

# **MedShare Donation Locator Application Test**

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MEDSHARE DONATION LOCATOR APPLICATION TEST REPORT  
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## MEDSHARE DONATION LOCATOR APPLICATION TEST REPORT

### Introduction

The MedShare Donation Barrel Locator Application is an attempt at streamlining the donation process between hospitals and MedShare. This application will display the location of donation barrels to hospital staff, as well as information on the barrel itself, valid donation supplies, MedShare contacts, and other relevant information to the donation process.

A user test is a task based evaluation of a product, used to test the user interface. It helps the designers ensure that this application is intuitive and usable for their target audience. Each user is asked to complete certain tasks while the design team observes and takes note. Each test is also recorded and analyzed to determine areas of the interface that need work to become as intuitive as desired.

The members of the Team #1 Design Group conducted five user tests, each member leading one while another member took notes. Each user was given a laptop with a prototype of the application displayed using Adobe XD. The screen and the audio of the conversation were recorded, with the user's consent. The spokesman gave the user six successive tasks to complete using the prototype. The recording and the note taker recorded the user's thought process, likes, dislikes, navigational choices, and overall thoughts.

### Executive Summary

The user tests were conducted on Wednesday, October 26th and Friday, October 28th on Georgia Institute of Technology's campus. They were conducted using a high fidelity prototype in order to discover any flaws or misconceptions in the usability of the application. Five individuals from Georgia Tech participated in the user tests. Each test session was estimated to last approximately 20 minutes. Each user was asked to complete the same 6 tasks.

Overall the participants found the MedShare Donation Locator Application to be intuitive and easy to use. However, participants also found problems with signifiers and expected actions detailed below:

- Unexpected action to take a picture of a full barrel
- Lack of a signifier to click on each individual barrel to find more information
- Lack of a signifier to call a contact from the Contacts page
- Lack of a signifier to email a contact from the Contacts page
- Unable to update a contact
- Unable to view individuals contacts

This document contains details of how the test sessions were conducted, the participants' feedback, task completion rates and times, errors, and recommendations for improvement. A copy of the tasks, demographic questionnaire, and consent form is included in the Attachments section.

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### Methodology

#### Sessions

Participants used in these user tests were acquaintances of the members of Team #1 Design Group. The participants were contacted through text messages and social media for details regarding the locations and times for the user tests. Overall, the average time to complete a session was ten minutes. At the beginning of each session, the moderator began by introducing the product and explaining MedShare's donation process. The participants were informed that the screen used to display the prototype and the audio of their conversation would be recorded throughout the tests. Each person then signed a consent form provided and also filled out a demographic form (see Attachment A).

After filling out these forms, participants were asked to look at the home page of the application. They were asked to talk about their initial impressions of the application, what they thought they could do from that page, and what they believed the application was for in general. Next, the testers were given six tasks to complete. Upon completing a task, each participant was asked if what occurred matched what they expected. Testers were prompted to provide feedback during and after each task about what they thought was intuitive or confusing. Once the final task was completed in the tests, the participants were asked to expand upon what tasks they thought were difficult. Similarly, they were also prompted to provide recommendations on what they thought could be done to improve the application.

#### Participants

Five participants completed the user test with the prototype over two days. Two of the five participants were involved in the testing on Wednesday, October 26th and the other three on Friday, October 28th. All five of the participants were undergraduate students at the Georgia Institute of Technology with experience working or volunteering in a hospital and on the pre-Med academic track. Four of the participants were female and one was male.

Table 1. Demographics of Participants

Date Tested	Gender	Age/School Year	Nationality/Ethnicity	Degree	Pre-Med? (Y/N)	Volunteered/Worked in a Hospital? (Y/N)
10/26/2016	Female	20/ Junior	Asian/ Indian	Biochemistry	Y	Y
10/26/2016	Female	20/ Junior	American	Biology	Y	Y
10/28/2016	Female	21/ Senior	White American	Biomedical Engineer	Y for first two years of college	Y

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10/28/2016	Female	19/ Sophomore	White	Biology	Y	Y
10/28/2016	Male	20/ Junior	United States	Biochemistry	Y	Y

### Evaluation of Tasks

The tasks were created by the members of Team #1 Design Group. Tasks and questions were decided upon based on what the design team believed would indicate ease of use. There were two user groups: hospital staff and MedShare employees. The tasks were designed to incorporate both groups. First, the participants were asked to consider themselves a hospital employee and to perform the following tasks:

- Find a barrel
- Report barrel full
- Look up contact info and send an email/make a call

After attempting these tasks, participants were asked to consider themselves a MedShare employee and given the following tasks:

- Login as a MedShare employee
- Add new barrel
- Update contact information

## Results

### Task Completion Success Rate

All of the participants were able to successfully complete Task 3 (look up contact info) and Task 5 (add new barrel). Four of the five were able to complete Task 1 (find a barrel), Task 2 (report barrel full), and Task 4 (login as employee). None of the participants were able to complete Task 6 which required them to update an employee's contact information, but the prototype did not have that capability at that point.

Table 2. Task Completion Rates

User Test	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6
1	X	X	X	X	X	-
2	X	X	X	-	X	-
3	X	-	X	X	X	-
4	-	X	X	X	X	-
5	X	X	X	X	X	-
<b>Success</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>4</b>	<b>5</b>	<b>0</b>
<b>Completion Rates</b>	<b>80%</b>	<b>80%</b>	<b>100%</b>	<b>80%</b>	<b>100%</b>	<b>0%</b>

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### ***Ease in Finding Information***

The participant's ease in finding information was determined by the length of time it took to find the information as well as the number of errors on the way. The participants all found it easy to find information on a barrel in their hospital. One user had trouble locating information on a specific barrel by inputting that barrel's number, but that user quickly decided to search for that barrel in the list and was able to locate it. Users also found it easy to locate contact information. Even when a user did not maneuver directly to the contact tab, they found their way there in a matter of seconds.

### ***Keeping Track of Location in Site***

A participant's ease of tracking their location was determined by listening to the tone of voice of our participants and watching how often they quickly and confidently they navigated the screen. The participants found it easy to keep track of their location in the application while searching for a barrel. Similarly, users found it easy to track their location while adding a barrel as a MedShare employee. Participants had less success tracking their location when trying to contact a MedShare employee. They were not expecting to be able to call by clicking on a contact on the page. Two users also struggled to keep track of their location while trying to log in as a MedShare employee. Users did not find it easy to keep track of their location while reporting a barrel full.

### ***Predicting Information Section***

The ease of predicting information was determined by the tone of voice a user had when discussing their actions and the speed and accuracy of the user's movements on the screen. Participants found it easy to predict where they would need to go to contact a MedShare employee and how to find the barrel closest to them. Conversely, users found it hard to predict where to sign in as a MedShare employee. However, they were successful at predicting where they would go to add a barrel as a MedShare employee after completing the task of logging in. Some participants also struggled to predict where they would go to report a barrel full given the number on a barrel.

### **Time on Task**

The design team decided to calculate time completed on each task by the time between the last word spoken that contained the initial instructions for the test, and the last click that completed the action correctly. The following table depicts this data, with outliers highlighted in red.

The average time on these tasks indicates that some were more easy than others to complete (mean 31.12 seconds). Task 6 was unable to be completed. The recommendations section addresses this issue. Most tasks took less than a half a minute, while the longest times were greater than 40 seconds.

Table 3. Time on Task

User Test	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6
1	:24	1:40	:59	:12	:19	-
2	:23	:43	:15	:34	:11	-
3	:27	:50	:13	1:12	:12	-

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<b>4</b>	<b>:36</b>	<b>:10</b>	:22	:23	<b>:25</b>	-
<b>5</b>	<b>:16</b>	:35	:19	<b>1:01</b>	<b>:06</b>	-
<b>Average</b>	<b>:25.2</b>	<b>:47.6</b>	<b>:25.6</b>	<b>:40.2</b>	<b>:17</b>	

### Errors

The table below displays the number of errors that were made during each user test for each task. Ben LaForge captured the errors of user test 1, Jessica Hoffman for user test 2, Conor Fitzpatrick for user test 3, Hank Cohen for user test 4, and John Hudgins for user test 5. The task that resulted with the most errors was Task 4: Logging in as a MedShare employee. Users found it difficult to locate the login link and thus made several errors attempting to locate it.

Table 4. Errors

User Test	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6
<b>1</b>	0	0	6	3	0	-
<b>2</b>	1	1	1	5	0	-
<b>3</b>	0	2	0	4	0	-
<b>4</b>	3	0	1	3	1	-
<b>5</b>	0	2	1	5	0	-
<b>Average</b>	<b>0.8</b>	<b>0.8</b>	<b>1.8</b>	<b>4</b>	<b>0.2</b>	-

### Summary of Data

The table below displays a summary of the test user testing data, with the highest values highlighted in red.

Table 5. Summary of Data

Task	Completion	Errors	Time
1	4	4	:25.2
2	4	5	<b>:47.6</b>
3	<b>5</b>	9	:25.6
4	4	<b>20</b>	:40.2
5	<b>5</b>	1	:17
6	0	-	-

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### Overall Metrics

Overall the ability for users to track their location in the application was the worst variable. Users were able to track their location within the basic application, but were confused when the application used outside features like camera, phone, and email. Users greatly appreciated the predictability and simplicity of the application. Actions were simple and led to predictable screens.

### Liked Most

- Users liked taking a picture of a full barrel, as it would communicate effectively.
- Users liked the option of contacting MedShare employees through phone or email.
- Users liked the focus on locating barrel locations as well as the manner of looking up barrels.

### Liked Least

- Users did not like that the Contact page was the location to make a call or email.
- Users did not like that the login was hidden at the bottom of the Contacts page.
- Users did not like the monotone appearance of the application.
- Users did not like the symbols chosen for the page navigation.

### Recommendations for Improvement

- Users suggested that the team change the location of the login link because participants were unable to find it. Put in a place with more easy access.
- Users suggested that the team put a picture or the name of a wing where the barrel is located so someone new would be able to find it.
- Users suggested that the team make employee information editable because it was not editable at the time the tests took place.
- Users suggested that the team make the home page tab the one to the far left because the participants thought the "About" page was the home page.
- Users suggested that the team change "Find Barrel" or "Add Barrel" Buttons from gray because they currently look unclickable.
- Users suggested that the team make profile pages for each employee.

## Recommendations

The recommendations section provides recommended changes and justifications driven by the participant success rate, behaviors, and comments. Each recommendation includes a severity rating. The following recommendations will improve the overall ease of use and address the areas where participants experienced problems or found the interface/information architecture unclear.



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Table 6. Recommendations for Locating a Donation Barrel (Task 1)

Task 1 required participants to locate a donation barrel within Emory Hospital

<b>Change</b>	<b>Justification</b>	<b>Severity</b>
Add signifier to indicate individual barrels can be clicked for more information	Participants did not realize that the barrels in a list could be clicked.  They were not able get extra useful information about the barrel.	Low

Table 7. Recommendations for Reporting a Barrel Full (Task 2)

Task 2 required participants to report Barrel 1234 as being full

<b>Change</b>	<b>Justification</b>	<b>Severity</b>
Add a signifier to indicate that users take a picture after clicking "Report Barrel Full"	Participants were not expecting to be required to take a picture when reporting a barrel full using the "Report Barrel Full" button.  Adding a signifier such as a camera icon will make this more intuitive.	Low
Update barrel information that barrel is full after submitting the picture.	This will provide more feedback to the user that they have reported the barrel full and prevent confusion on whether the barrel was successfully reported full.  This will also prevent other users from submitting a full barrel report as well.	Low

Table 8. Recommendations for Contacting a MedShare Employee (Task 3)

Task 3 required participants to contact a MedShare employee

<b>Change</b>	<b>Justification</b>	<b>Severity</b>
Add pages for each individual contact	Users expected to be taken to individual pages for each contact.  Prevent accidental calling or emailing employees when users accidentally press the respective links.	Medium

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Table 9. Recommendations for Logging in as a MedShare employee (Task 4)

Task 4 required participants to log in as a MedShare employee

<b>Change</b>	<b>Justification</b>	<b>Severity</b>
Make the home page the far left tab	Users were expecting the home page to be the first tab on the left.	High
Make profile pages for each employee.	This allows administrators to update their personal information.  A profile page will store a personal log for that user that keeps track of all changes they make.	Medium

Table 10. Recommendations for Updating Contact Information (Task 6)

Task 6 required participants to update the contact information of a MedShare employee

<b>Change</b>	<b>Justification</b>	<b>Severity</b>
Make employee information editable	Due to the fact that this task was unable to be completed, this must be the highest priority when improving the prototype. It is a key function in the application.	High

### Conclusion

The users all found that the application allowed them to easily complete the tasks asked of them. The users also explained that there could be a more intuitive and aesthetic design. Taking their recommendations and feedback into consideration will ensure this application remains functional and becomes more user-centric.

### Attachments

Attachment A

[https://docs.google.com/document/d/1MPIQnoajYUaTYGGbrJsMmf\\_ySb6lhuP-ntCRJ2HVUY5Y/edit?usp=sharing](https://docs.google.com/document/d/1MPIQnoajYUaTYGGbrJsMmf_ySb6lhuP-ntCRJ2HVUY5Y/edit?usp=sharing)