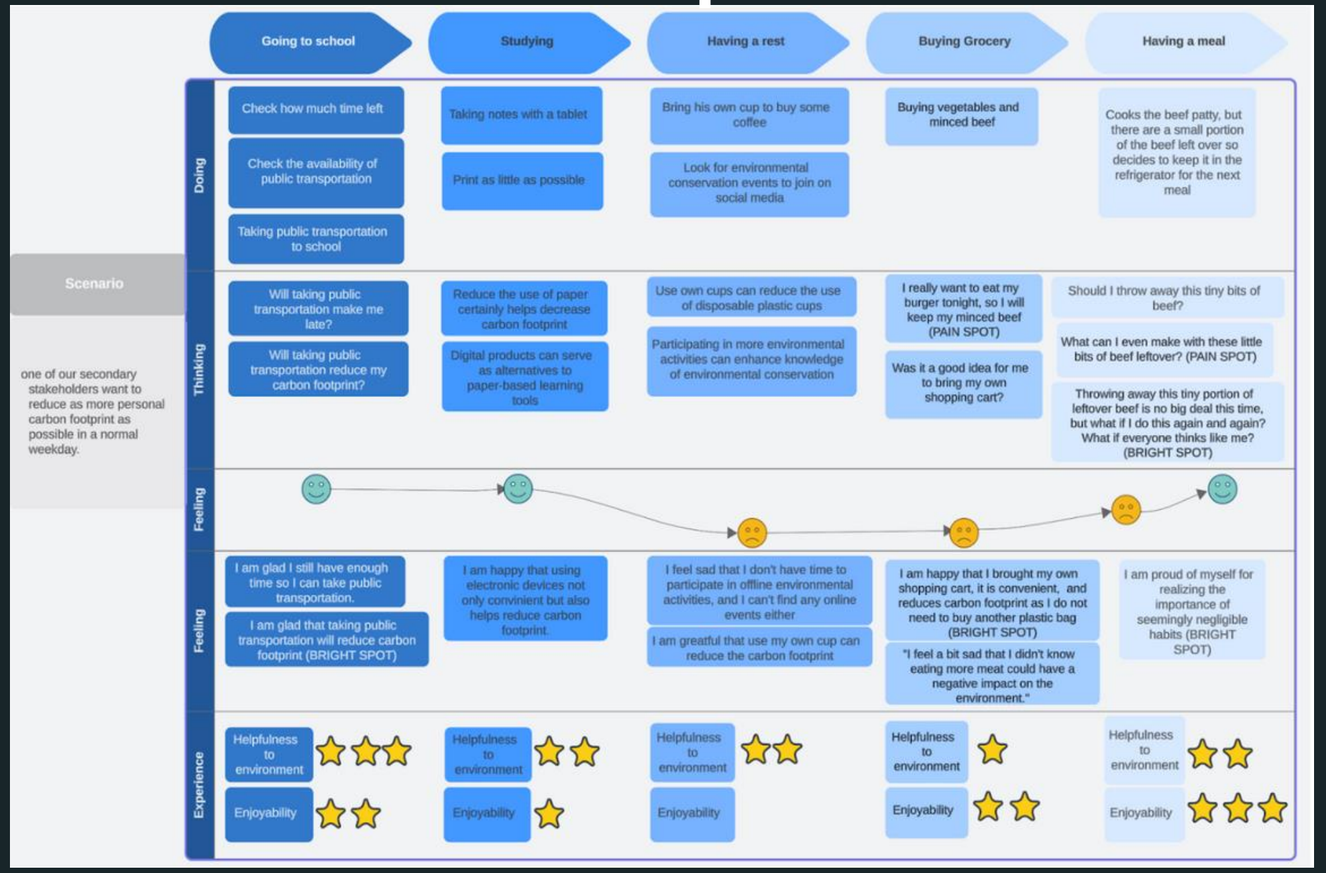
After opening the recent journey, users did not spend much time realizing that the plus sign was the button to add a journey

The use of the guide interface is a great plus, however accessing the Get Points interface is overly complicated

# Part 3:

Products

# Experience Map




**Experience map that reviews and analyzes a daily routine of a random secondary stakeholder.**

# Job Stories

- (Motivation) When I am concerned about the environment and want to stay updated, I want to access a platform that shares environmental issues and news within an online community, so that I can be informed and contribute to discussions and solutions, or share with my families and friends to raise the awareness for more people.

- (Motivation) When I am engaging in environmental protection activities, I want to receive rewards and incentives for my contributions, so that I feel appreciated and motivated to continue my efforts.

- (Anxiety) When I go to a coffee shop and given options to choose between plastic straw and the paper one, I want to choose the plastic one, so that it won’t dissolved over time.

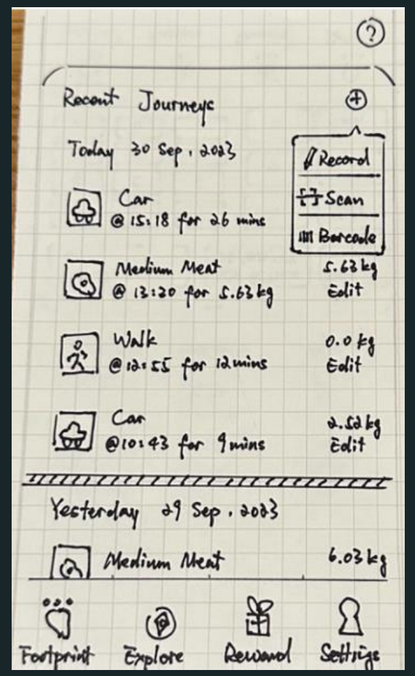
# Design Requirements

- DR1: The design should share environmental issues and news with users in an online community
- DR2: The system must furnish users with clear, accessible, and scientifically feasible and validated steps towards adopting sustainable practices
- DR3: The design shall visualize users’actions and contributions to environmental protection and track their activities
- DR4: The design ought to give users rewards and incentives
- DR5: The design should be able to receive feedback from users to make improvements

# Paper Prototype

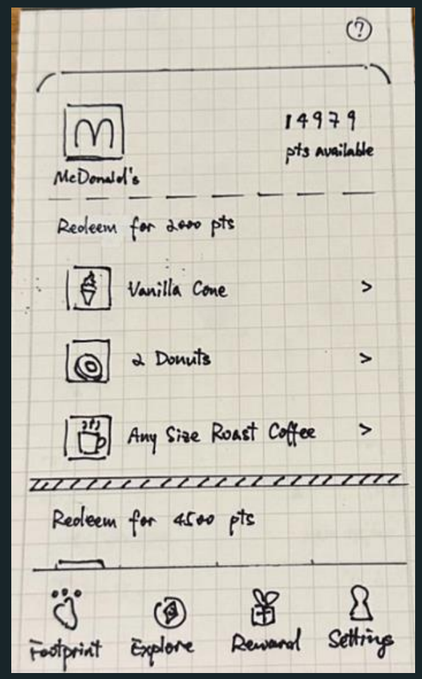
## TRACKING

Users are able to record their green activities through the built-in calculator and track their carbon footprints easily.



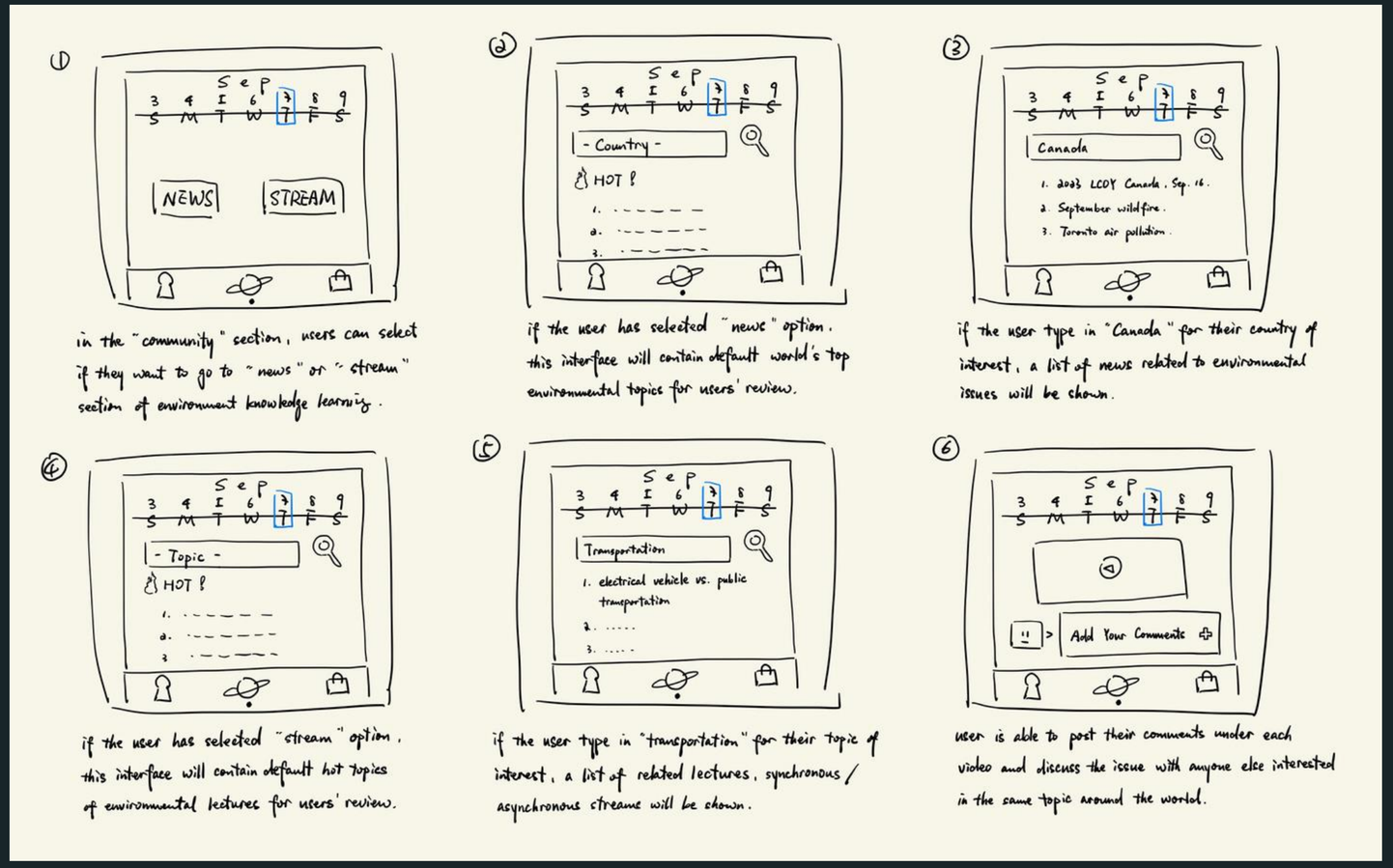

## EARNING

User can redeem prodects from various businesses with their reward points earned from taking environmental-friendly actions.



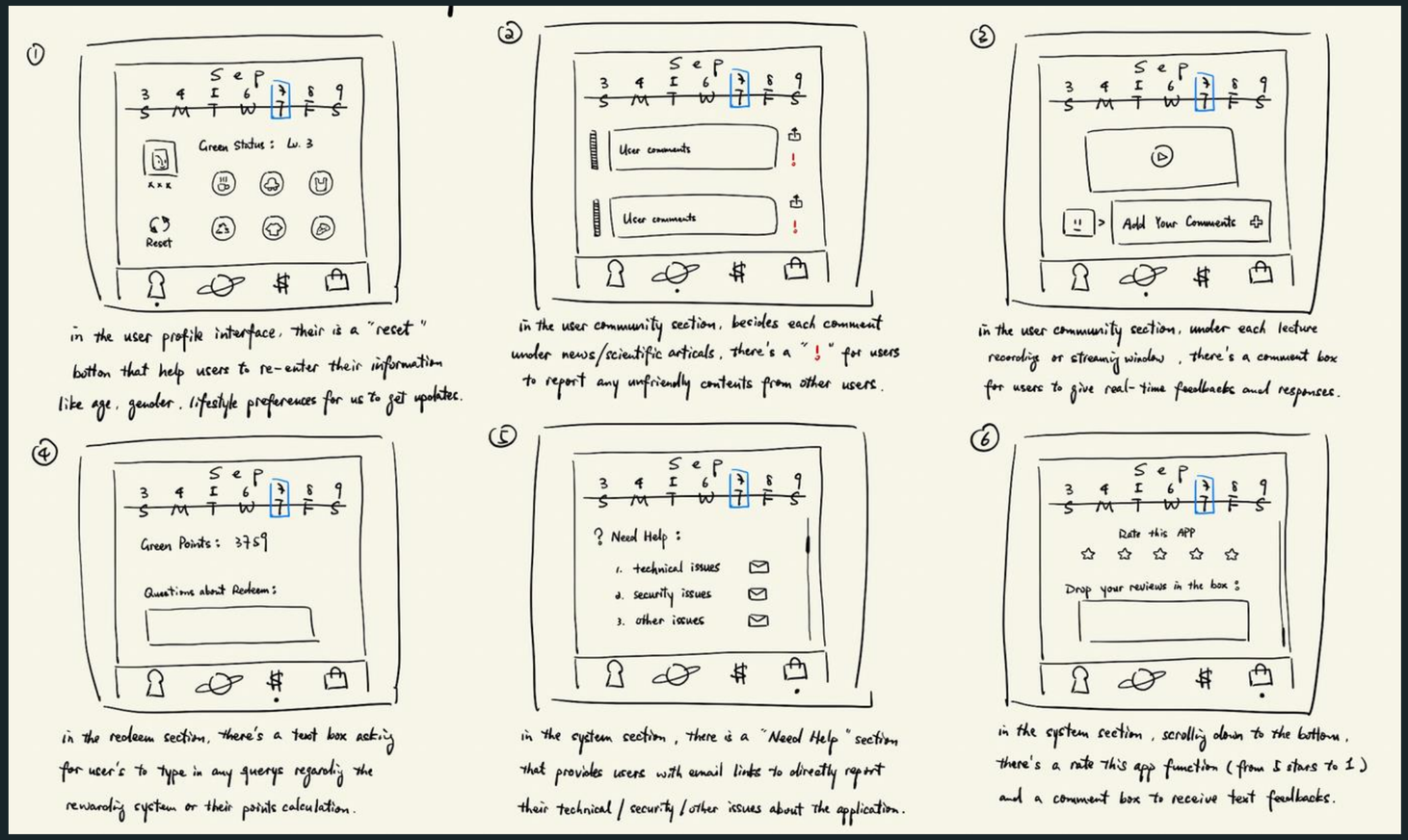
# Storybroads

share environmental news and knowledge in community



# Storybroads

provide users with a comprehensive reporting mechanism



# Part 4:

Demo

Components

Open...

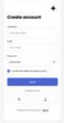
Log I...

Forg...

Log I...

Sign ...

Sign ...

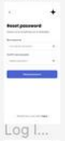


Forg...

Log I...

Choo...

Rese...



Log I...

Foot...

Pass...

Log I...

Foot...

Foot...

iPhon...

iPhon...

iPhon...

Settin...

Profile

Welc...

Welc...

Explo...

Explo...

Explo...

Explo...

Explo...

News...

Lectu...

News...

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Guid...

Guid...

Guid...

Guid...

Guid...

Get ...

Guid...

Rew...

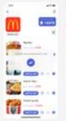
Rew...

Rew...

Rew...

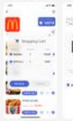
Add ...

Add ...



Add ...

Shop...



Chec...

Rew...

Rew...

unse...

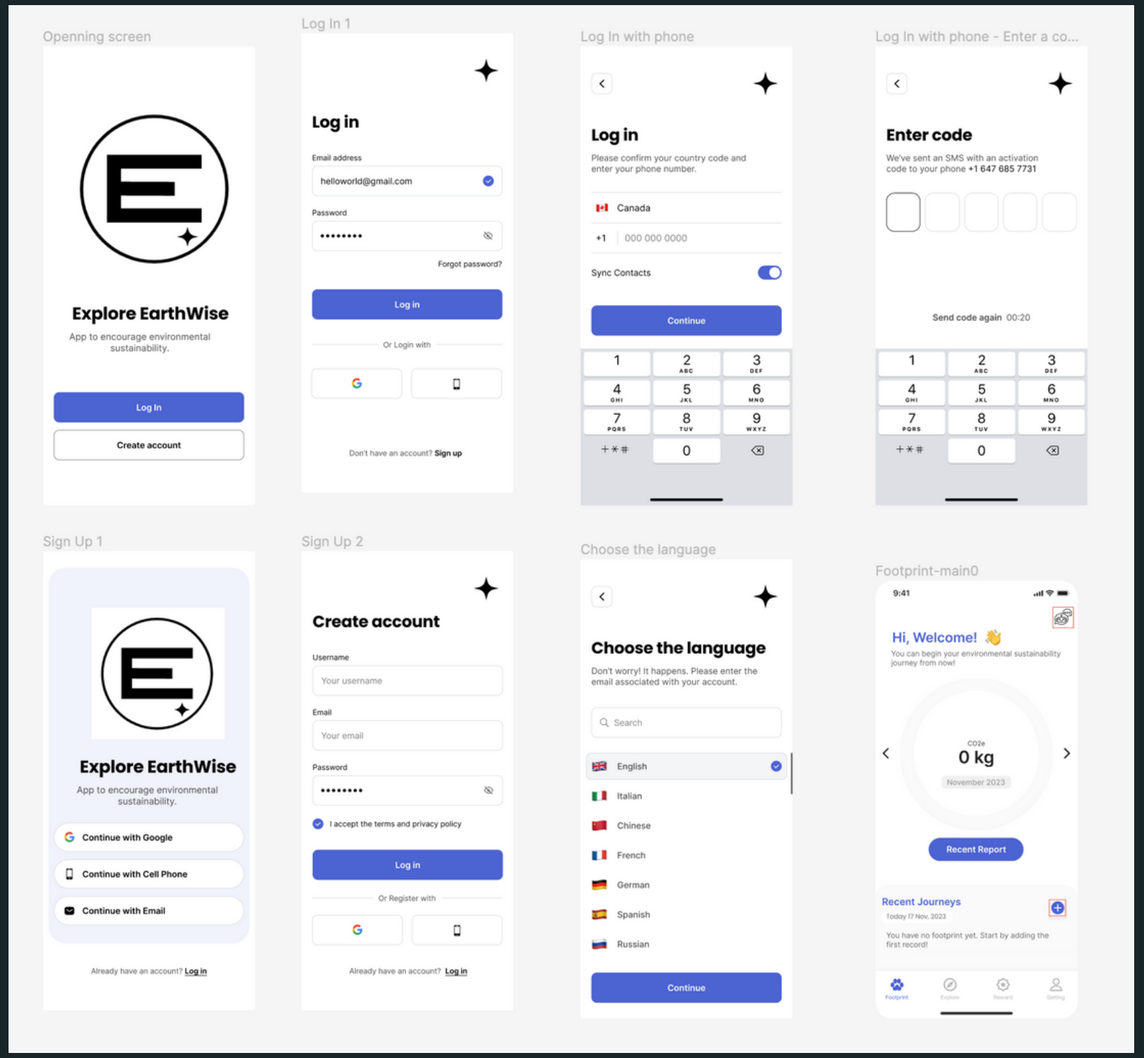
remo...

remo...

chec...

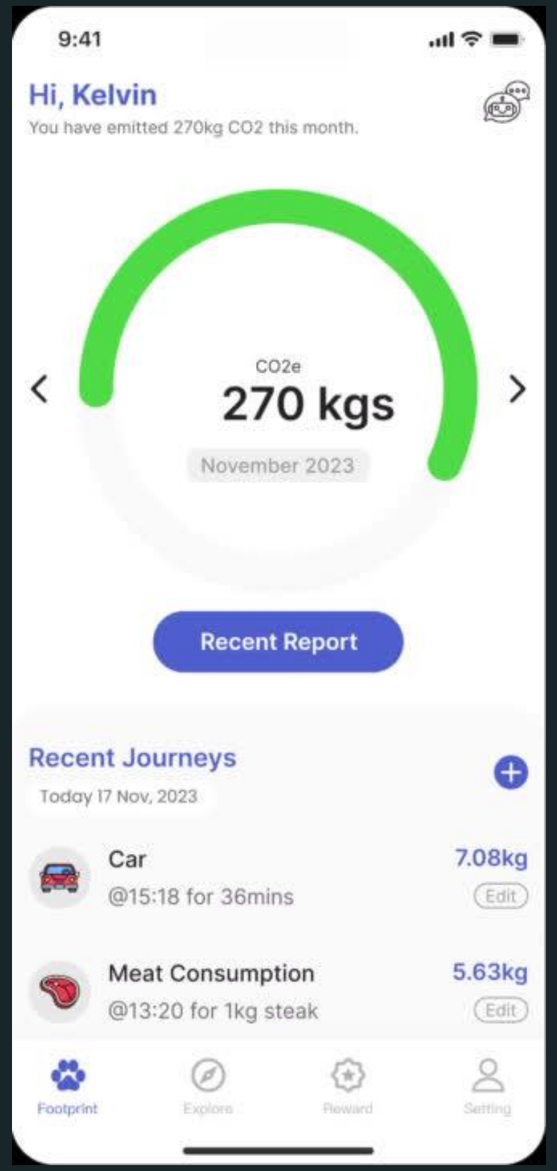
Rew...

# Register/Login



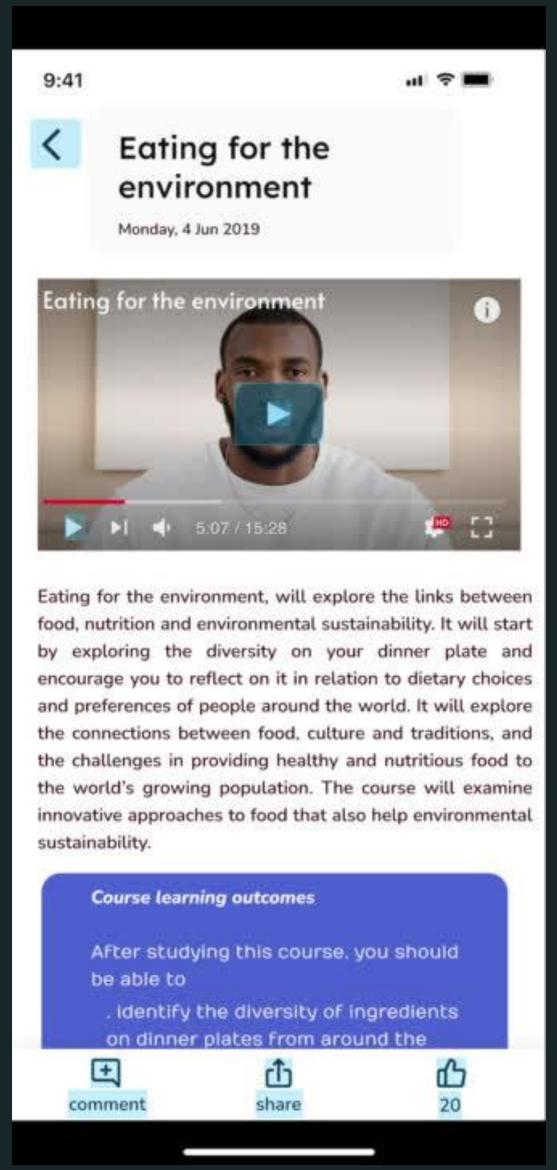
# Tracking

“One small step for you, one giant leap for mankind.”

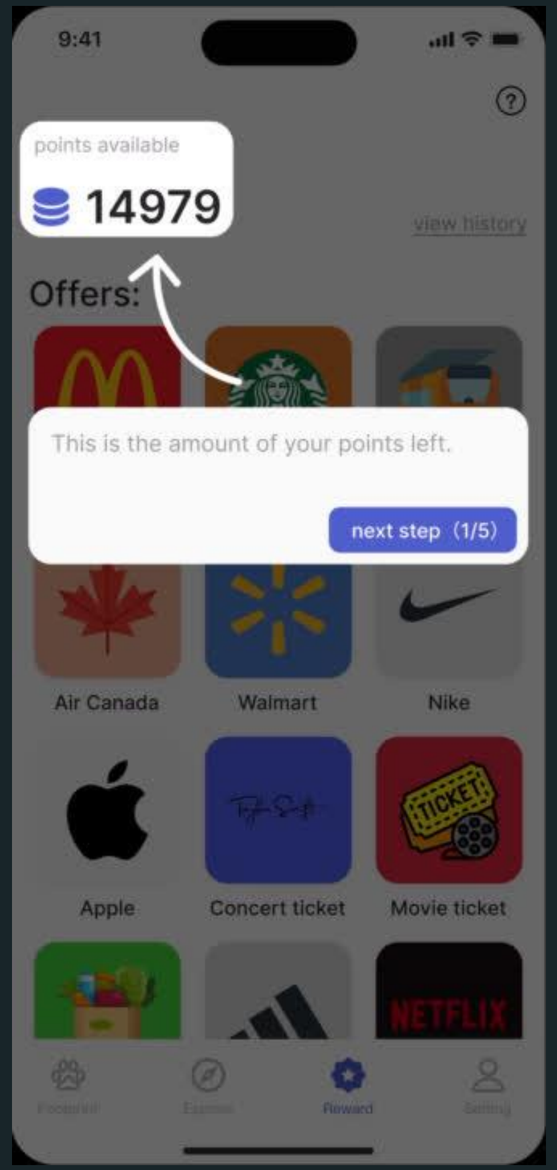


# Learning

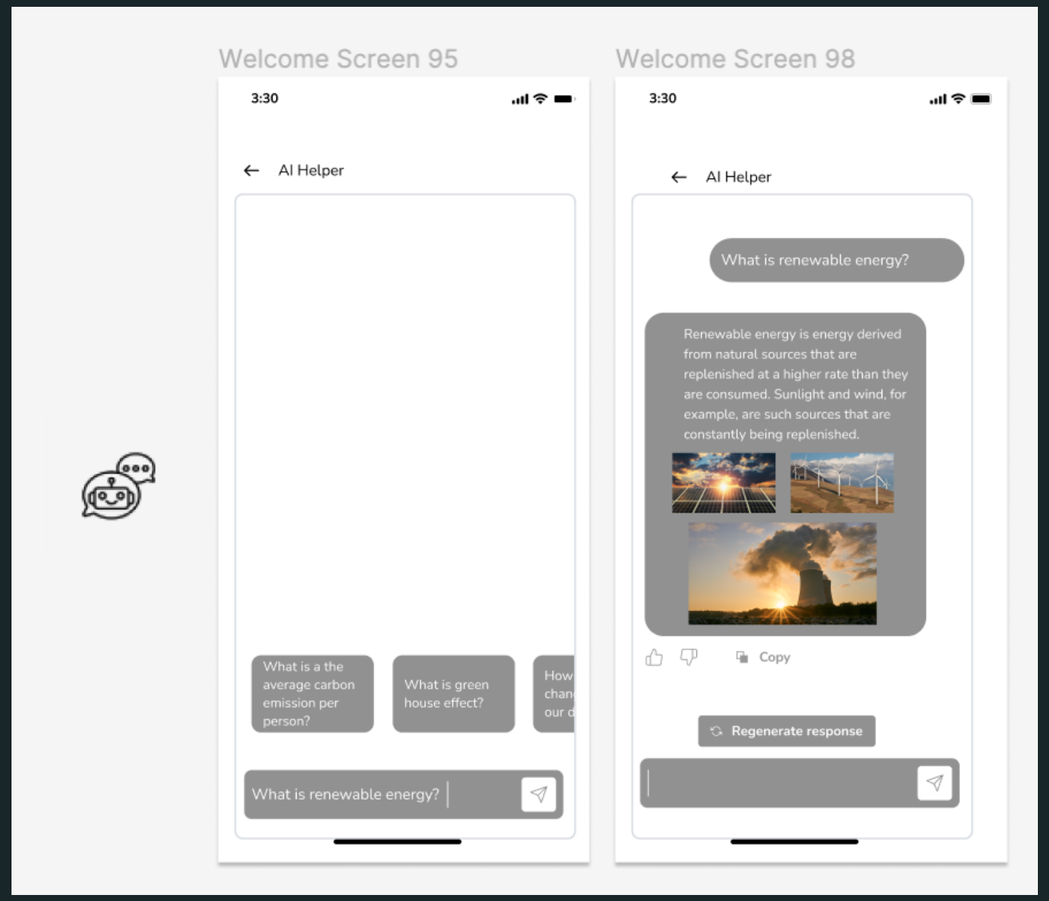
“It is never too late to start studying.”

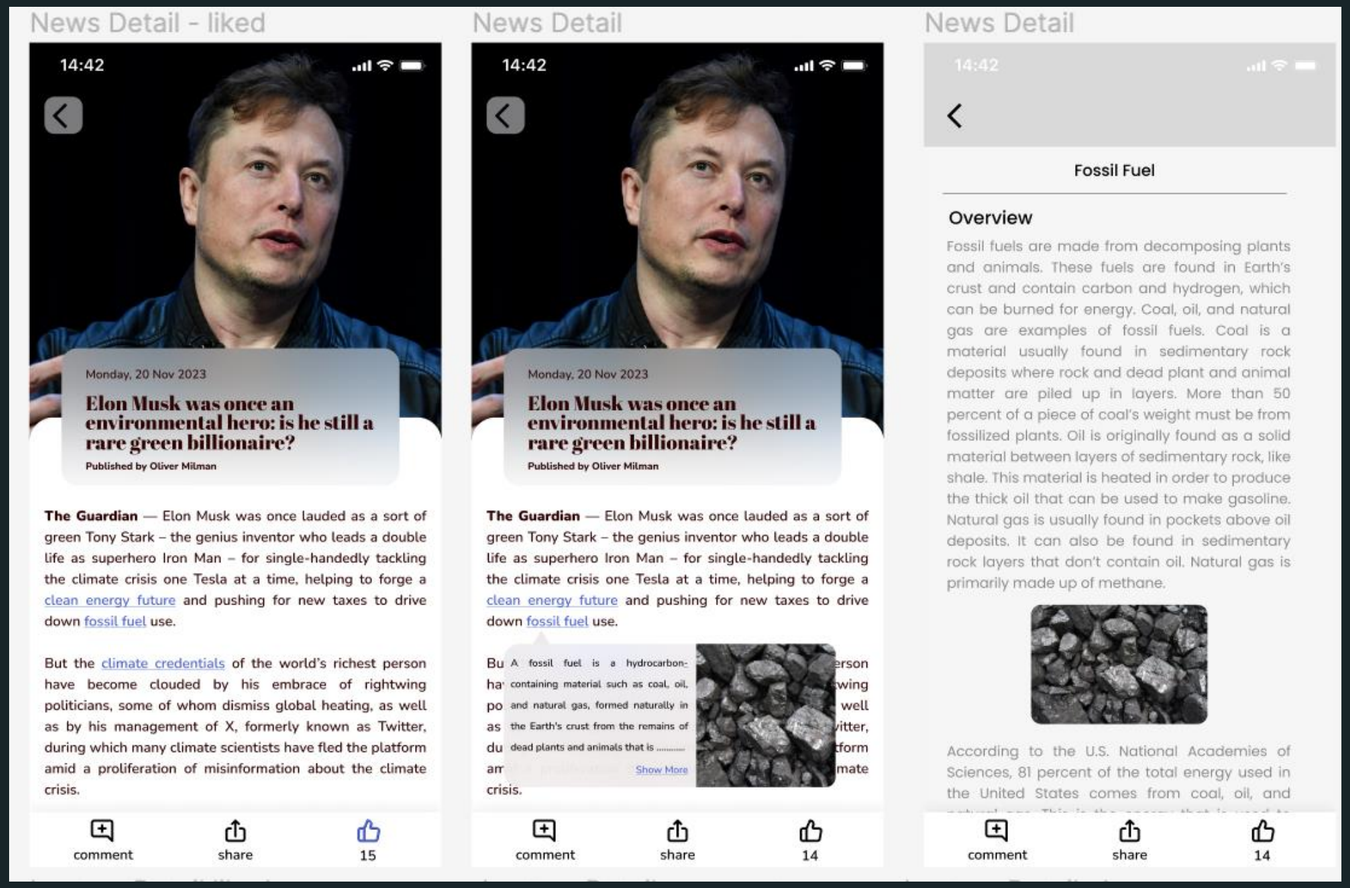


# Earning


9:41
points available
14979
view history
Offers:
This is the amount of your points left.
next step（1/5）
Air Canada
Walmart
Nike
Apple
Concert ticket
Movie ticket
NETFLIX
Reward

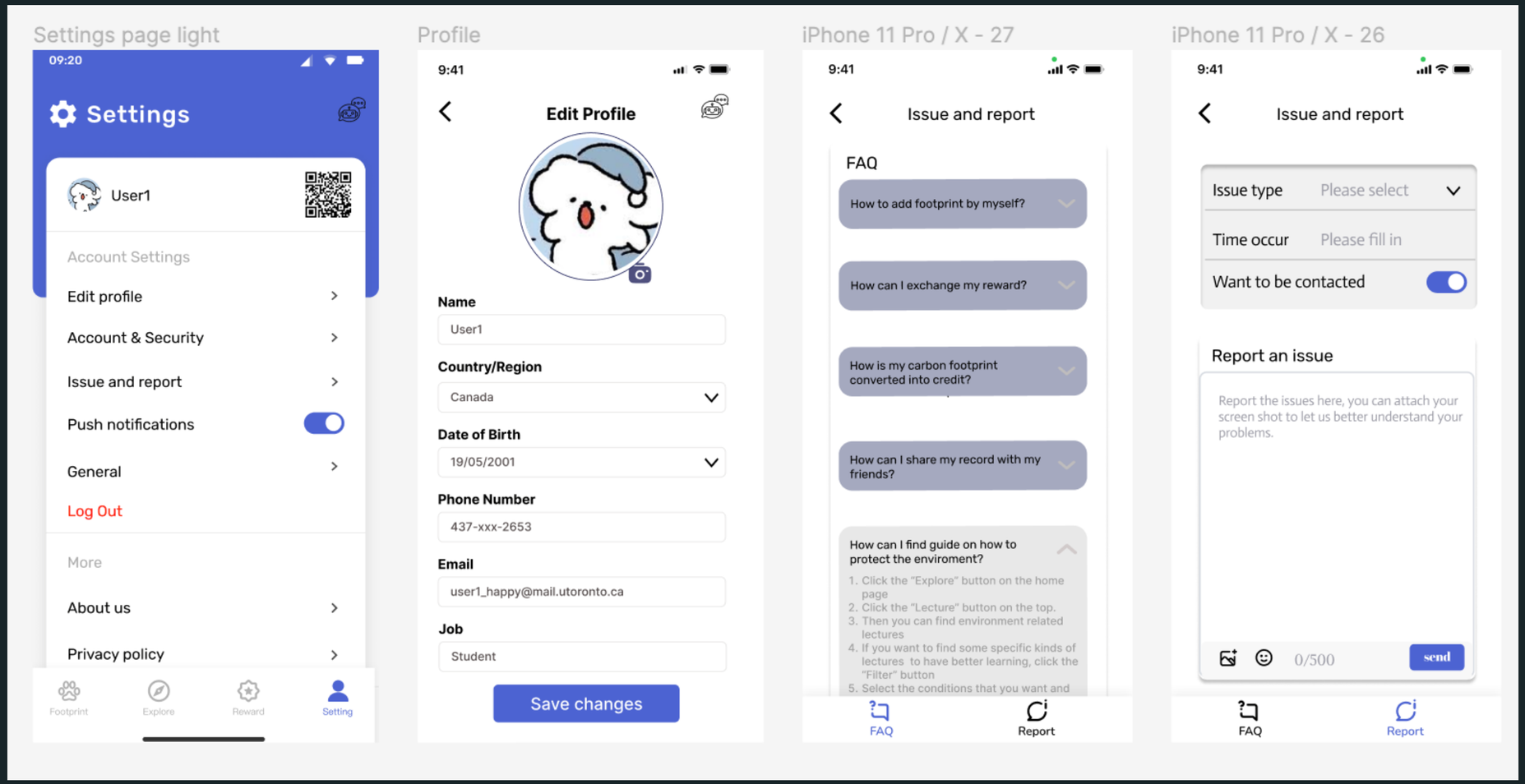
# AI Assistant




"AI, is always the best friend with you."

# Setting/FAQ


Settings page light
09:20
Settings
User1
Account Settings
Edit profile
Account & Security
Issue and report
Push notifications
General
Log Out
More
About us
Privacy policy
Footprint
Explore
Reward
Setting
Profile
9:41
Edit Profile
Name
User1
Country/Region
Canada
Date of Birth
19/05/2001
Phone Number
437-xxx-2653
Email
user1_happy@mail.utoronto.ca
Job
Student
Save changes
iPhone 11 Pro / X - 27
9:41
Issue and report
FAQ
How to add footprint by myself?
How can I exchange my reward?
How is my carbon footprint converted into credit?
How can I share my record with my friends?
How can I find guide on how to protect the enviroment?
1. Click the "Explore" button on the home page
2. Click the "Lecture" button on the top.
3. Then you can find environment related lectures
4. If you want to find some specific kinds of lectures to have better learning, click the "Filter" button
5. Select the conditions that you want and
FAQ
Report
iPhone 11 Pro / X - 26
9:41
Issue and report
Issue type
Please select
Time occur
Please fill in
Want to be contacted
Report an issue
Report the issues here, you can attach your screen shot to let us better understand your problems.
0/500
send
FAQ
Report

# Part 5:

Q & A

**Thank you for listening...**

We are open for any questions or feedbacks from the audience :)