GP 3: Low to Medium Fidelity Prototype

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Project Description

Museo aims to create a system that improves the museum experience for visitors who do not take advantage of a museum's tour guides. For many visitors, these tour guides are either too expensive or not available, and often visitors prefer a more independent experience. Technology has yet to effectively impact the museum experience, providing room for disruptive designs that dramatically change the way visitors view the intersection of technology and museums. Using the Princeton University Art Museum as a case study for the art museum experience in general, we performed research through interviews, surveys and placing ourselves in the shoes of museum visitors. Next, we presented designs to various prospective users and gathered feedback. Ultimately, we concluded that most museum visitors are attracted to the idea of a system that allows for a more interactive museum experience and aids in providing information and dynamic suggestions. Thus, we created the design and prototype for an NFC enabled visitor card whereby visitors indicate paintings they like by tapping the card on a sticker next to the painting. At the end of their visit, users are provided with more information and suggestions as to similar paintings or museums to visit next. Our initial prototype aims to present this system through a simple and efficient interface easily adopted by all museum visitors.

Requirements Summary

Our systems need to be accessible to a broad range of the general population and augment, rather than interfere with, the user experience. Museums are often a place that visitors can escape to, and are typically quiet areas. Outside of people's footsteps, conversations among visitors, and a tour guide talking, noise is quite limited in museums. This environment allows visitors to spend time focusing on and enjoying the artwork they are surrounded by. That is why it is pivotal that our system allows visitors to continue to immerse themselves in the museum. We want our users to continue to spend time interacting with the exhibitions, and have our system add to that experience by making that experience more enjoyable and stress-free.

Besides maintaining the existing experience of visiting a museum, we would also like for our system to be used again and again. If a majority of our users use our eventual system design once and then choose to not use it again, that would mark a key failure of the system. Ultimately, our goal of this system is to grow the number of people who visit museums, which in turn will help museums. While not a requirement for the system, we also hope to help museums get more information on the kinds of artwork that interest their visitors so that they can make strides to make the experience more accessible and enjoyable for all.

Finally, our system should be clear and easy to use, and all of the features of the system should be visible to the user. The system should contain limited steps, sticking to the theme of

not being intrusive to the user. We hope our system is easy to use and, ideally, self-explanatory, but it should still provide easily accessible help and documentation, either through a tutorial when the user first starts using the system or on a help page. The different functions of the system should be clearly divided so that the user is not confused and doesn't accidentally access functions they don't want to. That being said, the design should still allow users to easily switch between functions, while still maintaining error-proof capabilities.

Prototype Description

Our design aims to address two problems that visitors encounter. The first is that visitors oftentimes want more information about the pieces of art they liked or found interesting, but many visitors do not want to pull out a smartphone and do research during their visit. The second problem visitors encounter is that there is no easy way to find new museums or paintings that cater to the type of artwork the visitor enjoys. Our design helps users get additional information about paintings as well as find recommendations on what art pieces and exhibits to visit next. It works in the following way: when a visitor first enters the museum, they are handed an NFC-enabled (Near Field Communication) visitor card. NFC is a technology that allows electronics devices to communicate with each other when they are brought into close physical proximity with each other. Next to each of the art pieces in the museum, there would be a sticker with a heart on it. When the visitor sees art pieces that they like, they press their visitor card to the heart sticker. The sticker then provides some sort of feedback (such as glowing or lighting up) and the like is registered to the visitor's card. At the end of the visit, the visitor inserts the card into a kiosk. They can then view all of the art pieces that they liked during their visit, as well as get more information about them and see recommendations for what to visit next. The visitor is able to view those recommendations as well as print them out or email them to themselves.

Our low-fidelity prototype attempted to convey this process. We created a heart sticker made of paper that was 3x3 inches. This would be situated below the information plaque next to the painting. The heart is white so as not to be distracting from the painting, but has a red outline so that it is still noticeable. In practice, our system will give feedback when the heart is tapped. For example, the heart's outline might glow or light up. When the user taps their visitor card to the heart, it registers the like.

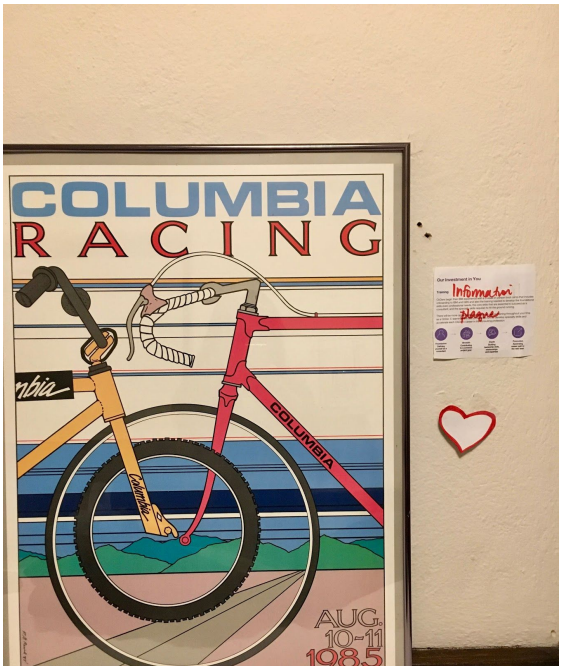

Figure 1. Example of the heart sticker next to a painting

After the user has finished their visit and has liked several pieces of artwork, they insert their visitor card into a kiosk near the exit. This allows them to both return the visitor card and get more information and recommendations.

Figure 2. The initial kiosk screen

They are prompted with a screen where they see all of the paintings they tapped during their visit. The user can then select the paintings they would like to receive more information about, but they are not required to select any.

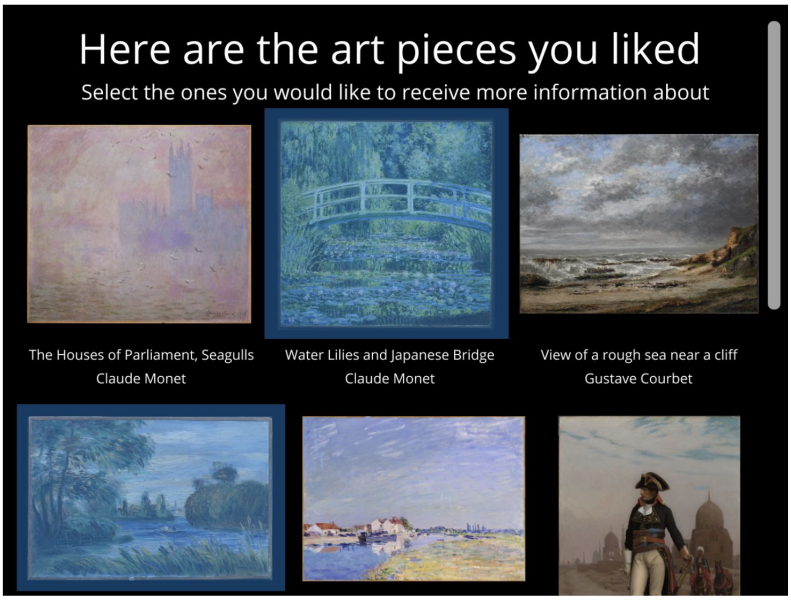

Figure 3. Screen showing the art pieces that the user liked during their visit

After tapping “Next,” the user arrives at a screen where they view the recommendations for paintings and museums.

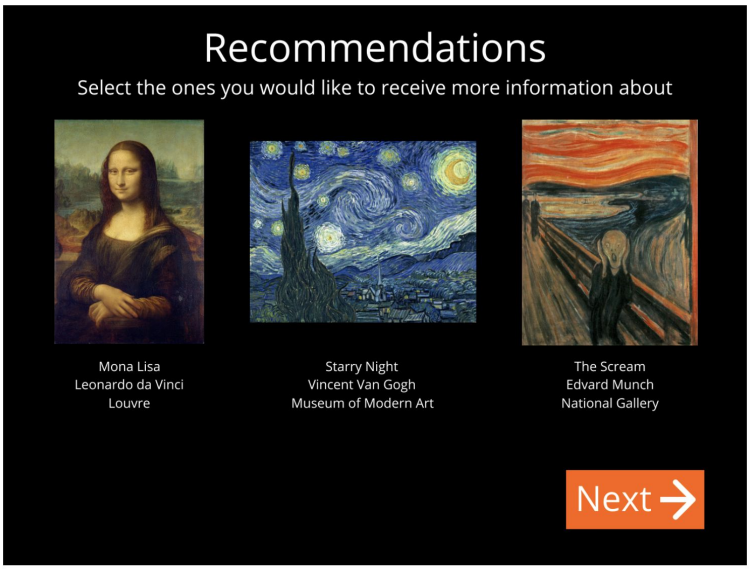

Figure 4. Recommendations

After viewing the recommendations, the user can select the paintings that appeal to them and that they would like more information about, such as more specific details of the subject matter, artist, and location. After hitting “next,” the user chooses if they would like the results printed or emailed.

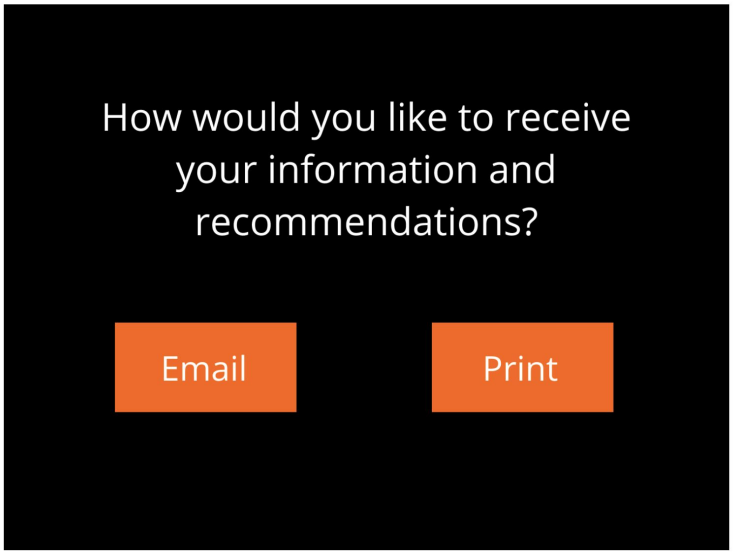

Figure 5. This screen allows users to choose to print or email information

If they select email, they are prompted to input their email address. If they select “print,” the results are printed directly from the kiosk. Lastly, they see a confirmation screen.

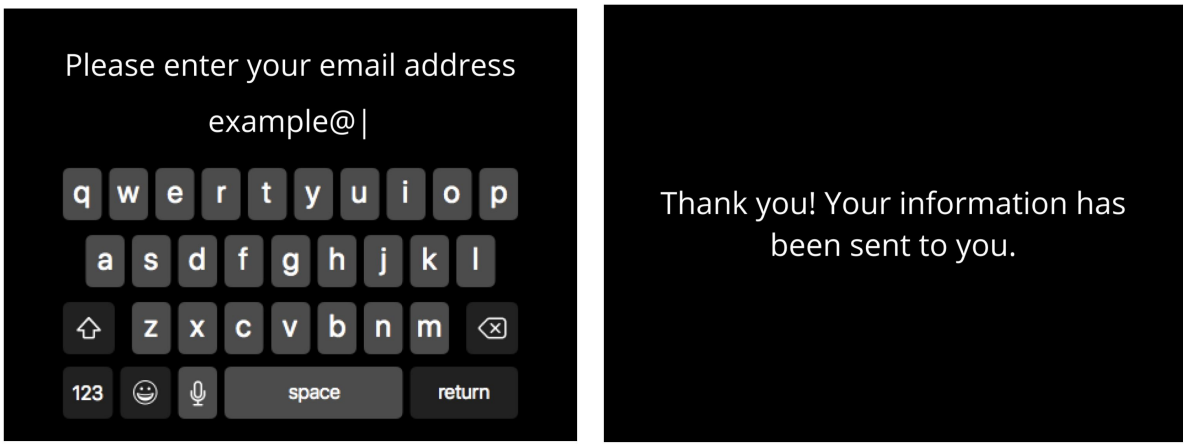

Figure 6. Two options for receiving information and confirmation screen

This is what a scenario of use for the prototype might look like from the user’s perspective: I receive a card that I am to use to tap paintings I like. In this case, the paintings are shown on an iPad screen next to me. I like impressionist art and especially Monet, so when I see Monet’s Water Lilies come up on the iPad screen I use my card to gently tap the small paper heart that is pasted on the corner of the screen. Then I am directed to a separate iPad that says I should insert my card below. I place it underneath the screen and proceed to the next page. Here I see a list of the pieces I liked, including Monet’s Water Lilies, and I am instructed to select those that I want to receive more information about. I pick a couple of them and click ‘Next’. Then I receive a list of painting recommendations based on the pieces I liked. I can see a small image

of the painting, as well as basic details like artist and painting name. Again, I am instructed to select those I want to learn more about so I click a few and go to ‘Next’. Now, I am asked whether I want to receive this information via ‘Email’ or ‘Print’. I choose ‘Email’ and proceed to enter my email on the next screen. I see a message on the screen that lets me know that the information on the pieces I selected has been sent to my email.

Design Rationale

For this prototype we wanted to prioritize replicating the interaction the user has with the kiosk at the end of the museum visit. This kiosk is what will allow users to use their card to view (and later receive in print or by email) a summary of the paintings they liked throughout the visit, as well a selected list of recommendations based on these preferences. The other component of our product is the physical act of going around the museum and tapping paintings you like, but we thought that this was generally a more intuitive process (that users would have less problems interacting with), so we decided we could get more valuable feedback if our prototype focused on the kiosk component. Additionally, throughout our research process we heard from users we interviewed that they were sometimes reluctant to heavily rely on their phone or other technology throughout their museum visit, so since this is the most technology-heavy part our design, we wanted to be sure we could get user feedback on it first. The advantage of this prototype was that we could use prototyping software to develop an application that was very close to the actual software users would interact with at the end of the visit. This allowed us to get very relevant feedback from users regarding ease of use, visual design, and other pertinent components of the product. In addition, we could closely monitor users interacting with the system to evaluate for ourselves the effectiveness of the design.

There are also some disadvantages to this prototype we chose to create. The first one is that it is very hard to simulate real user experience during a museum visit. Ideally, we would want to build a prototype in which users could interact with the product throughout an entire museum visit, and then have them evaluate how each of the components of the product fit together. However, given the limitations of low fidelity prototypes, this was hard to accomplish. Also, prioritizing the kiosk component of the product meant that the physical act of liking a painting in the museum was not very accurately replicated. Even though we think this process will be more intuitive for users, for our final prototype we are looking to improve upon it so that we can offer a much more accurate representation of what this interaction would look like for users.

Results of In Class Evaluation

Overall we received a lot of positive feedback regarding our prototype. While our prototype involved a limited amount of explanation, the students who came by were impressed by how natural it felt. By having a picture displayed on one computer and the other computer then displaying that picture as being “selected”, we were able to convey an authentic

experience. After our users engaged with the prototype, we fielded questions and were able to ask some of our own. From these conversations, we found that our prototype was aided by the fact that our users were familiar with the museum experience; even if they hadn't been in a long time, many cited the fact that there exists an information plaque next to the picture, which felt like the perfect place for our sticker. The other students were also impressed with the quality and professional feel of our prototype, and they enjoyed being able to physically like paintings, as well as being able to interact with the booth prototype.

Our prototype did an excellent job of conveying the experience a user would go through of tapping photos (liking them in the process) and then selecting how they'd like to learn more about other paintings. However, we discovered two things that we didn't do well. Firstly, we failed to actually give our participants an example of what those recommendations looked like. This would have been helpful to have, because it would have allowed our participants to give us feedback on that portion of the prototype as well. Furthermore, we could have seen how the two different types of information, email and paper, fared in comparison to one another. Secondly, our "recommendation" page in the prototype provided recommendations for artwork to look at, but did not recommend exhibits to go to. It also did not provide any filters by location or art style that the user could use. A few of our participants suggested that we recommend exhibits in addition to other artworks, as well as have more powerful filtering capabilities.

One of the things our prototype did really well was accurately mimic what a final solution would look like for the exit experience at the museum. We used a prototyping software called Figma in order to create the booth prototype. The software gave us more flexibility in laying out the different screens and customizing the interactivity between them, but in retrospect we could have created a comparable prototype using PowerPoint without undergoing the initial learning curve of learning a new piece of software. Although the participants couldn't use the booth prototype like a touch screen, they were able to view it on a computer and use the trackpad to click on interactive portions of the screen. However, as mentioned earlier, it would have been good to include something that resembled the final "recommendation" sheet. In addition to the screen, we also had a hotel room key card that we used to mimic the ticket, another laptop that showed a picture of one of the artworks, and a prototype of the heart sticker made out of paper. While it was good for the user to hold something that, from a materials standpoint, closely mimicked the actual ticket, we didn't do enough to allow the user to receive feedback after they tapped artwork they liked. Thus, it may have been better to have one computer dedicated to creating a virtual experience of what it's like to walk around a museum. This computer could have been a bunch of art pieces that the user either selects or doesn't select, thus giving the participant the impression that they had just visited a museum.

A key change to our eventual prototype is that it will involve a greater selection of images that our participants can like. This will allow us to better evaluate the number, range, and style of paintings that our participants select. Furthermore, by updating the recommendation slide to include other exhibits or museums to visit, we will be able to gather feedback on how those recommendations should be presented. These recommendations will be presented in two forms:

in paper or sent via email. It is unlikely that these two will differ at all, but by asking participants how they plan to use them, we can investigate for any possible differences between the two. Our evaluation techniques will be vastly based on interviews with participants after they've used the system, but there might be some trends we can see in the ways participants like pieces. Which paintings they like and how many are just a few questions that we can answer in the future from the "heart" data.