V&A, AR EXPERIENCE

DES206 PORTFOLIO OF PRACTICE

Lecturers

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Understanding of Brief

For this brief I have chosen "Creative Brief A: Augmented Reality (AR)" with this I am expected to demonstrate my understanding of UI design practices, sensibilities, and theory to back me up. I need to research audiences and their respective platforms to inform my UX design which should showcase effective communication, accessibility, and interaction.

I must also develop iterations of my prototypes and perform regular testing informed by my gained knowledge and understanding of interaction design through content and theory.

Research

Week 1 Lecture content covered what User Interface Designers can do.

- Graphic Design Look and Feel
- Interaction Design Platform and Capabilities
- Programming Responsiveness and Interactivity
- Psychology Look and Feel

As well as how this module builds on from the DES103 module which involved concepting and holistic design.

On the AR Brief. It listed 3 examples that relate to this brief they are

- Story of the Forest (teamLab / The National Museum of Singapore, 2016)
- ReBlink The Art Gallery of Ontario, 2017)
- England's Historic Cities (Hex Digital, 2017)

Each example provided very interesting concepts, in "Story of the Forest" it should a Pokémon GO like collection feature that when viewed displays a 3D-interactable model of the animal that had been collected. It displays information about the specific animal being shown, it covers information such as Habitat, Food, and its current status (Population in the wild? Rarity of it being viewed in the exhibition?) it was not too clear as what the status meant.

This exhibition reminded me of observatories and how they had dedicated rooms that would display the stars on the ceiling inside of a large dome, this exhibition takes it further and instead of having to remain seated the observer is instead able to walk freely and look around, a very cool concept brought to life by the possibilities of AR.

"ReBlink" is what first comes to mind when I would think of an AR exhibition, where the users scan a particular item and it comes to "life" through AR, whether it being turning a static 2D image into a 3D viewable portrait. Although for this example, I found it to me somewhat gimmicky, which may be its intended use but I thought the "glitch effect" was a bit too much and unnecessary as well as how it added modern appliances such as laptops and phones to some of the art, something I would not be interested in. From the video it didn't seem like this application provided any information on the art being viewed which is something I do wish to do where applicable. Otherwise it seemed very straight forward to use as all the user had to do was scan the photo and watch as it came to life.

Lastly there is "England's Historic Cities" which seems to be a the largest of the 3 as it covers many different areas around England, it is an indoor/outdoor experience, this application seems focused at people who want to gain information on the exhibitions, just like before it seems easy to use and user friendly, with the user requiring to scan objects that have a rotating diamond on them, doing this then results in a pop-up of information being displayed in 3D Space. I like how they presented the user with information, it looked clean and readable, as well as being able to be viewed in portrait and landscape mode.

From these 3 examples, I was able to see the different ways of going about an AR experience for a museum, however I still need to do more research of AR Applications that apply to my specific brief as well as gaining a better understanding of what I am going to do, and how to do it as effectively as possible.

I came across "Skin and Bones" which took place in the Smithsonian National Museum, at the time of it being introduced in 2017. It supported 13 skeletons, this application takes the skeletons and reconstructs them into how they would have looked if they were alive, it also has animations that show how they moved.

After looking at the above examples and seeing how they work off of those short videos I moved onto researching Accessibility and Inclusive design as it something that gets forgotten about a lot and if I can I would like to implement good accessibility features and make my design as inclusive as it can be.

First of all I need to understand what inclusive design is, from our week 3 lecture, it explained it as "Inclusive design is the design of the environment, it can be accessed and used by as many people as possible regardless of their age, gender or any disabilities"

The product can be used in different ways to accommodate those people, whether this be language, vision, or any other disability. It needs to be straight forward to use and be responsive to the user. I need to acknowledge diversity and differences in people.

Overall, good design is inclusive design. Using Microsoft's inclusive design, they first recognize the exclusion. They solve for one, but it opens doors to many and finally they learn from the diversity. It opens new perspectives to design and can greatly enhance a product.

I plan to use the Microsoft Design PDF as well as the Xbox Accessibility Guidelines throughout to help guide me in my design decisions.

Inclusive Design: https://www.microsoft.com/design/inclusive/

XAG: https://docs.microsoft.com/en-us/gaming/accessibility/guidelines

Game Accessibility Guidelines: https://gameaccessibilityguidelines.com/full-list/

Visual Language is a key part of the user interface design, it needs to be clear and concise, colour plays a big part, they need to be complimentary and not hard on the users eyes, there also needs to be thought put into colours to accommodate people with colour blindless and hard of vision, text elements needs to be readable and preferably user adjustable for the best experience. UI Motion can be down to add an extra level of depth to an app, it can be just aesthetics e.g. transitions or for more direct usage such as value changes, zooming and scale transforming.

Consistency is another key part that plays into the visual language, having different styled buttons on different screens that do the same thing is bad design, the spatial arrangement, sizing, colour need to remain the same throughout for a streamlined experience. Things such as having the proceed or back buttons be in the same place throughout each scene.

User Research

For researching into users, I was recommended to look at Culture hives "museum_report_nov_2018" as this covers a wide range of not only users but museums as well.

Using their information people who are 55 and above make up 41% of a museum's audience, which is around 1/3 of the population. Although they make up 1/3, I want to focus on the lower age groups of 54 and under as they are the majority spread across 4 age groups, which is a large diversity of age, the youngest age group being 16-24 year olds.

The most common ethnicity to visit museums are people of White ethnicity across 3 age groups (16-25, 25-34 and 35 and over) across all these groups White ethnicity is a minimum of 81%. The second largest group is Asian or Asian British, in the 16-25 age group they make up 10% of visitors.

Between men and women, women are more likely to visit museums, the museum audience score was 39% Men and 63% Women.

It also mentioned that "10% of museum visitors identify as having some degree of limiting disability, compared with 18% of the English population." This shows that there is a vast majority of museum visitors who have some limiting disability, although it is not listed to what the most common is.

According to this report as well, "Learning is the most consistent motivational across all age groups" this is a key factor into my design as I want it to be a learning experience that they can access when they are at the museum as well as when they are not.

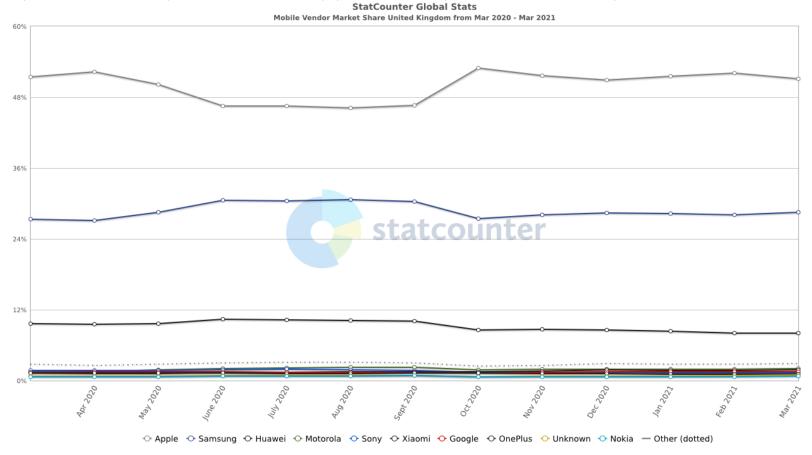
The top 3 motivations of single adult visitors are:

- To learn something
- To be intellectually stimulated
- Museums are an important part of who I am

I want my app to accommodate both single and group visitors, I do not want to take away from the social interactions people are looking for.

Overall, the goal for my AR Application is to enhance the experience, to modernise the museum with new technology, at the current time, AR, MR and VR are still in their early years but I hope they make a more prominent place in the market in the future as the capabilities they provide is amazing.

Next, I wanted to investigate what mobile devices are being used throughout the UK so I can prioritise an IOS and Design. I used Statista and stat counter to find my resources, unfortunately a lot were hidden behind paywalls, so I was only able to use two charts for my information.

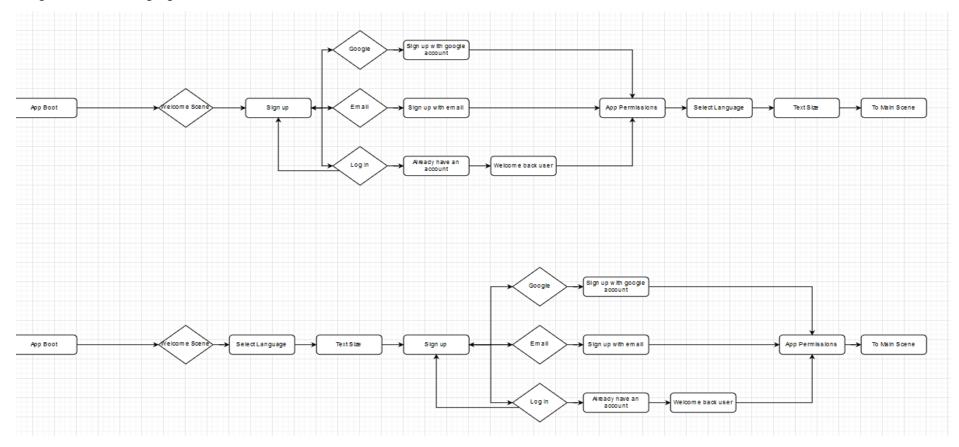


From the above image, Apple is the leading mobile vendor with 51.5% in March 2021 followed by Samsung at 28.51% from this chart I think it safe to go with an Apple product for my main design.

For my Wireframe I plan to use Apples latest iPhone 12 Pro Max, as this gives me the most screen space to work with.

Conceptualisation

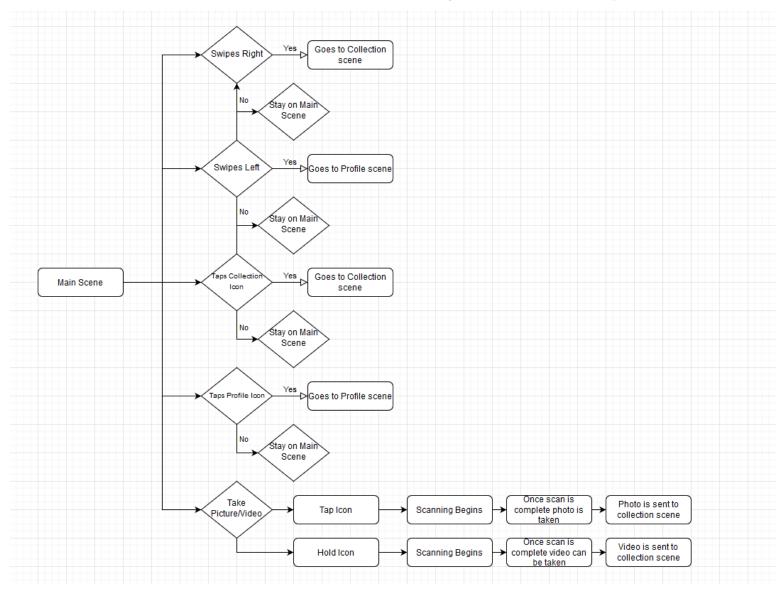
I started off with app boot flowcharting, I want the app to begin at this stage. I added some accessibility options in this stage to allow the user to be able to adjust things such as their language and text size.



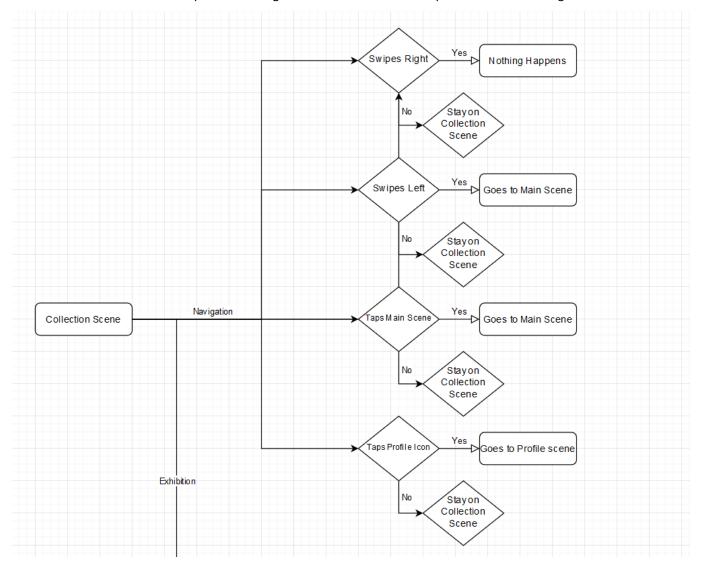
In the above flowchart, I did 2 options for this, with slight re-ordering. I asked for some feedback on this flowchart and of the people I asked, they preferred the second flowchart (bottom flowchart) which I also thought was the better of the 2.

I'm happy with this flowchart, although when it comes to wireframing I expect things to be slightly different or more added, I will only know when I get to the wireframing stage.

After the boot screen, it would launch the user into the main scene, this being where the user would take photos and videos.

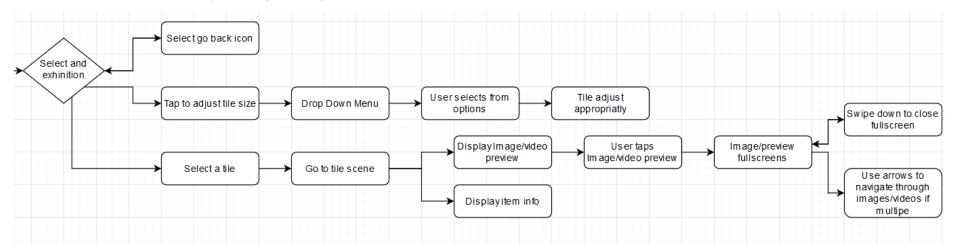


The collection scene flowchart split into 2 images due to size but also to separate the scene navigation section from the user section.



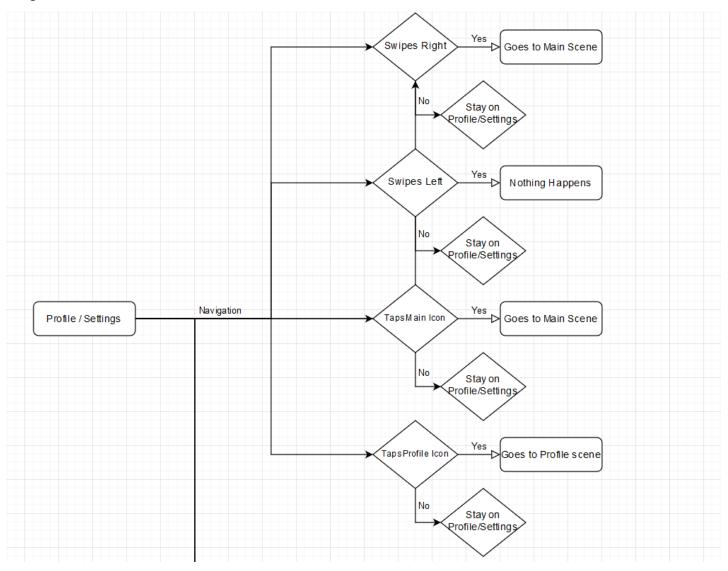
The second part of the flow chart, in this I have laid out how the user navigates this scene in particular, I hope to add an adjustable tile size, this is for visually impaired people who require larger images to view.

When the user then selects what exhibition they want to view, they can then select from multiple photos previews to go to a full scene with information on that scanned item. The user can also tap the image to bring it to full view.



For the user to close the full image, I have it down as a "drag down" but I may not do this as communicating that to the user would be difficult so instead I might replace this with a down arrow. I got this idea from snapchat.

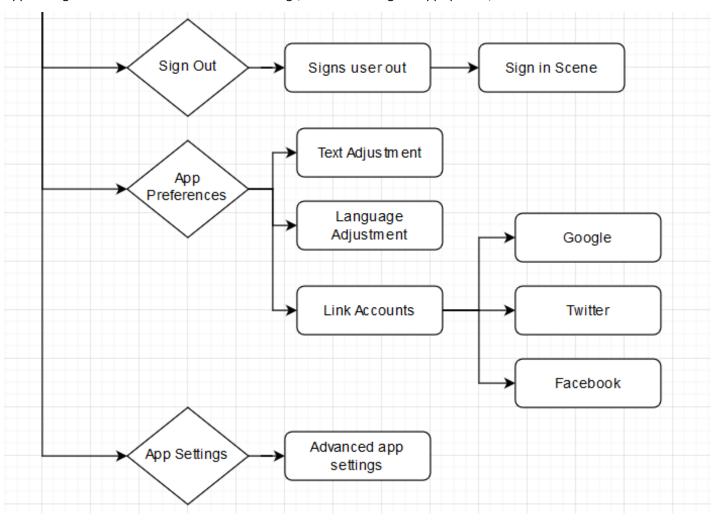
The final scene of the app is the user profile and settings, I wanted to build these into 1 scene. Again, the image is split into 2, the below image shows the navigation between scenes.



As stated above, this is the second half of the profile/settings scene.

In this scene, the user can sign out, go to the app preferences and app settings, I split the settings into 2, as I thought the preferences would be best suited to have the text adjustment, language and link accounts which would probably be the things user would want to do quickly.

App settings would contain more advanced settings, such as clearing the apps photos/videos and delete their account.



Paper Prototype

Note: Although this section is called "Paper Prototype" I have done my wireframes digitally.

I started off with the below wireframe, Used the same application as my flow charts, these first iteration of wireframes are for the purpose of simply laying them out visually for myself.

The below wireframe is a little unclear in terms of colour, I find it hard to follow due to the colours so I'm going to re-make this wireframe to better visualize it.

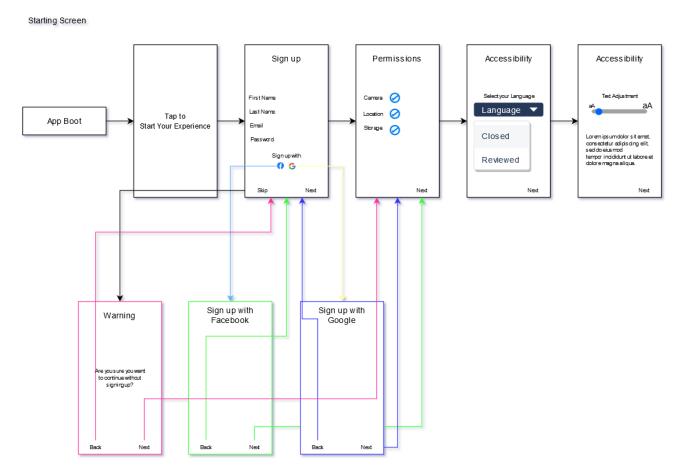


Figure 1 showcases the first wireframe of the boot section; I liked the flow of this one compared to my last wireframe and found it a lot easier to read. So, I will be using the same format the rest of my wireframes.

Figure 1 - First App Boot Wireframe 1

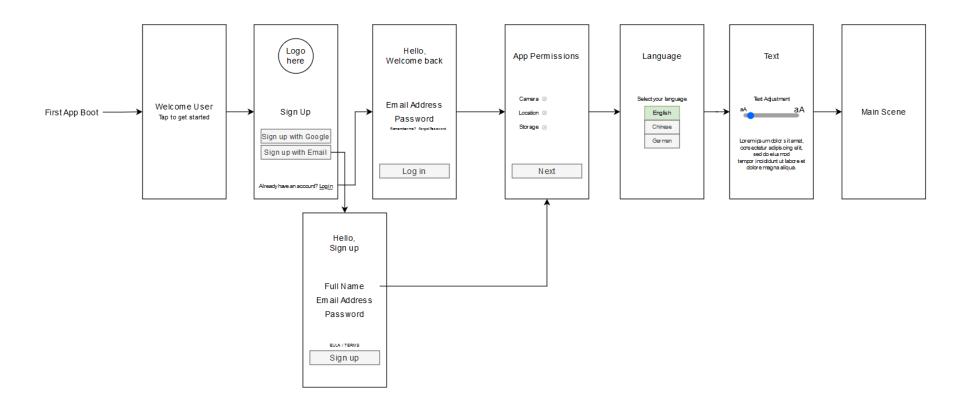


Figure 2 is the wireframe based upon the re-ordered flowchart.

Figure 2 - First App Boot Wireframe 2

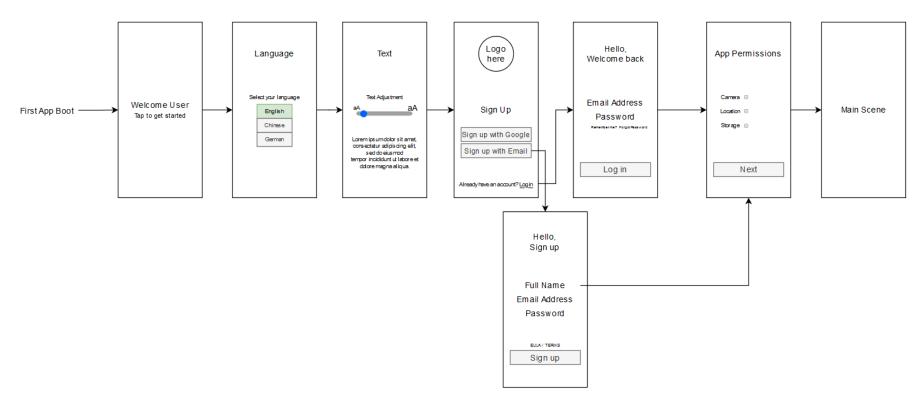


Figure 3 shows my iterations of the main scene, this is where the user scans and takes photos of whatever object they wish to do. I originally was going for full screen with no bottom bar, however I thought it would work better as these "floating" icons would not be able to be used in the other scenes, resulting in me adding a "task bar style" which holds the 3 icons to navigate to the different scenes. I much preferred the "task bar style" as it would then be consistent throughout the app as each scene would have this bar.

Figure 3 - Main Scene Wireframe

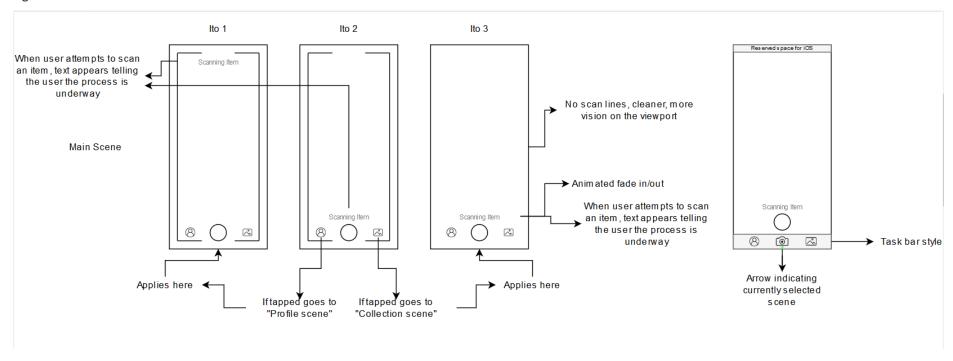


Figure 4 shows my collection iterations and style types, I wireframed a text style and a tile style for selecting the exhibition, I also tried one with a scrolls bar, however I don't like the scroll bar, it takes away space from the tile sizes. I also am not sure yet which I prefer between the text and tile style, once I get to a proper working prototype I will know better.

Figure 4 - Collection Scene Wireframe 1

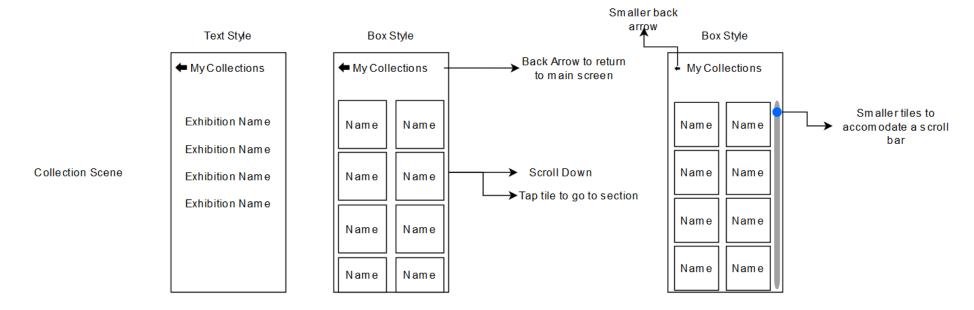


Figure 5 shows me then iterating and adding in the options to allow the player to adjust the tile sizes as I mentioned in my flowcharts for this scene. Again, I don't think I will go ahead with the scroll bar as it takes space away and looks out of place.

Figure 5 - Collection Scene Wireframe 2

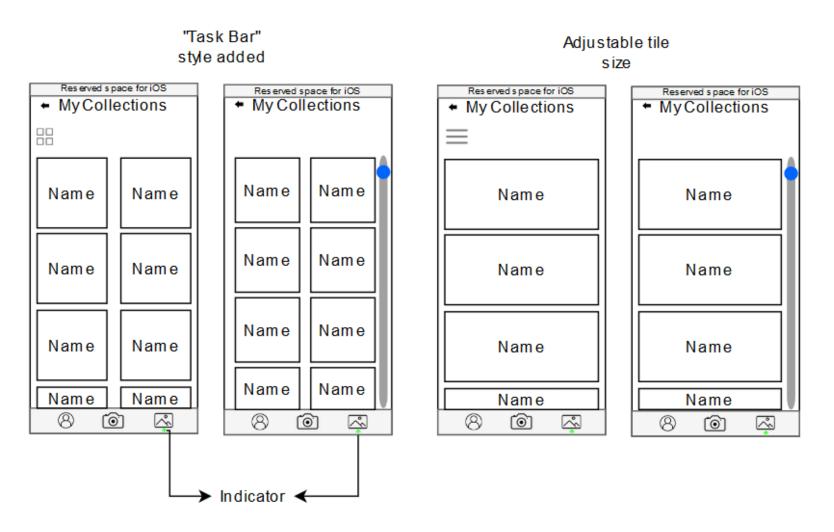


Figure 6 shows what the user would be directed to after they chose an exhibition and then an image from the previews, this scene would showcase another image at the top, which if tapped, full screens the image for better viewing. If there are multiple images the arrow keys can be used to switch between them. For now, I have the image a "swipe down" to close, but as mentioned I may switch this to an arrow down to minimize it.

Figure 6 - Collection Scene View Wireframe 1

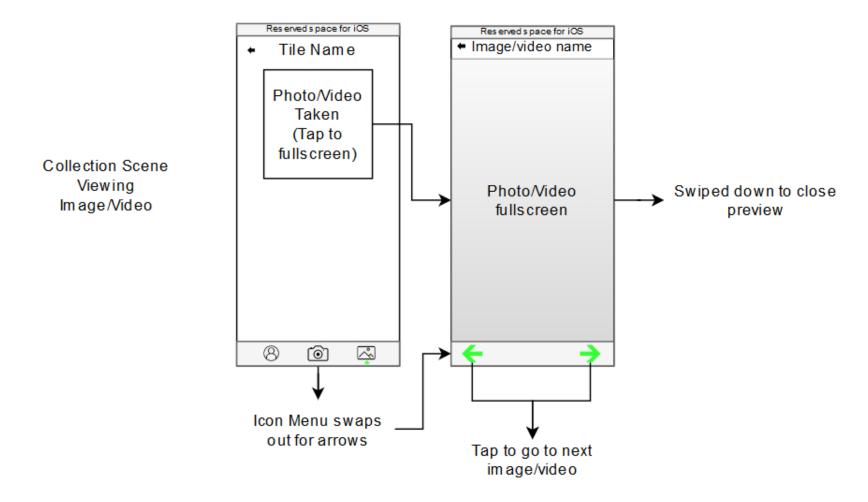
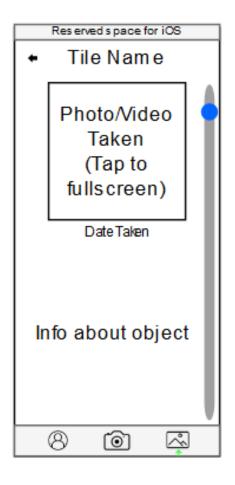


Figure 7 show's 2 styles of the viewing scene, one with and without a scroll bar, I have added the scroll bar throughout encase when it comes to it, it is a better option. It also has the date taken and below the image and more info about the object that was taken below.

Figure 7 - Collection Scene View Wireframe 2

Collection Scene Viewing Tile



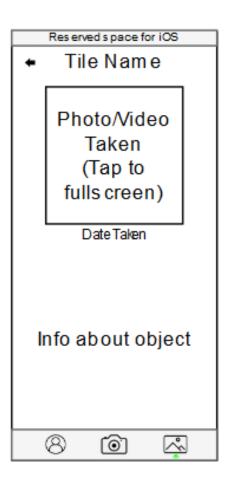
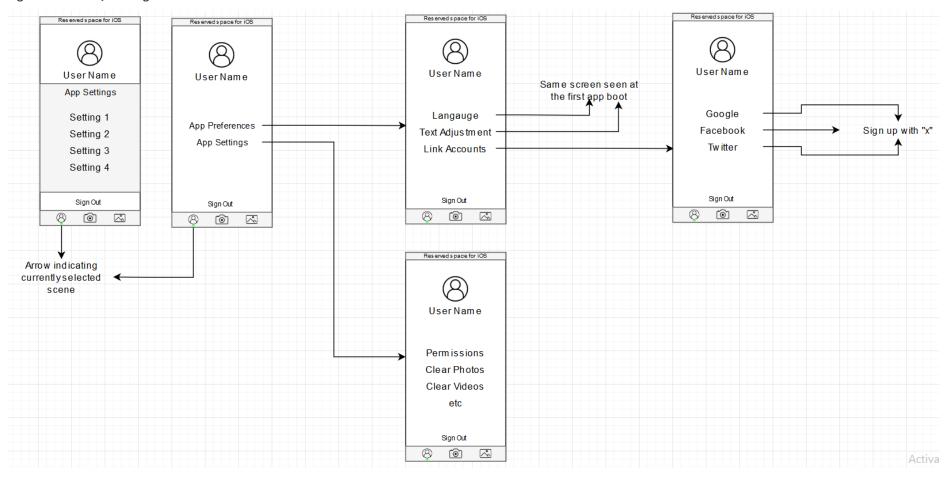


Figure 8 showcases my wireframe based upon my flowchart, The first wireframe (closest to the left) shows a scrollable section where all the settings would be, I felt this would be a bit un-organised, therefore the wireframe (to the right) splits the settings into 2 categories so they can be easily accessible, as planned in the flowchart.

Figure 8 - Profile / Settings Scene Wireframe



Digital Prototype (Figma)

Before moving onto Adobe XD, I wanted to try Figma as a base Wireframe, with this I would be able to take the above Wireframes and expand upon them and even do small prototyping so I could get some sense of flow and feeling for the app.

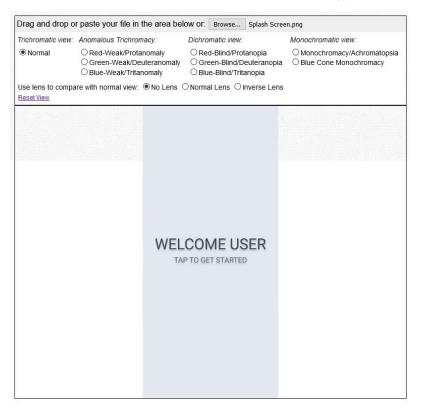
I can add colour as well as proper images, buttons, and some small animations to help me pre-visualize even more before entering my final stage of Adobe XD. This also allows me to get more experience with Wireframing. I can use Figma to experiment with colours, layouts, text size and more before the final step.

I won't be adding such things as working buttons, as in typing in names, emails etc, just the style and placement of the buttons.

I experimented with colours. I tried a few different ones before settling on the below one. My colour palette comes from: https://www.canva.com/colors/color-palettes/peaceful-cottage-path/

With this colour palette, I used the first image "Splash Screen" to test the colour-blindness effects it would have using: https://www.color-blindness.com/coblis-color-blindness.com/coblis-color-blindness-simulator/

I was satisfied as the colour worked well in the different types of colour-blindness, so I went with the above palette.



Drag and drop or paste your file in the area below or: Browse... Splash Screen.png

Trichromatic view: Anomalous Trichromacy: Dichromatic view: Monochromatic view: Onomal Red-Weak/Protanomaly Red-Bind/Protanopia Blue-Weak/Tritanomaly Blue-Blind/Deuteranopia Blue-Blind/Tritanopia

Use lens to compare with normal view: No Lens Normal Lens Inverse Lens Resst View Open simulated image in new window

WELCOME USER

TAP TO GET STARTED

Above image: Normal View

Above image: Green-Blind/Deuteranopia

Figure 9 below is the boot screen, based upon the flowchart and basic wireframe. I wireframed the first flowchart I had, with the Language and Text scale coming at the end first, so that I can compare the experience better between the 2 layouts. I was able to create a layout I liked for the buttons, I feel like any text entries and buttons are marked clearly, and the login/create one are underlined to draw attention to them.

Figure 9 – Figma App Boot Wireframe 1

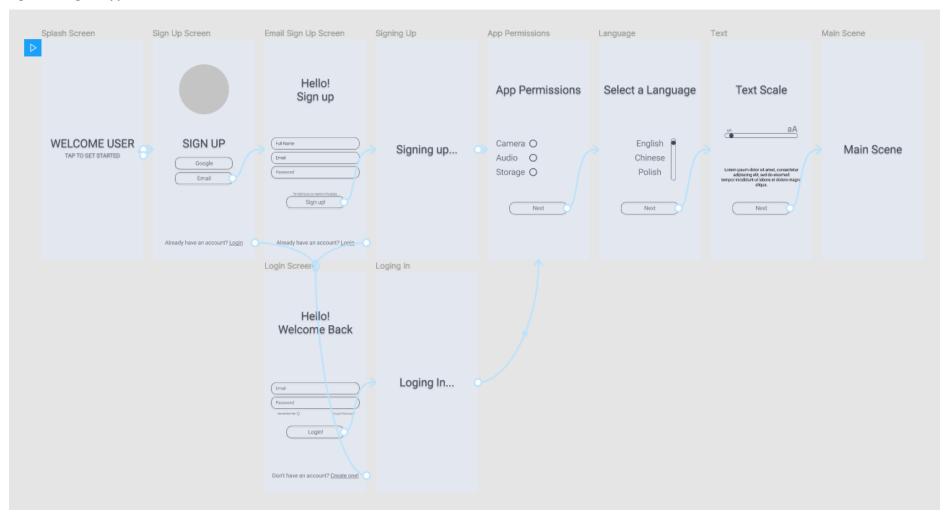


Figure 10 below, is the second wireframe of the boot scene, this is the re-ordered version mentioned previously in the flowchart. I, like the people who gave feedback prefer this one, especially after getting to prototype them both, the feeling and flow fits better, allowing the user to select the language and adjust the text size before having to signup/login makes more sense.

Figure 10 - Figma App Boot Wireframe 2

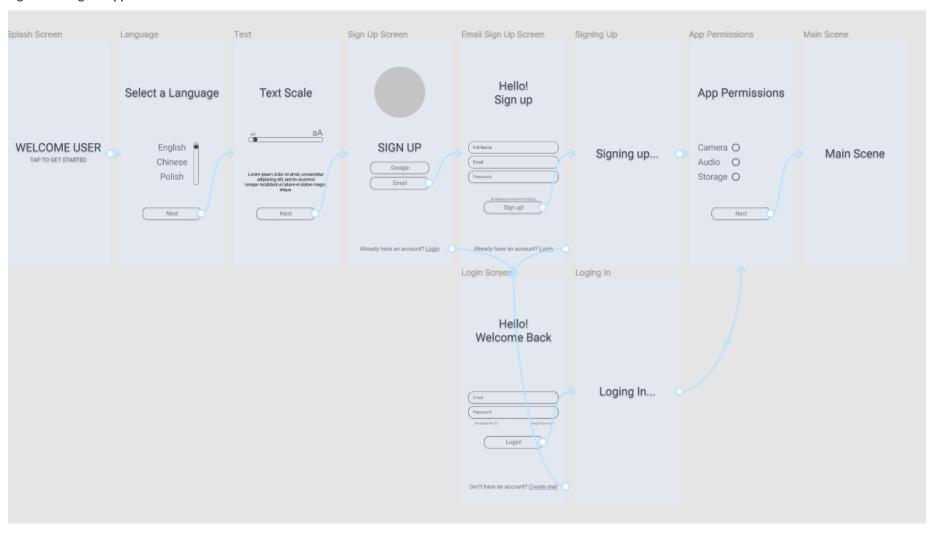


Figure 11 below, this is my wireframing of the main scene, this is where the user takes their photo or video, I added a few new text updates to inform the user. Now it begins blank, once the icon has been pressed it updates to "scanning item" then "item scanned" and finally "photo saved", I also added in 2 scenes which in the adobe setting should be properly animated to "wiggle/shake" on it's axis a little, to show the user the photo/video can be found here. It is not seen here, but after the photo is saved it will remove that text and return to how it is seen in the first image.

Now that I have prototyped this, I like the flow, the user getting short updates as it is processed is a nice touch that I find helpful, as well as the small gallery shake for an alert.

In my early wireframes, I had a small arrow below the current viewing scene, I have instead swapped this out for enlarging the icon of that scene and moving it up. I like this but I think it may still need to be more defined, but I cannot currently think of a way to improve it.

Figure 11 - Figma Main Scene Wireframe

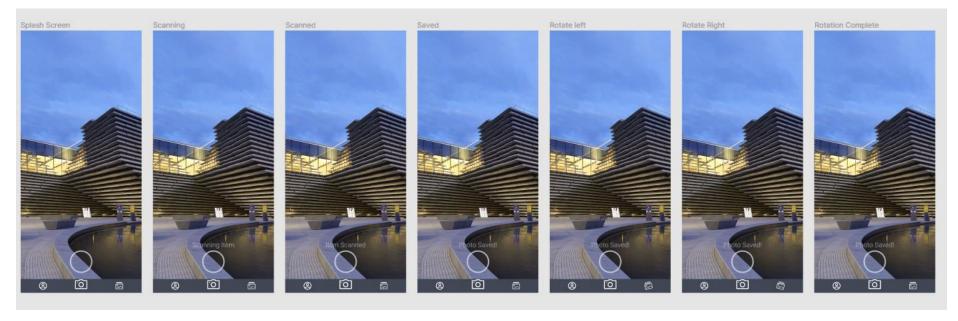


Figure 12 - Figma Profile/Settings Wireframe

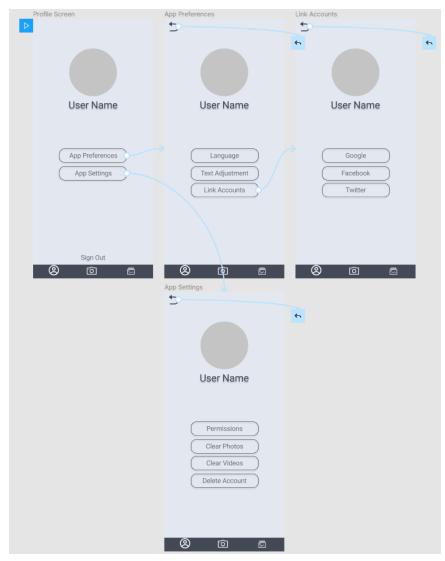


Figure 12 left shows my wireframe for the Profile and Settings Scene, I did not wireframe the Link accounts screens, as they are pre-defined scenes, or they would link to an external source.

I have used the same colour palette as before, the spacing is equal between all buttons.

In the basic wireframe, I had the sign out option available across all these scenes, I found it better to be just in the first scene.

Figure 13 below, shows the exhibitions wireframe, using the same colour palette, I have changed things since the basic wireframe, I was debating whether the "exhibition name" would be text or tile format, I decided to have this as just a text list and move the tiles to each specific exhibition, this wireframe does not include the adjustable tiles. I also removed the arrow option when viewing the image in full screen mode I instead opted for a swipe (left/right) to view them. I also went for the "down arrow" instead of swiping down to close the preview, I felt it was more obvious as to what this meant, and the user wouldn't get stuck.

Figure 13 - Figma Exhibitions Scene Wireframe

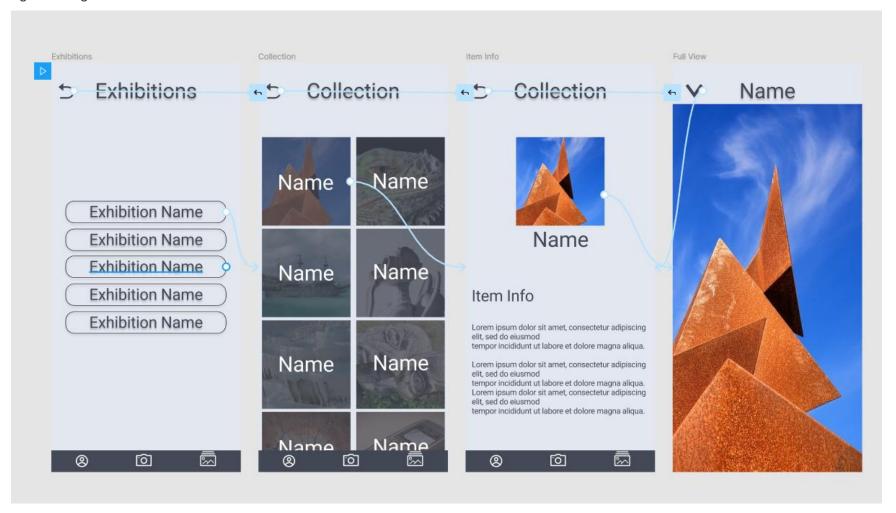
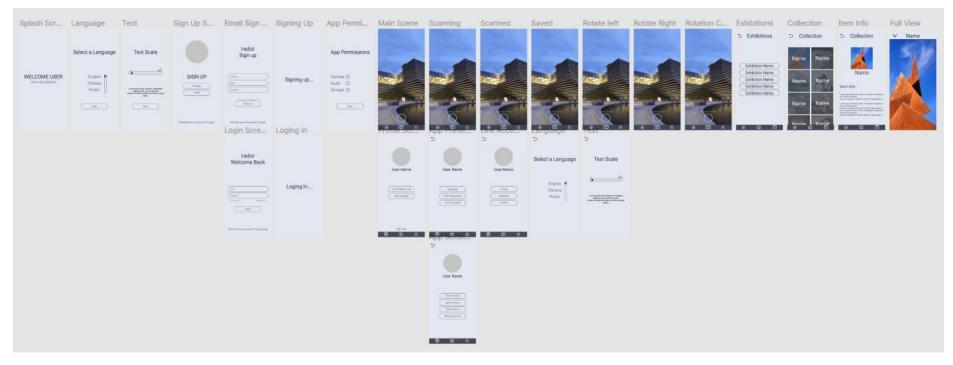


Figure 14 Figma All Scenes Wireframes



I recorded the above prototype; it can be viewed here: https://youtu.be/ztXrXFWJSMk (Note: This is not the final version, just a preview of what I had created in Figma)

The next step is for me to get more feedback on the Figma wireframe, after which I can move onto the final stage of creating it in adobe xd, where I can hopefully get text elements and buttons to work the way I want them to, as well as any small details.

Digital Prototype (Adobe XD)

Now that I had a base wireframe to work off of from Figma, I could move onto Adobe XD, with XD I can finalise elements such as fonts, font sizes, button configurations and overall looks, as I may experiment with a gradient face for scenes instead of flat colour.

In the Figma prototype, I never wireframed the actual "AR" part of the main scene, as I wanted to put more thought into it on Adobe XD. For the flow of my AR App, I plan to just showcase the main features in a particular order, so that the scanning feature is showcased first and then the pop-up information window, followed by the default camera scene.

I expect Adobe XD to be like Figma except for a few things as Adobe is a more professional application for these types of things. I still think I will be able to have a decent understanding of Adobe XD straight off as I have used Figma. I could be wrong and the experience very different, but I suspect that to be unlikely.

Figure 15 showcases the App Boot wireframe, as I mentioned I wanted to experiment with a gradient fill instead of a flat colour background, I also added an image into this background gradient, I used the same Image I had used in my Figma prototype for the main scene but as the background.

To start, one thing I couldn't get to work in Figma was scrolling, for the "Language" scene, I wanted the user to scroll through to select their language. In Adobe XD I was able to get this to work, I had to do it a few times as I made changes such as adding a hover effect which adds a box around the currently hovered text, doing this caused the spacing between the text to be different so I had to re-align them and add them back to a vertical scroll group.

My work around for displaying the text change effect was to create 2 different boards, one with the default size and one with the large size. I am sure there is a better way of doing this, but my knowledge is not yet that advanced and I won't be able to do it correctly, but I am satisfied with my work around.

The above applied to the "Login" scene, where I have a "remember me" selection, originally I had planned for this to be a selectable but swapped to a drag/swipe style as I thought it would more suiting. I had to create 2 scenes for this as well, one with it set to "no(left)" and one with it set to "yes(right)".

Otherwise the scene is originally how I planed just with a few enhancements and working sliders and scrollable objects.

Figure 15 - Adobe XD App Boot Wireframe

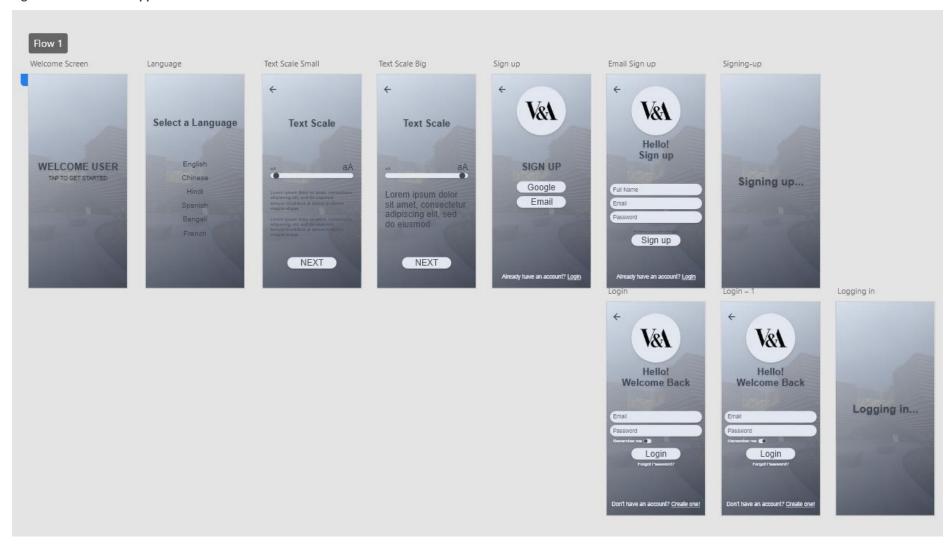


Figure 16 shows the app permissions. I wanted these to be individually selectable but thought that was not the best option as, they are all needed for the app to function if it were real. So, I instead made an "accept all" button which then switches to a scene with them all selected. After a short period of time it then switches to a new scene.

Figure 16 - Adobe XD App Boot Permissions Wireframe

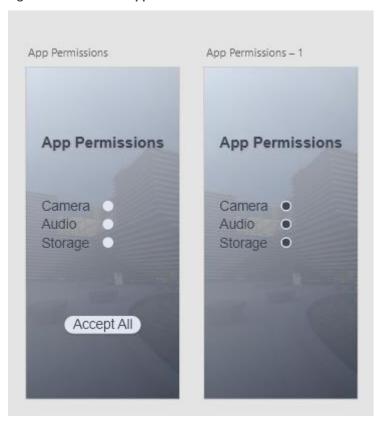


Figure 17 showcases my Adobe XD version of the wireframe, with the inclusion of the "AR" information pop-up which I did not do in Figma, so I will have to get feedback on this part.

I feel it's missing something, or it might not be as clear as I want but through feedback, I hope to be able to improve it.

I will also swap out the background image in the future to an image of my own, which I took from inside the V&A

Figure 17 - Adobe XD Main Scene Wireframe

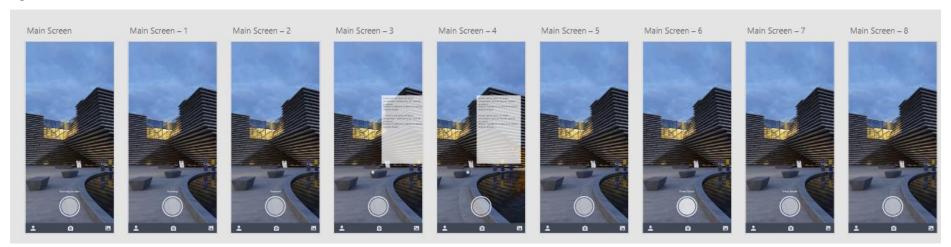


Figure 18 is a close of the information pop-up for reference with my own image swapped onto it.

Figure 18 - Adobe XD Main Scene image swap

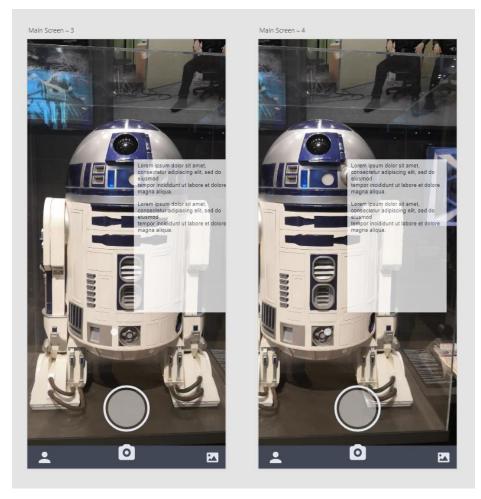


Figure 19 shows my reworked pop-up after some feedback, I was told it was too bland, the white with black text was difficult to see so I swapped the colours giving the background a darker colour and the text a brighter colour.

I also added the "Play Video" and "Play Audio" to this, which I have prototyped the video section, which expands out (see Figure 20)

I do agree that this version is better, it is more readable and clearer.

Figure 19 - AR Pop-up rework

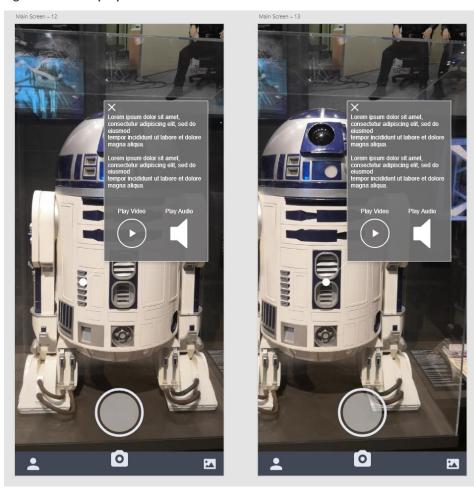


Figure 20 shows the wireframed scene for when the user chooses to play a video. It expands the pop-up to fit a video, adds a "back arrow" and a close arrow which completely closes the po-up box.

I think this is a good addition, although it was not planned it was suggested so I gave it a try and I feel it expands upon the experience the user would receive.

Unfortunately, it doesn't play a video but that is the intended function.

Figure 20 - Play Video Wireframe

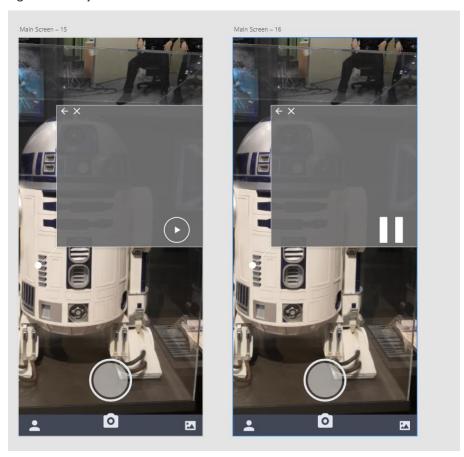


Figure 21 showcases the scenes of when a user scans an object, it goes through a few phases. Searching > Found > Visual Feedback. I felt it best to give the user constant visual feedback as to what was happening instead of just a black canvas and they must just assume it was taken.

I would improve the outline effect but I do not know how I would go about creating such a thing within Adobe XD so this is the best I can with the knowledge I have.

For my prototype these panels only play once just to showcase it as after that it only repeats the "take photo" sections within the wireframes.

Figure 21 - Main Screen Scanning

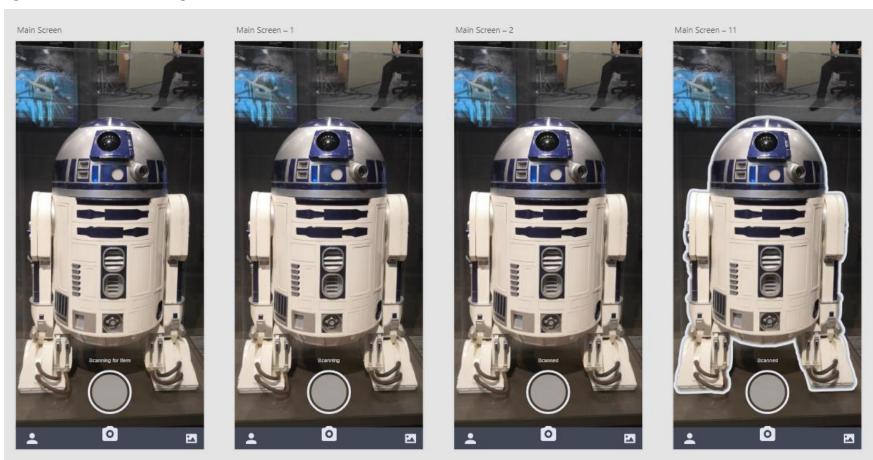


Figure 22 is my profile and settings scene, most of it is re-used scenes from the initial boot section, just re-hooked here to match the scenes, I also removed the background image here and opted for a grey-light-blue colour gradient.

Figure 22 - Adobe XD App Profile / Settings Wireframe

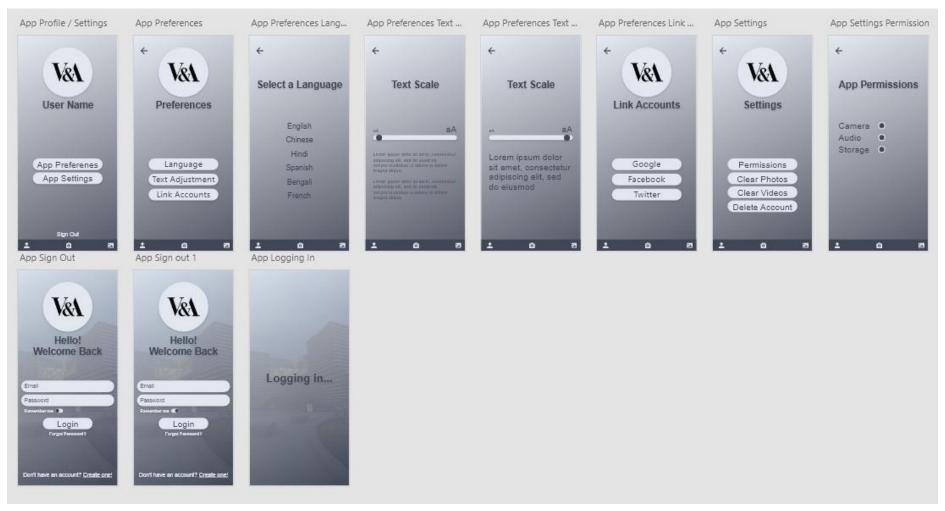


Figure 23 is my exhibitions and collection scene, this is almost the exact same as the Figma boards, only with these I have kept the V&A logo across all scenes. I may in the future remove it from the item specific scene as it might not be entirely needed.

It works the same in terms of the Figma prototype, the collections are scrollable and the small R2-D2 image expands when tapped into the larger preview. And the back arrow is also animated to change to the down facing arrow.

Figure 23 - Adobe XD Exhibition / Collection Wireframe

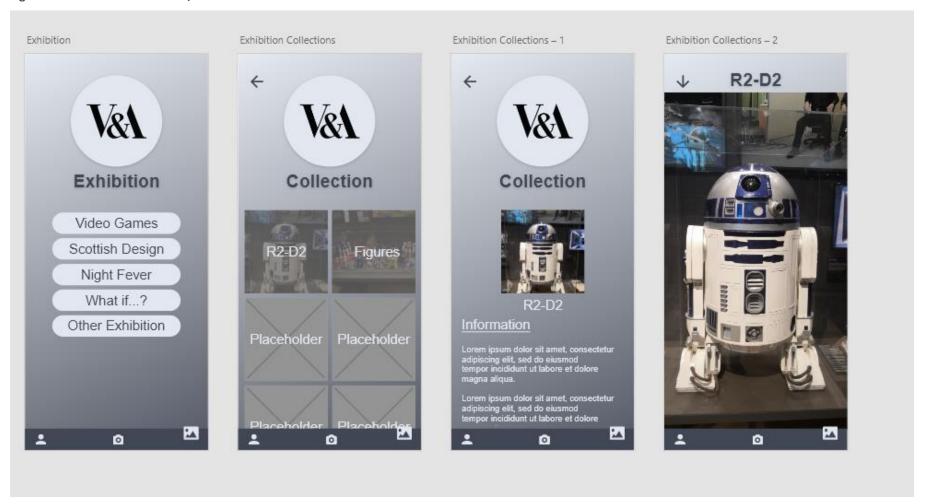


Figure 24 - Re-worked Item Collection Screen



In the end I removed the logo that was above the image, as I felt it was not needed, it shouldn't be a focus as that is what the information and image preview are for.

Adobe XD Final Frame Previews

Figure 25 - Boot Screen Final

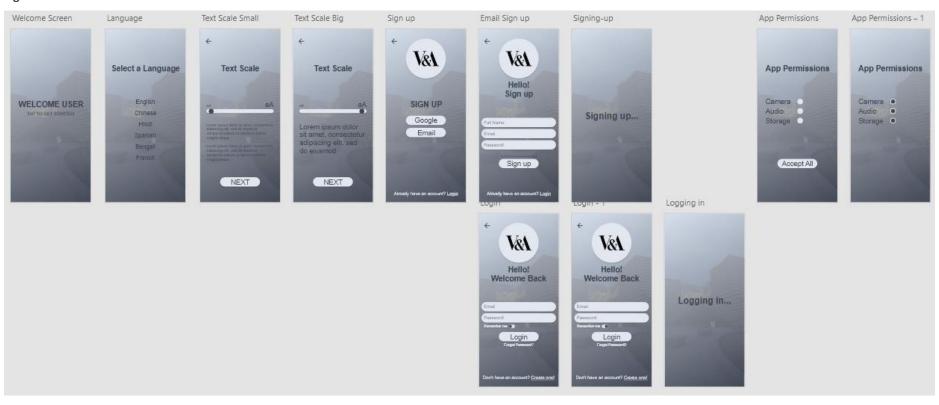


Figure 26 - Main Screen Final

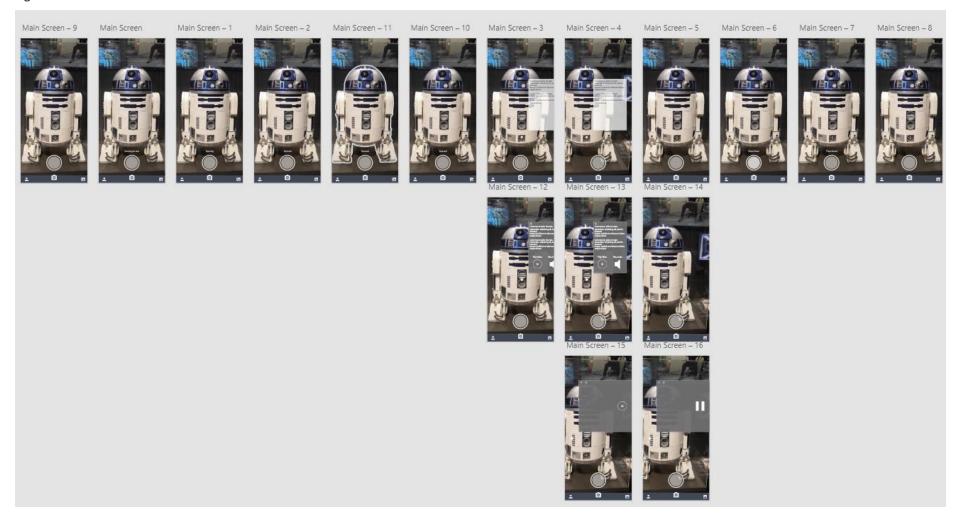


Figure 27 - App Profile / Settings Screen Final

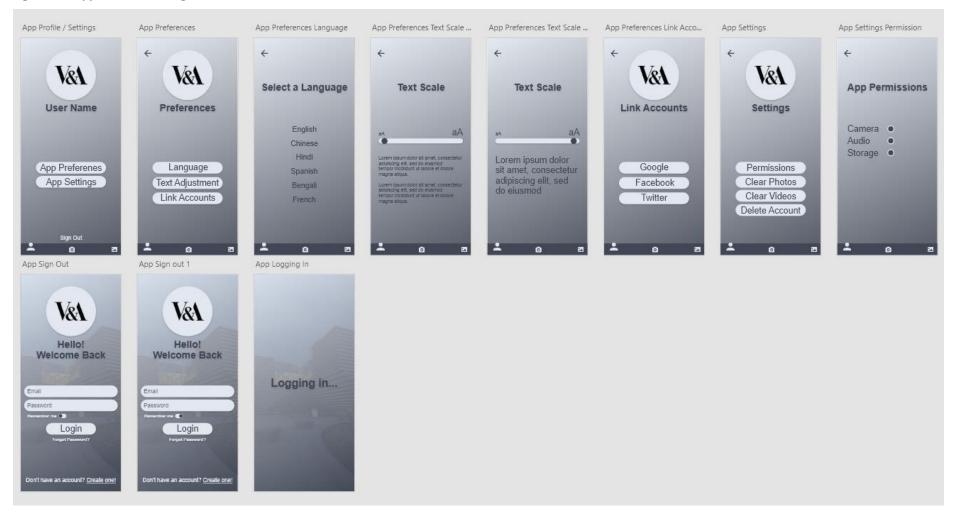
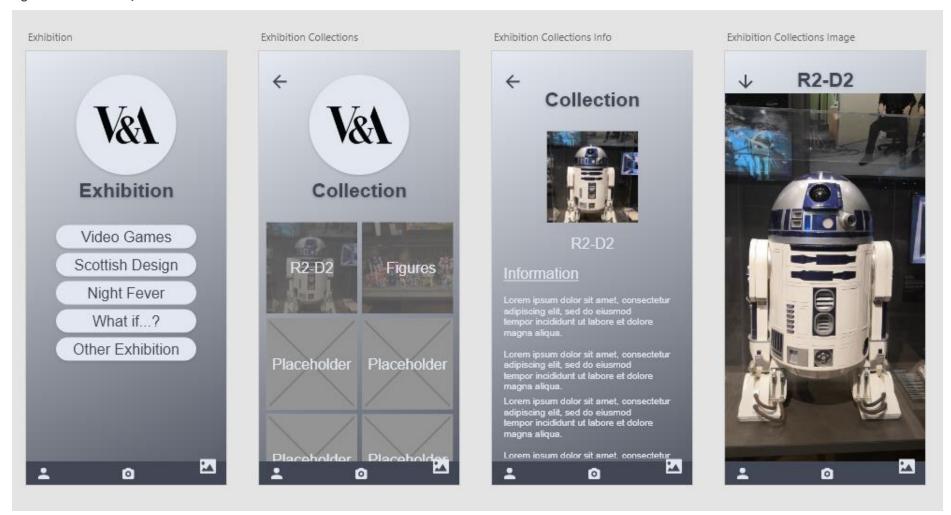


Figure 28 - Exhibition / Collection Screen Final



Video of Prototype

Below is a link to the final Adobe XD Prototype:

https://youtu.be/1nERCvUS0N4

Reflection

Now that I have finished my project, I am happy with the brief I choose to do. I think I did a good job of covering it. I did however go with the first Idea I had, which may not be the best thing, but I think it worked really well and if given more time I would have improved it further by improving the animations.

From the start, I struggled with my flowcharts, I find them hard to do properly as I can't picture the item in flowchart form, that is why I did very basic wireframes at the start to help me visualise what I was doing. It something I need to improve on as I really enjoyed creating the flows and seeing what worked and what didn't as well as how changing a few scenes around can enhance the experience.

Once I moved into Figma, I really got to see the potential although there is more, I wish I could have done I still enjoyed the process and thankfully it was straight forward. I was able to take my flowcharts and bring them more to life in Figma. I did not wireframe the AR pop-up in Figma as I still wasn't sure what I wanted to go for and thought it would be best to leave it for Adobe XD.

Adobe XD was like Figma with a few differences as mentioned, this was mostly just the layout and the built-in feature of iOS/Android features as well as the latest iPhone template. Otherwise it went smoothly, and I had no real issues since I had my Figma Wireframe to work off. I can say that I would need to spend more time using Adobe XD as I know there is better ways of doing some of the things I did and I would like to know how to do so as it would then improve my knowledge of this app and help in with the creation of future projects.

From the beginning my chosen museum was always the V&A based in Dundee, hence my usage of an image of the V&A as the background of the APP, the image I used for the main screens of R2-D2 is my own Image I took in 2019 when I visited the V&A and the current exhibition was "Video Games". I believe I did a good job conveying that the APP is centred around the V&A as I plastered their logo everywhere on the APP.

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