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Optimizing Recycling: ReWaste

The Problem

Many people will not recycle because they are unsure what is recyclable in their region and will decide to just throw the items away. Others will recycle but do more harm than good when they put items in the recyclables when they are actually not. Mixing recyclables with trash reduces the effectiveness of recycling systems because they will need to be found and sorted out.

The Solution

Creating an app (ReWaste), that will help sort trash and recyclables from each other based on the area. It will have waste sorting guides, waste areas with maps, rewards, have reminders, and collection routes.

Existing Solutions: There are similar apps that have features such as a sorting guide, recycling reminders, and local recycling information. ReWaste is different because its waste sorting feature is more generalized, there is a reward system, and routes are based on real time data.

Design Approach

Sorting Guide

- ❖ Scan Barcodes
- ❖ Dependent on the region

Maps

- ❖ Shows nearest recycling center
- ❖ Live updates of facilities

Reminders

- ❖ Reminders for collection days
- ❖ Real time changes

Collection Routes

- ❖ Real time recycling routes
- ❖ Notifications when due date is near

Rewards System

- ❖ Points awarded for recycling consistently
- ❖ Can be redeemed as discounts and coupons

Pseudocode

Sorting Guide

```
Function
    If barcode
     Scan barcode
     Search database
     Return "recyclable" or "Trash"
   Else if mage
     Analyze image
     Match to database
     Return "recyclable" or "Trash
   Else
     Prompt user to type name
manually
     Return "Recyclable" or "Trash"
```

Reward System

```
Function (user, action)
    If action == "Scanned":
         Add 5 points to user profile
     Else if == "Dropped off":
         Add 15 points to user profile
     Else if == "Searched":
         Add 5 points to user profile
Return point total
```

Pseudocode

Real time tracking

```
Function location
    Access database of GPS
    Compare route tracks based on user
location
    Display map on user dashboard
    Push Notif when route trucks are
within 3 miles.
```

User Interaction

```
Home Screen
    Dashboard that has "scan item",
"search item", and "View map"
Rewards Screen
    Shows total # of points
    Shows what prizes you earn
Map
    Shows centers, trucks, and routes
all local to the user
```

Open Questions

Question #1

What can be done about preventing the misuse of the reward system. Is there a way to only scan one item per account?

Question #2

How would real time data be sourced for the routes? Would all of the trucks need to get a personal tracker?

Citations

01 Home-Douglas, P. (2021). RECYCLING: SCRAPS TRAPS. *ASEE Prism*, *30*(5), 10–10. https://www.jstor.org/stable/48651283

02 Convery, Frank, Simon McDonnell, and Susana Ferreira. "The most Popular Tax in Europe? Lessons from the Irish Plastic Bags Levy." Environmental and Resource Economics 38.1 (2007): 1-11. ProQuest. Web. 18 Dec. 2024