Week 2 : Conceptual Sketch

** Note: In this document, we use the terms "food" and "grocery" interchangeably. They mean both cooked food, raw ingredients and items that are held by households and can typically be found in a grocery store. Examples: apples, lettuce, tomato, raw shrimp, cooked shrimp, salt, oil, **paper towels and **dishwasher.*

***Exceptions to food but heavily involved in the everyday consumption of food.*

Goal

We hope this project could minimize situations of household food waste, increase food access for food-insecure people, foster tighter communities around sharing food resources and raise awareness on the importance of saving food.

Key Purposes & Social Needs

The project serves the following objectives and social needs:

- ➔ Tackle food and grocery waste
- ➔ Increase food access for food-insecure people
- ➔ Help with daily kitchen contingency
- ➔ Educate children and adults about saving food resources
- ➔ Strengthen community connection

Why they matter

Between 33-50% of all food produced globally is never eaten, and the value of this wasted food is worth over $1 trillion. To put that in perspective, in the USA food waste represents 1.3% of the total GDP. Food waste is a massive market inefficiency, the kind of which does not persist in other industries. We found existing solutions such as Too Good To Go, Food for All, Food Rescue and Food Tank that bring excess food from businesses to customers, yet this B2C model does not seem effective enough to tackle the food waste issue borne from local communities and households. We would like to propose a C2C solution that seeks to minimize household food waste and alleviate food insecurity by facilitating grocery sharing among members of the local community. We think that the Cambridge city context is particularly suitable for the pilot version of our app because it is home to a large number of families at both ends of the spectrum: families with million-dollar annual incomes and those facing hunger year-round.

Key Concepts

User signup, Authentication, Follow users, List an item, Browse listed items, Request listed items Organize events around free food, Earn Credits.

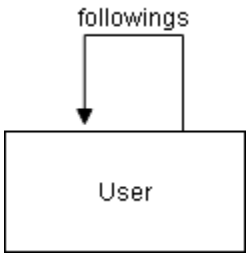
Key Concepts Breakdown

<Follow Users>

Concept Following

Purpose For a user to label other users so that he/she can easily find them and their lists.

State



Actions

follow, unfollow

Operational Principles

After a user u follows another user v (with action follow(u, f)), user u will be in u.follows; this way, user u can find the user v in u.follows (with an observable action) and use it to view some information about user v (by a search query for example).

After a user u unfollows another user v (with action unfollow(u, f)), or hasn't followed user v, user v will not be in u.follows; this way, user u cannot find the user v in u.follows (so user u will have to find user v some other way if user u needs information about user v).

<List Items>

Concept List

Purpose To allow users to post food items

State

listed, unlisted → set Item

Actions

list, unlist, relist, edit

Operational Principles

Once the list action is called on an item, it is added to the 'listed' set. The unlist action can only occur on items already in the 'listed' set; once unlist is called, the item is removed from 'listed' and is added to 'unlisted'. Similarly, the relist action can only occur on items in the 'unlisted' set; once relist is called, the item is removed from 'unlisted' and is added to 'listed'. Edit can be called on any item regardless of its state.

<Browse listed items>

Concept Browse

Purpose To allow users to view listed items

State

name, listType, category, creator: Item → one String

location: Item → one Coordinate

availability: Item → one Int

expires, posted: Item → one Time

allergen: Item → set String

Actions

view, filter

Operational Principles

filter → view

<Request listed items>

Concept Request

Purpose To allow users to initiate the transaction of items

State

request: Item → one Boolean

requested: Item → one User or no User

schedule: User → set Time

Actions

request, cancel

Operational Principles

request

request → cancel

<Organize events>

Concept Event

Purpose To initiate an event around free foods.

State

Proposed: User → set Event

Approved: Platform → set Event

Attended: User → set Event

canceled: User → set Event

Actions

Propose, Attend, Cancel

Operational Principles

After a user proposes an event, the event would be approved by the platform. Then other users can claim they would attend the event. The platform can also cancel the event.

<Earn credits>

Concept Credit

Purpose To evaluate users' activities and give back rewards by embedding a credit system

State

User ➔ credits

Actions

Add, minus

Operational Principles

Users will earn credits by successful transactions.

Rationale for interesting and substantive conceptual design work

The app is more than just CRUD. The online app facilitates offline and physical interactions among users. For example, users can request items based on the listings and make arrangements with the creator of the listing to obtain the item. They can also use the app to organize giveaway events and gatherings around free food. The app seeks to create a tangible impact on the community and resources crucial to our lives.

The concepts in this app that are not already widely used includes:

1) Requesting item
   Users can request items based on their listing and the request would typically contain the requester, the item, the creator of the listing, distance from both users and method of transaction. This is not a common feature in other apps and the information in the request is often customized to the purpose of the app.

The design is likely to be challenging in these areas:

1) Food safety :
   How might we ensure that the food given by users is safe? How might we ensure that the app could not be exploited as a tool for crimes? Food is a particularly sensitive area when coming to safety. We have to somehow make sure that the food given by one user to another can be eaten safely without causing any physical harm or life-threatening situations to the users, either intentionally or unintentionally. Some possible solutions might include: adding a required checklist of possible allergic substances that the food contains when making a listing, restricting to non-liquid items, adding pop-up cheatsheet about properly cleaning the grocery the users receive, etc
2) Design equity:
   How might we balance the needs of ordinary and food-insecure users? How might we bring more equity to users who might be in greater need of free or lowly-priced food than others? As we do not want to exclude anyone from using our app to get free or low-priced food while helping to save food resources, this presents the challenge of elevating the chances for food-insecure users to get the items they need.

3) Incentive :
   Why would users share leftover food instead of directly throwing them away? What kind of incentives we are using to encourage people to share food?
4) A smaller community:
   We should make the size of sharing community small.