

Project Documentation

Christopher Huynh  
Michael Harkess  
Hanming Wang  
Chen-Yu Chang  
Yiquin Zhang  
Samarah Uriarte

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GreenMate

**GitHub Repository**

* <https://github.com/samarahu/SustainabilityApp>

**Description**

GreenMate is a sustainability-promoting Android application that uses various mechanics to encourage users in creating an environmentally-friendly society. The app’s features include a step counter, a recycling database and counter, and a point system. Additionally, a happy polar bear character is used to motivate users in living eco-friendly lifestyles and changes states based on user inputs, which proportionally affects the point amount assigned to the user.

**Functions**

Step Counter:

This feature includes a “Home Activity” module which employs a step listener, a step detector, a sensor filter, and a step calculation to record the distance a user walks or bikes. Additionally, the counter is coupled with a GPS which allows location tracking. The point system is affected by the step calculator, which directly converts steps to points which are then added to the user’s unique point amount.

By Friday, we plan to implement a map to allow the user to visually observe their progress by having their location displayed on the map GUI.

Recycling Feature:

This component of the application includes a database that contains which general items may or may not be recycled and allows the user to search through the provided information to help them recycle their own items. The point system is connected to this feature as well: the user is able to input how many items they recycled, and this number is recorded to the application for future use.

At this moment, the recycling database is extremely fundamental, but we will be updating it by Friday, and it will include a greater variety of items that will then be grouped based on their characteristics.

Points Feature:

This system operates through user input in the form of steps or number of objects recycled. The user’s point amount falls into certain ranges and changes the bear character’s state. This functions as a form of incentive, since the bear is a wholesome and friendly anthropomorphized animal that most individuals would want to keep happy. It also provides a unique and visually stimulating aesthetic that adds a positive tone to the application.

Example of a bear changing from one state to the other if the user opens the app and proceeds to walk a large enough distance:



Currently, the point system is fundamental in complexity but by Friday, we plan to add a feature that recognizes the user’s patterns and compares how the user is performing based on these past trends. For example, if the user enters many recycled items one day and only recycles one item the following day, the bear will change from happy to tired, even though the total points accrued in those two days would satisfy the conditions that would result in a happy bear state. This addition would create a more logical interaction between the user and bear character.

**Compiling Instructions**

1. Download the folder that holds all of the files needed in the app
2. Unzip the files onto a location on your computer.
3. Open Android Studio and Select the option “Open an Existing Android Studio Project”
4. Navigate to the unzipped folder and select the file “build.gradle”
5. From here, Android Studio will open the entire project in “editing mode” (Here you can edit all of the source files”
6. To run the files on a phone or a Virtual Machine, you can click on the run button in the Android Studio Toolbar (which looks like a green play button) or press Shift and F10.
7. From here Android Studio will automatically make an .apk file and install it on the device of your choosing and run the app once it is done installing
8. If you want to see compiler errors or to see a log of events while the app is running and/or compiling, click on the “Logcat” button on the bottom left side of the Android Studio Window.

**Test Cases**

* Activating the step counter and walking to a different location
  + Displays the number of steps taken and simultaneously increments points
* Searching for a specific item on the recycling database
  + Will provide information on the item, concerning whether it is recyclable or not
* Entering a number to represent how many times the user recycled
  + Will increase the points the user has and possibly change the bear’s state