

## **Resource Pairing Web Application**

### **Introduction:**

There is an incredible imbalance of people who have everything, or more than, they need and people who simply don't have enough. This project aims to offer a way for those who have more than they need to share with those who do not. We see our solution, if properly implemented and utilized, combating targets of the following UN Sustainable Development Goals: No Poverty, Zero Hunger, Reduced Inequalities, Sustainable Cities and Communities, and Responsible Consumption and Production.

There are millions upon millions of people around the world that do not get enough to eat, have a place to eat, or clothes to warm them. This problem is of the utmost importance because it affects people everywhere.

Our target users are those who have something to share and those who lack the basic requirements for humans to survive. They should care because not appropriating extra resources to those that need them will only allow people without the means to survive to continue suffering.

In the United States alone there were 43.1 million people living in poverty. This solution could make a difference in the lives of all of those people and more.

We want to create an online and/or mobile platform for connecting people who have things to share and people that need those things. Ideally, people who have things will be able to post what they have. People who need things will be able to search what has been posted and connect with the person who has what they need.

Many other similar systems either don't allow end users to connect with each other directly or aren't systems where free donations are common. We envision people using this application to make sure that their products aren't wasted when they are finished with them and that those products get directly into the hands of the people that need them.

## **Related work:**

### **Usage of technology among the Underprivileged**

#### ***Survival Needs and Social Inclusion: Technology Use Among the Homeless***

In this paper they studied how the homeless use the technology they have. They discovered the main uses of technology were to make social connections and find jobs to make money. The social connections ranged from friends & family to increasing their involvement in community events.

#### ***Exploring Mobile Technologies for the Urban Homeless***

This report takes a look at how technologies affect the homeless urban community. He looked at technologies impact on how we interact socially. Christopher chose to work with urban homeless because they offer a more diverse community where people may be most affected by technology but who have little to no access to it. He is building a Community Resource Map (CRM) that will have static information on shelters, counseling services, soup kitchens, employment training and healthcare. The CRM blends these information resources and provide feedback to the homeless community he is working with. He then will examine the use of the CRM with the lenses of legibility, How does access to purposefully designed technology impact the in need person, as well as literacy, how does adding specific capability to a familiar technology alter the way the in need person use the tool, and last with legitimacy, In what ways do forms of legitimacy influence the legibility afforded by technological artifacts and the literacy of the intended users.

#### ***Using the Mobile Application ClickHealth to Provide Accessible Healthcare to the Homeless***

This paper describes a project by high school students directed by a local college in California. The project is similar to ours in that its primary audience is people who

are homeless or in unsteady circumstances and that its goal is to give those people information and direct them to resources.

### ***(Re)Negotiating Homeless Identity Through Technology-Mediated Social Interaction***

This paper discusses the way that homeless people use technology and mobile devices for social interaction and bridging boundaries between homeless persons and non homeless persons. This document has helped us understand the ways in which the homeless use technology in their everyday lives and cemented our understanding of the use of mobile phones in the homeless community.

#### **Summary:**

These papers all discussed different ways that the underprivileged use technologies and what they used the technology for. This is useful for our project because for our system to be a success we need to make sure that we will providing a service that our users will be able to access and want to use.

### **Increasing success rate of organized events**

#### ***Catalyst: Triggering Collective Action with Thresholds***

This paper discusses the efforts the group made by providing a platform for users to organize events. They use activation thresholds to determine whether enough interested and commitments have been made to launch an event with confidence enough will follow through with the commitment to make the event a success. They found that while this method isn't foolproof and some events still didn't go through, it still generated interest and help keep organized.

### ***Who gives what and when? A scenario study of intentions to give time and money***

This report talks about who volunteers to do something and or what circumstances or rewards does it take to make people volunteer their time or money. The researchers used four aspects of the situation that are often correlated in the real world in one design and then manipulated them. One was some short essay questions where people were given a story and then asked questions. The fields were then changed for the people asked. Different number of times asked and different amount of time and money were asked from the volunteers to see where the cut off point was. The results of the report where people are more likely to volunteer when it takes less time to do so and when it is asked by a person they will encountered in the future.

### ***A framework for donating via mobile devices***

In this report they look at the a framework for donating via mobile devices. They did this by exploring three questions. One, What has previous research on soliciting donations shown? Two, What are the technical possibilities for making donations via mobile devices? Three, How can the technical possibilities be implemented effectively without adverse effects on the user experience? This report explores the old system that are in place like making an awareness of need as well as online systems like Paypal. The big results of this report was that people were more likely and found it way easier to donate via a mobile or online app.

### **Summary:**

The papers in this category are all about researching what needs to take place in order for people to feel comfortable donating or participating in some event. The first paper specifically addresses a method for assessing interest and activity in a particular event, such as a donation. The second focuses on what circumstances or rewards help to make people more likely to donate. The third then takes a look at

the method of donation itself and determines that people are more likely to donate via a mobile phone app or an online app. These three papers combined give us an idea of what we need to do in the design of our application to make people actually want to donate their goods other than for the experience of helping others.

## **Methods to increase donations**

### ***Interactive Philanthropy: An Interactive Public Installation to Explore the Use of Gaming for Charity***

In this paper they researched whether donations to nonprofits and charities could be increased by the use of games. What they found was that when users play the game they should not feel trapped but instead can play at their own pace and are not forced to make donations and feel free to stop playing at anytime. Having an element of competitiveness was also beneficial to increasing the usage of the game.

### ***The GroceryMate: Eliciting Community Empathy and Transforming It into Purposeful Action***

This paper proposes the use of persuasive technology on grocery shoppers in order to have a constant stream of food donation. They found that there is a constant need for food from charitable organization that provide food for the homeless. The study showed that with the amount of people that consistently go grocery shopping and that would be willing to donate, could be a convenient and affordable way to collect donations for the community.

### ***Smart Application for Food Donation Using Cloud Computing***

This paper proposes an application that can provide a list of food donors in an area, and map it to a mobile's GPS. Donors and acceptors are stored in a vetted system, with alerts going out to donors when help is needed, and out to acceptors when help is present. The paper proposes an architecture that connects web services and

mobile services together. One of the goals of the network, is to reduce the costs of food delivery and to reduce the amount of food waste.

### ***It Takes a Network to Get Dinner: Designing Location-Based Systems to Address Local Food Needs***

This paper is about the study of location-based information systems and field study of food nonprofits and other individuals that lead to the creation of a LBIS that would help the distribution of food to those in need. The paper focuses on both matching nonprofits to individuals and nonprofits to organizations to deliver food in the local area. The paper finds that the use of a LBIS improves the ability to match donors and acceptors, and give them information needed. They suggest that collecting and distrusting food sources could see an improvement if those had an LBIS.

### ***AgileFood: Facilitating Adaptive Food Donation to Address Hunger & Reduce Waste***

This paper describes an application that aims to provide a scheduling and management system for organizations and companies that have food nearing its best by date that needs to be thrown away. Instead these companies can use this application to donate their near expiration food to various food banks and groups that try to pass out that food to the people that are in serious need. The paper describes the process that developers followed to develop the application using an iterative process as well as the incentives available to would be donors of food.

### **Summary:**

The studies above each explored a path to increase the amount of community donations, specifically relating to food and monetary donations. Three of the five studies focused on food industries and reducing their food waste by connecting them primarily to nonprofit food distributors. The other two studies analyzed

individual donations to charitable organizations within their community by using competition and empathy.

Whereas these studies connected both individual and industry donors to charitable organizations, our proposed solution connects individuals to one another. This will forge a connection between people in need and people who have. It will also allow those in need to reach out without the use of an intermediate organization to get what they need when they need it.

### **Related Work Conclusion:**

Our solution differs from the other approaches because a lot of these solutions aren't thinking about actual users and more about organizations or non-profits. Our solution would improve upon individuals being able to access this information and being able to find things themselves instead of relying on an organization.

### **Research Method:**

- Systematic Review: We explored studies that were related to our project, especially looking for ICT and other technology based work. From this exploration, we compiled a list of most similar studies and analyzed each of them. We asked how these were related to the work we wanted to do, what they did right, and what they did wrong. The analysis of these studies lead us to our first prototype.
- System Analysis: We found a set of web and mobile applications that were similar in scope to our idea. From this set we asked if it was a success or failure, and what made it so. From the analysis of success and failure and an analysis of similar features, we further refined our prototype.
- User Interview: Using a template of questions about our design and app, we each set out to find a potential user for our system who would be willing to do an interview with us. Based on the feedback we received from the interviewees we gained a more in-depth perspective of how potential users would be using our system. Using this

information we were able to examine our design from a different point of view and cover any areas we may have overlooked.

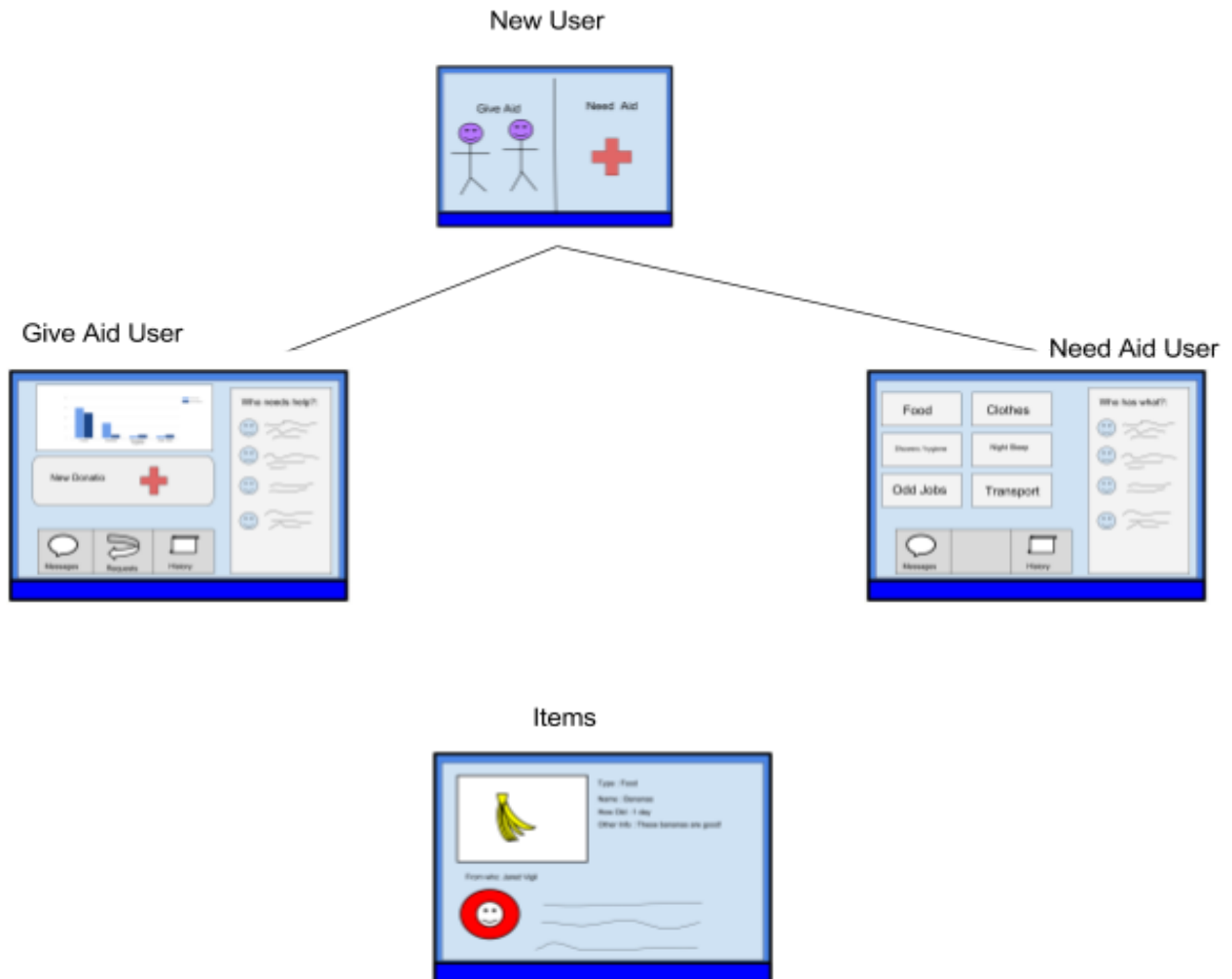
- Peer Review: We gave a presentation of our final prototype in front of our peers explaining our features, design, and flow of our system. Afterwards they rated our prototyped and gave suggestions on how we could improve the system which we will use to help examine any changes we may make.
- Explain how you followed iterative and participatory research: Throughout the design of this prototype we have spent time using various research methods to gather information relevant to our project idea. We first began looking at other research that has been done in the area to get an idea of what designs work and what don't. With this we created our initial prototype. After that we iterated on the design using research done on similar systems and applications. Next we went out to the community and did participatory research. We used interviews with our target users to improve the design and make sure that it solves the use cases as needed by the public. Lastly we presented our prototype to our peers for review and feedback which we then took into consideration.



## System Design:

### Stage one prototype

#### Flow :



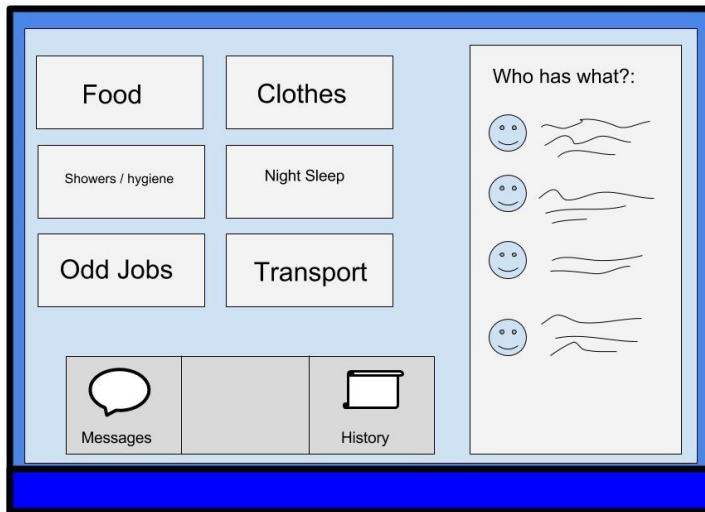
This prototype was very simple, and focused on the establishing the difference between users that need aid and those that could give aid. Both type of users would find different information more useful and this that is what this prototype focused on. The start of this flow was with a new user, right from the start the user was given the choice giving aid or receiving aid. After that choice the user would be taken to their respective choice of main menu.

## Give Aid User Main:



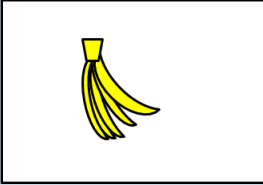

This menu focused on presenting the user with an easy way to create new donations. With the “New Donation” button right in the middle it was clear that this type of user was expected to donate something of need. The graph above that button is displaying the relation between the number of current donations for a specific category and the number of requests for that specific category that way a giver could make an informed decision to what category of aid needed more donations. The bar under the new donation button was all the extra function this app would provide. A message button to communicate with another user, A request button to see if any of your donations have been requested, and a history button to see all your past transactions. The “Who needs help” area is there to show what people need help and what type of help.

## Get Aid User Menu:



This menu is focused on presenting the user with all the different types of aid they can look for. With the six different categories right in the middle users can see look for specific types of aid. This will help differ between people who need help with food get connected with those giving help in food and those who need help with clothes get connected with those giving help with clothes, and so on. The bottom buttons are functionally the same as the Give Aid User Menu. The “Who has what” area was to show who has what type of aid so people can see what type of aid people are giving.

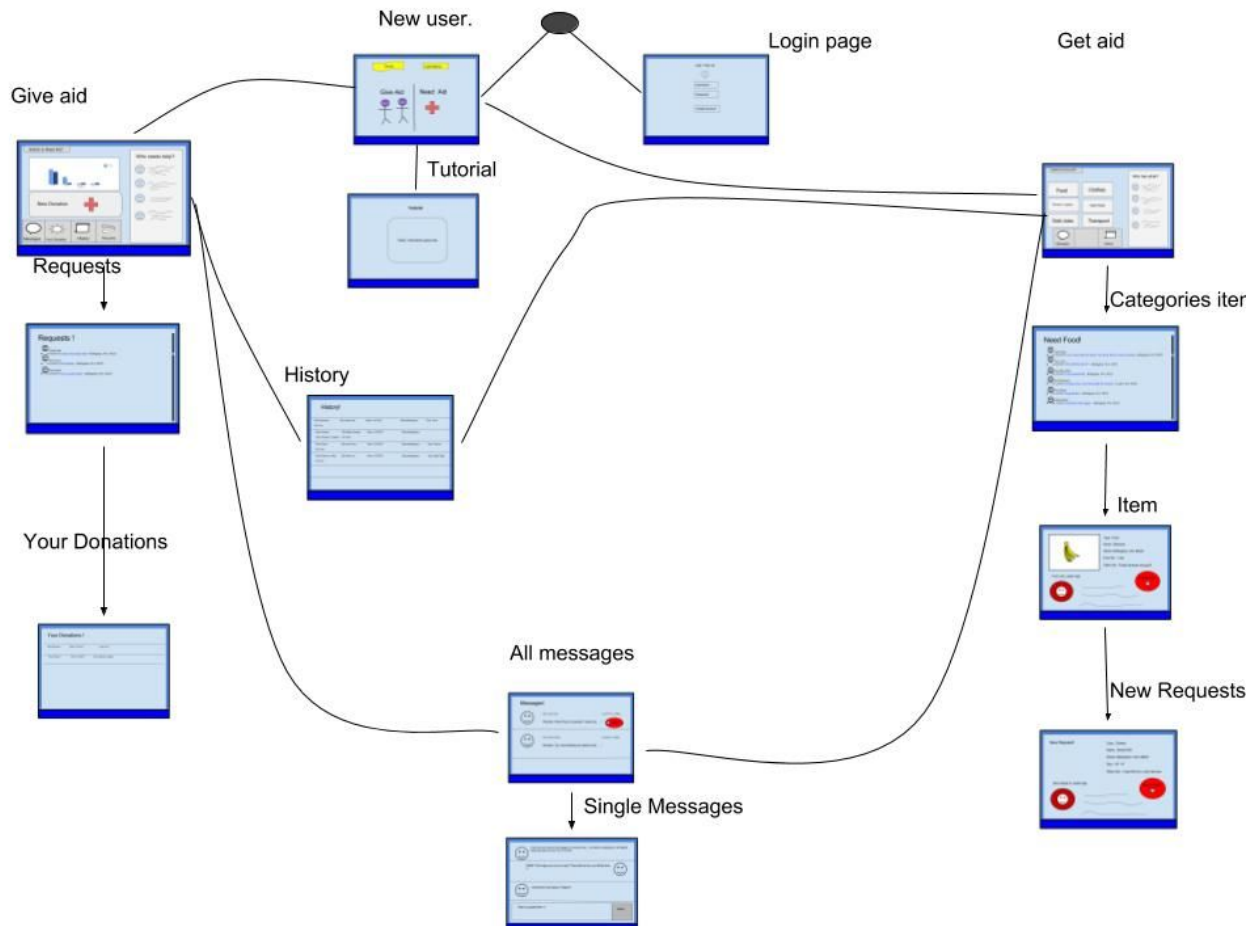
## Item:

	Type : Food Name : Bananas How Old : 1 day Other Info : These bananas are good!
From who: Jared Vigil	
	<hr/> <hr/> <hr/>

This page is meant to show all the information for a single item of donation. Users will be able to see a picture of the item, read the type, name, how old the item is, and any other information about the item. Last the user will be able to see who donated the item and learn a little about them.

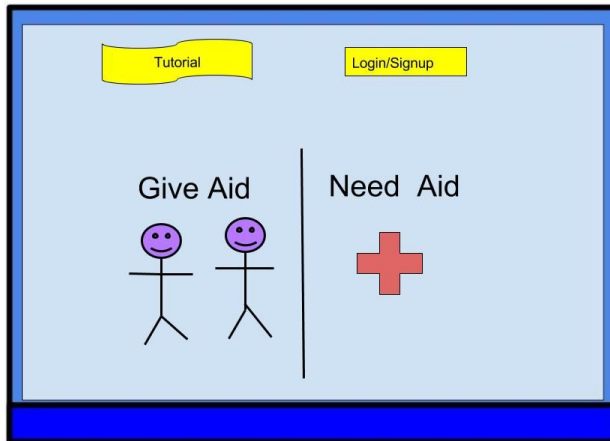
## Stage two prototype

### Flow:



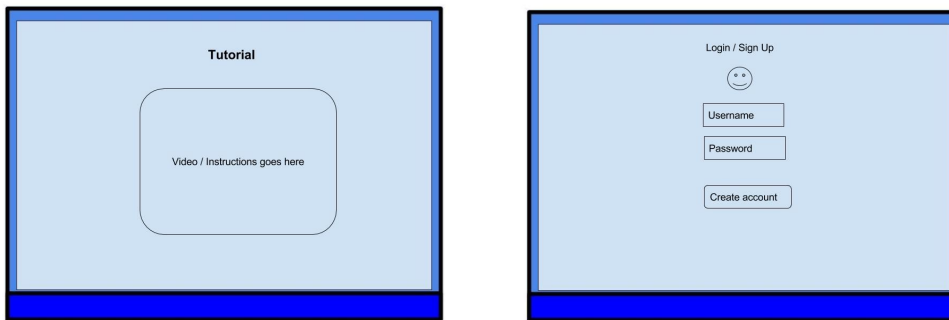
This prototype was an expansion of the stage one prototype. With drawn examples of some new pages that were discussed in stage one along with revised pages that were given more functionality. One of the flutes we noticed in stage one is that users couldn't both give aid and get aid. We felt that some users might be able to give specific aid but they might need another type of specific aid. We also added some new functions to the app that were not in the original.

## New User:



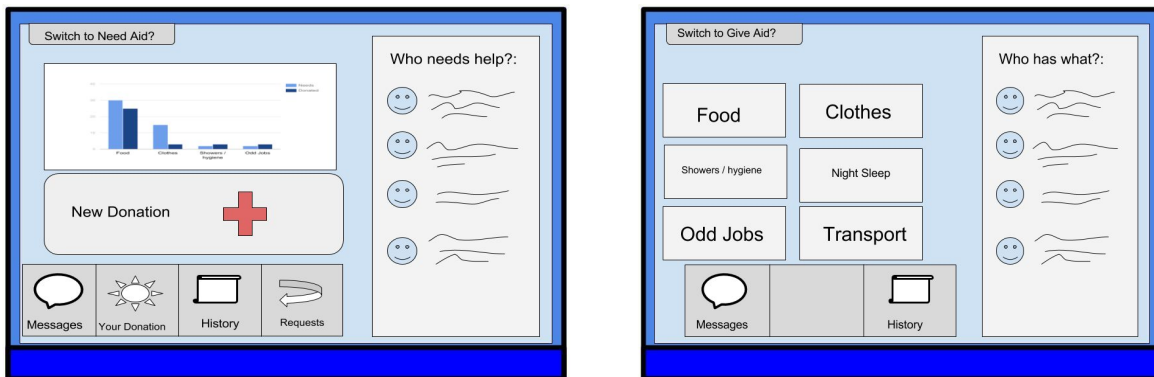
This page was similar to the stage one but with the added functions like the tutorial and the login button.

## Tutorial & login page:



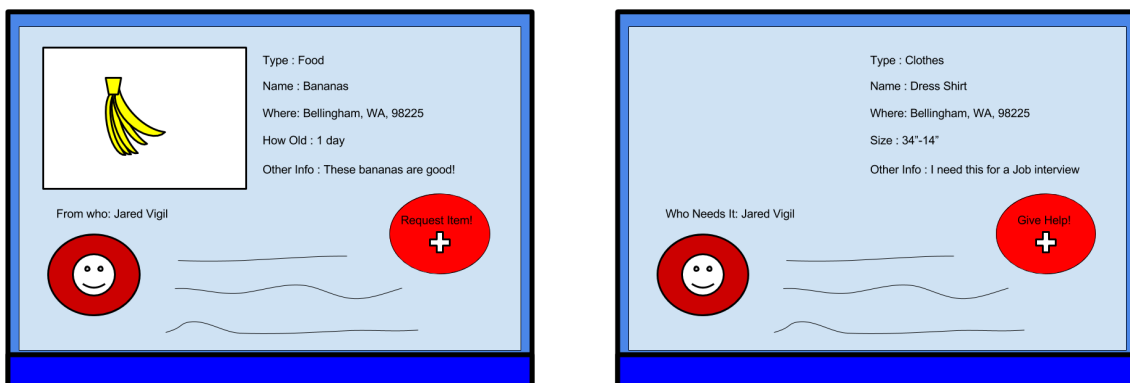
The tutorial page will give a short video explaining how to use this app along with some tips on how to be safe when using this app. The login page will ask for username and password so users can login to a specific account.

## New Give Aid & Get Aid Menus:



These are functionally the same as in stage one. The big difference is now the user can alternate and switch between giving and getting aid with the the tab at the top right corner. The Give Aid Menu also has a new “You Donations” button so the user can see what they current donations they have one the app.

## Item & Request:



These pages are similar to one another. The Item page is the same as in stage one but with the added “Request item” button, that will send the request to the user that is donating the item. The Request page is the other side of the Item page. Where the item page is what the Get Aid user sees when they want to get an advertised donation, the Request page is what a

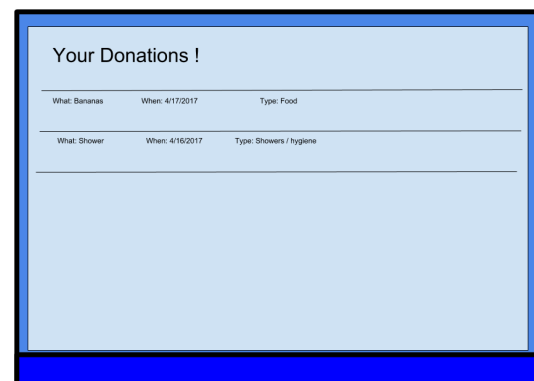
Give Aid user will see when they want to give to an advertised request from someone is need.

## Aid Category & Requests:



These two pages are similar in function. The Aid Category page is what a Get Aid user will see when they pick a specific type of aid they need help with. They will see all the donations for that type of aid along with who they are from, general area it is from, date it was donated, and a short title to the donation. The Requests page is what a Give aid user will see when they look to see what requests have been made from the Get Aid users. This page will have similar information displayed as the Aid Category page.

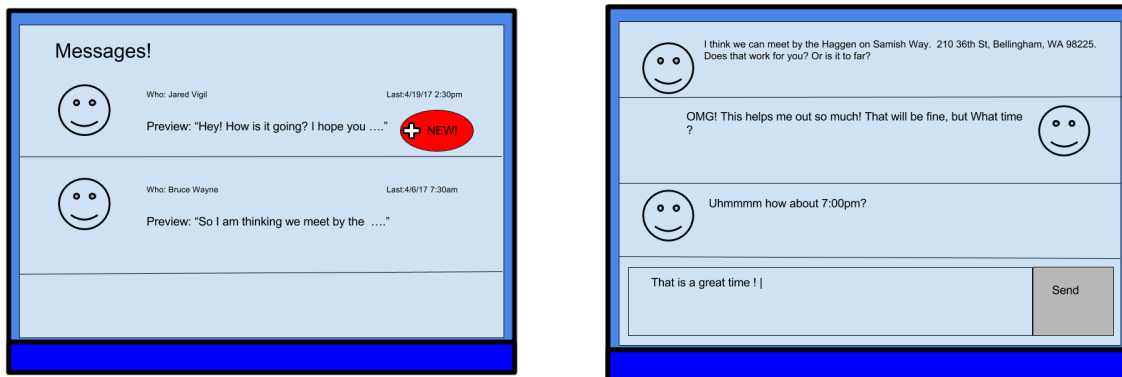
## Your Donation & History page:





The History page will show the user's transaction history. Both what the user has donated and what they have received. It will show all relevant information for that transaction, such as type, date, who, and any other details the user might need to know to figure out what this transaction was. The Your Donations page is a page for Give Aid users to see all their current donation they have advertised. This page will display the same information about each donation as the history page will show.

### **Messages & Message Page:**



These pages show how we want to add some form of communication between the Givers and the Getters. Because of the difficulty of implementing this function we have opted to use a already form of communication I.E email or texts.

### **Tentative Project Completion Plan:**

- Skeleton / Main page by May 8th
- Give/Receive functionality by May 15th
- Majority of development completed by May 22nd
- Testing and bug fixing completed by May 29th
- Poster and Demo ready by June 2nd
- Final Version by June 8th