
Redesigning A Mobile Experience Through Rapid Prototyping

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Abstract

UPDATED—10 March 2017.

We came across a poor mobile experience while using a website of a local nonprofit. By using low-fidelity prototypes and replicating them on a mobile application, we tested out possible design solutions. After multiple iterations, we came up with a final prototype and benchmarked it against the old interface. We saw a significant reduction in the time taken by users to complete common tasks. We plan to recommend the changes to the nonprofit and work with them to improve their interface.

Author Keywords

Prototyping; User Evaluation; TCSD; responsive design

Introduction

Breast cancer `represents about 12% of all new cancer cases and 25% of all cancers in women' (World Cancer Research, 2017). It is extremely important for women to have regular checkups and be aware of breast cancer symptoms and issues. Through our design project, we examined the internet presence of a Local non-profit breast cancer foundation. The Susan G. Komen cancer organization was founded in 1982 and has a goal of reducing the current number of breast cancer deaths by 50% in the U.S. by 2016 (Susan G. Komen, 2017).

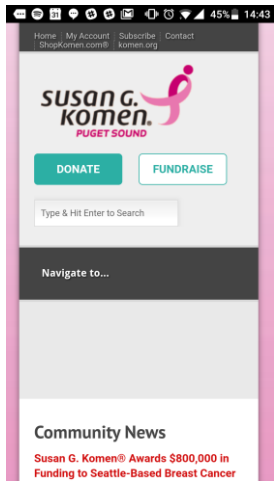


Image: The original interface.

We examined the desktop and mobile presence of the organization website for the Puget sound chapter and tied them to how well they fulfill user requirements. We used a task-centered system design approach (Greenberg, 2004) and used semi-structured interviews with stakeholders, personas, and scenarios to guide our inquiry.

Our primary focus is on the mobile website experience. This is for a few reasons. Mobile is increasingly becoming the primary mode of access to the internet and `majority of digital media consumption now takes place in mobile apps' (Perez). Considering the busy lifestyle of our target user population, we thought that the mobile interface would provide maximum value to the organization.

We imagined a thorough mobile experience for the users. Through a comprehensive mobile experience, busy women, our primary target group would be able to donate, volunteer, get information and engage with the organization through its events. We think that a rich and unambiguous mobile experience of the Susan G. Komen website would lead to more breast cancer awareness, donations, and participation from the users, thus creating a vibrant user community that is deeply concerned with breast cancer issues.

Further, we plan to present our findings to the Digital communications team at Susan G. Komen Puget Sound to help their app improvement process.

In order to understand how the user journey with Susan G. Komen's website interface affects one's willingness to donate and other tasks. We chose two participants to do a 30 minutes interview with us, the first participant is a 35-year-old female who fits Komen Puget Sound's target audience and the second participant is a 26-year-old female whose family member had breast cancer before.

We conducted interviews with managers and users. After consulting Susan G. Komen's Digital Communications Manager, and based on the impressions from our user interviews, we narrowed down to 4 tasks that the users expect from the mobile interface at a minimum. The users expect these tasks to be straightforward and easy to use. We dive into the list of functional tasks that were the main focus of our interface design.

List of Functional Requirements

Our discussion with the Digital Communications Manager and actual users helped us to narrow down the more basic functions that a user expects from the breast cancer foundation website. We list the tasks in the following section.

Task 1: Donation

Scenario: You have attended Susan G. Komen's event before. Now, you want to give back and support those affected by breast cancer by donating \$50 to Susan G. Komen. This is your first donation through the mobile interface.

Requirement: The donate page shall be designed in a "How You Can Help" section and narrow the giving options down to a simple tab structure. The donate page shall contain navigation functionality to easily go to the main menu and go back. In order to have a clear user flow, the user interface design shall break up the complex donation process into simple chunks. In addition, our Call-To-Action bottom shall be as clear as possible to ensure visitors are clear about their next action.

Task 2: Breast Cancer Info

Scenario: One of your family members was diagnosed with breast cancer recently. You have heard of Susan G. Komen, the breast cancer non-profit organization, however, you have never used their website before. Now, you want to find some information about "breast cancer types" to provide useful information for your family member. Further, you also want to increase your awareness about breast cancer and its prevention in general.

Requirement: To have good sense in searching for breast cancer information, the user interface shall have clear user navigation in order to provide great user experience with smooth and easy use flow for reading. The breast cancer info page shall have less copywriting and instead have a concise message or bullet points, also add some pictures and video so that our audience can easily understand the content and engage with the brand.

Task 3: Upcoming Events

Scenario: You lead an active and healthy lifestyle and are aware of breast cancer issues. You hear about a local non-profit, and want to take part in their 5k run that is about to happen soon. You want to find out details and register for the event.

Requirement: The mobile interface shall have an easily accessible upcoming events page through which users are able to search events that are to be organized in the future. The users shall be able to add these events to their calendars, see which of their friends are attending, and also be able to browse through old archived events.

Task 4: Get Involved - Volunteer

Scenario: You are passionate about the cause of breast cancer. Your close friend suffers from the disease and you want to engage actively in

volunteering opportunities in the neighborhood. You find out about Susan G. Komen, a local nonprofit that works in this field and want to enroll yourself for volunteering opportunities.

Requirement: The interface shall have a clear way of soliciting volunteers that help organize events, awareness camps etc.

Evaluation

Prototyping is a quick and easy method that helps us to visualize our main tasks and test ideas and concepts. We created a sketch user flow to clarify the roadmap users go through under different situations and discussed the layout of the interface. Next, we started drawing the homepage interface and other interfaces that allow our user to perform 4 particular tasks. As we work through our user journey, we draw up all single steps, screens and screen elements, and some call-to-action bottoms, for example, check box, search bar, menu bar, etc. These later ended up being laid out in a flow scenario, in which our potential user is going to navigate. Every single UI element and control has a simple icon and clear navigation. After a few dry runs and adjustments in several places, the components work fluently in a self-explanatory way.

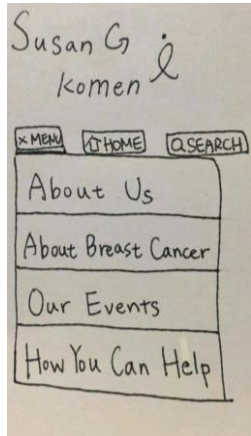


Image: Our low-fidelity prototype screens.

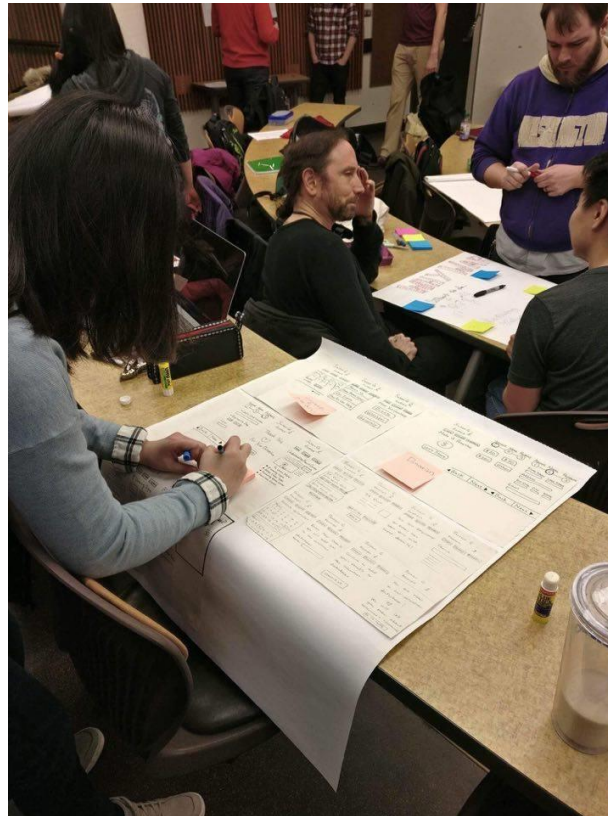


Image: Our final prototype screens laid out on presentation day.

We designed 4 scenarios to evaluate users' interactions with our prototype. First, we took pictures of the paper prototypes via Marvel application platform, then we cropped and exported our paper photos to screen sizes so that we can create screens that perfectly fit the iPhone/Android mobile devices. Next, we linked all the call-to-action bottoms, such as menu, home, next, back and etc. to the page we want to present. All the three testers told us that they feel like they were using a real

digital app. Marvel application provides the opportunity to turn our sketches, mockups, and designs into mobile app prototypes. Moreover, it helps us to achieve our design goal, which is to improve the following main tasks: 1. Donation 2. Breast cancer information 3. Upcoming Events 4. Get involved.

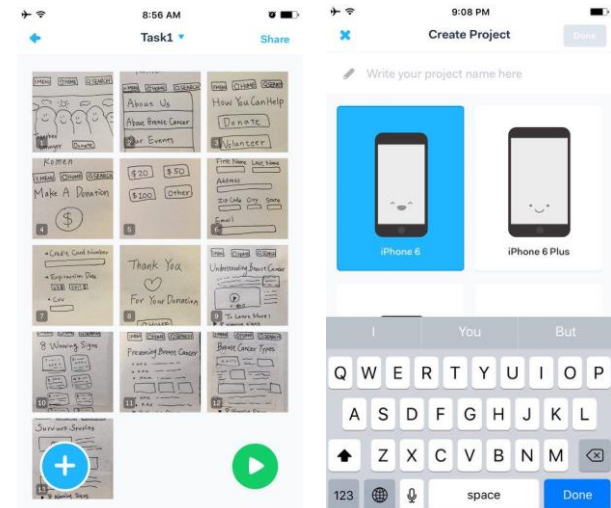


Image: We took pictures of the paper prototypes and cropped and exported our paper photos to screen sizes via Marvel app.

We set two measurements while we were doing the usability test. First, we measured the amount of time it takes for a user to complete a task by screen recording the process. To do that, we used a screen recorder application to document the process while we were doing the usability testing. Second, we collected users' comments and feedback through some questions to learn about their opinions and feelings toward the interface by using the same application with its audio feature.

Overall, the prototype guides the 3 testers to complete 4 tasks on the right track with a high satisfaction level.

In addition, they completed the assigned tasks in a short time as we expected without assistance, which indicates that the interfaces convey clear instructions to users. On the other hand, we also got some great feedback from our testers. Some of the testers suggested we could provide different roles to engage with the organization in the volunteer section, so people would have options to choose how they can help and what they can help. One of the testers suggested that we can add a sidebar on the left side to put on more categories, so users can learn and discover more. In the donation section, one tester suggested we can highlight the amount of checkbox when we click on it, so users would have a clear picture and concise memory how much they want to donate. One tester suggested we can add receipt function, so when people have completed the donation task, the system will send a receipt to the user's email or provide options for users to print it out immediately.



Image: Screen and audio recording while doing the usability test.

We tested our prototypes in a cafe. One member of our team took note-taking responsibility while the other guided the users and assisted them with their queries. The interaction first unfolded with explaining the scenario and the task expectation to the user. After

making the task clear, the users started working their way around the interface, asking clarifying questions as and when they occurred in their mind. We helped them with their queries and provided the minimal support they needed to complete the tasks.

The prototype solved some of the original issues with the design and improved the overall experience of the product. We developed the prototype looking at inspiration from various other applications that try to achieve similar results. We saw mobile websites of other nonprofits and identified design shortcomings in the original website. We started sketching our interface design and connecting the various screens into a coherent flow. Then we updated the screen on a mobile application "Marvel" which allowed a real-time interaction by creating hotspots and linking together the various screens. We added all our functional requirements to the paper prototypes and fed it into the application.

Through the main menu of the application, the users could jump into either of the functional tasks that were decided upon discussion with the stakeholders. For example, if a user wants to find more about breast cancer, the "About Breast Cancer" is the second button in the main menu, right below "About Us". Thus, menu items which were previously 3-4 levels deep were brought to the surface of the interface.

The prototyping application with the screen recording, which also recorded the touch points on the screen and the audio recording, gave us very rich data to evaluate the effectiveness of our design. We compared the time required to completed the same tasks on the old and the new interface and we found significant improvement in time and the number of clicks required to perform a task.

With the new interface design, it takes 6 clicks and 27 seconds to finish Task 1 on average. It takes 3 clicks

and 12 seconds to finish task 2 on average. It takes 5 clicks and 22 seconds to finish task 3 on average. It takes 4 clicks and 18 seconds to finish task 4 on average.

In comparison, to perform the same tasks, it took users nearly twice the time when they use the existing interface. (N = 3)

We could have conducted more wide scale testing to strengthen our initial suspicion about the poor interface design but given the time constraints, we tested our prototype with 3 users.

The next section reflects on the use of envisioning cards for the design process.

Envisioning Cards

We selected the following envisioning cards for our work: 'Choose Desired Values' and 'Work of the Future'.

1. Choose Desired Values

This card causes us to reflect upon the core desired values that we want our design to address. We explored implicated values in System Design (Friedman, Kahn & Borning, 2006) and chose the following core desired values:

1. Human Welfare: Users must be able to contribute effectively and learn from the breast cancer community.
2. Calmness: Users and stressed cancer patients should be able to use the system without any annoyances.

Our design process resonates with this Envisioning Card criteria as the main objective was to make the user

experience seamless and help them perform the most common tasks with ease.

2. Work of the future

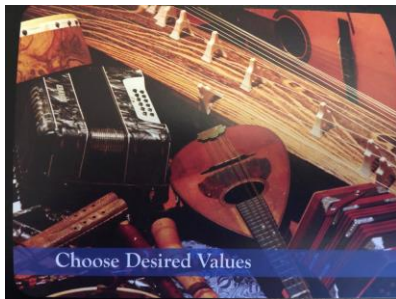
This card caused us to reflect on futuristic use cases that our design might have to address. We thought about using hospital integration and a tie up with insurance companies to send tailored information to patients suffering from breast cancer.

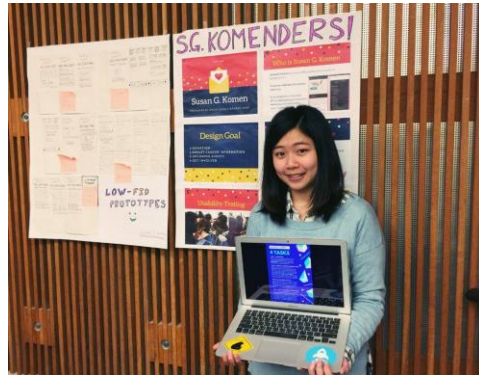
Conclusion

We started our design process by gathering input from the different stakeholders. From these inputs, we created scenarios and a persona to guide our inquiry process. We then ideated potential solutions and chose the ones that we thought were the best. These solutions were converted into paper prototypes and then transferred onto a prototyping mobile application for user testing. The prototypes were put to test and the user feedback was assimilated in a tight feedback loop which was made possible due to the low effort required to update the paper prototype and the corresponding screen in the prototyping application. The testing was recorded on the mobile devices in a very high detail.

We presented the final prototype at the design fair at the end of our class. The users could try out the tasks on their own and see the recorded videos of our user evaluation sessions.

Our evaluation provided a concrete outcome which can be passed along to the nonprofit organization for further test and conversion into a high-fidelity application.





Citations

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Appendix A

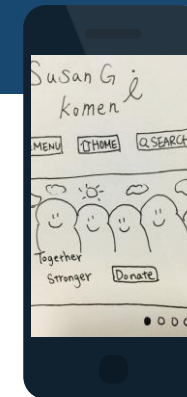
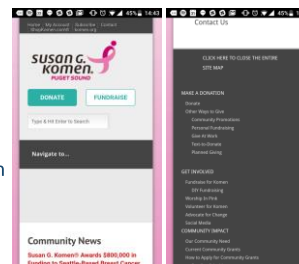
Presentation Slides



Susan G. Komen is a non-profit organization focuses on breast cancer.

Problems with the old website interface:

- Low findability of content
- Poor information prioritization
- Ambiguous functionality
- No mobile support



- Information Architecture
- Sketching
- Brainstorming
- Iterating



Usability Testing



Key Takeaways

FAST PROTOTYPING PROCESS

MARVEL APP

OBSERVER AND NOTE TAKER

GET USER FEEDBACK RIGHT AWAY

MANY WEBSITES NOT OPTIMIZED FOR
MOBILE



Appendix A

4 Tasks Poster

SUSAN G. KOMEN

4 TASKS

TASK 1: DONATION

Scenario: You have attended Susan G. Komen's event before. Now, you want to give back and support those affected by breast cancer by **donating \$50** to Susan G. Komen. This is your first donation through mobile device.

TASK 2: BREAST CANCER INFORMATION

Scenario: One of your family member was diagnosed with breast cancer recently. You have heard of Susan G. Komen, the breast cancer non-profit organization, however, you have never used their website before. Now, you want to find some information about "**breast cancer types**" to provide useful information for your family member. Further, you also want to increase your awareness about breast cancer and its prevention in general.

TASK 3: UPCOMING EVENTS

Scenario: You lead an active and healthy lifestyle and are aware of breast cancer issues. You hear about a local non-profit, and want to take part in their **5k run** that is about to happen soon. You want to find out details and register for the event.

TASK 4: GET INVOLVED - VOLUNTEER

Scenario: You are passionate about the cause of breast cancer. Your close friend suffers from the disease and you want to engage actively in volunteering opportunities in the neighborhood. You find out about Susan G. Komen, a local nonprofit that works in this field and want to enroll yourself for **volunteering** opportunities.