

Project Milestone 2

Delta Marshallers

Nia Dicks, Ward Eldred III, Clare Rizzo, Aaron Slaven

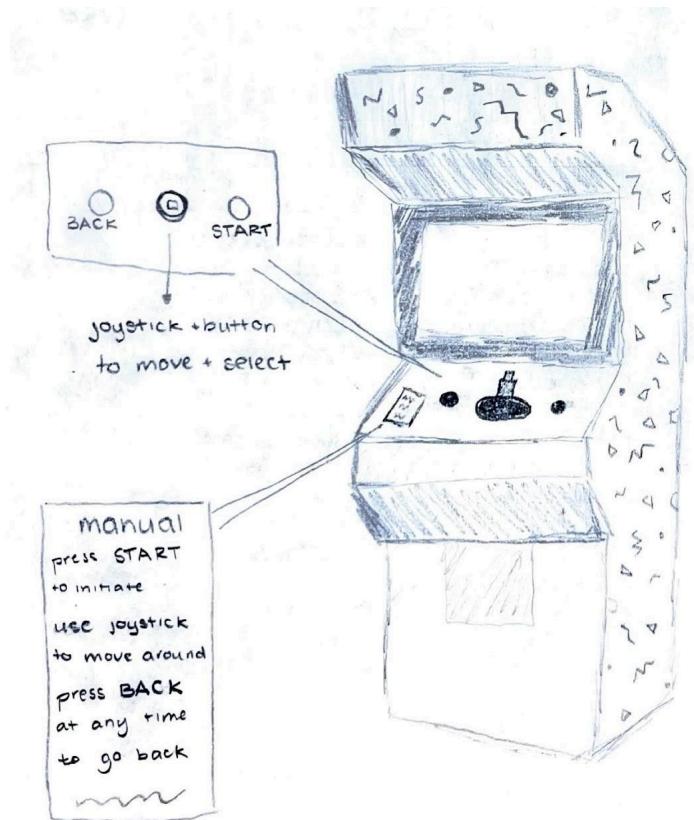
CPSC 4140 Spring 2024

2/23/24

Interactive Kiosk

Our first proposed design for a system is an interactive kiosk that utilizes an 80s-themed arcade look, complete with a joystick and pixelated interface. The most difficult part of creating a kiosk is getting people to actually interact with it. If our team wants to strive for an increase in local event attendance, then the people need to be shown information in a way that will be received, and received well. This is the reason for the novel design. The kiosk would display a list of events that can be browsed through based on the user's input with the joystick. The kiosk would include two main buttons, "START" and "BACK", and a joystick with a red button on top, which will provide the user with a simple, but unique experience when looking for local events nearby.

Mockup/Sketches



→ This image encompasses the overall look of the design of the kiosk "mimicking" an 80-theme arcade.

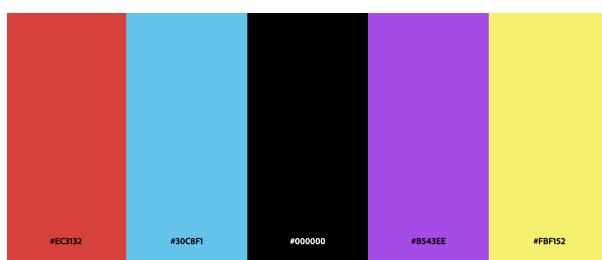
Size at control panel - 23-1/2" wide x 33-1/2" deep.

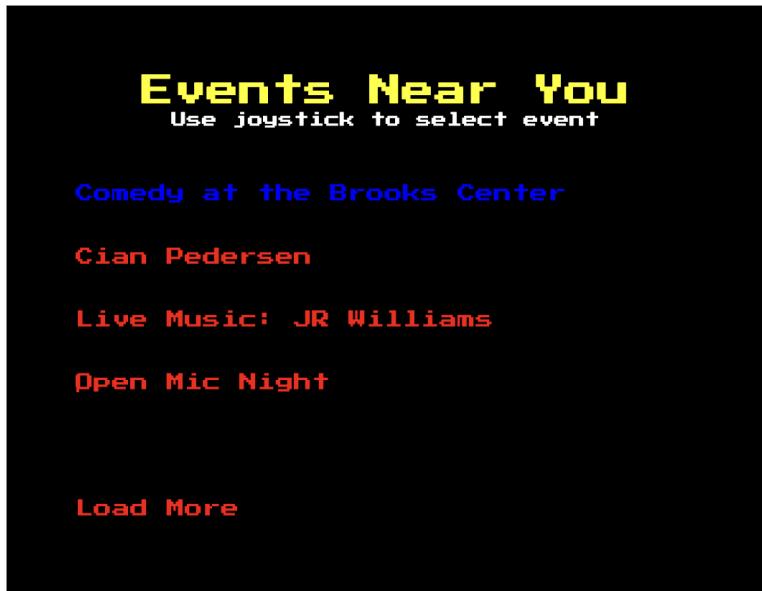
Height - 67" high, no casters.

Weight - 180 lbs.

With LCD/LED monitor.

Color Scheme:

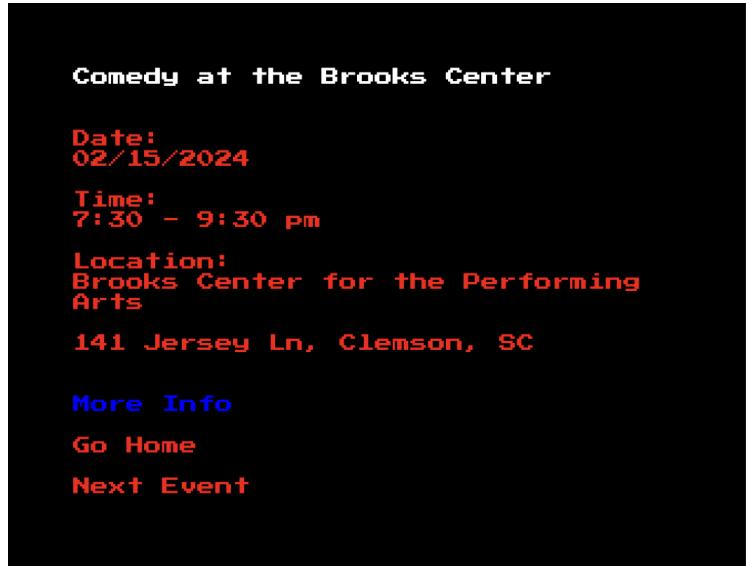




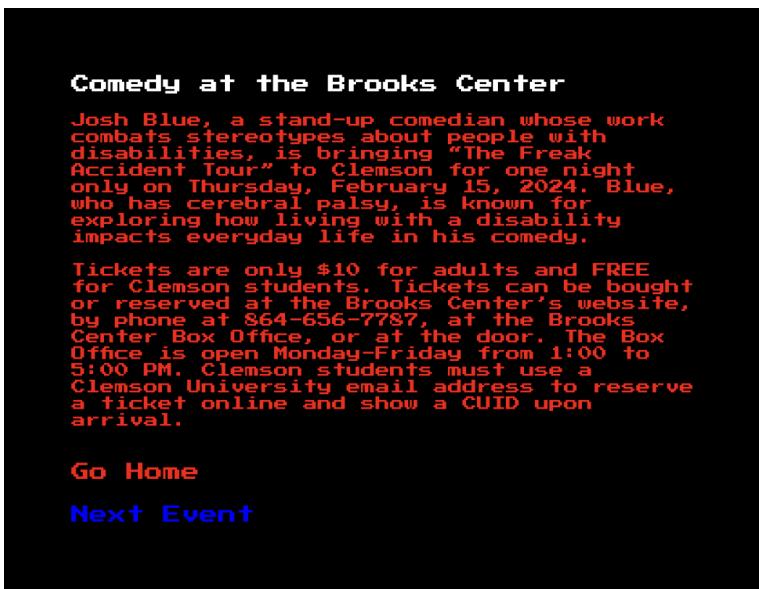
→ This is the home screen, user can use joystick to go to next event (blue color indicates current event selected)

→ User can click on event to access more information about it with joystick button

→ User can click with joystick button load more to go to next page of events



→ Once a user clicks “More Info”, they are sent here for more information on what the event is, how much it costs...



The user can click “Next Event” or “Go Home” buttons at any time while using the kiosk.

Detailed narrative on interaction

When a user first approaches the kiosk, a catchy screen in an 80's theme, matching the kiosk, will be displayed. Additionally, arcade-like music will play in the background quietly, potentially luring people in. With the goal of the kiosk is to get users to interact with it, the nostalgic, retro theme is used to do this better. The user will select the "START" button, as prompted by the resting idle screen with instructions to begin interaction with the kiosk. After this, the user will then be presented with an events screen that will display all current, local events in a list format. This is the main home page that the "BACK" button to the left of the joystick will take the user to when clicked. On the event page, the joystick can be used to go up and down, hovering over events. When a user has hovered over an event they are interested in, indicated by a highlighted selection box and color contrasts, they can then click the red button on top of the joystick to go into the screen that tells them about the event. Here the user can read information about the event, such as what, where and when the event occurs. To go back to the previous event screen, the user will simply press the "BACK" button to the left of the joystick. Here, they are once again free to hover over and choose events.

The kiosk will automatically reset to the idle screen after 2 minutes, to allow users time to read the event information screen. The user may also press the "START" button at any time to return to the original home screen. The system's interface is designed to be upfront, but interactive in nature, promoting quick, but effective communication with the user.

Justification

As mentioned in our previous milestone 1 data, around 68% of users surveyed would be more inclined to attend local events if they were advertised in a better, more interactive way. The purpose of this type of system interface is to utilize that statistic specifically. This 80s theme interactive kiosk grabs the attention of any user and, through the use of a joystick, allows them to navigate through the on-the-screen menu that shows information about current local events. Having the outside design mimic an arcade machine serves to catch the attention of users of all ages walking by and also creates a contrast to the environment around them so that people may be more inclined to use it. A kiosk like this also serves the purpose of reaching many audiences. The straightforward use of the machine allows for easy use by anyone with reading comprehension skills and height to reach the joystick button. Thus not limiting who or when a user chooses to interact with the kiosk. On top of this, studies have shown that when our brains deem something as "good," our neurotransmitters release dopamine, causing a sense of satisfaction or pleasure.¹ Hence the interaction between humans and arcade machines releases dopamine making users more likely to interact with our kiosk interface after viewing the structure in their environment.²

Strengths & Weaknesses

Due to the kiosk's arcade-like nature it has a very accessible user interface that accommodates all individuals. This design decision will also attract users to utilize the kiosk. Another strength of the kiosk is the ability to place it almost anywhere. This allows for different modalities of the interface depending on the location it is placed in. However, this is also its biggest weakness. It can only pertain to a small area of businesses and individuals, and is not very mobile due to its semi-rigid structure. This is the main reason for its unique look; aiming to attract passersby to interact with the kiosk. Another weakness of the kiosk is the possibility that it gets crowded and people have to wait in line to interact with it. Our team has dealt with this weakness by increasing the simplicity of the interface in hopes to decrease total interaction time when using the kiosk, while still informing users on the many local events in the area. Additionally, by having simple screens, instructions, and controls, it allows a wide variety of users to use it, only limiting the potential users to those who can move their limbs to reach the joystick and who have reading comprehension.

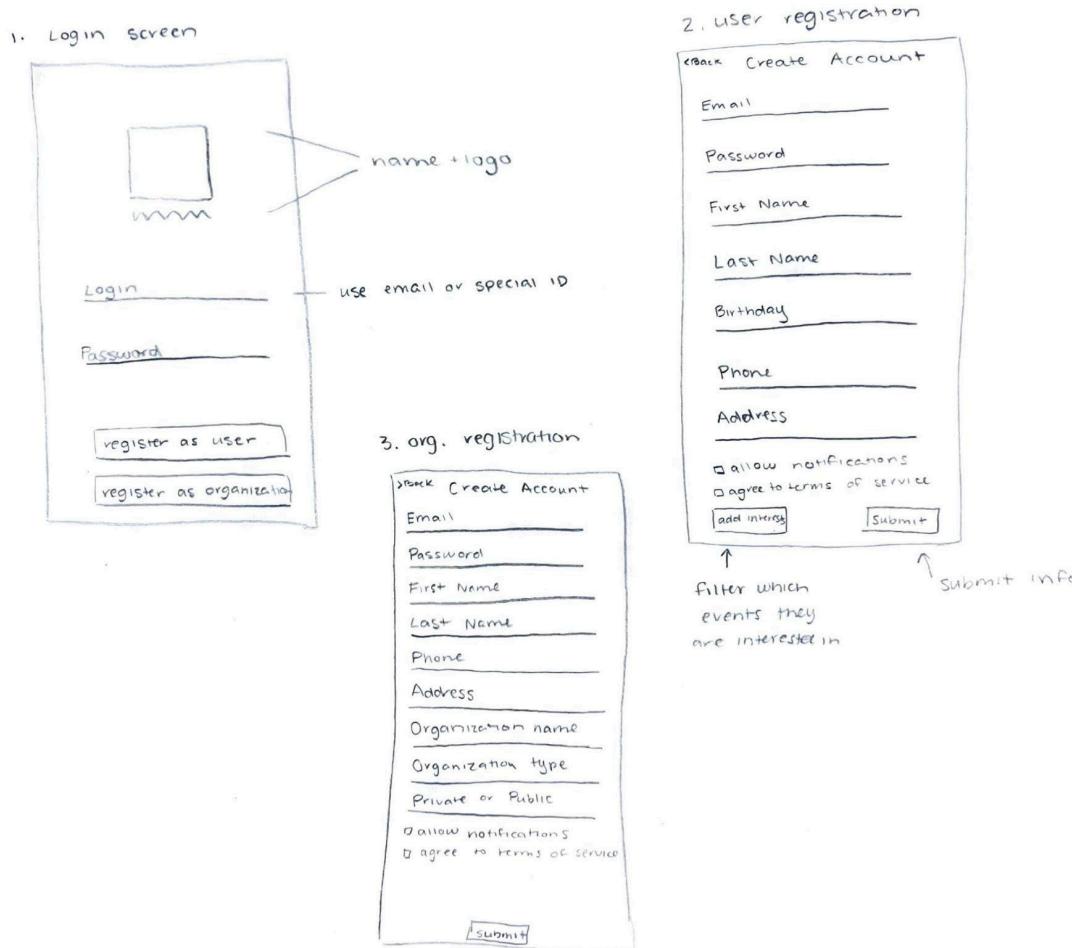
Another main strength of the kiosks online medium is its ability to hold a lot of information at a time. This allows users to take in a wide variety of event information when visiting with the kiosk. Unlike some analog solutions like a bulletin board or poster, the kiosk will be connected to a cloud, where its information can be easily accessed, updated, and pushed out to select machines. Having this architecture in place allows flexibility to move the kiosk and update event information as necessary.

Mobile Event Application

The next solution our group has designed for our problem is an event app with a heavy lean on an embedded reward system and user interactions. The app uses the mobile devices location and zip code to find nearby events that have been registered through the app. When a new user signs up and creates an account, they automatically become an "affiliate" of the app and are given a unique QR code that can be used to gain rewards points. Points are gained by scanning in at events, as well as scanning other affiliates at the event to add them as friends. If two established friends attend the same event, signified by scanning the same event QR code, then extra points will be awarded. This not only promotes interaction between event attendees, but also encourages groups of friends to attend events together. In-app rewards from gaining points may look like merch from event organizations and gift cards to local places.

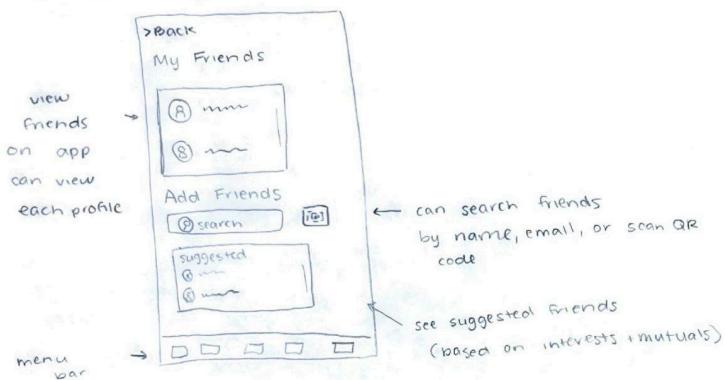
Mockup/Sketches

(seen in the pages below)

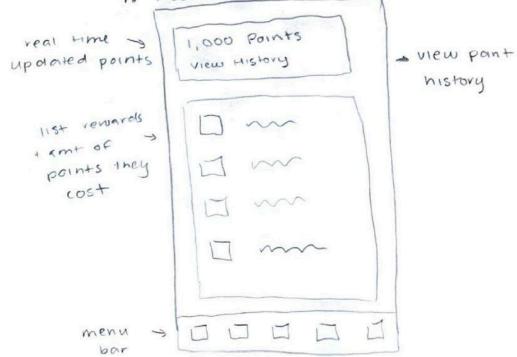


- Different registrations for organizations and general users
- When they register, a user can filter their event preferences (they can also change this at any time)
- Organizations have to provide their information including their organization name, type, and if they want their events to be listed publicly or privately (private if they want to list events only for members in their organization)
- Organizations have a different way of registering because their accounts need to be approved before they can add events

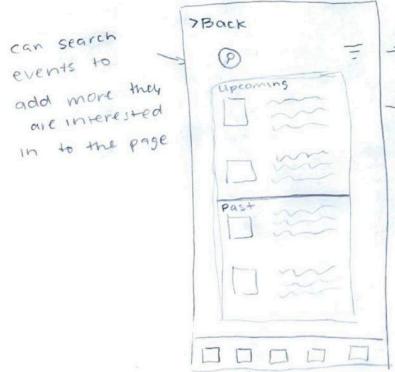
6. Friends Page



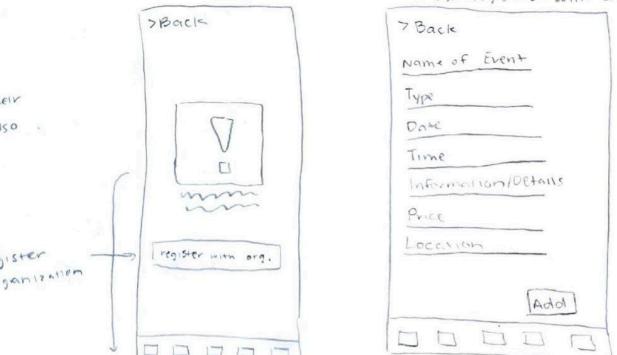
7. Rewards

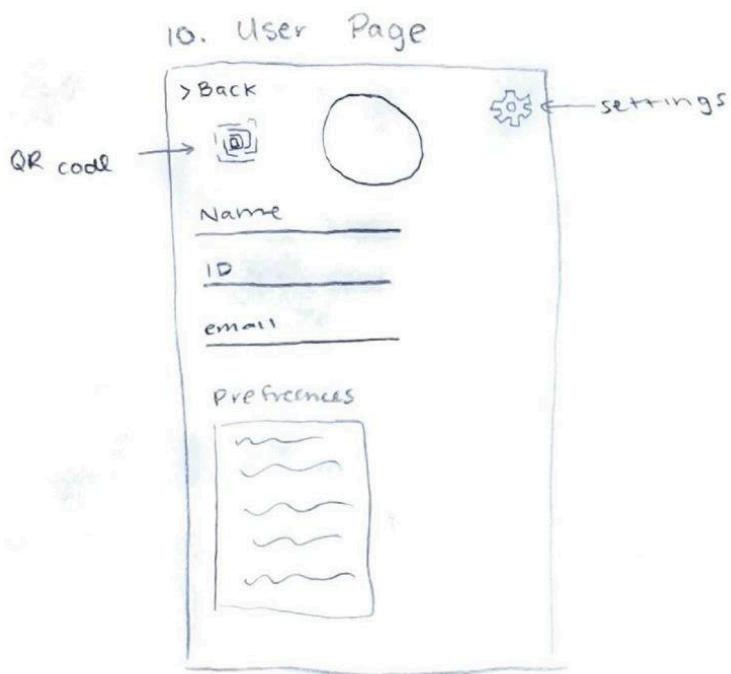


8. My Events



9. Add Events





- i. Calendar with events
- ii. Profile with special ID
- iii. People can create events on the app - have to get approved by app admin before it gets published
- iv. People can connect their group to the app to promote their events
- v. Users can choose which type of events they want to see on their app, what they want to be notified about, what they are interested in (can specify what they want within the categories (i.e. if category is music can go more specific into artists, genres, venues...))

Detailed narrative on interaction

When a user enters/selects the application on their device, they will be prompted with a log-in screen in which they can use their login credentials to enter their account. In the case scenario, the user is new to the app and they have a choice between registering as a user or registering as an organizer. After they register, they are brought to a landing page depending upon their position. An organizer account may allow multiple users to log in with their credentials, just not simultaneously.

After logging in, users are brought to a main page with a multitude of options and features. The most important subpage for users is the user page. This page includes their name, profile picture, ID and preferences. One of the more prominent features of the user page is a QR code, located at the top left of the screen, that other users can scan to add friends or gain points at social events. The user main page also presents an option to open the user's back facing camera to scan other user's QR codes. When a QR code is scanned, a pop-up message appears with a message depending upon the current circumstance. If the users aren't friends yet, the option to befriend the new user is available. Furthermore, if a user is unable to add another user, they can go back to the main page and enter the friends page from the main page. Here, users can view a scrollable list of their friends and can search up new users to add them.

A user can view an upcoming calendar of events by entering the main page and clicking on the "Future Events" button. From here, they can select specific events and view more detailed information on them. The main view on the Future Events page displays a month at a time, that is scrollable to see future dates.

For users wanting to update or change their personal information, they can navigate to the profile page. From this page, users will have to click on a gear image, which acts as a redirect link to the profile settings page. From this page users can edit their personal information, account photo, email address, etc.

Those users involved with organizations will be given another redirect link from their main page to add a new event for their organization. Within the Add Event page, users can add critical data regarding the event, including time, price, location, and miscellaneous information that may be important. Regular users will not be able to see this page.

For users desiring to redeem their points, the user main page will include a link to a new page dedicated to point data. On this page, users can view their total points, view the possible prizes and which ones they qualify for and can be directed to a new page with their points history. This page will also allow users to redeem their points and see how they can gain more points.

Justification

As mentioned in the previous milestone 1 data, aside from being interested in the event, our data suggested that the next most convincing reason users may attend local events is because family and friends will be present at the events; furthermore, to join in support of said family and friends there. The purpose of this type of system interface is to utilize that statistic specifically.

Through this event app, users can create an account that targets their specific interests and showcases a list of current local events based on their location. Moreover, users can see who is in attendance at the events posted to the app. With this type of display, a user's interest in an event is more likely to be piqued if they know at least one person who may be in attendance. While this does partially serve the purpose of our app (convincing people to go to local events), the other aspect we plan to accomplish through this app is to create more social interaction between users who do not know each other. Our team plans to do this by installing an incentivized system that encourages users to interact with other people. Examples of such incentives could be if you, as a current user of the app, were to invite a new user using your referral code you would receive 15 in-app points in return. Accumulation of points allows users access to in-app prizes (things such as stickers, t-shirts, or gift cards) that users can collect once they reach the designated point amount.

Strengths & Weaknesses

An event application is a modern solution to the lack of attendance at local events. One of its main strengths is its ability to service many people simultaneously. Anyone with a smart device and a network connection can access the application anytime. This removes wait times and ensures that users do not become impatient. Furthermore, this allows users to connect with the application on their own time, considering the busy, nonstop lifestyles of everyday humans. Our team will account for our user's time by ensuring that our application is easy and efficient to use and that users can view/read about events in the local area at the click of a button. On top of the simply implemented interface, another strength of this application is its personalization features that allow users to modify their viewings of events toward their own preferences. In doing this, user interaction with the application will be higher, making users more likely to attend events. Initial and consistent use of this application will also encourage more users to join and will then, in turn, increase the application download itself. Following the idea of the bandwagon effect, that states people will begin to do something primarily because others are doing it.³ Another strength of this application is its ability to inspire a unique experience that combines social interaction with a reward incentive. By gamifying what could be mundane application, people will be more likely to become frequent users, as the drive for more points or the ambition to unlock the next reward will push them onward. As knowledge of the application spreads, it will become more and more of a race to see who can redeem the best rewards by ultimately becoming the most active in their community. Simultaneously, users should be interacting with new people through the gamification, allowing the app to work like a matchmaker between event attendees. In doing this, the user will have a satisfying experience with the mobile application and continue use, not only for the dopamine brought by the gamification, but also as they want to continue to meet new people who are interested in events like them.

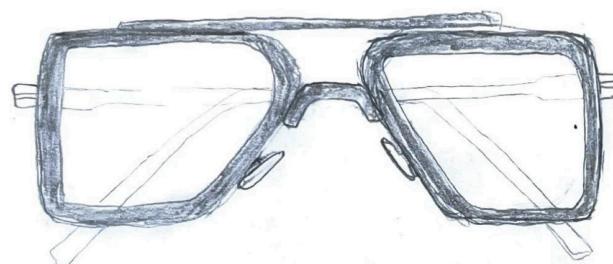
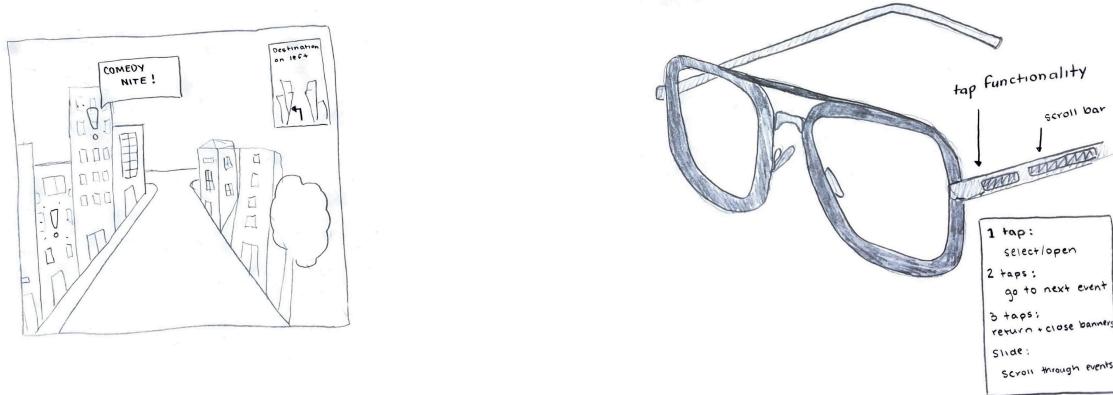
However, multiple weaknesses can be exploited in this implementation. The first weakness being the requirement for a network connection in order to stay updated. This decreases our target audience, because many people, specifically of the older demographic, do

not have an online presence accidentally or purposefully. It also means that our design is fragile when natural events interfere with power in the local area. A second weakness that can be easily exploited is network traffic. Depending upon the configuration of the servers and the network abilities, users may experience buffering and loading times while the packets are being sent between devices. Yet, in the right circumstances, this application is economical. It is inexpensive to deploy and maintain. This makes it easier to solve the problem, because the admins do not have to spend an innumerable amount of money on the solution. Nonetheless, it will be difficult initially when trying to get users on the app and spread awareness. Mobile applications are abundant in today's age so it is vital that our group sets our app aside from others. This is another weakness, because in order for the application to work purposefully, users have to know about the application and they have to socially and informally advertise it to their peers. As every start-up has beginning stages like this, it is important to spread the app's information as widely and effectively as possible. This will most likely require heavy marketing upfront, which the group will account for in further stages.

Mixed Reality Glasses

Our groups' final design solution to our problem is a pair of mixed-reality glasses that offer pop-up boxes of nearby events. These glasses are based on current technology that integrates virtual reality and the physical environment to create a unique user experience. The system works by showing the user the world around them and popping up different dialog boxes based on nearby events when they approach. Users can then attend events as they please and interact with other users with and without the system. The overall aim for this system is to create a more immersive user experience that incorporates new technologies, community involvement, and interaction with other users.

Mockup/Sketches



Features:

- Touch pad
 - One tap: opens event
 - Two taps: moves to next event
 - Three taps: returns to the previous event and closes all banners once user returns to the original event
- Scroll Bar
 - Slide: scrolls through banner

Detailed narrative on interaction

The user wears these glasses and walks around their local area. As they traverse the area, notifications regarding local events will appear in banners and hovering over locations as dialog boxes. The notifications will correspond to the geological location of the specified event. Clients will be able to utilize physical taps to interact with these virtual notifications. The eye glass frames feature a touchpad and scroll bar on the outer right temple/side. One touch to the touch pad selects/opens an event. Users can center the desired event banner on their glasses and tap the physical frame in order to learn more regarding it. The banner will expand displaying, date, time, address, and other information provided by the hosting organization. Two taps to the touch pad allows users to move to the next event. Three taps to the touchpad closes all the banners and the scroll bar allows for users to navigate through the events outlined in the notification banner. A live map in the upper-righthand corner of the glasses' display will show wearers their current location. This map will also give them directions upon event selection if that is desired. Once at events, they can interact with other individuals who have the accessory by adding them as friends and seeing what events they attend or are currently attending. Due to the nature of the glasses, users can still very easily communicate with those that do not have this tech, further promoting social interactions.

Justification

There were multiple reasons that our group decided to design a wearable device that displayed nearby events around an individual. Primarily, over 65% of participants from our milestone 1 said that they were more likely to attend events that are better advertised to them. By displaying local events using a user's location, the advertisements are right in front of, or very near to, the user. Additionally, most users, 67.5%, were willing to travel no more than 5 miles to a local event. Although this is not the entire group that was surveyed, it can be assumed that if a user is willing to travel 10 or 20 miles for an event then they would most certainly travel 5 miles or less. With our wearable technology, walking is encouraged, creating an immersive, interactive environment for the user. As mixed reality allows users to interact with their direct environment, supporting friends and family, as desired second most by our Milestone 1 data, is easier than ever as there is no barrier to access if a user has or does not have this technology equipped.

As described in the interactions, users can easily communicate with non-users while wearing the glasses. Amdocs Corporation, a leading multinational software provider, recently surveyed consumers regarding their desire to utilize augmented or mixed reality versus virtual reality technology. In their findings, they discovered that 60% of individuals desire to utilize a mixed reality system over a virtual one. They also learned that just over 50% of their users were interested in augmented reality glasses with 5G.⁴ This further strengthens the argument that individuals would be interested in mixed reality glasses. While virtual reality may actually take away from user to user experience by disconnecting them from the real world, mixed reality can seamlessly combine human to human interaction and technology to enhance the overall user experience.

Strengths & Weaknesses

There are a few key drawbacks to this unique solution that separate it from the other potential solutions provided. The main issue is with the technology accessibility itself. The cost of the system will most likely not be small due to the technology and the potential quantity demanded. Additionally, the production of the technology will take some time, so rolling out units and full implementation may also take longer than other design methods. Disparity between users may be another downside that is experienced, with the system most likely costing a bit more than users may like. While the overall goal is to bring users together, those who do not have the glasses may feel left out as the technology may not be as accessible to them. Our user base is also now limited to those who can see and move their hands to interact with the mixed-reality interface.

One of the system's main strengths is its interactive user interface that offers immersive experiences to the users. Because this idea is so unique from the majority of products on the market right now, it is intriguing to customers who are looking for a new experience. According to social theorists, people have an inherent need to be different from others, promoting the idea that consumers desire unique products and experiences as they prefer a high dissimilarity to others.⁵

Furthermore, another strength of this device is the lightweight aspect that can easily be distinguished from the currently existing Apple Vision Pro design. The sleek design of the glasses also makes them visually appealing and inconspicuous as passersby view them as regular sunglasses. The glasses aesthetics fitting the everyday look rather than exhibiting the technology it holds emphasizes the seamless combination of the real world environment and the computer generated one.

Additionally, the way the interface is implemented does not require users to extensively seek out information as the events are highlighted without any effort of the user themselves. Having easily accessible information encourages people to use that information. As stated in our justification above, surveyed users do not want to travel far for events, so by highlighting events around them that they might otherwise be unaware of, we can better attempt to get people involved in their local communities by increasing event attendance.

Studio Feedback

After giving our studio presentation, our peers majority ranked our designs as follows: the reward based mobile application, followed by the interactive kiosk and then mixed reality glasses. The feedback for the interactive kiosk was that it had a creative design that would promote engagement, but, it might be confusing or an eyesore to users. To combat this, the design will be tweaked to clearly label the kiosk as an information center, aiming it to be placed in a more densely populated indoor area. The mobile app was greatly received by our peers because of the rewards aspect and its effective promotion of community engagement. However, peers thought that people may take advantage of the qr scanning system, leaving the event after scanning codes just to get rewards. With this issue, the team aims to implement location tracking while using the app, ensuring people are in the correct area. Additionally, multiple qr codes could be scanned at different times during the event if needed, in hopes of preventing people to just scan for the rewards and leave. Although the mixed reality glasses did not receive high praise from our peers because of it being not feasible, those who preferred this design admired that it is different from interfaces that are on the market currently, it is engaging to the user, and they liked that it is high tech.

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