

# Project Overview

## Explore Existing solutions:

### Carbon Accounting & Emissions Tracking Software

- **Examples:** *Watershed, Persefoni, Microsoft Cloud for Sustainability*
- **Function:** These platforms help companies measure, track, and report their carbon footprints (Scopes 1, 2, and 3 emissions).
- **Effectiveness:** These tools improve transparency and help businesses identify areas to reduce emissions. While they don't reduce emissions directly, they support decision-making that can lead to emission reductions.

### Renewable Energy Management Software

- **Examples:** *Aurora Solar, EnergyToolbase, OpenSolar*
- **Function:** These tools design and optimize solar panel installations or manage renewable energy grids.
- **Effectiveness:** They increase the efficiency of clean energy adoption by simplifying system design and reducing installation errors or costs.

### Transportation & Mobility Platforms

- **Examples:** *Optibus (public transit planning), RideAmigos (commuter management), Google Maps eco-routing*
- **Function:** Help cities and companies reduce transportation emissions by promoting carpooling, public transit, or optimal routing.
- **Effectiveness:** Moderate to high, depending on user adoption and integration with urban planning efforts.

Justify your choice: We live on this Earth and taking care of it as much as we could should be a priority to prevent catastrophes that can lead to it not being inhabitable and causing not only us but animals and other species to not exist. By watching and searching for ways to help maintain our use of natural resources like water vehicles or solar power energy and not rely on what pollutes the air is a good start to reducing pollution.

Propose a software solution:

Basic Software outline:

1. User Dashboard

Personalized carbon footprint calculator (transportation, energy use, diet)

Weekly climate goals ( bike to work, reduce meat consumption, lower electricity use)

**2. Local Group Challenges**

The platform encourages area with a wide participation by setting shared environmental goals such as lowering total carbon emissions in a neighborhood by a set amount each month.

Communities, schools, or businesses can join friendly rivalries, earning rankings and digital awards for completing eco-tasks collectively or individually.

**3. Live Environmental Impact Feed**

A dynamic display shows the amount of carbon saved across users in real-time.

Users can view progress through interactive charts that represent tangible benefits, like trees preserved, distance traveled without cars, or kilowatts of energy conserved.

Optional integration with smart home devices, electric vehicle software, and health trackers allows for automatic data collection.

**4. Educational Resource Center**

The app offers quick, engaging content about environmental topics and sustainable living practices.

It also connects users to nearby green initiatives, rebates, or workshops that promote eco-friendly choices within their community.

**5. Rewards & Motivation System**

Users collect points for taking eco-conscious actions and hitting personal or group milestones.

These points can be redeemed for perks such as coupons for local sustainable businesses, public transit passes, or other environmentally supportive benefits.

Pseudocode:

**1. User Dashboard & Carbon Calculator**

ON user sign up:

COLLECT user data (transport, energy use, diet, etc.)

CALCULATE estimated carbon footprint based on input

DISPLAY personalized dashboard with:

- Carbon footprint summary
- Weekly goals generated from behavior patterns

## **2. Weekly Climate Goals Engine**

EVERY 7 DAYS:

- ANALYZE user's recent activity

- IF carbon output decreased:

  - ADJUST next week's goals to maintain or improve

- ELSE:

  - SUGGEST achievable changes based on user's lifestyle

- PUSH notification: "New weekly climate goal available"

## **3. Community Climate Challenges**

ON user join community:

- ASSIGN user to local group based on ZIP code or organization

- DISPLAY current challenge (e.g., reduce X lbs of CO<sub>2</sub> this month)

ON user action:

- LOG impact (e.g., car trip avoided = Y CO<sub>2</sub> saved)

- UPDATE community total CO<sub>2</sub> savings

- CHECK if challenge goal met:

  - IF met:

    - DISPLAY celebration + reward options

## **4. Real-Time Impact Tracker**

FOR each user and community:

- FETCH logged eco-actions

- AGGREGATE data (e.g., trees saved, energy reduced, miles biked)

- UPDATE visual charts and live maps

- IF user connects smart devices:

  - SYNC live usage data

  - AUTO-LOG related activities

## **5. Learning Hub Access**

ON user click "Learning Hub":

- DISPLAY climate tips, quizzes, short lessons

- SUGGEST local resources (e.g., nearby workshops, tax credits)

IF user completes a module:

- INCREASE eco-awareness score

UNLOCK bonus eco-points

## **6. Gamified Incentives System**

FOR every eco-action completed:

CALCULATE point value

ADD points to user's eco-points wallet

IF user reaches milestone (e.g., 1000 points):

UNLOCK reward option (e.g., store coupon, transit pass)

DISPLAY leaderboard for:

- Individual performance
- Community performance