A Digital Platform to Solve Food Wastage Problem

RITX: DESIGN THINKING MICROMASTERS

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WHY?

Waste products are all around us from the activities of humans on the planet. Clean water, clean air, and clean environments are in danger from the pollution of manufacturing, product distribution, and ineffective waste removal and recycling systems. One of the most prominent wastage problems today is the problem of food wastage. Food wastage not only poses an environmental challenge, but also humanitarian and economic challenge for people all around the world. According to the United Nations, more than 40 percent of food gets wasted all around the world. Another issue is when good food turns into waste and that waste is not handled properly. Most of the wasted food, either dumped in landfills or in the ocean. It causes serious health problems for both human beings and animals living in the vicinity of this dumped food waste as this rotting food releases very dangerous gases in the atmosphere. Even in the 21st century, the world's hunger problem is rising and we are still wasting around half of our food produced. (Wikipedia Contributors) I think that is why food waste problem is termed as world's dumbest environment problem. (Outrider Foundation) This is one such issue which both developed and developing nations are facing on a day to day basis.

I think digital technologies and availability of data at all stages such as food production, consumption, supply chain, etc. can play a crucial role in solving the food wastage problem. The digital channels can become an analytical or predictive platform to narrow the gap between the food producers and food consumers, and also waste producers and waste consumers. Every stakeholder involved in each stage, starting from producing the food to food getting wasted, is getting affected adversely from the food wastage. Narrowing the producer-consumer gap can solve problem of food wastage, availability of good quality food and sustainable future. I propose to develop an App which will provide a platform between food donors and food consumers. Food donors can be individuals and businesses, and they can donate any type of consumable food such as packaged food, cooked or uncooked food. The same platform can also be used as a B2B solution in case of food that has been completely wasted and is no longer suitable for consumption. The consumption of this wasted food material will be procured by businesses such as dairy farmers, government bodies, businesses with compost pits, organic fertilizer companies, etc. The digital platform will help streamline the whole supply chain of food wastage and will help all the stakeholders involved, such as farmers, food vendors, restaurants, municipal bodies who deal with wasted food, and most importantly the people who don't have resources to buy food or access to fresh food.

1. PROBLEM STATEMENT

The digital channels can become an analytical or predictive platform to narrow the gap between the food producers and food consumers, and also waste producers and waste consumers. Every stakeholder involved in each stage, starting from producing the food to food getting wasted, is getting affected adversely from the food wastage. Narrowing the producer-consumer gap can solve problem of food wastage, availability of good quality food and sustainable future.

2. INITIAL PROTOTYPE

Idea 1: Digital App which will provide a platform between food donors and food consumers. Food donors can be individuals and businesses, and they can donate any type of consumable food such as packaged food, cooked or uncooked food. The same platform can also be used as a B2B solution in case of food that has been completely wasted and is no longer suitable for consumption. The consumption of this wasted food material will be procured by businesses such as dairy farmers, government bodies, businesses with compost pits, organic fertilizer companies, etc.

I started the prototyping of apps with wireframing, but I felt that wireframing would be tough for the clients/audience to visualize and understand my vision for the app. That is why I combined the concepts of both wireframing and mock-ups. Mockup provided the abilities such as simulation, aesthetics and visual design for the app and wireframing provided its agility to the overall design phase of the application. I created few screens with working buttons using the 'Marvelapp' tool. Use this link (https://marvelapp.com/chd9gg7/screen/61963702) to use the simulation of app with 4 working buttons.

Below are some of the details of each screen and its features:

a. **Feed Page:** The feed page will deliver updates to the user regarding other user's or company's posts, achievements etc. The user will have the ability to like, comment, bookmark, signup for any event amongst other things. These features will keep the users engaged with the content generated on the platform. With time, the feed will learn from the user preferences and sort things based on that.

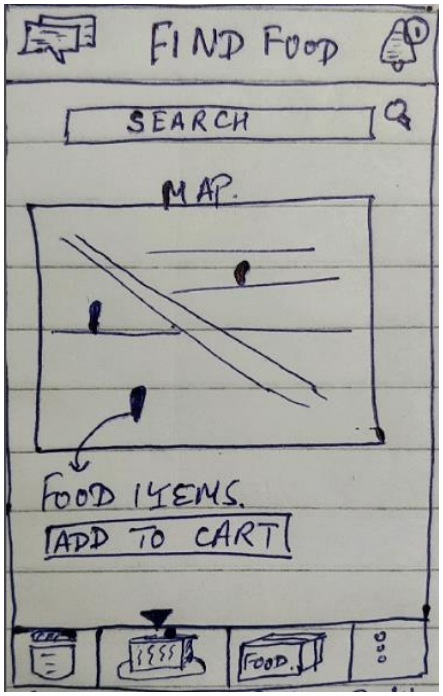
b. **Find Food:** This is the page where users can find the available food which has been put by the donors. Users can search specific items, look at the map, add to cart, etc.

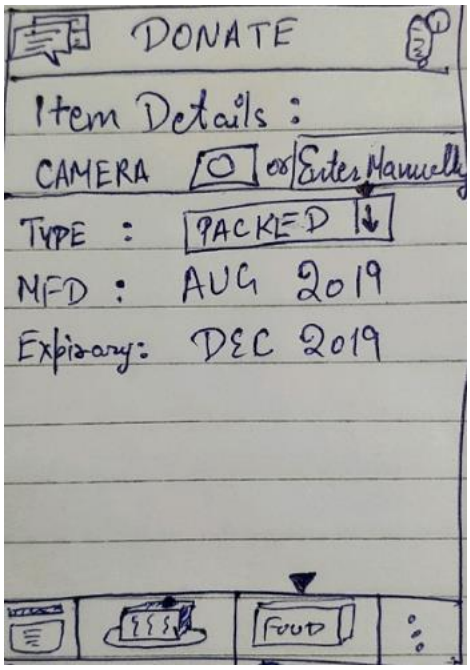
c. **Donate Food:** Donors can donate using this feature page. Users can either enter details manually and can also take pictures and scan barcodes which will expedite the process. User will have to put necessary details such as expiry date of the product.

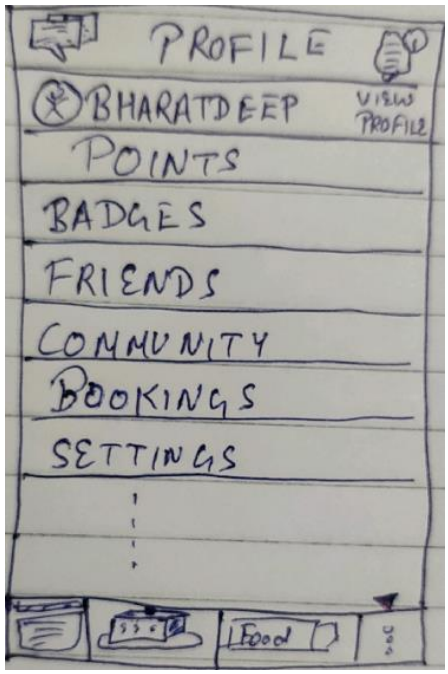
d. **Profile:** For simplicity, I have merged all other novel features on this page, but in testing phase these features can work as stand-alone features on the main screen, features such as Cash/Points, Bookings etc.

Features such as Feed Page, Cash/Points earned, leaderboard, etc can gamify the whole experience and can retain many users because of this feedback loop.

Idea 1 Snippets:





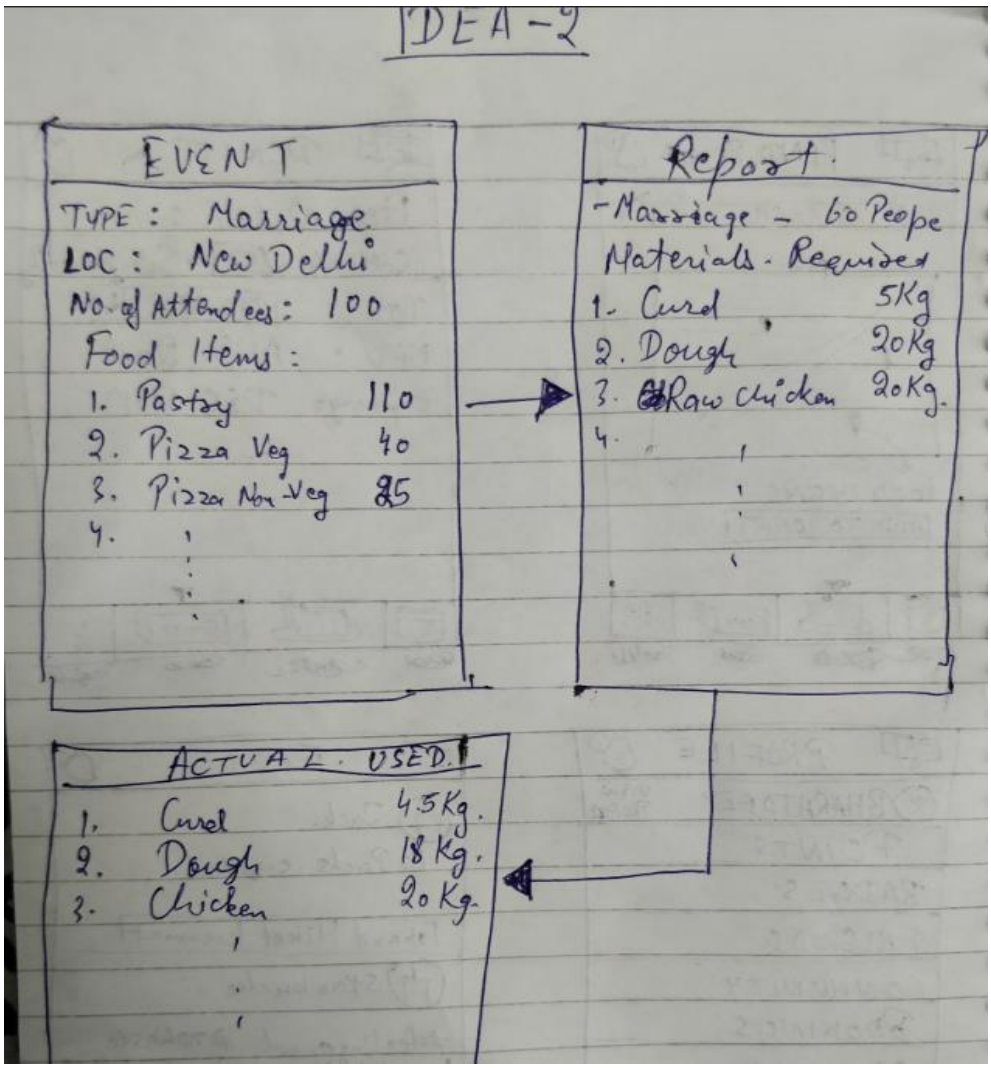


Idea 2: A B2B reporting and analytical solution for food businesses to predict the amount of food wastage and optimize the food materials usage. Below are some of the details of each screen and its features:

a. **Event:** The event organizer will put details each event, details such as event type, location of the event, number of attendees, food menu etc. These details will be stored and predictive reports will be generated using present and past data points with marginal corrections.

b. **Report:** This will be the predictive report or suggested amount raw material procurement page. It will help businesses massively by directly predicting raw materials on the basis of food items, chef, event type, past data etc. It will save time, money and effort for the business and in the end reduce food wastage drastically.

c. **Actual:** The organizer will fill this after the event with actual data points and can use App developed using Idea 1 to donate left over food items.



3 USER INTERACTIONS

User interactions forms an important part of the design thinking pedagogy. Post my own interpretation of the problem statement, I sought to validate some of my assumptions as well as discover new areas I had overlooked by interviewing potential users.

A. User Interview Questions:

I broke down my interview questions as per 2 key user types: -

1. User who is wasting food (Individual/Entity): (2 users – one individual and one local hotel)

    a. How do you feel when you waste food?

    b. What do you do or what would you like to do when you waste your food?

    c. How much resources are consumed because of food wastage? Resources such as time, money, man power, etc.

2. User who need food or users who are consuming food? (Individual/Group/Entity): (1 user)

    a. Do you waste food? What do you do with the wasted food?

    b. What are your main sources of food? If left-over food is one of the answers than follow-up question is, whether someone gives you the food or do you collect the food packages from certain places? and what do you prefer?

    c. At what stage food gets wasted?

B. Participants/Users selected for the interviews:

I chose two broad categories:

1. **Producers:** Producers further can be individuals and companies. Producers can be anybody involved right from harvesting to serving the cooked food. Scale of problem can vary from one type of producers to other. I chose this wide group to understand the root of the problem as they are one of the key stakeholders.

2. **Consumers:** Consumers can be individuals ordering food from supermarkets, eating at restaurants, eating left-over food, etc. Consumers are the key stakeholders in the process along with producers as they will help me understand the sentiment of a consumer. Consumer are the ones which can help my team understand the problem where it happens, and why it happens.

C. Summary of key findings from desk research and interviews

After going throw desk research material and conducting total three interviews in two broad categories, below are my key findings: -

1. Both producers and consumers feel very negative about the food wastage.

2. Producer's feelings are driven by multiple factors such as money wastage by just throwing the food away, man-power and time wastage to plan and tackle with the wasted food.

3. Consumer's feelings are mostly driven by their personal opinions about the consumption and wastage of food. In my case, user wanted a good quality food at right time when it is healthy to eat rather than it is just about to be thrown away.

D. User Testing

I was in contact with stakeholders and actual potential users, I repeated my prototyping and user testing iterations. The major suggestions were: -

1. The app should be easy to use. Users liked my prototype because of the minimalistic approach. But after the user's suggestions, the app became more intuitive and natural to use. Major changes such as
    a. Profile button shifted to left top of navigation menu, which created more space to include Orders and Support/Donate button
    b. Donate Food button became the center button with major features such as maps, image capturing, bar code scanner, etc.

2. Users loved the 'Feed' app which will help to develop a community. They mentioned that the app is focused on a social cause and it is not majorly driven by the economics of the solution. Therefore, I have kept the Feed button as the first button as the community built on the platform will help create the network effect.

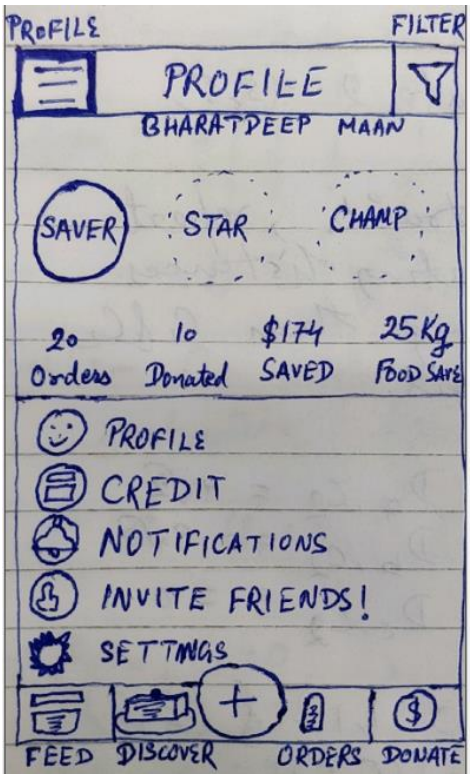
FINAL PROTOTYPE

I used the same method of prototyping as I used in the initial solution. I created few screens with working buttons with major features and functionalities. I used the 'Marvelapp' tool to build the prototype with clickable buttons. Use this link (https://marvelapp.com/j9bi319/screen/62419435) to use the simulation of app with 4 working buttons.

1. **FEED:** Feed will show updates from people within their groups or communities. Users can like, comment and share the post/blog/image on other platforms.

2. **PROFILE:** Profile page has been moved from main button to the navigation bar in left corner as this feature is mostly used for further information such as points earned, profile updates, inviting friends, etc.

FEED PAGE



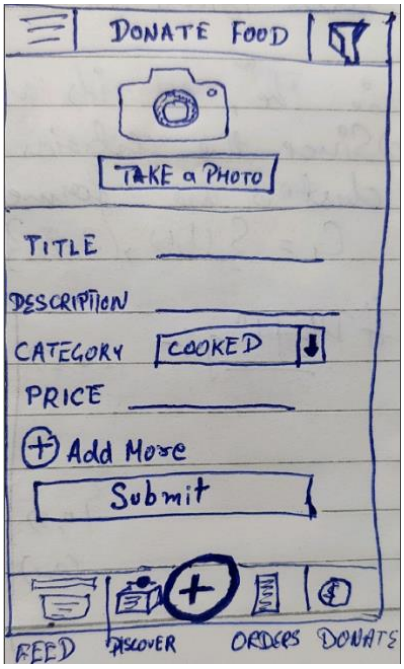
PROFILE PAGE

3. **DISCOVER:** After user testing and the major changes are done in the discover page in terms of UI and UX. Search bar is given, alignment of the items shown has changed. In new alignment of items, finding items and its information is easy to find and the page overall becomes more intuitive to use. I have created two pages, please refer the Marvel app or the images below.

4. **DONATE FOOD:** This page is used to add items which users want to donate. It can be any food items (the app can be further extended to other items as well) such as cooked food, packaged food, or even already wasted food which can be taken by NGOs, government bodies or fertilizer companies to create manure out of them and also extract natural gas, just to give an example.

DISCOVER PAGE 1

DISCOVER PAGE 2



DONATE FOOD PAGE

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