ADDRESSING FOOD INSECURITY PROBLEM IN INDIANAPOLIS

PRESENTED BY

Creative Protocol

Akash Rode
Hinal Kiri
Sarah Nikkhah

Graduate Students @ Indiana University School of Informatics and Computing, Indianapolis

Problem Space: Food Insecurity

- The USDA defines food insecurity as a lack of consistent access to enough food for an active, healthy life.
- Huge problem in Indiana
- In Indiana, 1 in 7 Hoosiers is food insecure.
- 12% of the population and 15% of children in Indiana were food insecure in 2019
- 3% of Marion County residents have unmet need for food.
  Families with children comprise half of those with unmet needs.

https://www.secondhelpings.org/hunger-and-poverty-in-central-indiana/hunger/

Market Research

Around 1 million people in Indiana are food insecure

https://www.indyhunger.org/what-hunger-looks-like/

We had a focus group with food partners:

- Indy Hunger Network
- Nutrition Manager at Gleaners Food Bank of Indiana
- Center for Victim and Human Rights - Community Outreach
- Immigrant Welcome Center

We had an interview with a member of:

- Foodbank of northern Indiana

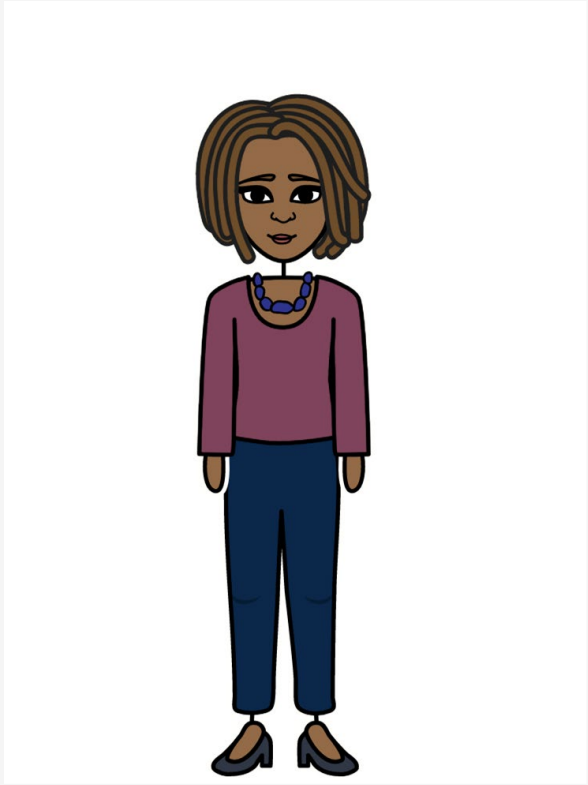
We conducted literature review on:

- HCI Research Work on designing to address food insecurity for design recommendations
- Food insecurity report https://www.ers.usda.gov/
- Map the Meal Gap : https://map.feedingamerica.org/
- Indy Hunger Network Unmet Need Study, 2020: https://www.indyhunger.org/studies-reports/
- Indy Hunger Network Survey of Food Assistance Need in Marion County, Indiana Survey Report, 2020

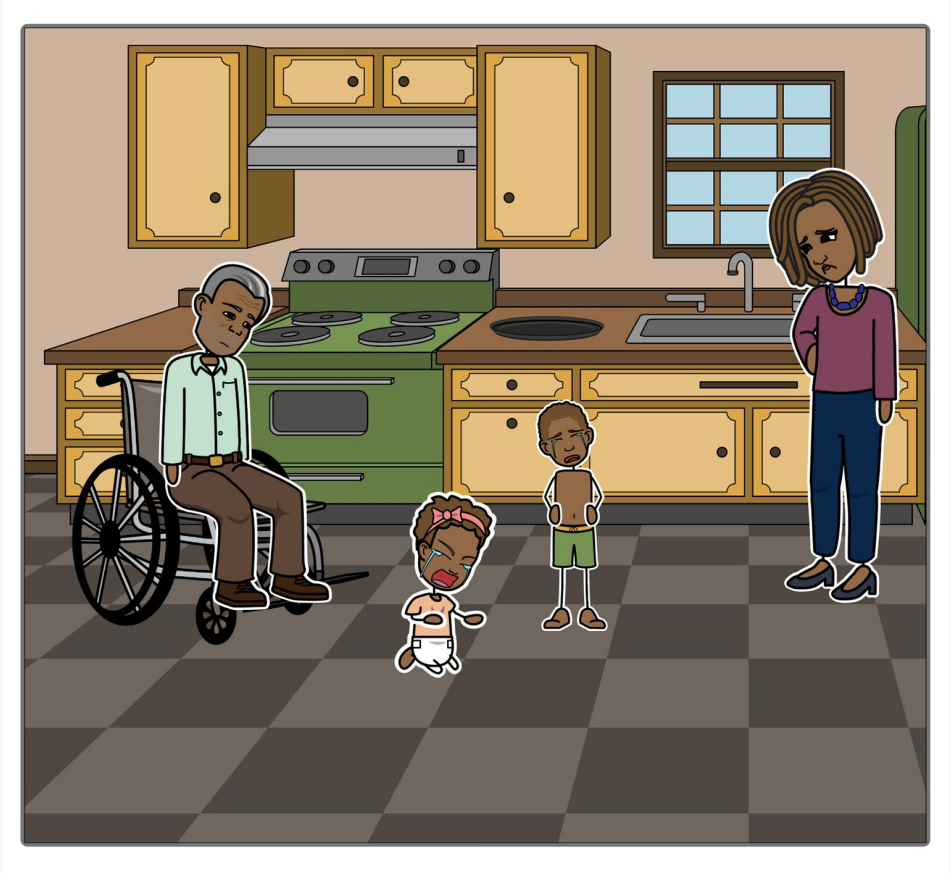
What did we find?

Meet Jenna

- She is an African American
- Her family moved to Mexico when she was 3
- She moved back to the US 2 years ago
- Only speaks spanish
- She is a 36 year old single mom with 2 kids
- Also cares for his dad who is physically challenged
- W orks two part time jobs
- She is food insecure
- She has a smartphone but no access to internet

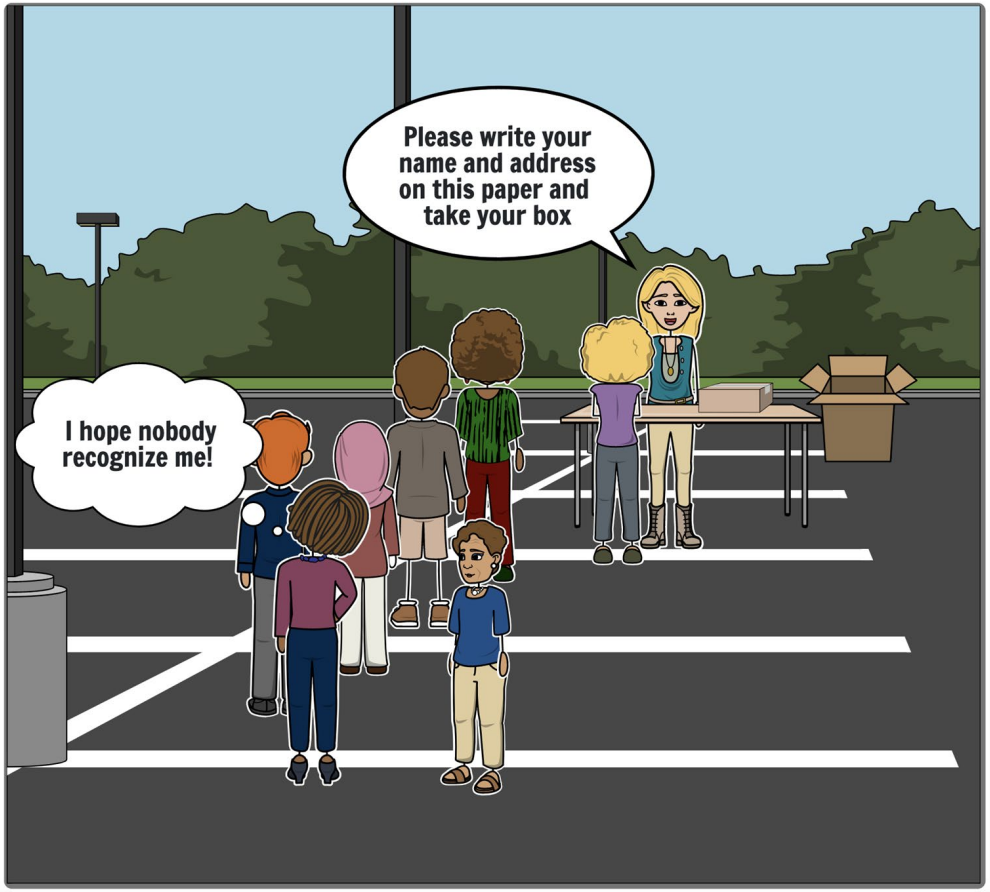


https://www.indyhunger.org/wp-content/uploads/2020/10/IHNHungerStudyies2020_Final.pdf (Suggested: Recognize that the African American/Black households more often have a greater food need than white households.)



A day in life of a food insecure household

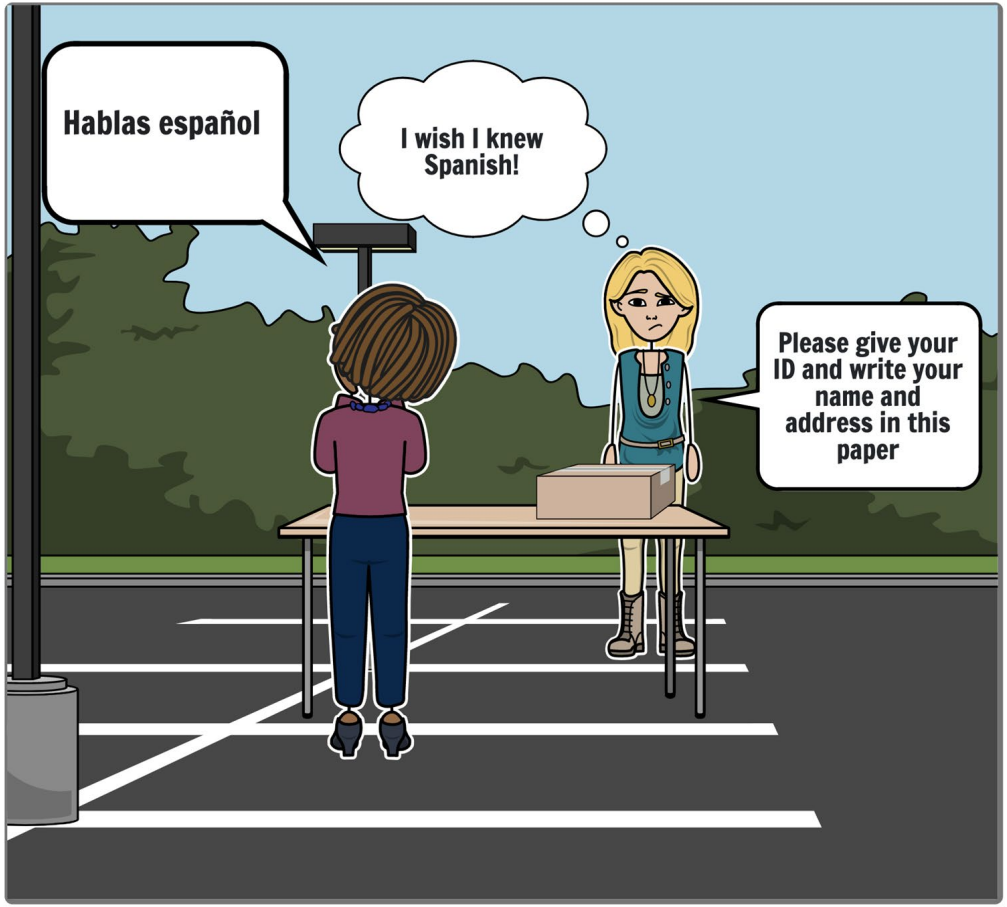
https://www.indyhunger.org/wp-content/uploads/2020/10/IHNHungerStudyies2020_Final.pdf (Suggested: Recognize that the African American/Black households more often have a greater food need than white households.)



- Based on our interview and focus group we learned some people feel uncomfortable while waiting in the line from the fear of getting recognized by people they know
- Previous research also points at the stigma and misinformation about getting food support such as fear of having to return the money, being deported, and feeling of shame. ***

*** Dombrowski et al “It Takes a Network to Get Dinner: Designing Location-Based Systems to Address Local Food Needs.” https://doi.org/10.1145/2493432.2493493.

*** Dombrowski et al “E-Government Intermediaries and the Challenges of Access and Trust.” ACM Trans. Comput.-Hum. Interact. 21, no. 2 (February 2014): 13:1-13:22. https://doi.org/10.1145/2559985.



***Did you know among 80,232 immigrants in Indy population, 55% are not proficient in English?

***Immigrants in Indianapolis, Indiana - cloudfront.net

Nearly one-third (27.7% - 31.0%) of food insecure people felt that knowing how to choose healthy foods and having recipes would make cooking healthy meals easier.

They need cooking advice or instructions (8.7%) and need to know how to make healthy meals when we don't have much time (21.1%).

https://www.indyhunger.org/wp-content/uploads/2020/10/IHNHungerStudyies2020_Final.pdf

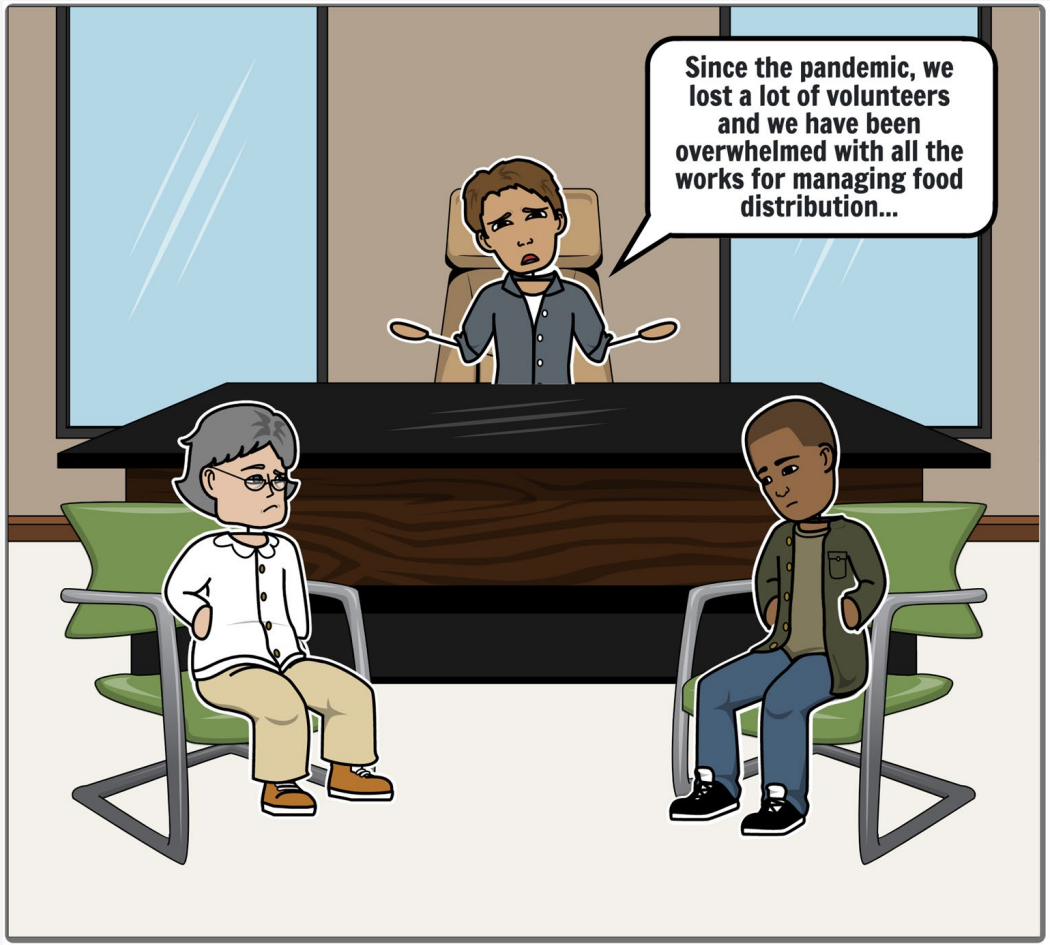
We also found another problem

Non profit organizations and their volunteers play a substantial role in addressing food insecurity

However…

Two- in- three decreased or stopped volunteer activities due to COVID- 19

https://www.fidelitycharitable.org/insights/the-role-of-volunteering-in-philanthropy.html

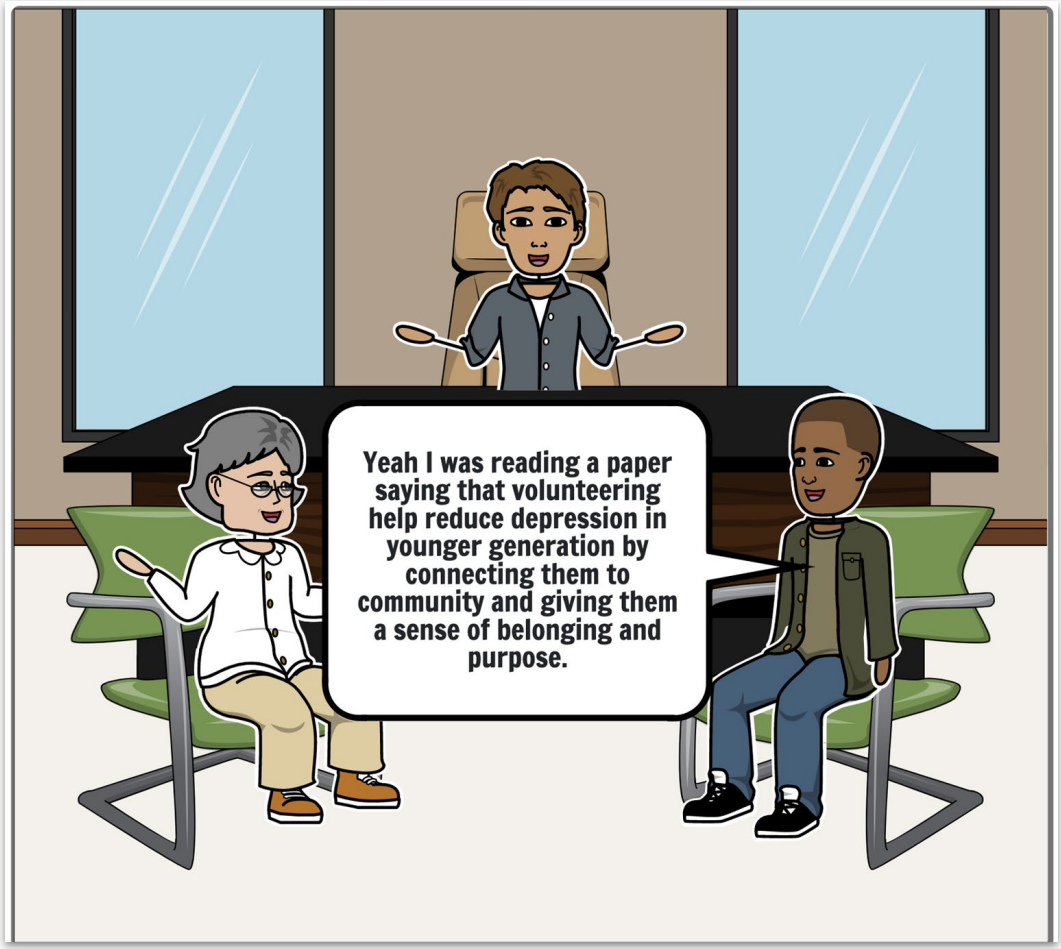


Decrease of volunteers makes it difficult for organization to manage food events.

We got insights from the resource below to generate the storyboard above:
https://www.fidelitycharitable.org/insights/the-role-of-volunteering-in-philanthropy.html

Younger generation could contribute more...

We got insights from the resource below to generate the storyboard above:
https://www.fidelitycharitable.org/insights/the-role-of-volunteering-in-philanthropy.html

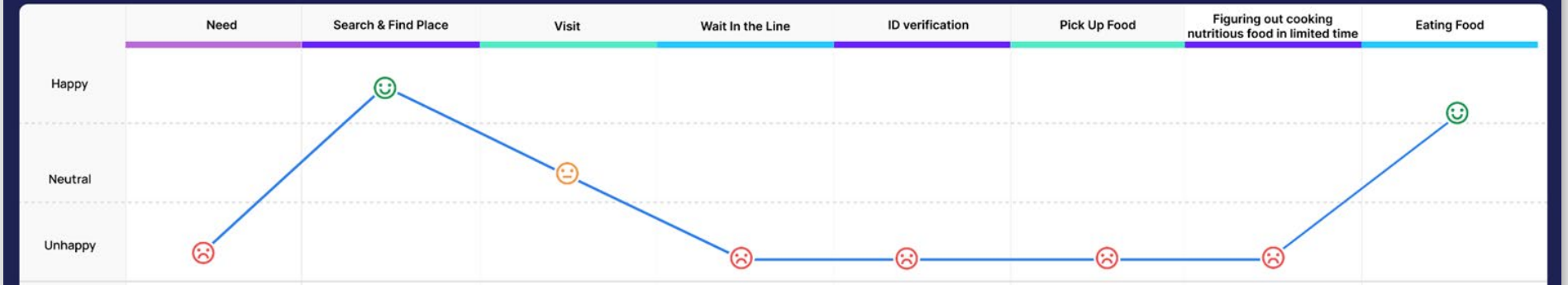


Volunteering can help younger generation avoid depression and related problems.

We got insights from the resource below to generate the storyboard above:
https://doi.org/10.3389/fpsyg.2021.642910

LET’S WALK A MILE IN THEIR SHOES

A Food Insecure Person's Journey Map

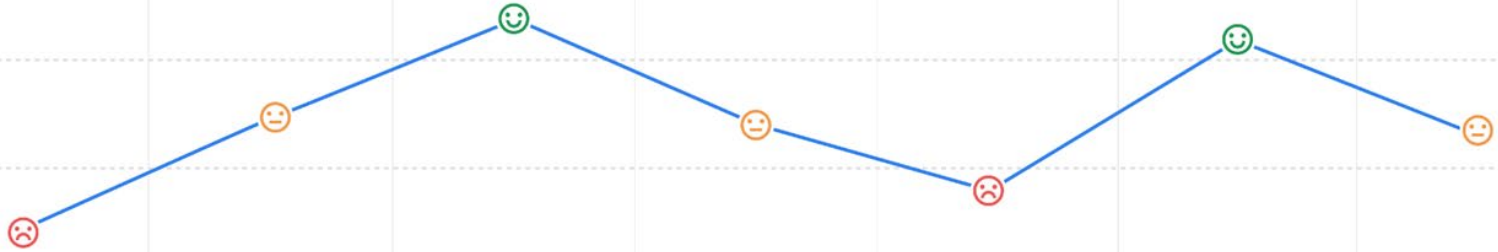


	Need	Search & Find Place	Visit	Wait In the Line	ID verification	Pick Up Food	Figuring out cooking nutritious food in limited time	Eating Food
Experience	• Jenna belongs to a low income group and supports a family of 4 • Jenna needs food for herself and her family • She is worried about where their next meal will come from?	• Jenna looks for services and stores providing cheap or free food/meals • She finds a flyer about a food pantry nearby	• She has inhibitions if they are allowed to use the pantry or if there are some eligibility criteria that needs to be met • She visits the pantry nevertheless to give it a try	• Jenna finds many people in the queue waiting to get in, meaning a long wait time • Jenna is scared to be identified by someone from her neighbourhood or work	• In Jenna's turn, a volunteer asks for ID card for verification • She does not understand the volunteer's language and gets overwhelmed and embarrased • After some explanation, she shows her ID	• Jenna can't find the food items eaten natively in the family or sugar-free food for her diabetic condition • She can not ask about its availability to the volunteers due to the language barrier • She picks up a few common grocery items and returns home	• Jenna can't figure out how to cook nutritious food from it with her limited time for her family • She is stressed out about her health condition	• Jenna cooks something basic from her experience • Her family enjoys that they have food on their plate.
Expectations	• Jenna and her family hopes to find some help to feed themselves	• Find a place nearby to get nutritionally balanced groceries and fruits	• Quick pickup of things she would need to cook a nutritious meal	• To pick her groceries and get out of the pantry soon so that she isn't recognised	• No ID would be needed, or someone would explain what they need from her	• Finding the items she uses in her native cuisine, and the sugar-free products	• She can find some help in cooking with these items	• That the family likes what she cooked • Find native products next time

A Food Distribution Organization Manager's Journey Map

	Receiving good donation for an event	Finding the volunteers for event	Publicizing the event	Training the volunteers & assigning tasks	Planning the event tasks	Managing the resources based on estimated footfall	Coordinate with volunteers	Wrap up event
Experience	• Sarah has received such big funding for the first time • She and her team have worked hard to receive it	• The events they conduct rely heavily on having a volunteer base • They usually have trouble finding volunteers that are skilled for heavy-lifting • Moreover, they need a diverse volunteer pool to handle diverse demographic	• A better channel of publicizing such events is needed to reach more people who are food insecure • That would help in monetizing and also reaching more insecure clients	• With a few new volunteers, it is time consuming to train them	• With less experienced and shortage of volunteers, everyone is overworked • Several clients were kept waiting for long, causing traffic • Volunteers struggled communicating with non-English speaking clients	• Most time occupied in training volunteers and overworked employees • It is tough to manage man hours and Sarah's team is struggling to keep up with the deadlines	• There is no streamlined means to coordinate with volunteers for unforeseen situations • Since the workers are overworking, asking more of them seems offputting	• Sarah and team are tired • They are happy to help more food insecure people
Expectations	• That the event goes well and they can reach many people, which means diverse demographic	• A way to have spread the word among people to find such volunteers	• A way to publicise the event, and in turn the organization for sustainability	• An organized and easier means of doing so • Have experienced volunteers	• More diverse and experienced volunteers	• More volunteers that can balance the work hours	• Convenient channel for communication and task management	• Working more efficiently in future to help more people • Retaining the volunteers, also find more diverse group

A Potential Volunteer's Journey Map

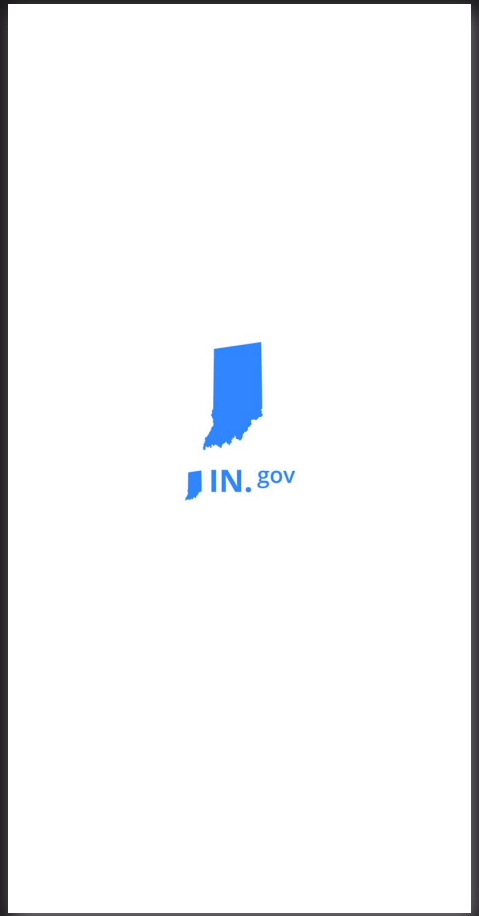


	Seek purpose	Search opportunity to volunteer	Find & Enroll	Receive training	Manage time & communication	Wrap up event	Over time motivation
Experience	• Ed has been struggling with anxiety for last couple of months after an accident • He is undergoing therapy, and hopes to get better and seek a meaningful life • Therapist suggested him to go volunteering	• Ed uses search engine to find places in locality where he can volunteer	• After some exploration, Ed finds a cause he likes • He enrolls for one of their upcoming events	• Ed is trained to do loading and packaging tasks	• With less experience and shortage of volunteers, Ed is overworked • He struggled to communicate with manager and other volunteers	• Helped people in distribution of food • Sense of satisfaction, community and meaning • It was tough and Ed ran into some issues due to miscommunication	• After some events, Ed prioritized career over volunteering • He was not motivated to continue it due to the time constraints and work load
Expectations	• Better control over anxiety	• Opportunity that does not taking up much of time from daily work	• Hopes the complexity of the event is not too much	• A good distraction from daily anxiety • Finding a community	• More streamlined and efficient communication • Better workforce distribution	• He hopes to work more efficiently next time	• If he was more motivated to make some time • Volunteer by other means

OUR SOLUTION

A mobile app to fulfil the needs of community hunger

- connects Jenna to the organization
- helps organization to work more efficiently through more volunteers
- retains volunteers
- publicises organization work

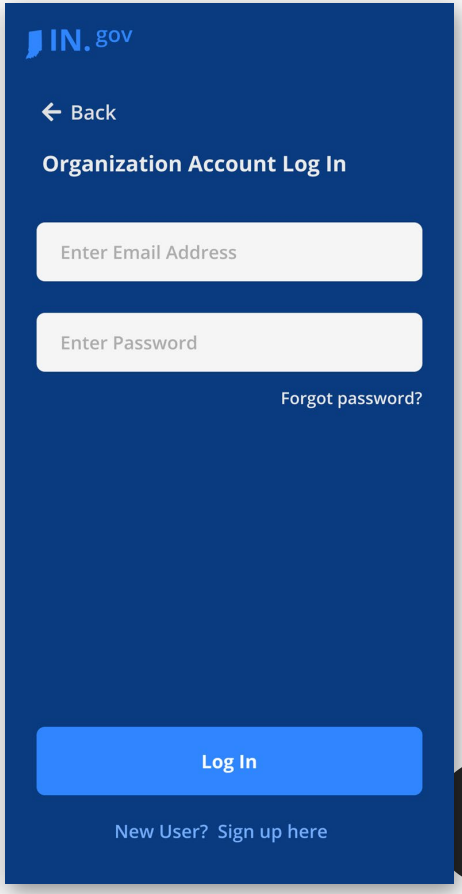


Food Friend Indiana

A mobile application built to solve problems of three types of users:

- Organizations
- Volunteers
- Clients (Food Insecure People)

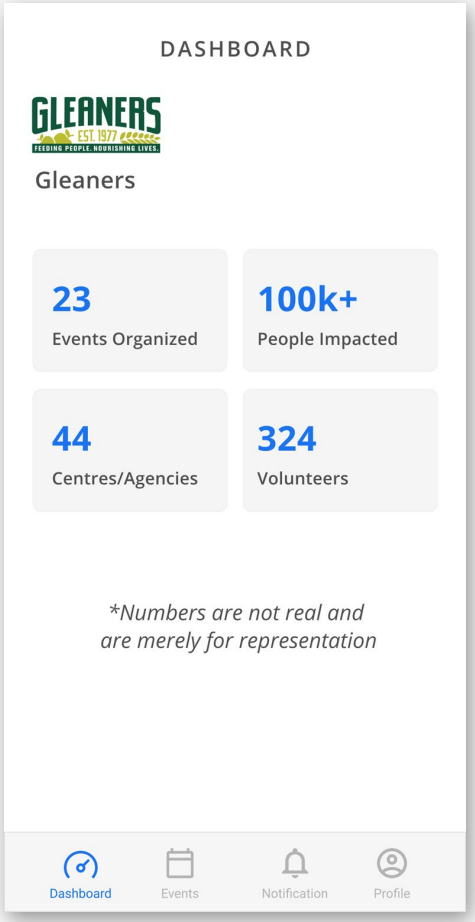
Organizations & Volunteers can create an account to log in to the application while food insecure people can directly start using it by using the “Explore Food Opportunities” button.



Organisation Side

The organisation side of the application is divided into 4 main sections
Dashboard, Events, Notifications & Profile

1. Dashboard - shows users some key statistics related to their organisation as they proceed creating events throughout the application

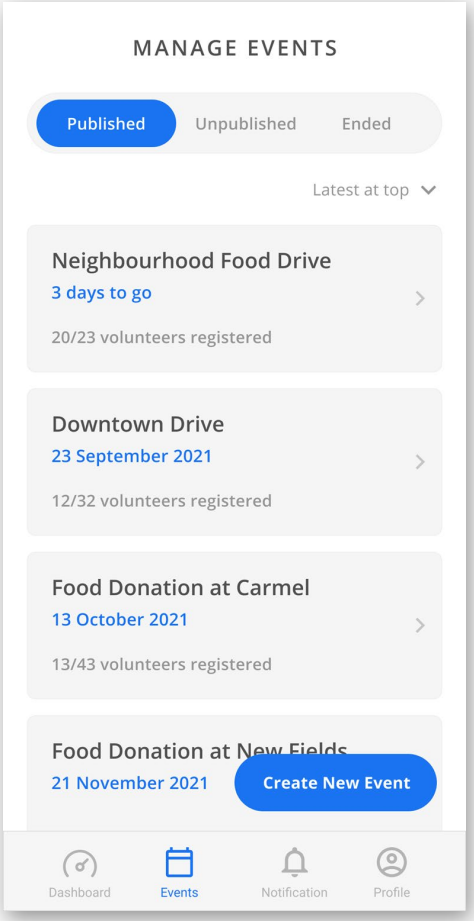


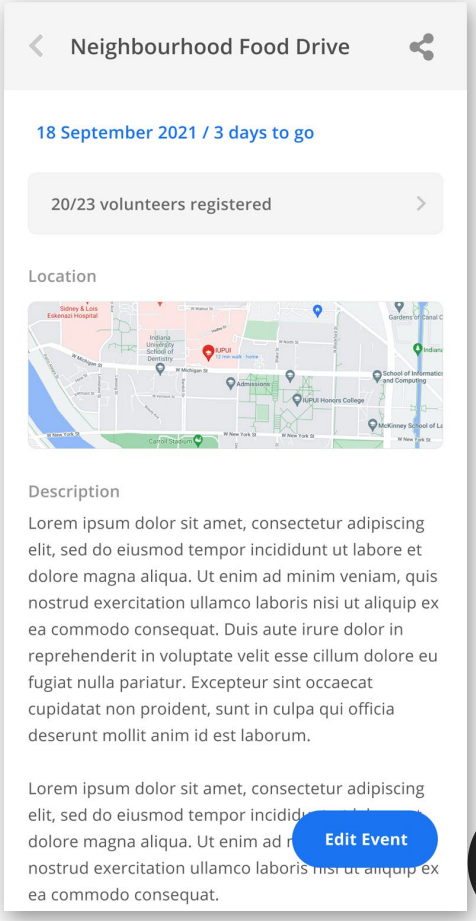
Organisation Side

2. Events- Organisations can create events for volunteers to volunteer for and to help food insecure people. These events can be in three states:

- Published (Live Events)
- Unpublished
- Ended

Each event will have certain details associated with it like name, date, description, location, volunteers registered and their details.





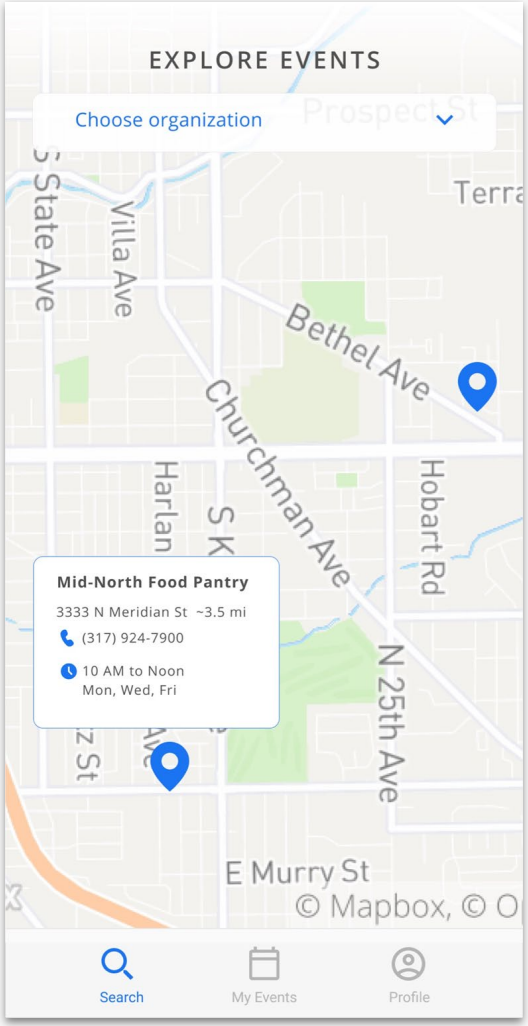
Organisation Side

Once enough volunteers have been registered, they will be provided with a group chat where they can coordinate with the event organizers and other volunteers. Using this group chat, organizers can convey details related to kind of work they would need volunteers to do. To which volunteers can ask collaborate and ask questions.

Volunteer Side

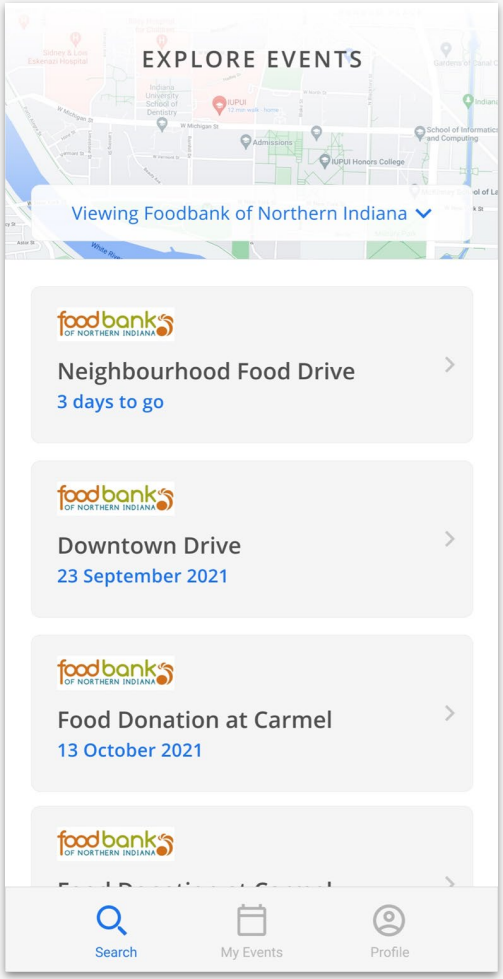
The volunteer side of the application is split into three sections

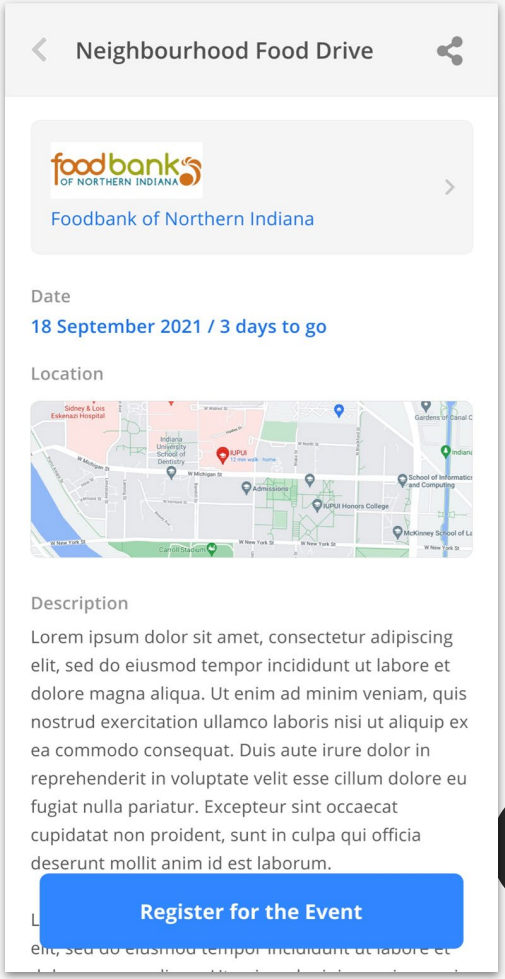
1. Search - W here the volunteer can explore volunteering opportunities near by
2. My Events - which are a list of events that volunteers have registered for
3. Profile



Volunteer Side

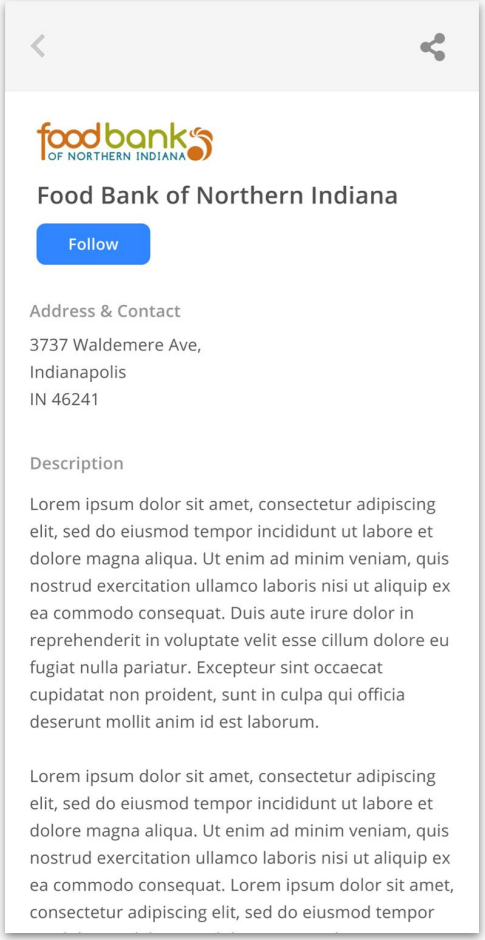
A volunteer can also explore events organized by a specific organization of their liking or preference. After tapping on a particular event, they will be able to view details related to it.

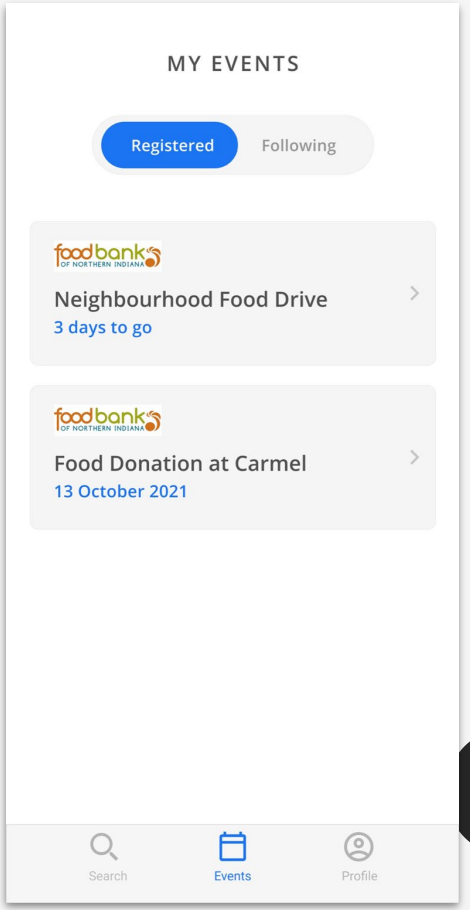




Volunteer Side

They can also tap on a particular organization and decide to follow it. After which, they will be notified of all new events of this organization. They can also share the event details and organization details with their friends & colleagues using several mediums like email, messages or W hatsApp.

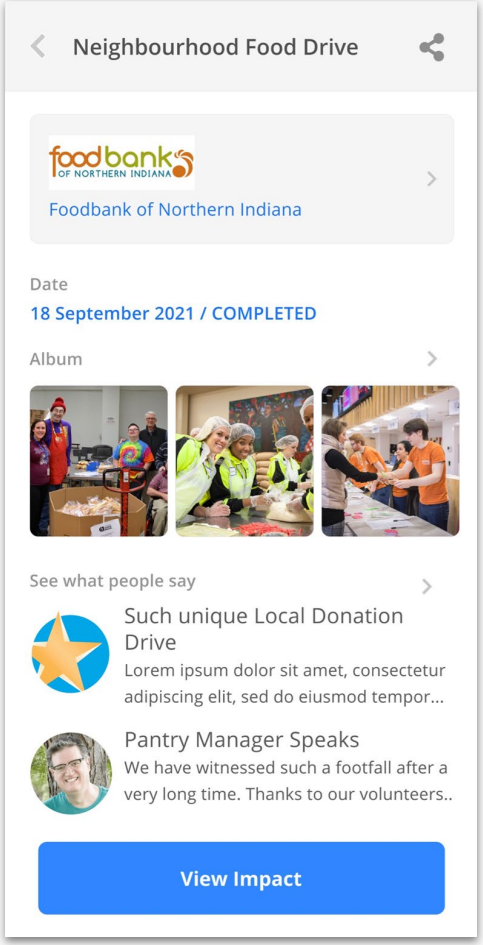


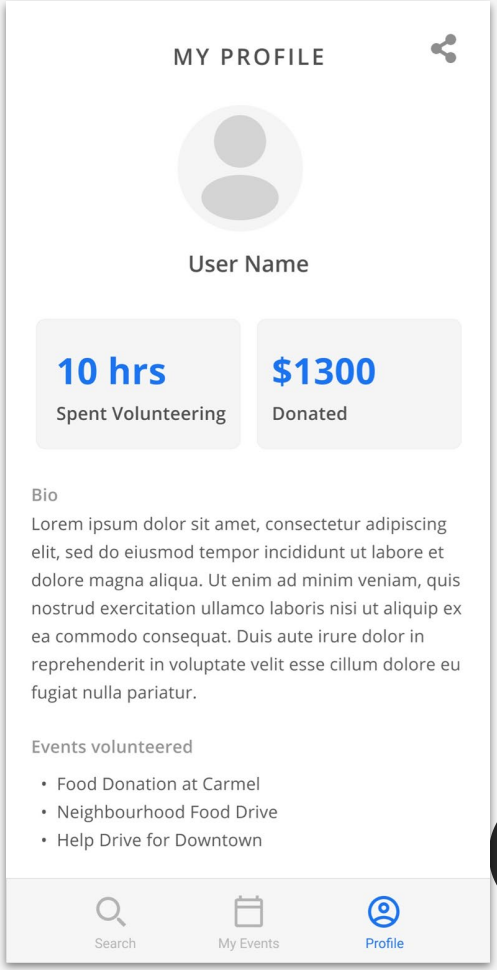


Volunteer Side

Volunteers will be able to see photos and what other people are saying about that organization and event.

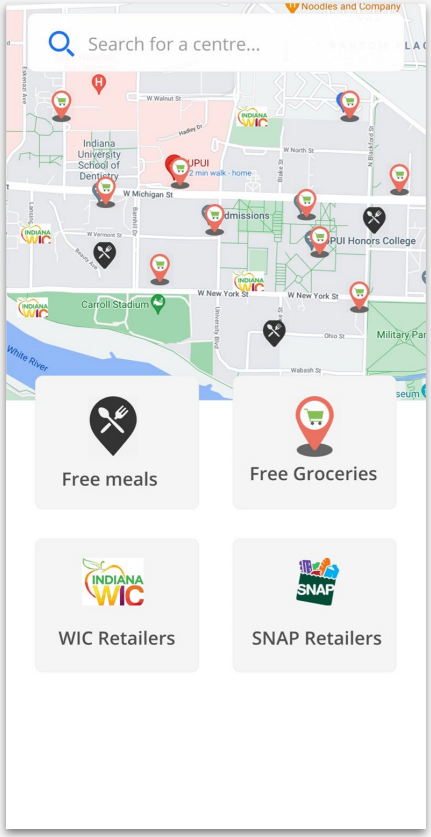
The profile screen shows hours spent volunteering as a metric and amount of money donated.

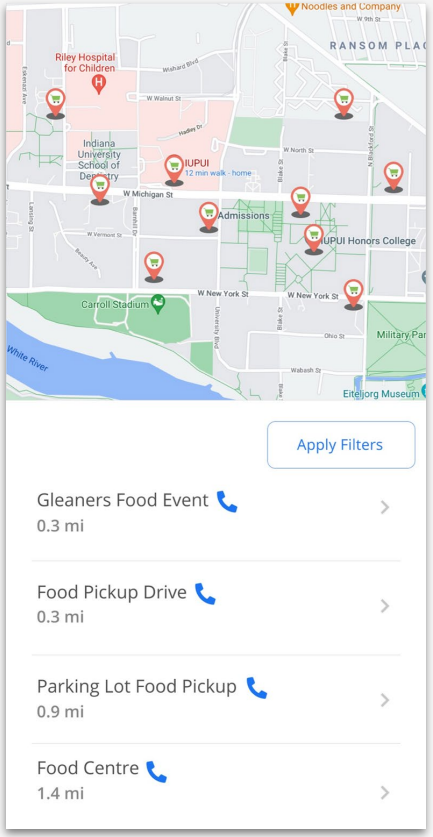




Client Side (Food Insecure person)

Using the client side app, users will be able to search for specific kind of services like free meals, free groceries, W IC retailer and SNAP retailers in their surroundings.

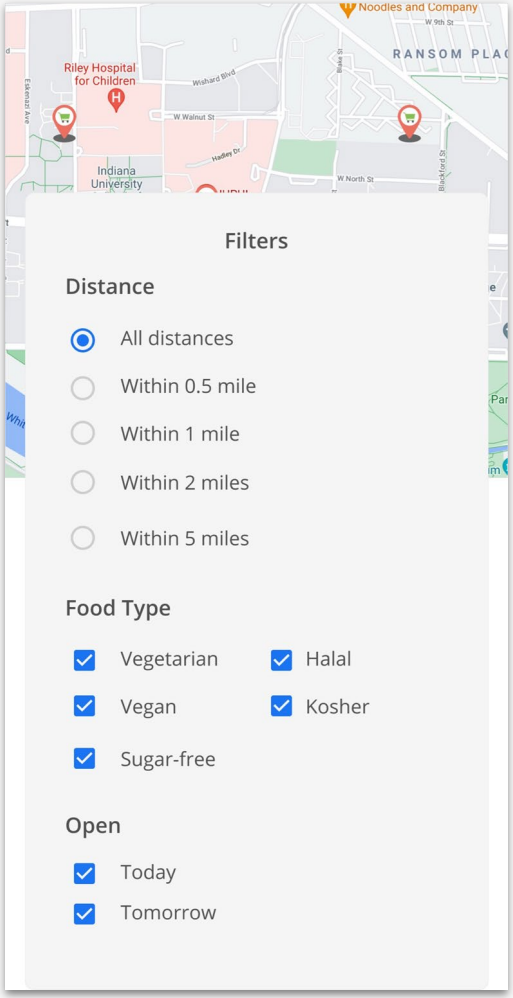




Client Side

Filter

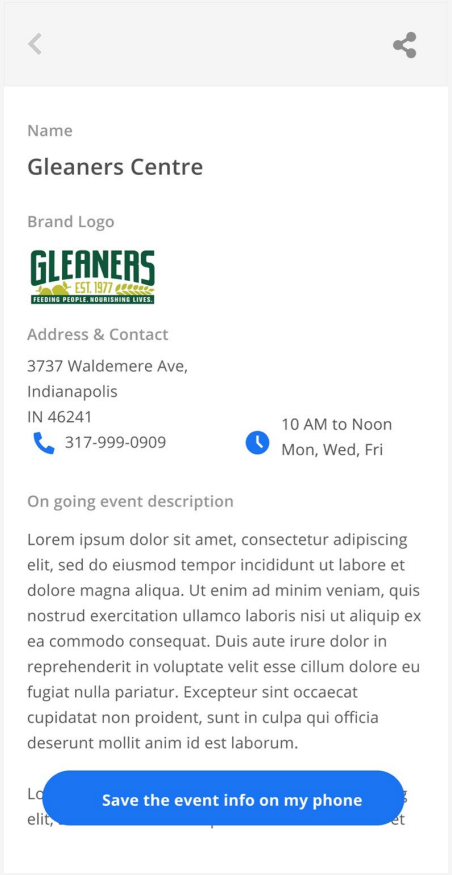
Users will be able to filter locations based on distance, food type and open hours

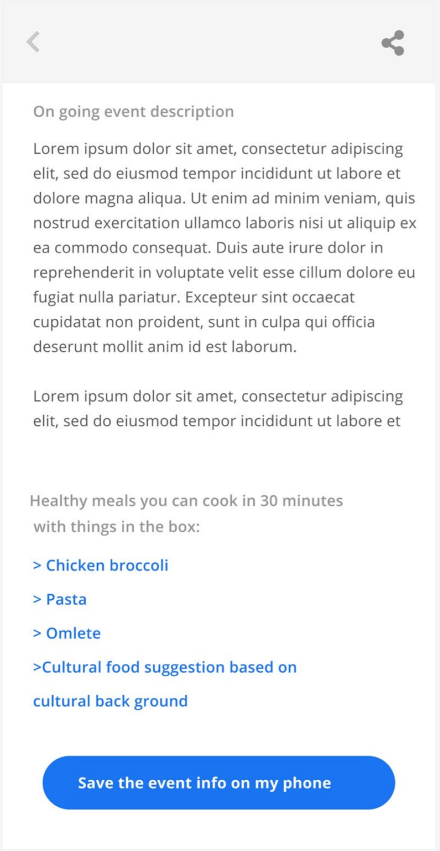


Client Side

Users will be able to view details related to the event.

Recipes
The app will provide some healthy meal recipe suggestions based on the food that is being donated. These recipes will be curated by organizations when they update details related to the event.





Feasibility and Costs

Medium cost, high return model

Initial cost of centralization of data through man-hours

One time costs of App development, Publishing licenses

Periodic App maintenance

Yearly cost of Data Warehouse, Web Domain

No additional high-end infrastructure required

Large footprint - addressing all stakeholders in the cycle

Problems identified & Proposed solutions

Jenna	Anonymity about food insecurity	QR code based documentation Call based delivery
Jenna	Timings and availability	Published details of event
Jenna	Language barrier	Connection with suitable volunteer
Jenna	Cooking nutritionally rich food from pantry ingredients	Recipe section
Jenna	No internet	Call based functions and offline data storage
Jenna	No time to visit the pantry	Doorstep delivery (subject to resources availability)

Problems identified & Proposed solutions

Sarah	Finding volunteer pool	App allowing young volunteers to sign up
Sarah	Maintaining diversity of volunteer background	Larger user audience
Sarah	Communication problem	Communication channel over the app
Sarah	Retaining volunteers	Impact and Gratitude statement
Sarah	Publicizing event	Share on Social Media when a volunteer registers
Sarah	Needs more money to help more people	Donation through app

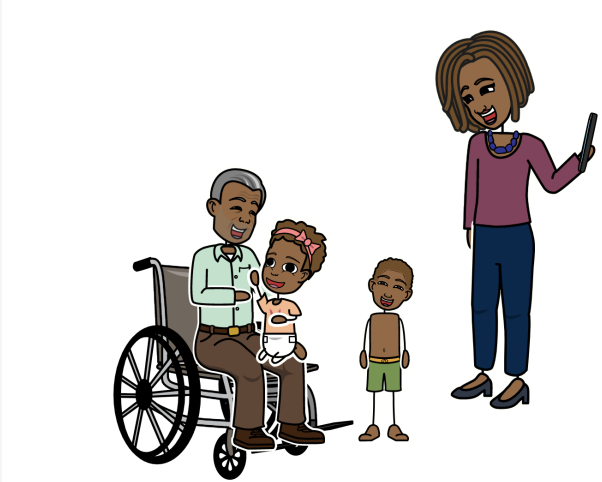
Problems identified & Proposed solutions

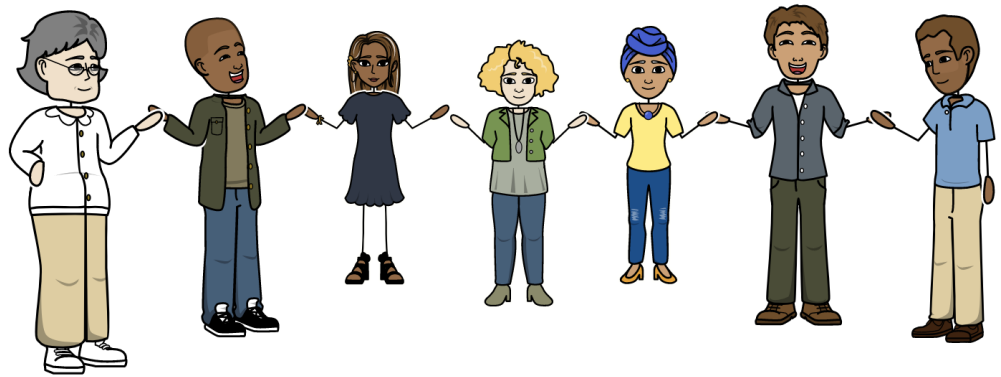
Ed	Way to find meaning in life and make connections	Volunteer at events
Ed	Donation via other means- monetary, borrowing	Donation through app
Ed	Helping the society	Volunteer at events
Ed	Stay motivated to continue	Impact and Gratitude statement Social Media sharing
Ed	Association with a cause	Following an organization
Ed	Proof of community work	Volunteering history

Impact

- Our design has the potential to scale up to the state or nation
- Inclusive of minorities (food insecure, low income, immigrants)
- Addresses the shortage of diverse volunteers base through technology
- Make information more accessible
- Increase contribution by younger people and reduce depression in the younger generation population through community building
- Human centered design approach to address a wicked problem
- Address food insecurity
- Connects community together

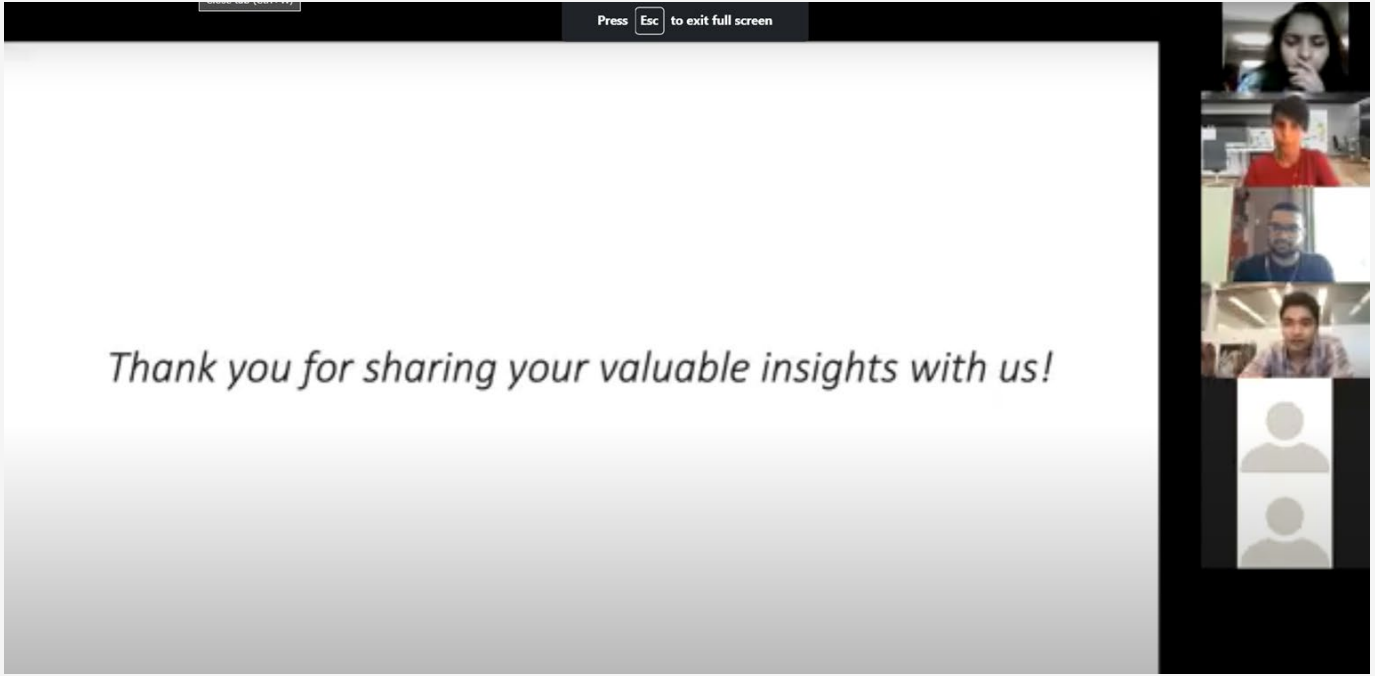
Towards healthier & a more connected community



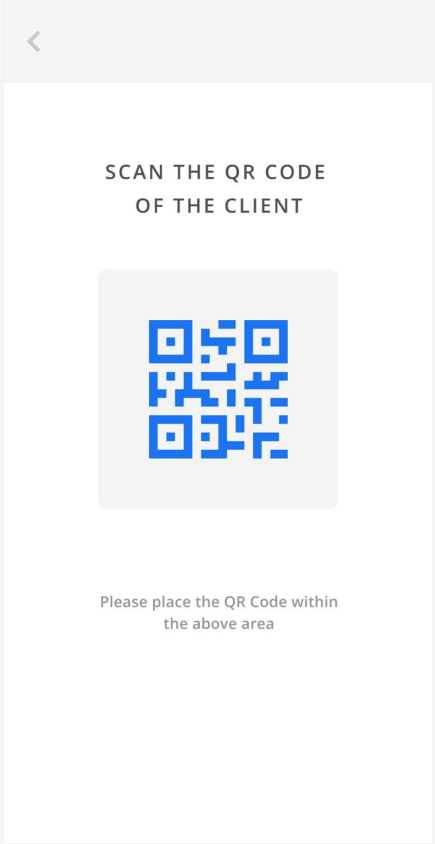


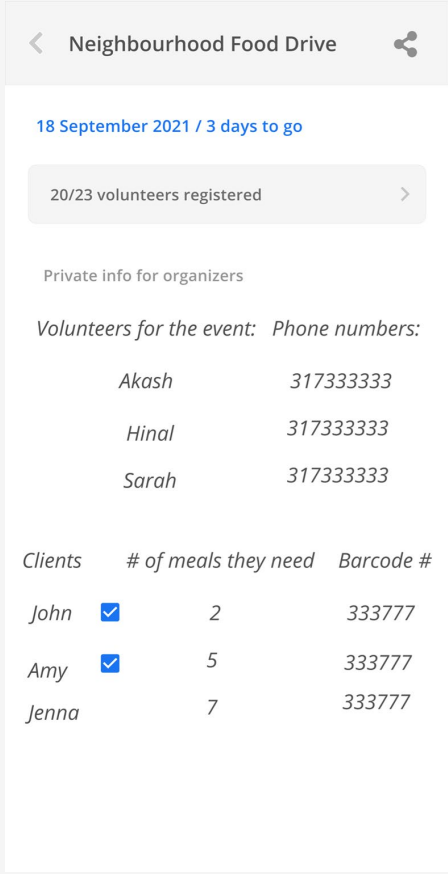
THANK YOU

We would like to thank food partners that agreed to participate in a session and share their insights with us!



Additional Prototypes





Appendix I

Different Scenarios that we wanted to work on if there was no time constraints:

- I am looking for free meals and groceries
    - I have questions/ concerns about getting free meals and groceries
    - I need to know what kind of food I should get
    - Show me some locations
- I am a nonprofit organization
- I am a volunteer
- I am a local business looking to support community
- I am a local car or delivery service provider
- I am an individual money donor
- I am a large business looking to donate a good amount of food or money or service
- We are a group of people (a club, student club, colleagues, friends, family etc) looking to make a change
- FAQ: stigma and misinformation

In case they have smartphone but not access they can go to place with access and the app will get updated and they can use information saved on their local device

I have questions/ concerns about getting free meals and groceries (chatbot)

- The app will ask whether they prefer in-person support or online
    - If in person the app will ask whether they have access to transportation if no the app will connect them to a non profit volunteer who could go to a public organization such as library or startbucks nearby to help answer their questions
    - If in person and they say they can commute the chat shows a map with a list of non profit organizations and food banks when they click they see exact address with their numbers to schedule a visit in advance
    - If online the app will connect them to virtual volunteers through text or call where they can help navigate resources and address their concern (importance of virtual volunteers)

I need to know what kind of food I should get (chatbot) the app has different language at the time the register

- The app will ask some questions about the number of family members
- Age groups
- Any disease history that can influence type of food
- Any specific nutrition preference
- Cultural and religious such as Kosher, veggy , Halal, etc
- Budget
- Do you need info about coupons?

Based on their answers the app provide information on the types of food they need to get and a list of locations where they can look for it. The app also show a tutorial on how to use filters in the map view to personalize the app to their needs.

I am looking for free meals and groceries

- The app has a map view that shows the free groceries, free meals, WIC retailer clinic, SNAP clinics with visual logos to differentiate and ways for them to filter and only see for example nearby SNAP and free meals to go and get both of them on one commute.
- The app will translate the food names and have information about whether food will be vegetarian, non veg, kosher, halal, gluten free, sugar free and other information that the food insecure person may need based on their needs they can filter by any of these attributes
- When they click at a location they can call, see direction, and sign up for getting food, and read more detailed information on how and where to pick up.
    - They can also request for a drop off if there was extra food or if they had transportation issues

I am a volunteer

- I am a typical volunteer
- I am a child who would like to work and get food in return
- I am a person with disability who want to earn money
- I am food insecure and want to volunteer and earn money
- I need to fill some mandatory requirements by work or school (I have to)

    - Do you want to work in person or virtual
        - If in person
            - Food pantry hand out food
            - Take food from facility ro food pantry location
            - Deliver food
            - I can take food on weekdays on my way to work from an organization nearby to food pantry or drop off
            - In person translator
            - Information mediators (a person who follow up on clients to make sure they get the food they need./ a person who go to nearby places to customer to help them apply for SNAP or teach them how to use the app or form filling or inform about rights and therefore reduce the stigma or translating food nutrient related information.)
            - Food marathon ie join an event to box one million food for food insecure people
        - Virtual
            - Help with documentation (mediator profile)
            - Guidance: share general resources, direct a person to closes locations based on type of need
            - Translate
            - Manage reports after each event and generate social media output
            - Generate information for fundraisers for food pantries
            - I have special professional abilities (I can help maintain the app, software developer , designer, etc)

- I am an individual money donor
  - Send money
  - See the large scale impact of my donation
  - Join a food marathon, (donate $2 a week for # weeks)

- I am a large business looking to donate a good amount of food or money or service
  - I am a franchise restaurant owner and I want to donate a large amount of food (I want to get a large flyer to show the impact I am making in indy, I want to share on social media, I want to get tax benefits)
  - I am a large business and I want to donate a lot of money (I want to get a large flyer to show the impact I am making in indy, I want to share on social media, I want to get tax benefits)
  - I am a large employer and I want to donate some of my employee hours(I want to get a large flyer to show the impact I am making in indy, I want to share on social media, I want to get tax benefits)
  - I am a food delivery service and want to deliver # foods for free (I want to get a large flyer to show the impact I am making in indy, I want to share on social media, I want to get tax benefits)
  - I am a large restaurant and I want to donate my delivery service hours/vehicles
  - I am a supply chain manager and I want to donate my drivers or vehicles

- We are a group of people (a club, student club, colleagues, friends, family etc) looking to make a change
  - Choose a non profit organization and start a fundraiser
  - Start a new non profit organization
  - Start a food marathon
  - Submit some ideas

I am a local business looking to support community (chatbot)

- I want to donate extra food
- I want to donate extra food ingredients
- I am accepting bulk orders for a lower price from nonprofit organizations
- I am a minority led local business and I know how it feels to be a minority so I want to help our community get connected

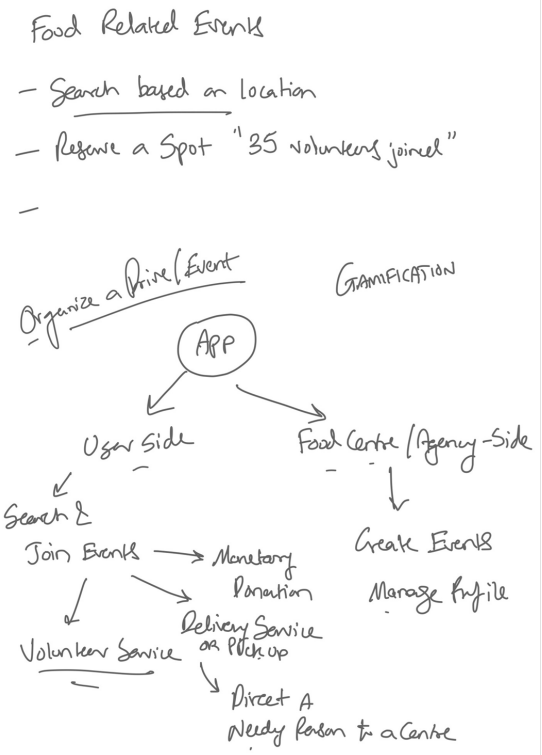
I am a nonprofit organization (chatbot)

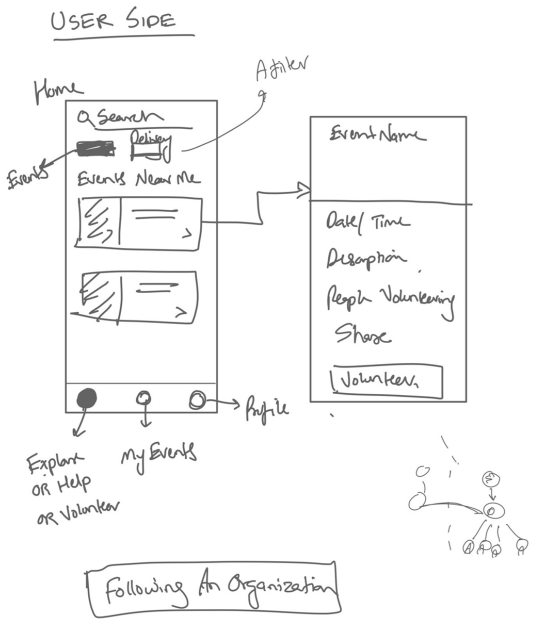
- I want to register my organization in the app
- I want to add a new food pantry event
- I want to add a fundraiser event
- I want to find funding
- I want to export the impact of a previous event as a facebook/instagram/twitter post
- I want to export the impact of a previous event as a flyer

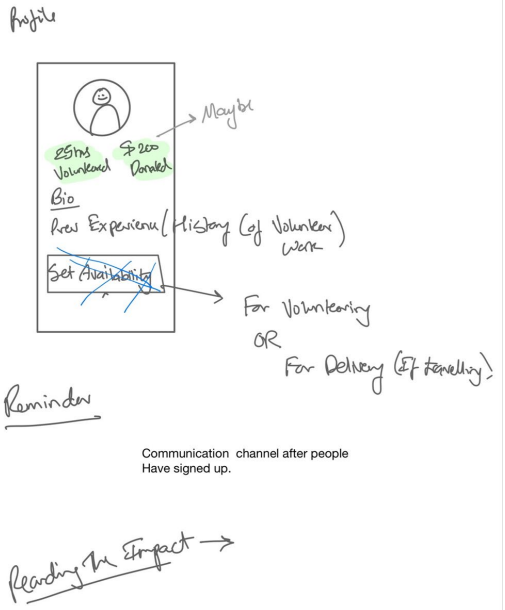
I am a local car or delivery service provider

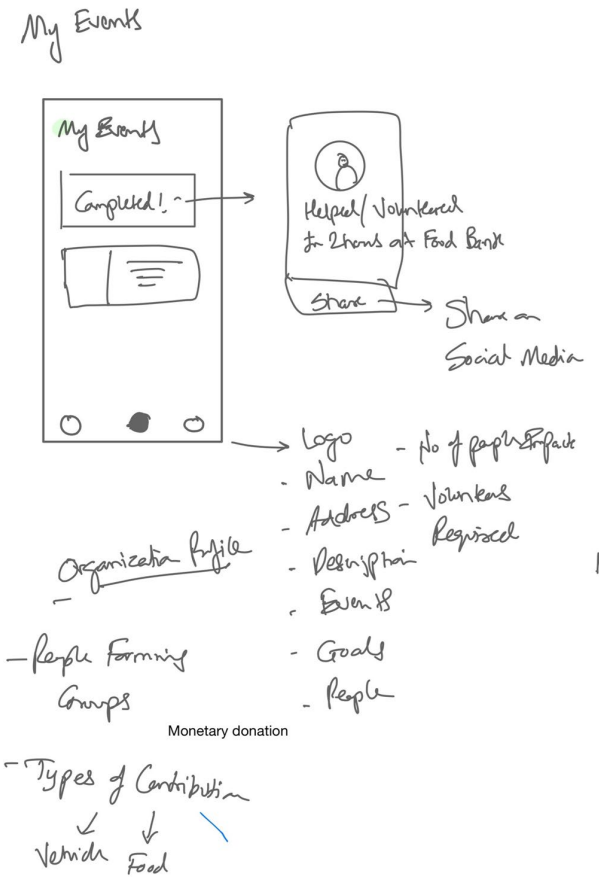
- I can accept orders to deliver bulk orders nearby
- I can deliver # deliveries for free per week
- I can lend a car

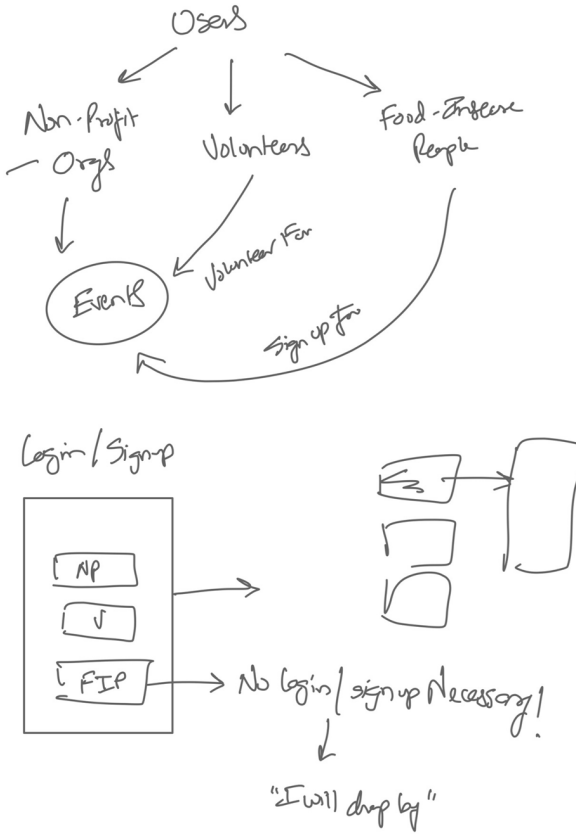
Appendix II Brainstorming and iterations

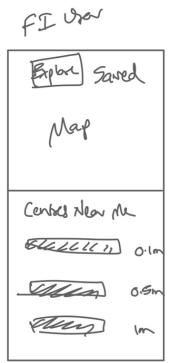


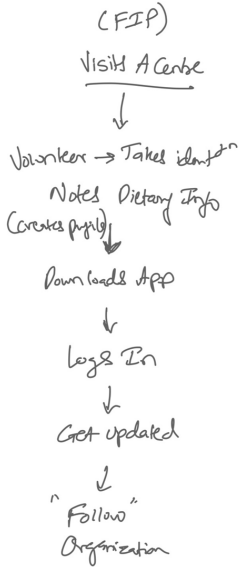


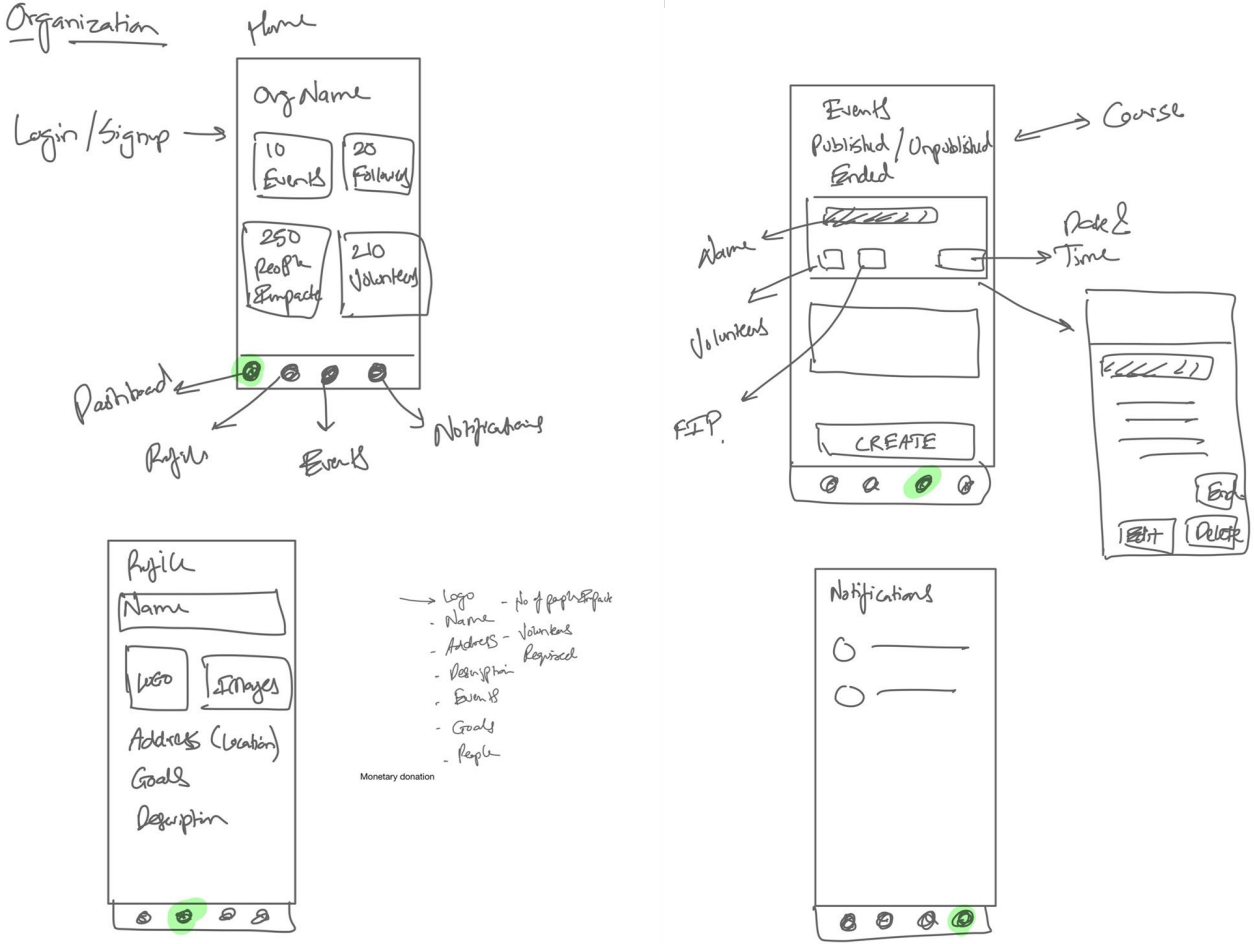



My Events
My Events
Completed!
Helped/Volunteered in 2 forms at Food Bank
Share
Share on Social Media
Logo
Name
Address
Description
Events
Goals
People
- No of people helped
- Volunteers Registered
Organization Profile
People Forming Groups
Monetary donation
Types of Contribution
Vehicle
Food


Users
Non-Profit Orgs
Volunteers
Food-Insecure People
Events
Volunteer For
Sign up for
Login/Signup
NP
V
FIP
No login/signup Necessary!
"I will drop by"


FI User
Explore
Saved
Map
Centers Near Me
0.1m
0.5m
1m


(FIP)
Visits A Center
Volunteer → Takes identity
Notes Dietary Info
Creates profile
Downloads App
Logs In
Gets updated
"Follow" Organization


Organization
Home
Org Name
Login / Signup
10 Events
20 Followers
250 People Impacted
210 Volunteers
Dashboard
Profile
Events
Notifications
Events
Published / Unpublished
Ended
Course
Name
Date & Time
Volunteers
FIP
CREATE
End
Edit
Delete
Profile
Name
Logo
Images
Address (Location)
Goals
Description
Logo
- Name
- Address
- Description
- Events
- Goals
- People
- No of people Impacted
- Volunteers Required
Monetary donation
Notifications

Appendix III: Impacts in details

Based on learnings from inclusive design and using the toolkits such as microsoft inclusive design toolkits, we decided to take a human centered approach to address food insecurity problem in Indy.

- A focus on low income and food insecure people who are minorities and helping to include them as users of a human centered app to address food insecurity
- We used learning from previous research to identify who has been excluded and based on previous indy hunger network survey in 2020 we need to recognize that the African American/Black households more often have a greater food need than white households. Next step was to include them we tried to do so from the start by generating our persona Jenna and generating journey map and story
- In our story we used findings from surveys in indianapolis and surveys and qualitative studies on addressing food insecurity
- We also realised that younger generation are excluded from volunteering activities and that volunteering can actually help them be connected to community and find values and purpose, therefore decrease many existing problems younger generation face such as depression, drug use , etc
- We tried to address the problem of lack of volunteers by taking a technology focused approach so that they can make a contribution in addressing food insecurity and share on social media to invite their friends to take part as well.
- We tried making the community more connected through addressing food insecurity, addressing decrease in volunteers and depression problems for younger generation through an app.
- We found that food insecure people feel uncomfortable sharing their name and address or ID due to different barriers such as language barrier and also they are afraid to be recognized by their neighbors in the long lines for food so we tried to facilitate the lines through barcodes therefore no one has to write information or wait due to language barrier they can get their food just by scanning a barcode
- We know many food insecure people do not have access to the internet therefore we added the option to save events on their phone storage to use at home
- Based on previous research about 30% of food insecure people need instructions on how to cook healthy food or do not know how to prepare healthy meal in limited time they have, so we added a section with easy recipes so that they become more informed and enabled to make healthy food for their family
- previous research also shows that after family and friends, social media, 211, and community centers or churches were important sources of information, therefore we added a share to social media option for organizers to be able to share their event information on social media and also a print a flyer option to be able to print a flyer of the event to distribute at the nearby church and community centers. .
- We designed the tool having data from indianapolis in mind but the design has the potential to scale up to the state or nation