Danielle Eisen, Emilee Fulton, Javin White

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Summary of Final Prototype

The prototype we created is a "T" prototype. It demonstrates the breadth of tasks that can be done with this application, and goes into further detail for some tasks.

Summary of Key Requirements Fulfilled

Our most important requirement was that the system should be accessible to users that have visual impairments. Because of Balsamiq's limitations, the fulfillment of this requirement will have come in the implementation of our prototype. We used Balsamiq's sticky notes feature to add comments to the wireframes explaining how each page should be formatted with HTML tags and other considerations so that screen readers and switches would be compatible with the system. Figure 1 shows an example of how we used the sticky note feature. The note in Figure 1 reads, "Screen reader would say 'Success, your request has been submitted.' Then the pop-up would automatically close." This note tells the programmer that they should implement a pop-up message in a way that a screen reader could understand and make the message disappear once the message has been read by the reader.

Key requirements for the teacher side of the system include the ability for teachers to view the list of students in their class, the tools that each student needs for class, the list of tools each student is trialing, and the list of tools that each student has previously used. The system fulfills these requirements by giving teachers a list of students that can be filtered by class, tool, and the students' date of birth (Figure 2). From that list, a teacher can select a student in the list by clicking on their name and go to a page with the lists of tools that the selected student is

currently using, currently trialing, and had previously used (Figure 3, Figure 4). This page also has links to forms that apply to the selected student (Figure 4).

For the student side, the key requirement fulfilled is ability to request new tools. It is extremely important to MSAB that its students learn how to advocate for themselves, so designing a set of wireframes for a student view was important to us. To make a request, a student selects what class(es) they need the tool for, then they select the tool they are requesting, and then they are given the option to add details and review the request before submitting it for approval (Figure 5).

Key Changes Made After Usability Testing

After conducting our heuristics test with Sneha, we split our project into two files: *StudentSide.bmpr* and *TeacherSide.bmpr*. We made this change so that the login process and functionality of the two different account types (student or teacher) would be more clear. All other changes made were in response to feedback from the usability tests we conducted with educators the MN Academy for the Blind (MSAB). First, to ensure that our design will be implemented with accessibility in mind, we added sticky notes to each file, detailing how the elements on each page should be implemented (see Figure 2 as an example). On the Student Side, our testers expressed concerns about the ability for a screen reader to properly read through three separate lists aligned horizontally on a page. To address this concern, we changed the "My Tools" section to be a hierarchical list of information (Figure 8), rather than three columns of tables. Note that while the "Pending Requests" page on the Student Side also uses a table to convey information, it is just a single table, not three next to each other, so our usability testers did not express concern over the design.

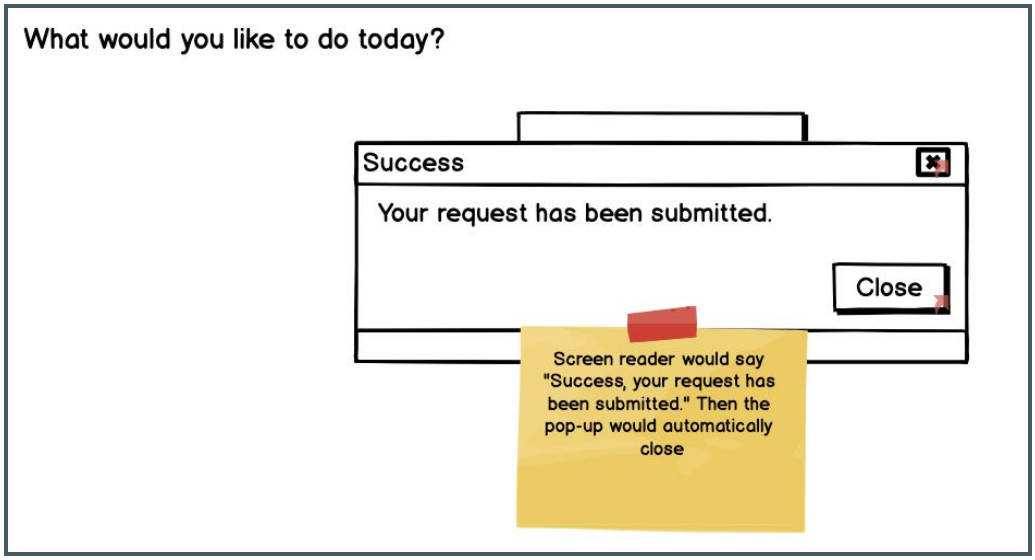
On the Teacher Side of the application we made a few changes on the "View Forms" screen. Specifically, we removed the "view form" eyeball icon. Now, users can just click on the name of the form to view it (Figure 4). Finally, a teacher mentioned that he would like the ability to email a form from within the application. To address this need, we added an "send" icon next to the "print" and "download" icons when viewing a form (Figure 6). When you click the "send" icon, a popup appears with details of the email message you would like to send (Figure 7).

Conclusion

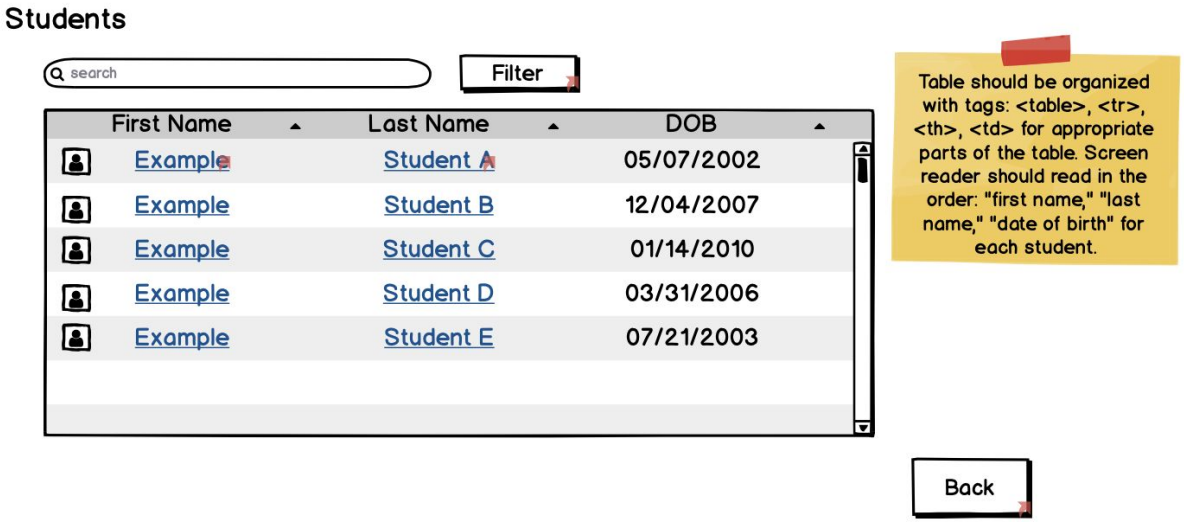
Throughout the process of design this application, accessibility has been the main concern. To address that concern, we ensured that there was a minimal amount of information on each page, and that the design of the application did not rely on color or other visual cues for understanding or navigation. Although we could not make the prototypes accessible by screen reader, we were able to add sticky notes in Balsamiq to make it clear what would need to be done in the implementation of this design so that it would be accessible.

From our usability and heuristic testing, we discovered some places in our original design that could be improved. We implemented those improvements as appropriate, including by splitting the application into a file for the teacher side and a file for the student side. We made sure to have a consistent and cohesive design, and to keep the application as clearly one unified system even while splitting it. Our goal in this process was to create a design for a system that could help teachers manage student accessibility tools and help students advocate for themselves, and we hope that this design fulfills that goal.

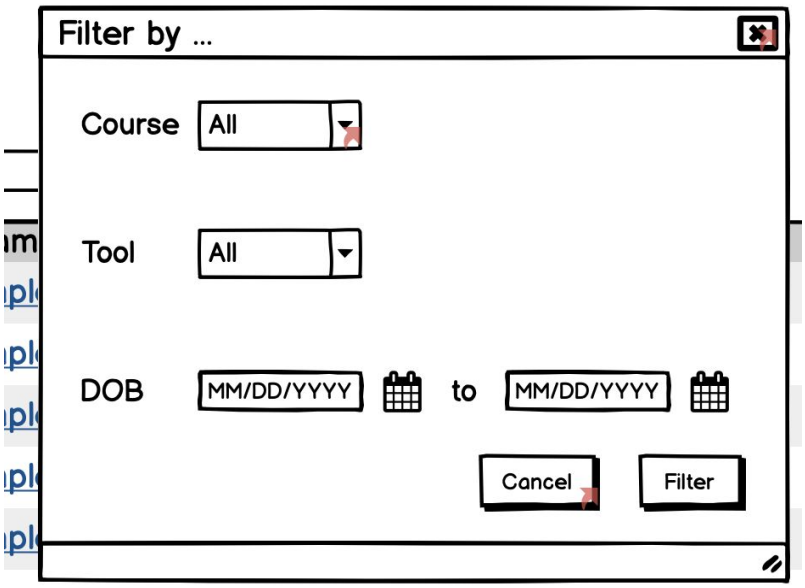
Appendix: Figures



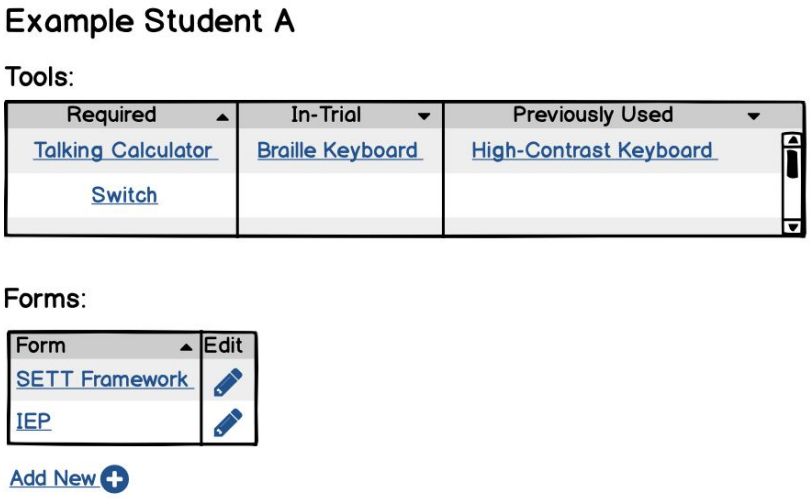
(Figure 1)



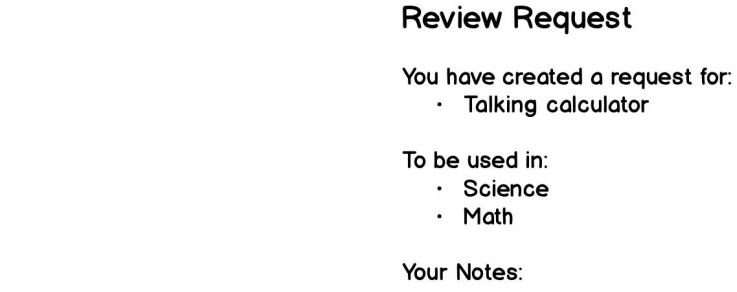
(Figure 2)



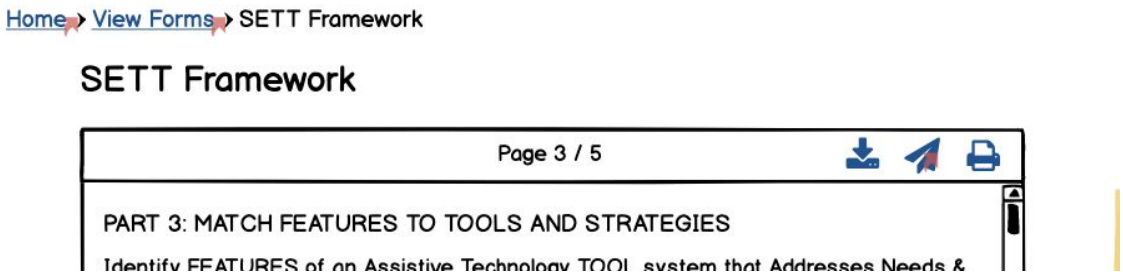
(Figure 3)



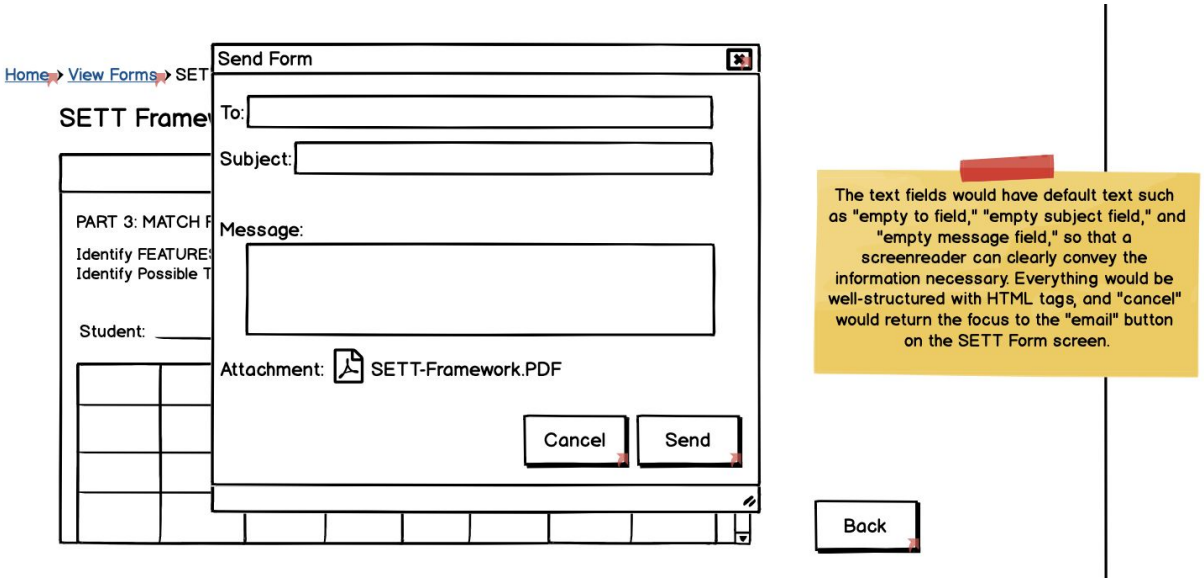
(Figure 4)



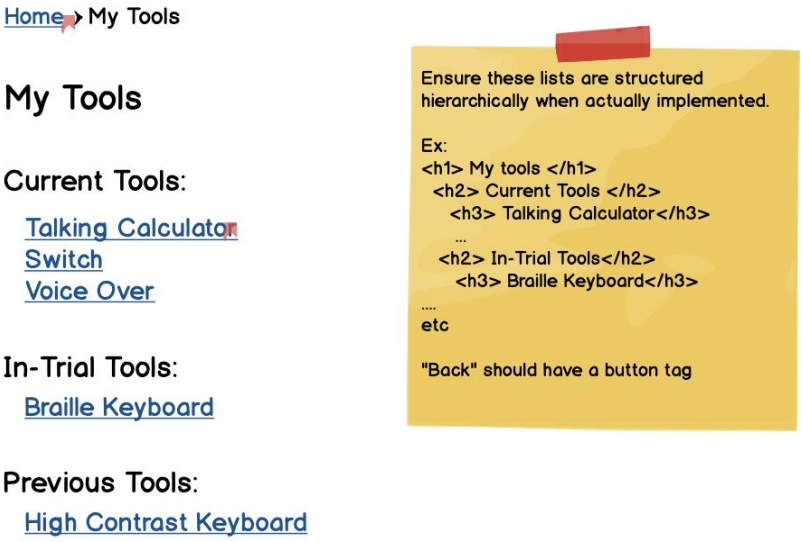
(Figure 5)



(Figure 6)



(Figure 7)


Home > My Tools
My Tools
Current Tools:
Talking Calculator
Switch
Voice Over
In-Trial Tools:
Braille Keyboard
Previous Tools:
High Contrast Keyboard
Ensure these lists are structured hierarchically when actually implemented.
Ex:
<h1> My tools </h1>
<h2> Current Tools </h2>
<h3> Talking Calculator</h3>
...
<h2> In-Trial Tools</h2>
<h3> Braille Keyboard</h3>
....
etc
"Back" should have a button tag

(Figure 8)