Lab 1 – Helping Hands Product Description

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Table of Contents

Contents
1. Introduction ................................................................................................................................................. 3
2. Helping Hands Product Description .............................................................................................................. 4
   2.1 Key Product Features and Capabilities ...................................................................................................... 5
   2.2 Major Components (Hardware/Software) .................................................................................................. 5
3. Identification of Case Study ......................................................................................................................... 6
4. Helping Hands Product Prototype Description ............................................................................................ 7
   4.1 Prototype Architecture (Hardware/Software) ........................................................................................... 8
   4.2 Prototype Features and Capabilities ......................................................................................................... 9
   4.3 Prototype Development Challenges ....................................................................................................... 11
5. Glossary ....................................................................................................................................................... 11
6. References .................................................................................................................................................... 13

Tables and Figures

Table 1 - Collaboration Matrix ....................................................................................................................... 4
Figure 1 - Major Functional Component Diagram ........................................................................................ 6
1. Introduction

Although the United States has a massive Social Safety Net compared to most countries, it is still difficult to determine how effective this Social Safety Net actually is. Very few studies are made to determine how bad this social crisis is, and the few times there are made, the results are inconclusive. This problem also extends to the Charitable Services themselves, whenever they be an official government agency or a privately funded charity.

The main reason for this is that the way these entities are organized. Many times, the at-risk individual doesn’t know that a service exists because it was never explained or advertised. In the cases that they do know it exists, trying to determine if you are qualified for the program is another problem in itself. Things are hardly better on the other side. Many times, volunteers and staff are overwhelmed and/or untrained to handle the constant flow of at-risk individuals. “Street-level” bureaucrats are ineffective with communications between each other and those they manage. This mismanagement leads to institutional distrust for these charities, which ends up hurting them in the long run.

Basically, in the grand scheme of things, government agencies and charities for the social safety net fall short of effectively collaborating, sharing data, conveying important information, as well as staying current with situations that affect at-risk members of the public. This results in at-risk individuals giving up on help when those organizations lack clarity, lack accountability, seem confusing or remain undiscovered.

Helping Hands aims to solve this problem by being a central platform for the simplifying the process of connecting those in need (at-risk individuals) with the appropriate resources by discovering the user’s specific circumstances and tailoring a
unique solution for their dilemma. Helping Hands plans to do this by allowing at-risk individuals to post their specific needs, volunteers to post their specific skillsets, and organizations to post key information about themselves in order for at-risk individuals and volunteers to be matched with the proper government agencies and private charities.

2. Helping Hands Product Description

Helping Hands is a mobile and web application that is open for everybody, which includes at-risk individuals, volunteers, and organizations. The goal of this application is to match the needs of at-risk individuals and the skill sets of volunteers to organizations that can properly address those needs and skill sets. Users may declare themselves to be either an at-risk individual, a volunteer, or a representative or an organization, and then fill out the necessary information to get started.

Helping Hands will also have several tools to ensure that ensure that every user has a positive experience, such as pre-filled scraped information for organizations that have not yet joined the Helping Hands network, as well as relevant user feedback.

Table 1 - Competition Matrix

<table>
<thead>
<tr>
<th>Features &amp; Capabilities</th>
<th>Helping Hands</th>
<th>Government Entities</th>
<th>Private Organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Health &amp; Human Services</td>
<td>Homing &amp; Urban Development</td>
</tr>
<tr>
<td>Guided Links</td>
<td>✔️</td>
<td>🤴</td>
<td>🍀</td>
</tr>
<tr>
<td>Providers Update Pages</td>
<td>✔️</td>
<td>🤴</td>
<td>🍀</td>
</tr>
<tr>
<td>Real-Time Forums</td>
<td>✔️</td>
<td>🤴</td>
<td>🍀</td>
</tr>
<tr>
<td>Web Scraping</td>
<td>✔️</td>
<td>🤴</td>
<td>🍀</td>
</tr>
<tr>
<td>“HelpMe” Button</td>
<td>✔️</td>
<td>🤴</td>
<td>🍀</td>
</tr>
</tbody>
</table>

They have this feature  🤴  We can collaborate  🍀  They have partial implementation of a feature
2.1 Key Product Features and Capabilities

The main feature of Helping Hands is the ability to seamlessly match at-risk individual needs, the skill sets of volunteers, and the capabilities of organizations with each other to maximize the efficiency of the charity process. Helping Hands does this by having separate starting screens for each type of user to input their information. The users can also narrow down a search criterion based on specific needs and skill sets. Helping Hands automatically creates a pre-made webpage for each organization from web scraped content, but the organization can log in to update the information manually. Also, organization webpages have user feedback sections for upvoting/downvoting on relevant conditions, such as safety, cleanliness, etc.

The database of Helping Hands holds several sets of important information, such as session information for at-risk individuals or volunteers to track preferences and usage. For organizational representatives, personal and organization information such as address, email, pages, etc are stored. Individual page information, ranking statistics, forum information, and usage statistics are also stored as well.

The administrative interface will allow for the modifying of fields available for templated pages. Admins can allow/disallow/ban content from unvetted users that act in a negative manner. Admins can also manually update specific page information, reset passwords, as well as manually editing at-risk individual information and volunteer information as needed.

2.2 Major Components (Hardware/Software)

Helping Hands will be available on Windows, Mac, iOS, Android, and Linux, as well as any other operating system that can run a web browser. The collaborative development and software version control will be done in GitHub. The website will be
done in HTML/CSS/JS and the web server code in Python. The API is the Google API. Finally, the Build Manager is Gradle, documentation is handled by Electron, and the workflow tasking is on Trello.

For the database, it will be run on PostgreSQL on AWS. It will be used for session information for at-risk individuals, volunteers, and organizations as well as organization page information, ranking statistics, forum information, and usage statistics.

*Figure 1 - Major Functional Component Diagram*

3. **Identification of Case Study**

Helping Hands will first be deployed in the Norfolk area around the Old Dominion Campus. This product will be aimed at at-risk individuals, volunteers, and organizations. It will be used for connecting at-risk individuals and volunteers to charitable organizations. This will also benefit government agencies, as well as other
organizations that track social problems. The goal is to have Helping Hands work for multiple areas across the Tidewater area.

4. Helping Hands Product Prototype Description

a. Proof of concept
   i. Users
      1. Customer
         a. A customer can be a person in need, a volunteer, or an organization
            i. Person in need
               1. Post what you need help with
               2. Post where you are located
               3. Send outreach to my location
               4. Search nearby organizations
            ii. Volunteer
               1. Post skills you can offer to volunteer
               2. Post where you are located
               3. Search nearby organizations
            iii. Organization
               1. Post what type of services your organization offers
               2. Post where you are located
               3. Post if you are seeking volunteers
4. Post what type of volunteers you are looking for

   ii. Admins

b. Risk Mitigation

   i. Helping Hands Terms of Service Agreement to mitigate liability on all sides.
   ii. Reviews, Ratings, and Appeals system to make sure all disputes are handled fairly

c. Customer Feedback

   i. Those in Need (At-Risk Individuals)
   ii. Volunteers
   iii. Organizations

4.1 Prototype Architecture (Hardware/Software)

a. Hardware Utilized

   i. Laptop or desktop computer
   ii. Internet Access

b. Software Utilized

   i. Database
      1. PostgreSQL on AWS
   ii. Web Server
      1. Apache
   iii. HTML, CSS
   iv. JavaScript
v. Docker

4.2 Prototype Features and Capabilities

a. Demonstrate ability to create a standard user profile, achieving basic profiles to represent customers such as those in need (at-risk individuals), volunteers, and representatives of organizations

i. Fill out basic user information
   1. Username
   2. Password
   3. Email
   4. Phone Number
   5. Location

b. Demonstrate ability to fill out organization details on profile

i. Fill out basic information
   1. Summary of organization
   2. Available services
   3. Location
   4. Capacity
   5. Open/Close Times

ii. Other details
   1. Special outreach events
   2. Unforeseen Circumstances (Pandemic, Bad Weather, etc)

c. Demonstrate ability to be prompted various questions to identify specific needs of the customer
i. “I need help!”
   1. Ping person in need’s location to all nearby organizations
   2. Ping person in need’s location to all nearby volunteers
   3. Ping the person in need’s location to all nearby other persons in need
   4. When a ping is made, create an exigency event for all parties involved. All parties need to check the exigency event as resolved before making another ping

ii. “I want to volunteer!”
   1. The app automatically asks on a regular basis if you have obtained new skills that you would want to volunteer for
   2. The app automatically asks on a regular basis if you have moved or have different preferences on where you would like to volunteer for

iii. “I want to represent my organization!”
   1. The app automatically reaches out to organizations via email in order to encourage them to fill out their scrapped webpage with accurate information
   2. When those in need and volunteers show interest in an organization, the app reaches out to that organization to show them that there is great interest in them

d. Be able to display locations of organizations/help
i. Display locations of organizations nearby based on a zip code/address so that users can still find help even when uncomfortable sharing their own location

ii. Display locations of organizations based on those in need and/or volunteer’s preference for when that person wants to volunteer in a different location other than where they are currently at

4.3 Prototype Development Challenges

a. Missing Knowledge
   i. Mobile app development
   ii. Database integration
   iii. Third party API integration

b. Distributed development team
   i. All team members are collaborating remotely

c. Efficient algorithms
   i. Matching those in need to volunteers and organizations
   ii. Authentication

5. Glossary

a. 501c3 Organization - An organization or group that is tax exempt, often due to providing charitable services through non-profit or not-for-profit methods.

b. At-risk Individual - A person with ongoing risks to health or safety.
c. **API/Google API** - Application programming interface is a connection between computers or between computer programs. Programmatic interfaces to Google Cloud Platform services.

d. **Crowd-Source** - Obtain (information or input into a particular task or project) by enlisting the services of a large number of people, either paid or unpaid, typically via the internet.

e. **Google Maps** - A free-to-use service on the World-Wide Web that provides map display, locations and localization.

f. **GUI (Graphical User Interface)** - A human-computer interface that uses windows, icons, and menus that can be manipulated by a mouse (and often to a limited extent by a keyboard as well).

g. **Major Functional Component Diagram** - Used in modeling the physical aspects of object-oriented systems that are used for visualizing, specifying, and documenting component-based systems.

h. **Stakeholder** - Person with an interest or concern in something, especially a business.

i. **Web Server** - Software and hardware that uses HTTP and other protocols to respond to client requests made over the World Wide Web.

j. **Web Scraping** - Automatic method to obtain large amounts of data from websites.
6. References


n. Five things you may not know about the US Social Safety Net. (n.d.). Retrieved April 4, 2022, from https://www.urban.org/sites/default/files/publication/99674/five_things_you_may_not_know_about_the_us_social_safety_net_1.pdf


