

VETERIST

A mobile platform to help veterans with PTSD locate the right resources.

Team

Payton Ratzliff
Product Manager

Arjun Lalwani
Interaction Designer

Melissa Diamond
Visual Designer

Jingle Huang
User Researcher

Problem & Solution Overview

In the United States, veterans are being diagnosed with PTSD (Post-Traumatic Stress Disorder) at an alarming rate: about 6.8 million veterans (33% of the population of veterans) are diagnosed with PTSD. For one reason or another, around 60% of these veterans are not reaching out to get help with their symptoms and diagnoses. PTSD is a serious mental disorder and puts veterans at severe risk. In 2017, 40,000 veterans were homeless in the US. Furthermore, in 2016, 20 veterans committed suicide per day averaged over the year. While PTSD does not necessarily account for all of these numbers, it puts veterans in a vulnerable state in which they are much more likely to encounter these situations.

According to our user research, many veterans are not able to access the right resources based on their individual needs. To address this problem, we designed a mobile application that supports veterans with PTSD on an as-needed basis. Users will be able to find the organizations and people best suited to them based on their symptoms and personal information (past experiences, hobbies, etc.). They can also get On-Demand support by talking to someone immediately when they are experiencing particularly severe symptoms. Overall, we hope that our design can help veterans with PTSD better locate resources and connect them with programs and people that are willing to help.

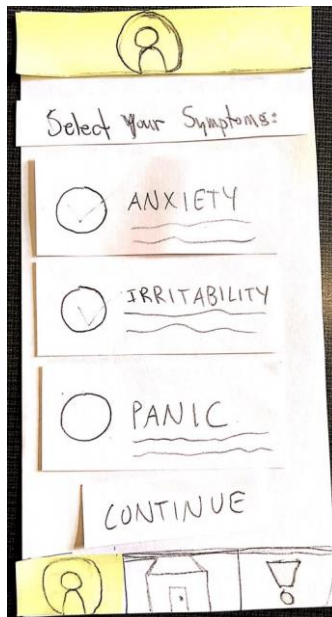
Initial Paper Prototype

Overview

Our Initial paper prototype has three main components shown as the three tabs at the bottom of the main screen: Profile, Organizations, and Emergency Contacts. Two tasks can be tested: matching veterans with the best resource for their needs, and providing on-demand support.



Task 1: Matching Veterans to the best resources for their needs



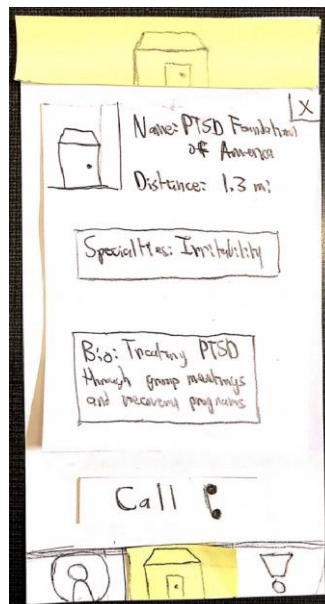
Step 1: Users are presented with the Profile tab, telling them to select their symptoms. Pressing one of the symptoms transitions to Step 2. Pressing "Continue" or the middle button at the bottom of the screen skips to Step 3. Pressing the bottom right button transitions to Task 2.



Step 2: Selecting a symptom highlights it with a check mark. A selected symptom can be deselected by pressing it again. As above, pressing "Continue" or the middle button below proceeds to step 3.

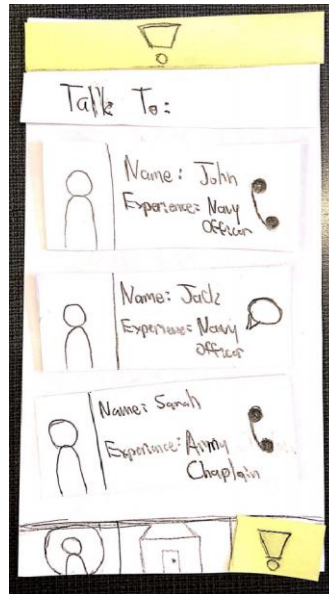


Step 3: The user is directed to the "Organizations" page, which has been sorted according to their selected symptoms. If no symptoms were selected during Step 2, the organizations will be ordered by distance from the user. Tapping on one of the organizations will go to step 4.

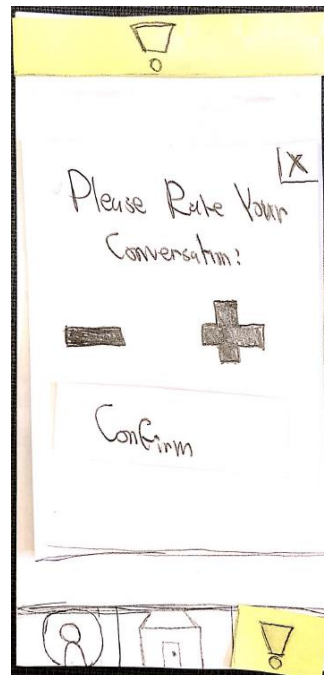


Step 4: Users are shown details about the selected organization, including its name, distance from them, treatment specialties, and biography. Tapping the "Call" button will call the organization, allowing the user to get in contact with them - completing Task 1. Clicking the "x" button in the top-right corner will close the screen, returning the user to the list of organizations.

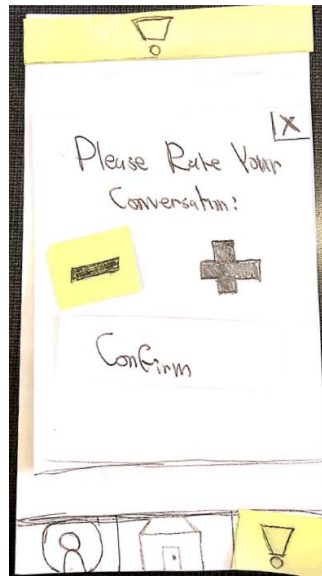
Task 2: Providing on-demand support for veterans with PTSD



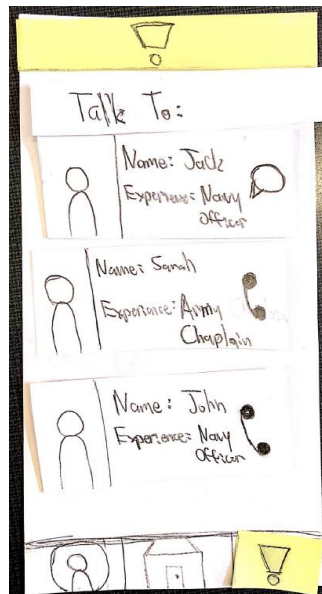
Step 1: Users can tap the exclamation point in the bottom right of the screen to reach the on-demand section. Here, users can scroll through profiles of other veterans with PTSD, who they can instantly communicate with by tapping either the phone or message icon to the right of their profiles.



Step 2: After calling or messaging a veteran, the user can rate the conversation for their own reference (the rating is not public). They have the simple choice of either a positive or negative rating.



Step 3: Here, the user has selected the negative review option, as highlighted. Once this is selected, the user can press continue to submit the rating. If the user does not want to submit a rating, they can tap the "x" button in the top right of the screen.



Step 4: Once the user submits the review, they will be taken back to the list of veterans who are available to talk. However, the ordering of the list now takes into account the user's negative review of John, moving him to the bottom of the list.

Testing Process

Heuristic Evaluation

We conducted a heuristic evaluation with another group in the 440 classroom. The whole evaluation process was broken into two sessions as our prototype was evaluated twice by two groups of different students who are aware of good practices in interface design. Participants were encouraged to follow the think-aloud protocol, and provided us with useful feedbacks and suggestions.

First Usability Test

Our first usability test was conducted with a Graduate TA and Masters of Design candidate. The test took place in our quiz section with the other groups present. We chose this user because he requested the opportunity to evaluate our design, and we believed his experience in design would aid us in figuring out additional changes to make. While one of us conducted the test, the rest took notes on the feedback given. We asked the user to run through the two tasks described above. However, due to the short amount of time available, the user started on the first task and then went on to explore the functionalities of the app further before completing the first task.

Second Usability Test

Our second usability test was with a member of the UW Student Veteran Life organization who has been diagnosed with PTSD. The student met with us in the back room of the Student Veteran Life office, with one other student in the room. We chose this participant because they are a member of our target audience: veterans diagnosed with PTSD; we chose the environment because it was practical and familiar for the tester. Due to the quick turnaround between finding the user and his availability, only one member of our team was able to conduct the test. Furthermore, some of the recommendations made in the first test were unable to be implemented for the second test. For the test, the user was asked to walk through the two tasks described above, giving feedback on the different steps of the process and any features they felt were missing or would better support their needs.

Third Usability Test

Our third usability test was conducted with a student who had learned about user-centered design and wanted to become a user researcher. The student met with us in a living room. We chose this participant because she has knowledge of the usability test process and is able to follow the "thinking out loud" protocol very well. She could also give us insightful suggestions since she studied in this area, and the test could be like

an Expert usability review. We chose the participant's living room as the environment because it was convenient and familiar for the tester. Due to the quick turnaround between finding the user and her availability, only one member of our team conducted the test. The user was asked to walk through the major tasks and encouraged to talk through any opinions or ideas in her mind. Notes were taken focusing on the negative comments they made to support future iterations.

Overall Lessons

As we moved through our usability tests, some of the biggest lessons we learned revolved around scheduling. Due to the nature of our audience, we had a lot of trouble finding users that actually reflected our test audience well. This struggle caused us to have to schedule tests rapidly and at times when the entire team wasn't available to help conduct the tests. Additionally, with our first test, we ran into the additional issue of not having enough time to fully cover the tasks we had set out to test. The biggest lesson we learned from these user tests was to allow time both to find the appropriate users for testing and plan ahead to ensure tests are as successful as possible. As a result of our first test, we worked to ensure we had expectations set for what we wanted a user to run through (i.e. our two tasks) and that we properly scheduled the amount of time necessary to complete a full test.

Testing Results

Heuristic Evaluation

From our Heuristic Evaluations, we identified two main heuristics that we were violating: Recognition Rather than Recall, and User Control and Freedom. The groups we worked with identified three main aspects of our design that needed to be corrected:

- **Organizations:** Initially, organizations were presented to a user in a list, with a simple header of "Select an Organization". While the organizations were sorted according to the user's symptoms, there was no information to indicate this to the user, apart from the symptoms listed as "Specialties" beneath each organization. This violated the heuristic of Recognition Rather than Recall. In order to better inform users of how the organizations were ordered, we added two headers: "Recommended Organizations" and "Other Organizations".
- **Scrolling:** In our initial paper prototype, we had not implemented a scrolling feature. This violated the heuristic of User Control and Freedom, as there was no way to scroll through options on the various pages. To fix this, we added a quick scrolling bar to indicate scrolling functionality.
- **Emergency Contacts:** In our first design, users would be put in touch with a contact immediately upon pressing the contact's banner. This behavior violated the heuristic of User Control and Freedom, as a user was unable to cancel or confirm their desire to talk to a contact. Our solution to this violation was to add a confirmation screen before putting a user in touch with a contact.

First Usability Test

While our first usability test was cut short due to a lack of time, we were still able to gain a couple of key insights into our design that needed changing.

- **General Wording:** One general piece of advice we received concerned the wording of many of our menus. The wording was pointed out as fairly unfriendly to the user. An example of a change we made from this advice was modifying the "Select your Symptoms" header to "How are you feeling?"
- **Scrolling:** While we implemented a version of scrolling after our heuristic tests, the user noted that our implementation was not very intuitive. At this user's recommendation, we modified our screens to better show the scrolling functionality by displaying the bottom selectable objects as folded options - indicating to a user that they could scroll to see additional information.
- **Features:** The user recommended a couple of additional features to improve the app's functionality. The first was an option to get directions to a chosen organization, in addition to having the option to call them. Secondly, they recommended adding more to the Profile page beyond just symptoms.

Second Usability Test

As our second usability test was conducted with an actual veteran with PTSD, we received great feedback about the overall flow of the two tasks and ideas for areas where we could add functionality.

- **Common Themes:** As noted earlier, we were unable to implement some of the recommendations from our first usability test. As if to confirm the importance of these features, our second user mentioned both of the changes that our first user did that we were unable to implement - the Directions button and extended Profile information. Needless to say, these changes were implemented ASAP after this usability test.
- **General Flow:** During the test, we noted both positive and negative points with the general flow of our app. One positive point the user noted was that the new scrolling interface (which we had managed to change between the first and second tests) was immediately obvious - there was no longer any confusion about how it worked. One negative point we noted was that, while completing the first task, the user mentioned a desire for emergency contacts in case they were experiencing particularly strong symptoms - a feature our design supported. When asked to complete the second task of getting emergency support for severe symptoms, the user was able to correctly identify the Emergency Contact option - however, it appeared that they required knowledge of the task in order to know where to look for it.
- **Additional Features:** As a potential user of our system, the user had a number of suggestions for additional features to improve the overall application. Due to the time constraints on the assignment, many of these features were left unimplemented. We focused on the features that were more directly tied to the tasks we had already envisioned. One example of this was the Bio page added to Emergency Contacts - this change reflected the expanded profile we added, and fit in well with the flow for Task 2.

Third Usability Test

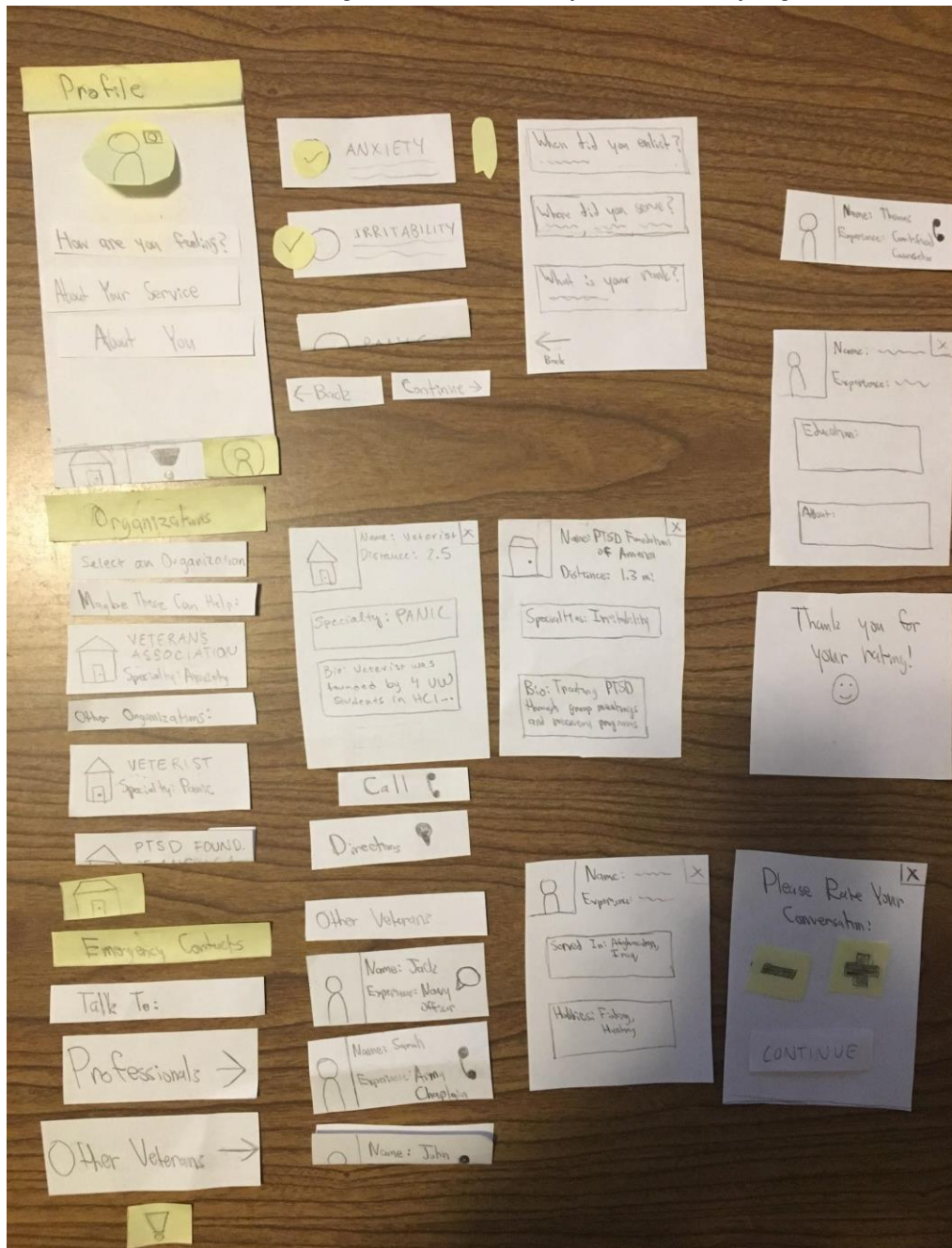
Our final usability test was fairly straightforward, however we still learned a few points that reminded us that there is always room for improvement when prototyping.

- **General Wording:** As with the first test, we received a decent amount of feedback about the wording of our application, mainly centered around how we were addressing users and why we were asking for certain information, like in the new bio. While suggestions regarding wording were mostly left unimplemented after this test, it did remind us to keep thinking about this issue as we moved forward in our designs.
- **User Control:** As another reminder of keeping all parts of the design in mind at all times, we ran into user control issue similar to the ones pointed out in our initial Heuristic Evaluation - the user noticed multiple points where they could not return to a previous screen in the process. We did our best to combat this problem by adding a "Back" button wherever it made sense to on the prototype, so that users could move freely through the screens of the application.

Final Paper Prototype

Overview

Our final paper prototype retained the three main screens from the initial design, however each of them were changed in various ways and to varying levels.



Task One: Matching Veterans with Organizations

Users start at the "Profile" page, where they have one of three configuration options: Symptoms ("How are you Feeling?"), Service Record ("About Your Service"), and current bio ("About You"). Choosing "How are you Feeling?" will progress the app to the Symptoms screen, where they can check the symptoms that they are experiencing (Figure 3). Pressing "Back" will take them back to the Profile page; pressing "Continue" will move on to the Organizations screen. The Organizations are split into two categories: "Maybe These Can Help:", showing organizations that specialize in the selected symptoms, and "Other Organizations:", for other nearby organizations (Figure 4). From this page, the user can select an organization, bringing up that organization's information page. Here, users can see additional details, call the organization to schedule a meeting, or get directions to the organization (Figure 5).

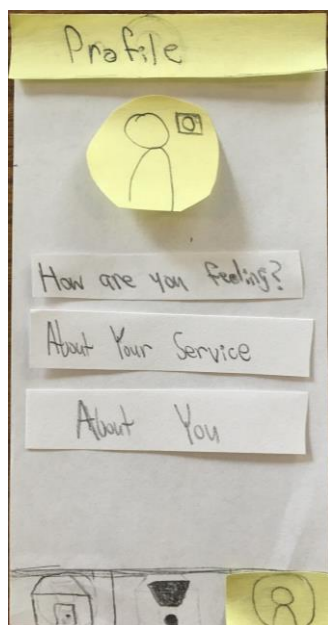


Figure 2: Profile

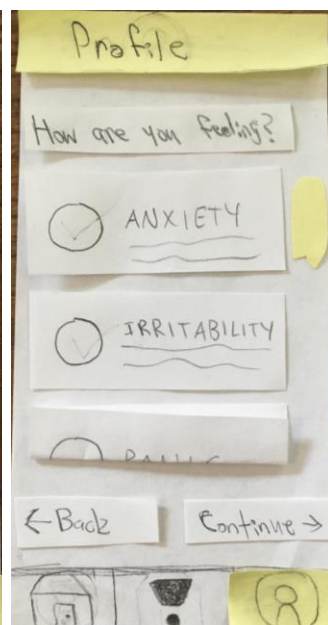


Figure 3: Symptoms

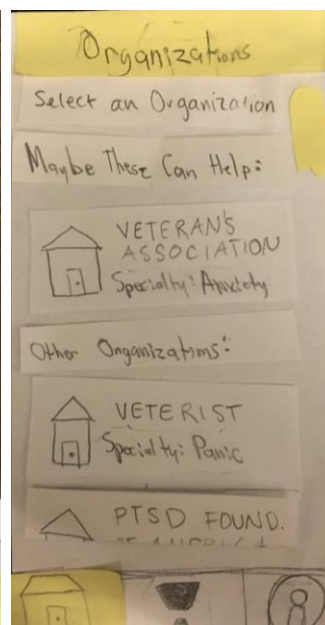


Figure 4: Organizations

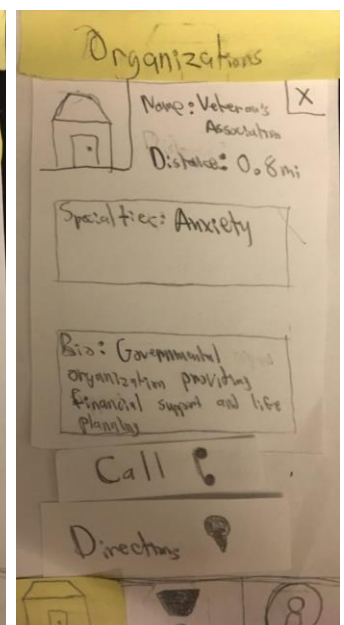


Figure 5: Org Info

Task Two: Getting Veterans On-Demand Support

To get on-demand support, users start at the "Emergency Contacts" page (Figure 6). The page allows users to select either "Professionals" or "Other Veterans" to talk to. Selecting one of these options will bring the user to the list of contacts for that group (Figure 7). From here, the user can select a contact to talk to, either on the phone or over messaging. Doing so brings up the contact's bio, allowing the user to get a better idea of the contact and decide whether to call/message them (Figure 8). After completing the call or message exchange, users will be prompted to rate the contact (Figure 9). This rating will be used to re-order the contacts when the user returns to the Emergency Contacts list: lower-rated users will be moved further down the list, while higher-rated users will move up it.

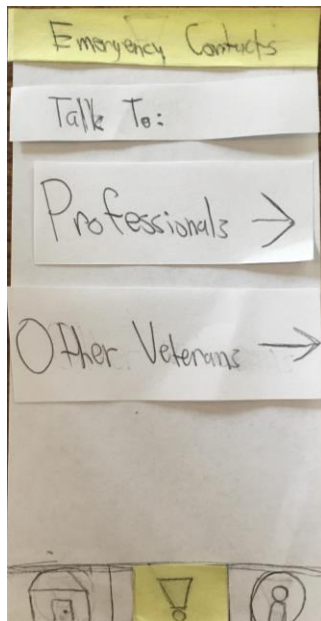


Figure 6: Contact Options

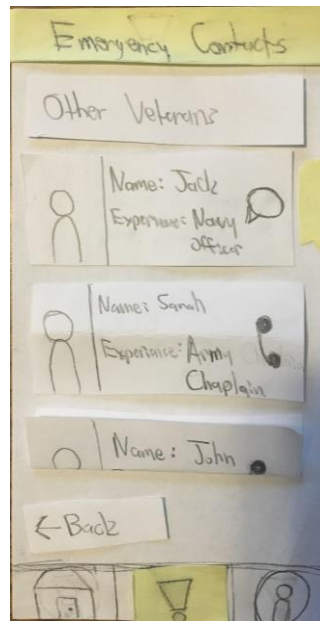


Figure 7: Contacts List

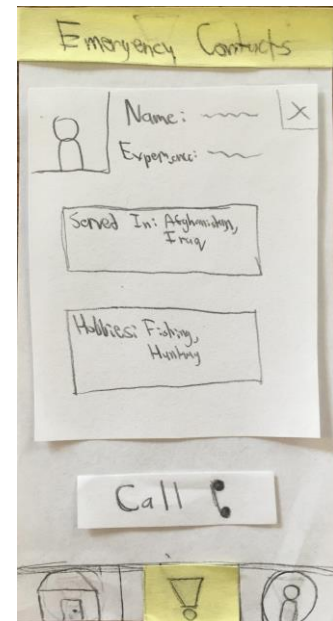


Figure 8: Contact Info

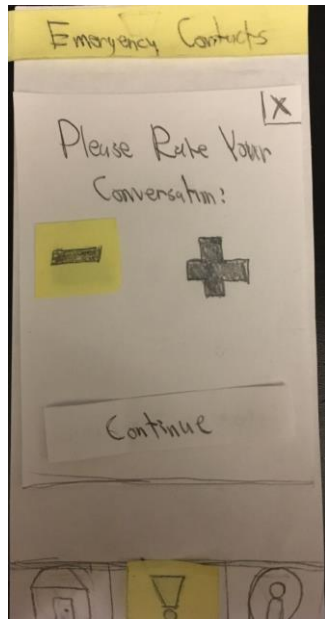


Figure 9: Rating a Contact

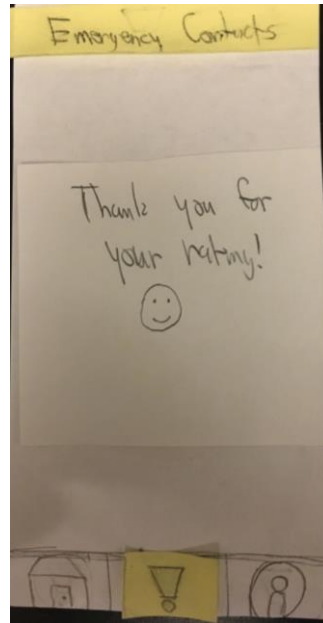


Figure 10: Confirmed Rating

Additional Screens

Figures 11 and 12 display the new profile pages, where users enter information such as their enlistment date, current occupation, and more. Figure 13 shows the Emergency Contact page for Professionals - while it is nearly identical to the one for other veterans, the information displayed on the user buttons themselves and on the info windows (not pictured) are slightly different to reflect the differences between the two groups.

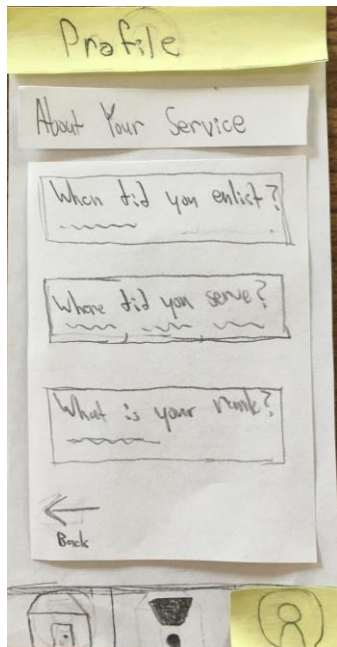


Figure 11: Service info

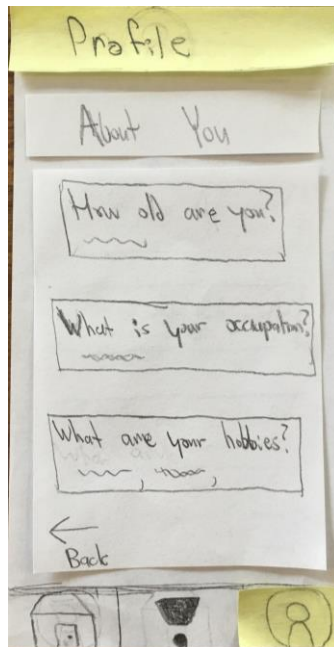


Figure 12: User Info

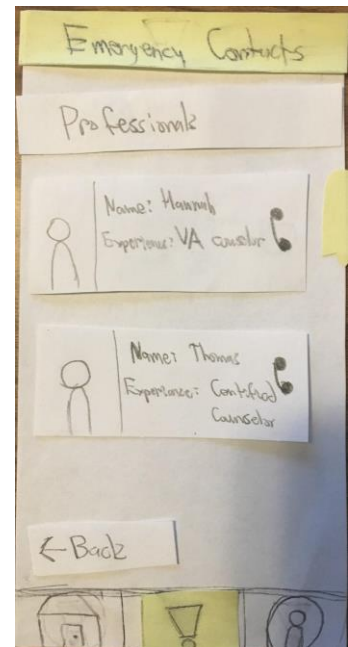
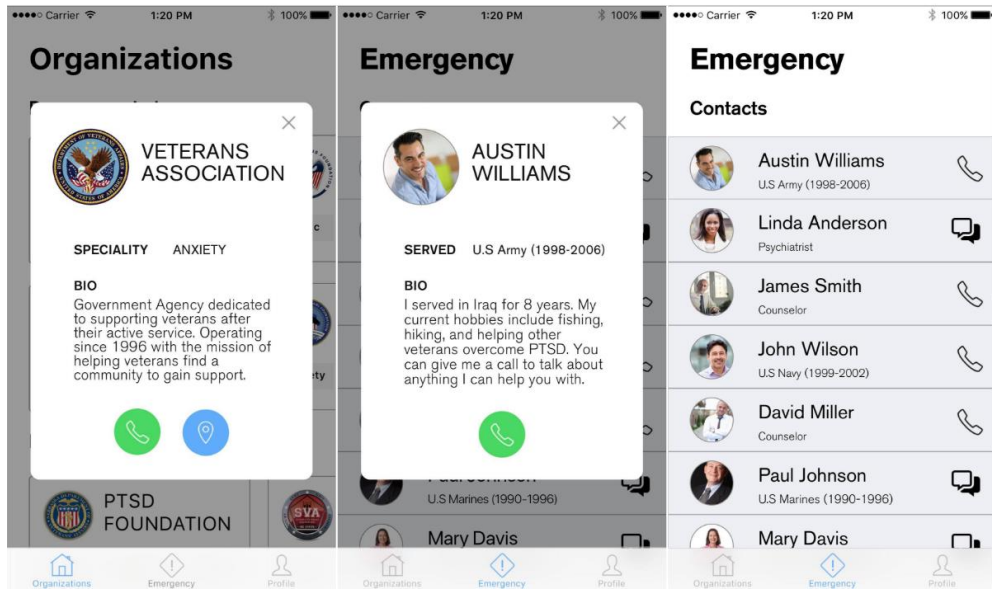
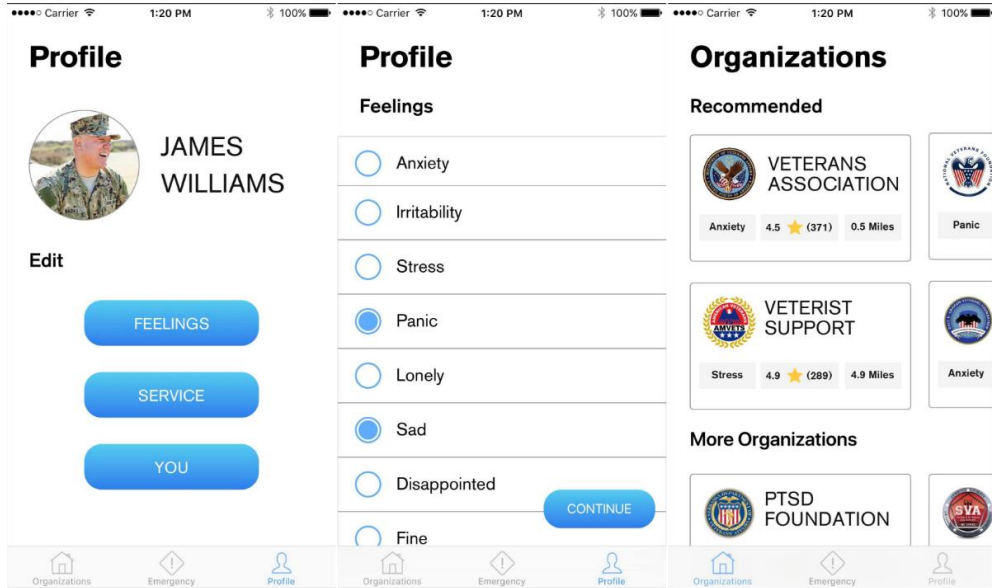


Figure 13: Professionals

Digital Mockup

Overview



Task 1: Matching Veterans with Organizations

For this task, users begin at the main Profile screen (Figure 2). From this screen, tapping on the “Feelings” button will take them to the “Feelings” screen (Figure 3). On the feelings screen, users can select the symptoms that match their current feelings. Pressing the “Continue” button in the bottom right of the screen or the “Organizations” tab on the bottom nav bar will take them to the “Organizations” screen (Figure 4). From here, users are shown two lists of organizations. One list shows organization recommended for them based on the feelings that they checked, while a second list shows other available organizations. Tapping an organization brings up a pop-up of that organization’s information (Figure 5). This information includes the organization’s specialty (in regard to the feelings selected), its bio, and buttons to contact the organization or get directions to it.

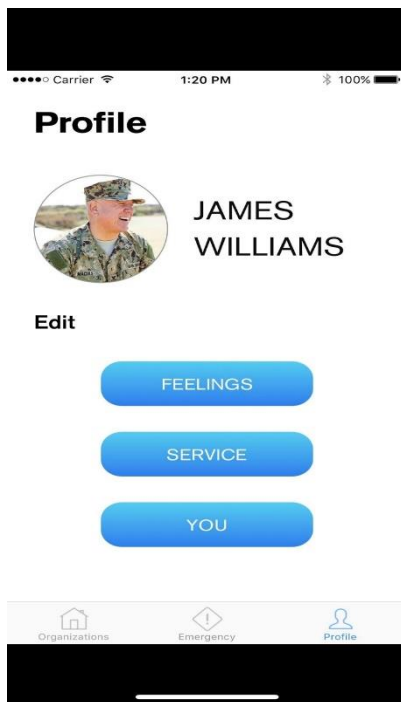


Figure 2: Profile page

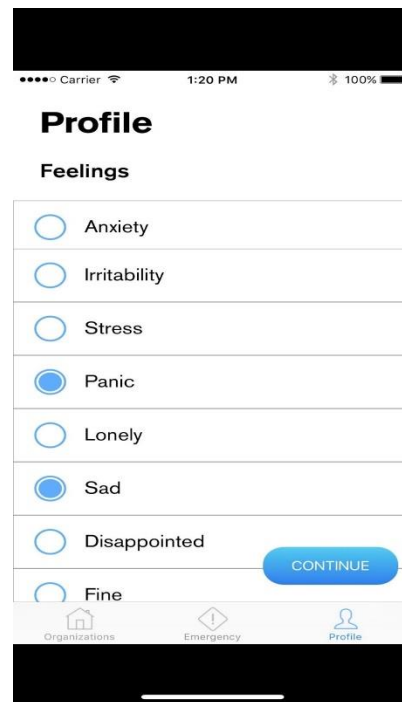


Figure 3: Feelings page

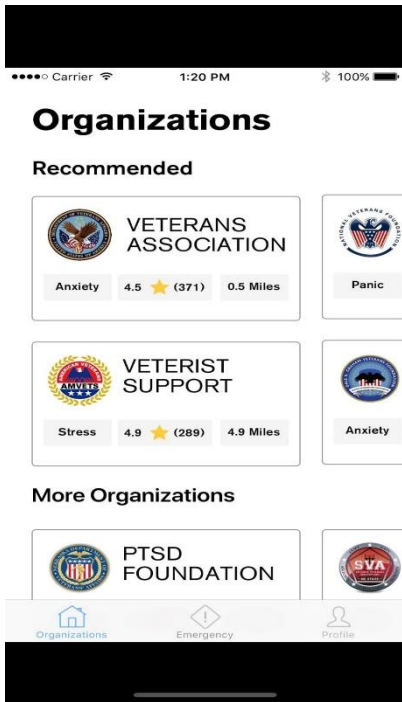


Figure 4: Organizations Page

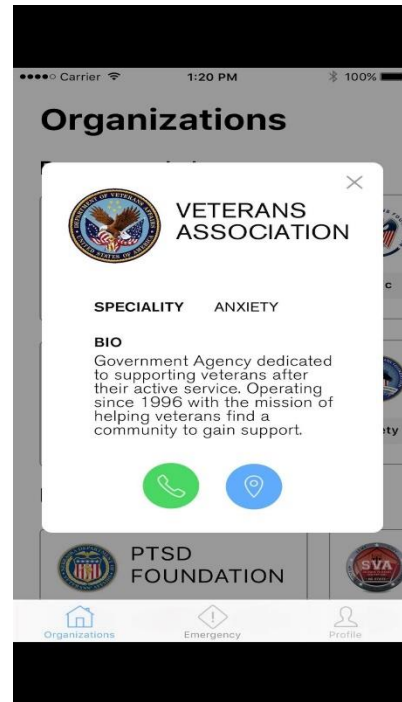


Figure 5: Organizations Bio

Task 2: Getting Veterans On-Demand Support

To start this task, users click on the “Emergency” tab on the main navigation menu. Doing so brings them to the Emergency Contacts, displaying a list of contacts who are available to talk (Figure 7). A brief line of text below the contact identifies them as either a veteran or a mental health professional. Additionally, an icon to the right of the screen indicates whether users can call or message that veteran. Veterans are identified by the branch of the military they served in and their service years; professionals are identified by their job title. Clicking on a contact will display a pop-up containing user information (Figure 8). For veterans, this pop-up contains their name and profile picture, as well as their service record and a brief bio. A button at the bottom of the pop-up will allow users to either call or message the contact, depending on the contact’s preferred communication method.

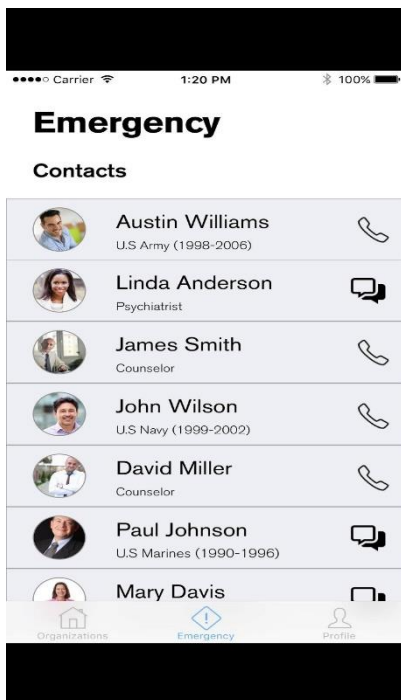


Figure 6: Contacts Screen

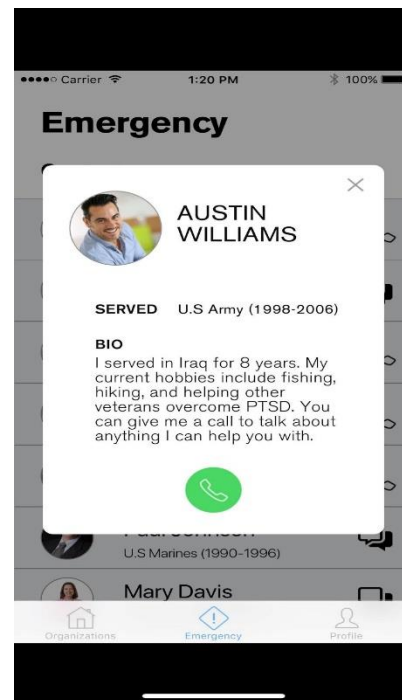


Figure 7: Contact Bio

Changes Made

Things we added

On the bottom bar of our paper prototype, we did not have text under the section icon. For example, under the profile icon, there is now text labeling the icon as "Profile." We added this hoping to make it clear what tapping a given icon would do - especially for first-time users.

Things we removed

We removed the scroll bar on the right of the screen from the organizations page. This was necessary because we changed the scroll to be horizontal rather than vertical. Furthermore, we arranged the layout so that some of the cards would be partially off the screen, which implies the scrolling functionality rather than having a bar.

Things we modified

We changed the order of icons on the bottom bar again, to (from left to right) organizations, emergency, profile. We made this change because in convention, the default option should be the leftmost icon but emergency should not be the default screen. Since the most common use of the app is to find organizations, we decided to make it the default and leftmost icon. We also changed the layout and the text of the organizations page. In terms of text, we changed "recommended organizations" to "recommended" to reduce redundancy. We changed "other organizations" to "more organizations" because this sounds more positive. "Other" sometimes has a negative connotation and we want users to feel inclined to look at all the organizations around, especially since some of the ones that are not necessarily recommended may be in closer proximity. Potentially, we could also change "more organizations" to just "more" to further reduce redundancy if this is still clear enough. We also changed the layout so that the two sections were both in view and users could scroll horizontally through the organizations. This allows both categories to be accessible to the user at the same time and adds another dimension to the flow of the app. Overall, we also removed the header bar because it was redundant with the icons on the bottom bar. Instead of having a bar, we just have page titles. We also think that this looked cleaner. Lastly, in the emergency contacts page, we changed the format to be one list with titles underneath the contacts to distinguish between professionals and other veterans for simplification, rather than having separate sections for the two categories of contacts. Furthermore, this design reflects the typical appearance of a contacts page, which should make the user more immediately recognize the purpose of the page.

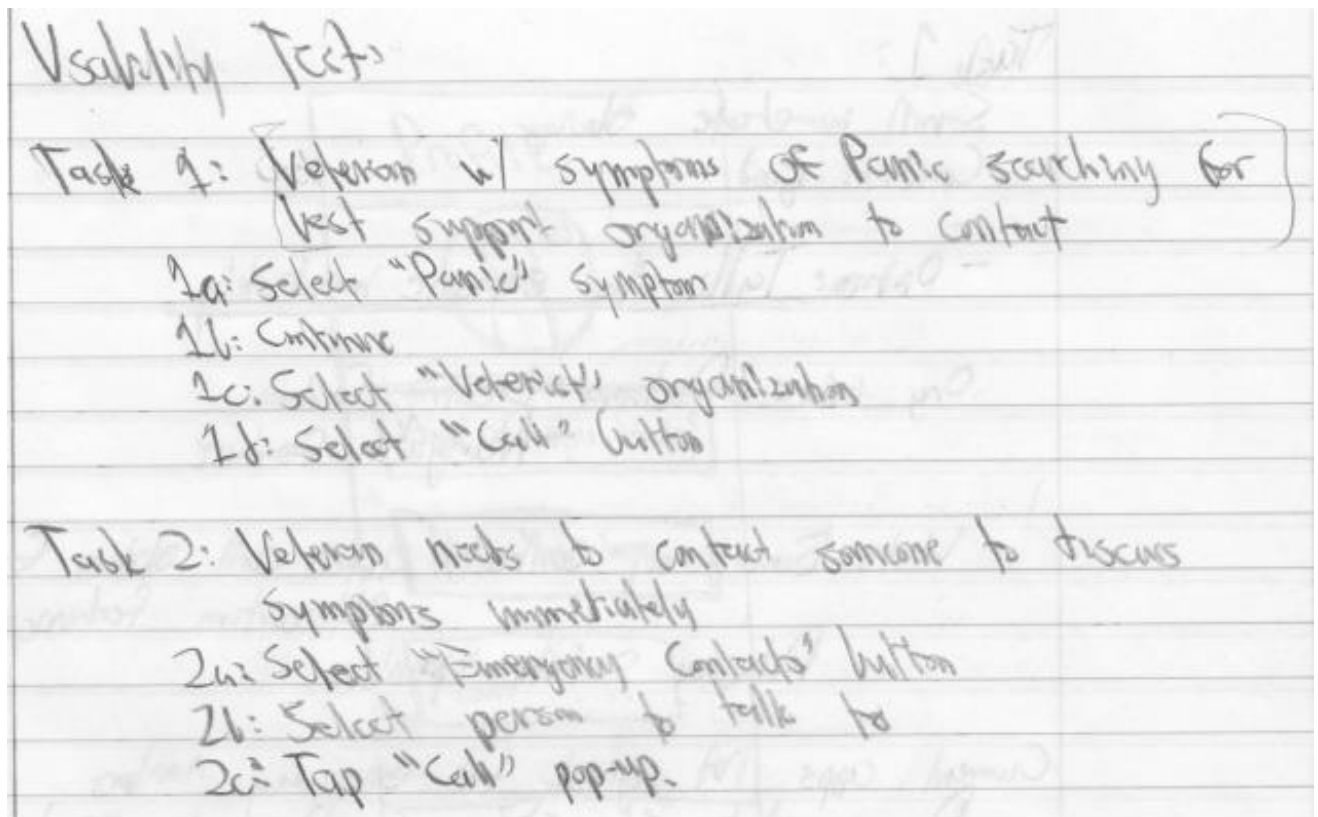
Discussion

Overall, there was a lot to learn through the iterative design process.

- **Improvement:** The first key lesson we learned is that there is always room for improvement. Even by the time we reached our final usability test, we were still receiving feedback that allowed us to improve our design. While such a phenomena would drive us to seek as many opportunities for feedback and iteration as possible, real-world constraints and time limits stop us from being able to collect feedback indefinitely - at some point, we have to make the decision to move on in the process.
- **Finding Users:** As noted above, one of the key challenges we ran into during usability testing was finding the appropriate users for our tests. In particular, this created problems around scheduling, where most of our team was unavailable at the times when we were finally able to find a user to conduct our tests. While we weren't able to make huge improvements on this process during the tests we conducted, the struggles we faced cemented the importance of finding a proper set of users in a timely manner and scheduling time to ensure the best possible test can be conducted.
- **Expectations:** One somewhat unexpected lesson we learned was about people's' expectations. This particularly came up in the design of our scrolling mechanism and implementation of a "Directions" button for organizations. Due to general design phenomena that have formed over the years, people tend to have a fairly consistent set of expectations about certain features. These expectations can impose unexpected constraints on a design - as shifting too far away from them can lead to confusion among users.

Appendix

Testing Information:



The above image shows the tasks that users were prompted to complete, along with a list of expected steps. The expected steps were not revealed to the user, and were used only to give the facilitator an idea of how to provide hints in the event a user got stuck trying to complete a task.

Heuristic Evaluation

Image	Issue	Severity	Revision	Revision Image
	<p>Recognition - no obvious indication of how chosen symptoms affect ordering of organizations</p> <p>Heuristics: Recognition rather than recall</p>	<p>1</p>	<p>Added headers for Recommended Organizations and Other Organizations</p>	
	<p>Ordering of menu tabs seems to indicate a consecutive relationship</p> <p>Heuristics: Visibility of System Status</p>	<p>1</p>	<p>Changed the ordering of menu tabs</p>	
	<p>Scrolling not implemented</p> <p>Heuristics: User control and freedom</p>	<p>3</p>	<p>Added scroll bar</p>	

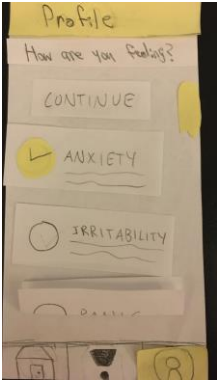
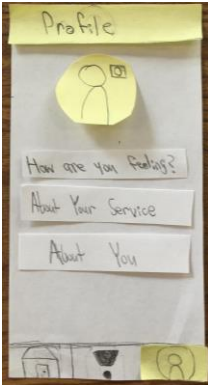
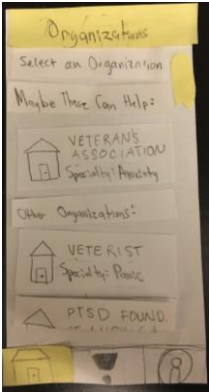
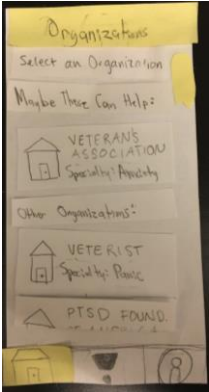
	<p>Emergency contacts were called or messaged without confirmation</p> <p>Heuristics: User control and freedom</p>	<p>3</p>	<p>Added a confirmation pop-up for calling and messaging</p>	
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First Usability Test

Image	Issue	Severity	Revision	Revision Image
	<p>"Select your symptoms" was noted as a potentially unfriendly interface option.</p> <p>Heuristic: Match between system and the real world</p>	<p>1</p>	<p>"Select your symptoms" header changed to "How are you feeling?"</p>	
	<p>Scrolling on all menus was unintuitive</p> <p>Heuristic: Match between system and the real world</p>	<p>3</p>	<p>Changed scrolling - the last option on the screen now appears cut off, indicating that scrolling will reveal more options.</p>	

	<p>“Recommended Organizations” does not imply what they are recommended for.</p> <p>Heuristic: Visibility of System Status</p>	<p>2</p>	<p>Header changed to “Maybe these can help:”</p>	
	<p>Requested an added feature showing directions to the organization</p>	<p>3</p>	<p>Added a “Directions” button which will use a Maps application to show the user directions to the organization</p>	
	<p>Menu tabs in undesired order - recommendation was to move the “Emergency Contacts” tab to the middle</p>	<p>1</p>	<p>Changed the ordering of menu tabs</p>	


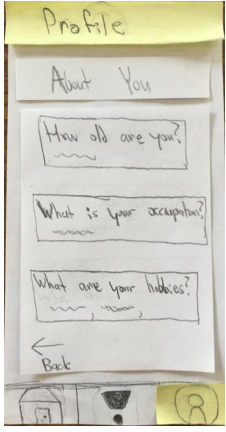
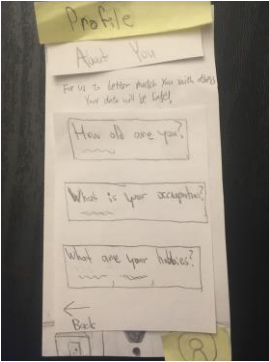
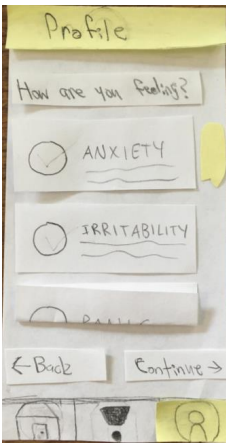
Second Usability Test

Image	Issue	Severity	Revision	Revision Image
	<p>User thought that the profile page should have more information beyond just symptoms.</p>	<p>3</p>	<p>Revised the profile screen, adding tabs for information about the user.</p>	
	<p>User noted that the new scrolling interface was immediately obvious</p>	<p>NA</p>	<p>NA</p>	<p>NA</p>
	<p>User liked the ordering of organizations by specialties</p>	<p>NA</p>	<p>NA</p>	<p>NA</p>

	<p>Requested an added feature showing directions to the organization</p>	<p>3</p>	<p>Added a "Directions" button which will use a Maps application to show the user directions to the organization</p>	
<p>NA</p>	<p>User suggested a feature showing organization's accepted health care plans</p>	<p>1</p>	<p>Revision was determined low priority and left unimplemented.</p>	<p>NA</p>
<p>NA</p>	<p>User suggested a feature discussing options to mitigate symptoms between calling an organization and going to an appointment.</p>	<p>1</p>	<p>Revision was determined low priority and left unimplemented.</p>	<p>NA</p>

	<p>User wanted / expected to see a bio for Emergency Contacts before talking to them</p>	<p>2</p>	<p>Added a Bio screen for emergency contacts akin to organization screens.</p>	
	<p>User was interested in separating Emergency Contacts by professionals vs. other users</p>	<p>3</p>	<p>Added a screen in the "Emergency Contacts" page to separate contacts between professionals and other veterans.</p>	
<p>NA</p>	<p>User thought that some strong symptoms should prompt a "Talk to someone immediately" pop-up</p>	<p>1</p>	<p>Revision was determined low priority and left unimplemented.</p>	<p>NA</p>

Third Usability Test

Image	Issue	Severity	Revision	Revision Image
	<p>User thought the "About You" counter-intuitive and should be "About Me"</p>	<p>1</p>	<p>Whether to change the wording requires further discussion, testing, and consideration of consistency</p>	<p>NA</p>
	<p>User thought the reasons for asking hobbies unclear</p>	<p>2</p>	<p>Added a sentence stating our purpose, which is to better understand them and match them with resources that can help them. Also added a sentence to address the privacy issue.</p>	
	<p>User thought all the feelings are negative and wondered what to choose if they were feeling good</p>	<p>2</p>	<p>Whether to provide more options requires further testing and contemplation on the purpose of our application</p>	<p>NA</p>

	<p>User was not able to go back at this page</p>	<p>2</p>	<p>Added a floating "back" button at the bottom right</p>	<p>NA</p>
	<p>User wished to be able to see past records with a specific contact person</p>	<p>1</p>	<p>Whether to add this feature at this page or previous page requires further discussion</p>	<p>NA</p>
	<p>User thought the rating process out of place and was redundant</p>	<p>2</p>	<p>Whether to keep this feature requires further discussion</p>	<p>NA</p>