

Design Challenge (15%)

Complete the design challenge using this template

Team (add or delete rows as required)

Task	Team member/s	Estimated Number of minutes to do	Actual minutes taken to complete
<i>Product Brief Description</i>	<i>John Santias</i>	<i>15 minutes</i>	<i>15 minutes</i>
<i>Target User Groups</i>	<i>Jack Dillon</i>	<i>20 minutes</i>	<i>16 minutes</i>
<i>Usability Objectives</i>	<i>Jian Chen</i>	<i>10 minutes</i>	<i>7 minutes</i>
<i>Ideation Design Process tools</i>	<i>Akhil Chaudhry</i>	<i>15 minutes</i>	<i>14 minutes</i>
<i>Design tools</i>	<i>Jack, Jian, John</i>	<i>30 minutes</i>	<i>30 minutes</i>
<i>Prototype sketches</i>	<i>Akhil Chaudhry</i>	<i>30 minutes</i>	<i>30 minutes</i>
<i>Discussion</i>	<i>Akhil, Jack, Jian, John</i>	<i>45 minutes</i>	<i>50 minutes</i>
<i>Foundation User Interface Design</i>	<i>Akhil, Jack</i>	<i>20 minutes</i>	<i>15 minutes</i>

Topic:

Topic 3 – Wednesday 10am Medicine and Medical Science

Product brief description:

Griffith's Red Zone helps students engage, research and learn with the use of innovative technologies such as the use of a microscope, augmented reality, projected holograms and many more. To include another feature in the Red Zone, an uploadable augmented model will be able to model the structure of DNAs, anatomy, cells and many more. This will allow students to look further in depth and get a better understanding of what they're learning.

What will the product do?

- Allow students to go further in depth of their studies.
- Have an option list for students to pick models such as DNA, anatomy, cells etc.
- Zoom into the models and describe parts.
- Provide immersive audio.

What will the product not do?

- Won't be available to the public. Only at Griffith University.
- Won't allow users to add information or notes.
- No voice commands.

Target User group/s (there may be more than one user group)

User Group	Familiarity with technology/frequency of use	Knowledge of.....	Age	Gender
Medical Science students	None	DNA structure, anatomy (body), surgery, chemistry, biochemistry, genes and disease, microbiology, physiology, immunology, infectious disease, pharmacology, metabolism, Structural biochemistry, molecular genetics	18+, the majority would be expected to be in the 18-30 age bracket	M/F

Game developer students	Students should be familiar due to the games development department has a virtual reality area	Gaming characters, models	18+, the majority would be expected to be in the 18-30 age bracket	M/F
Architectural students	Yes, in the area of looking at augmented models of buildings	Building models, building structures	18+, the majority would be expected to be in the 18-30 age bracket	M/F
Visitors (interested people)	Maybe, from experience outside of university	N/A	13+, the majority would be expected to be in the 18-30 age bracket	M/F
New students	Maybe, from prior experience before university	Any field	18+, the majority would be expected to be in the 18-30 age bracket	M/F

Usability objectives

Augmented Reality - Hologram for undergraduate's models, DNA structure, or anatomy.

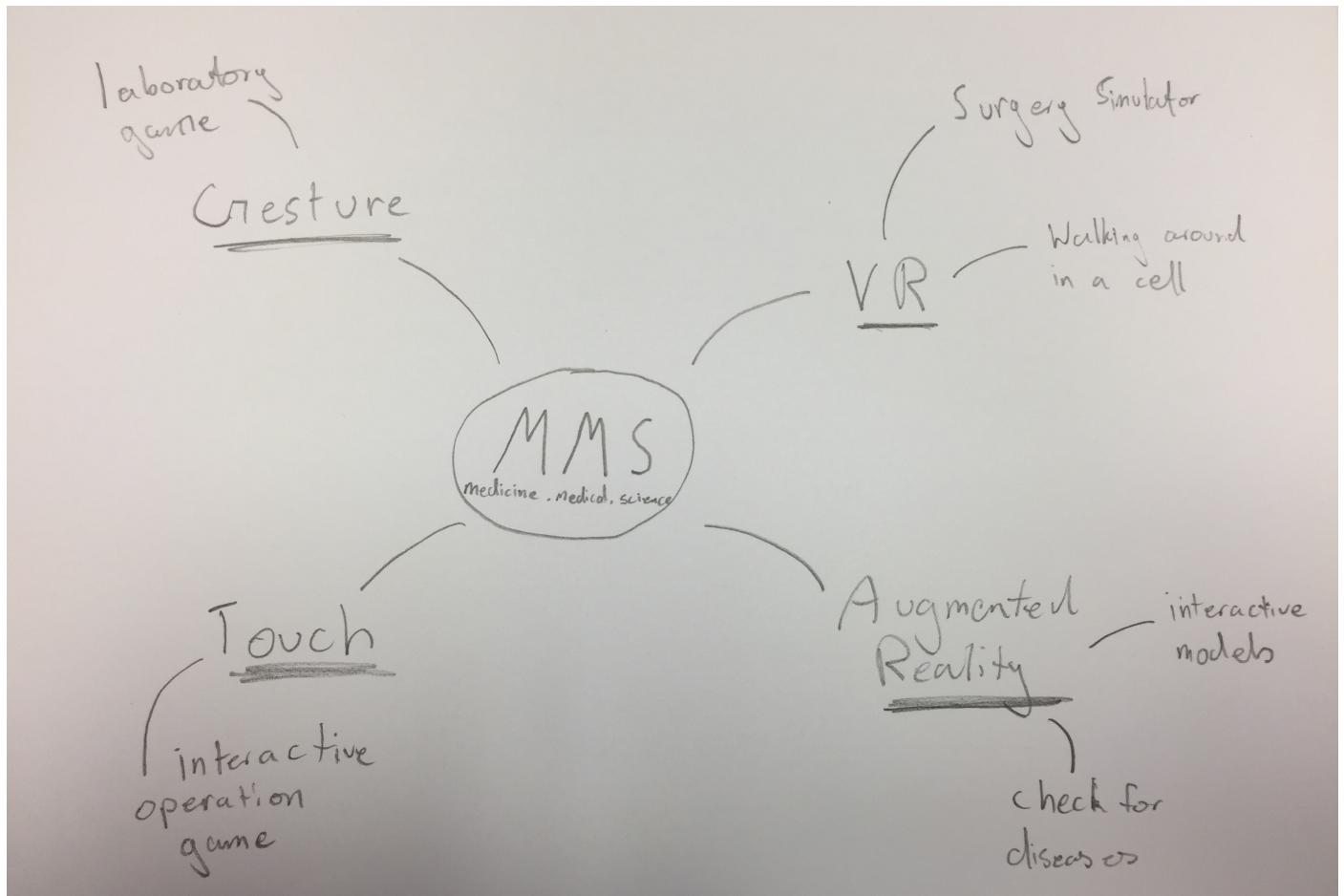
The UAM product has the following usability objectives

- Users are able to use augmented reality to see a structure of DNA or an anatomy.
- Users are able to access direction from the starting app state in 3 clicks or less.
- Users are able to hear direction for the desire content.
- Options are available to navigate to specific DNA structures, anatomy, cells etc.
- The application provides viable readings to the content that was chosen.
- The application displays interaction feedback for most interaction.

Ideation/design process tools:

Ideation Tool	Used? Yes/No (below this table include the photo/sketches/notes to show the results of using each of the tools.)
Brainstorming	x
Affinity mapping	
Concept mapping	
Kano analysis	

Content Brainstorm – Brainstorming was commenced very early in the design process, this was done to discover the selected idea for the entire design. Furthermore, it allowed all ideas to be presented on a page with clear and concise clarity. Once all the options were displayed on the page, a consensus was drawn to pursue the augmented reality route for the design. From this route it was decided what interactive application will be installed on an augmented reality headset (e.g. Microsoft Hololens). The application decided upon was the interactive models.



Design tools used to represent information about user, context, task:

Design Tool	Used? Yes/No (below this table include the photo/sketches/notes to show the results of using each of the tools.)
Persona	x
Scenario	x
Use Case	
Flowchart	x

Persona 1: John Doe is a hard working 25-years-old, third year Medical science student who is getting very close to his exam. His goal is to get 100%. He spends as much time as possible per day to do the best he can. He always tries his hardest who always gets lecturers help when he needs it, he hates when he gets a pass for his work or below. John is an Extroverted kind guy. John struggles with anatomy and needs to find an easy way to practically learn about the organs of the human body.

Persona 2: Jane Dvora is a motivated worker who is 30-years-old and is trying to achieve a bachelor of games design, she is in her second year and trying to achieve her best. She always tries to find new pieces of technology to make her life easier. She developed a game, and she wants to know if it would work in augmented reality.

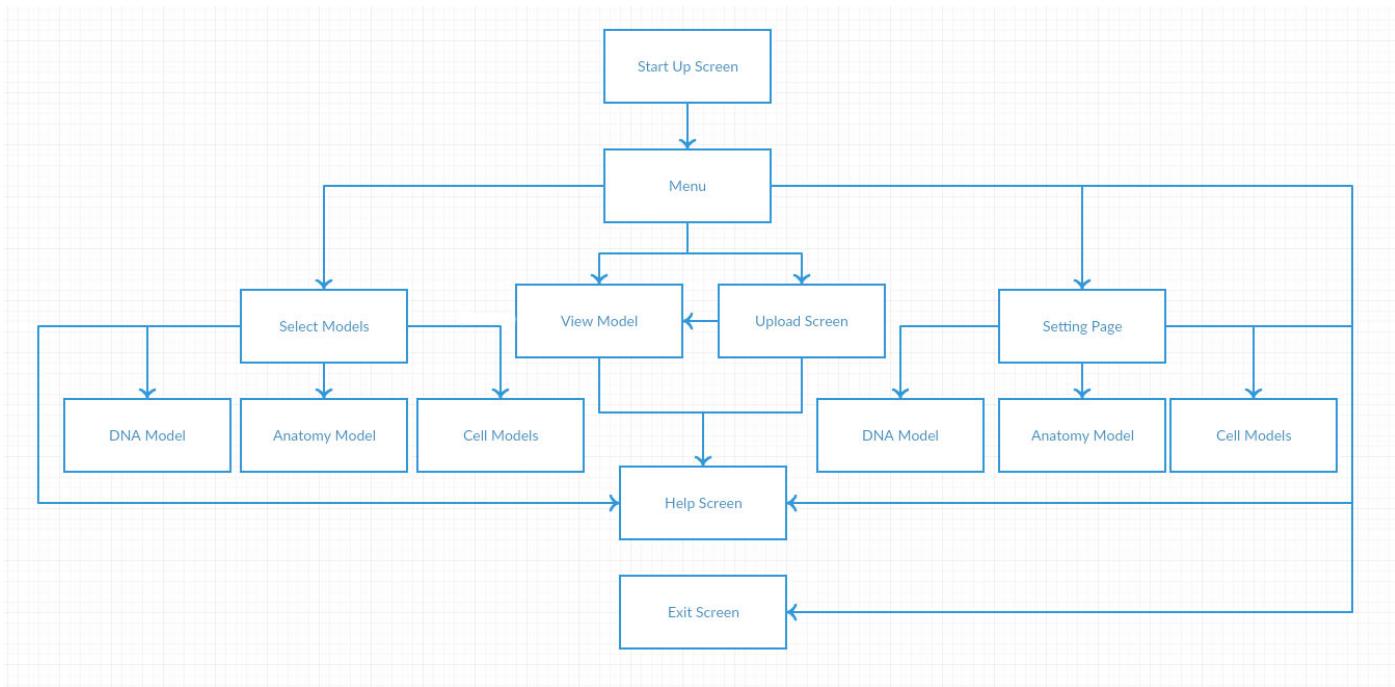
Scenario – why the user needs the product?

The Uploadable Augmented Model (UAM) was recently released to Griffith students. It can only be used inside the Red Zone. John Doe, who was struggling with anatomy had time to go to the Red Zone, use the product, and go further in-depth and learn more. The UAM made a big impact on John's and allowed him to excel in his course. He received a High Distinction for his course.

Jane Dvora was able to use the Uploadable Augmented Model, uploading her game to see if it would work on Augmented Reality. This product helped her see the positives of implementing the game into AR and further develop the game.

Flowchart: This content from the flow chart allows people to navigate/brainstorm their way through the application, how the application is designed and the lists of all possibilities in the application design.

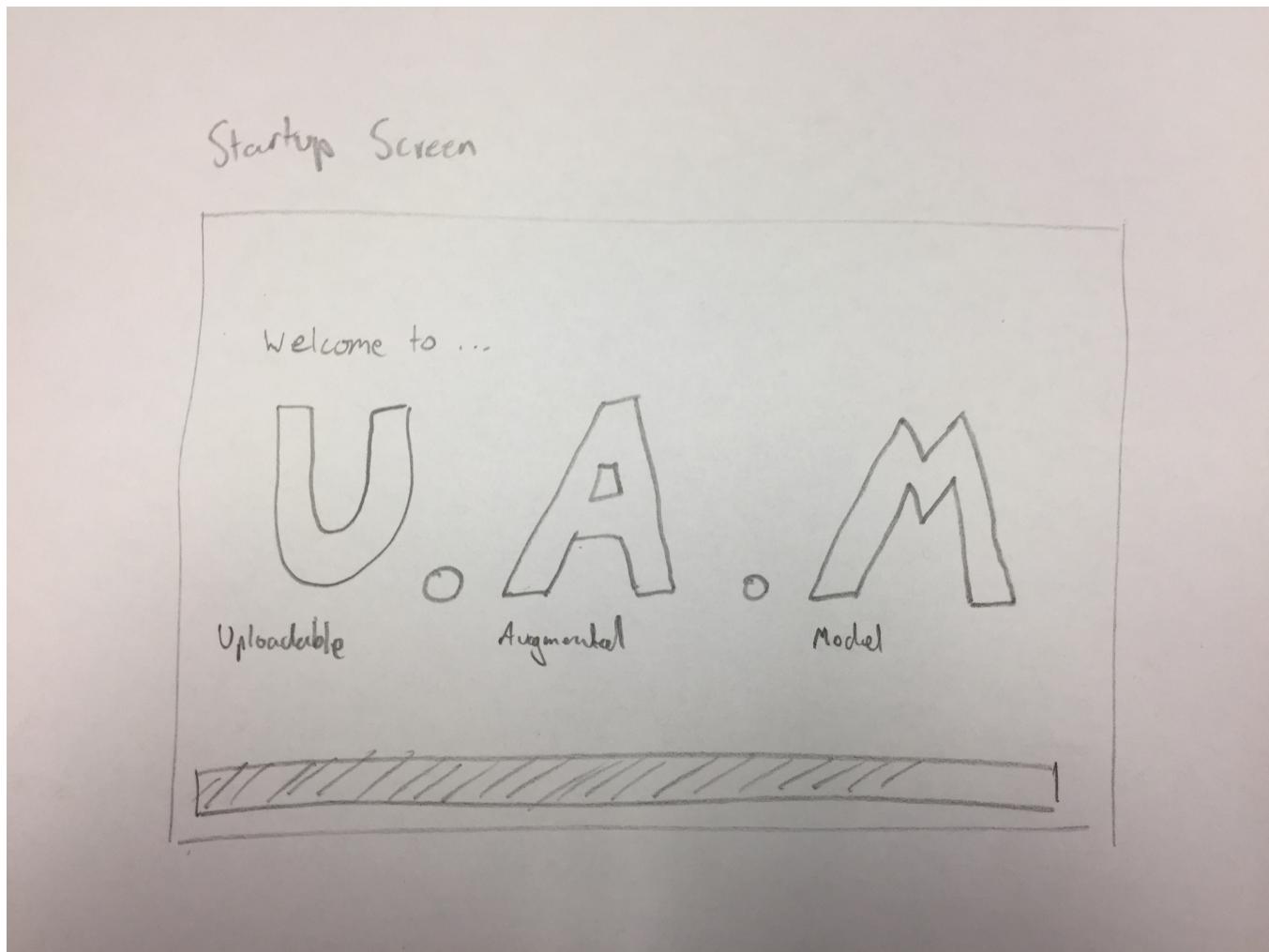
- Start Up Screen
- Menu
- Select Models (DNA Model, Anatomy Model, Cell Models)
- View Model
- Upload Screen
- Setting Page (DNA Model, Anatomy Model, Cell Models)
- Help Screen
- Exit Screen



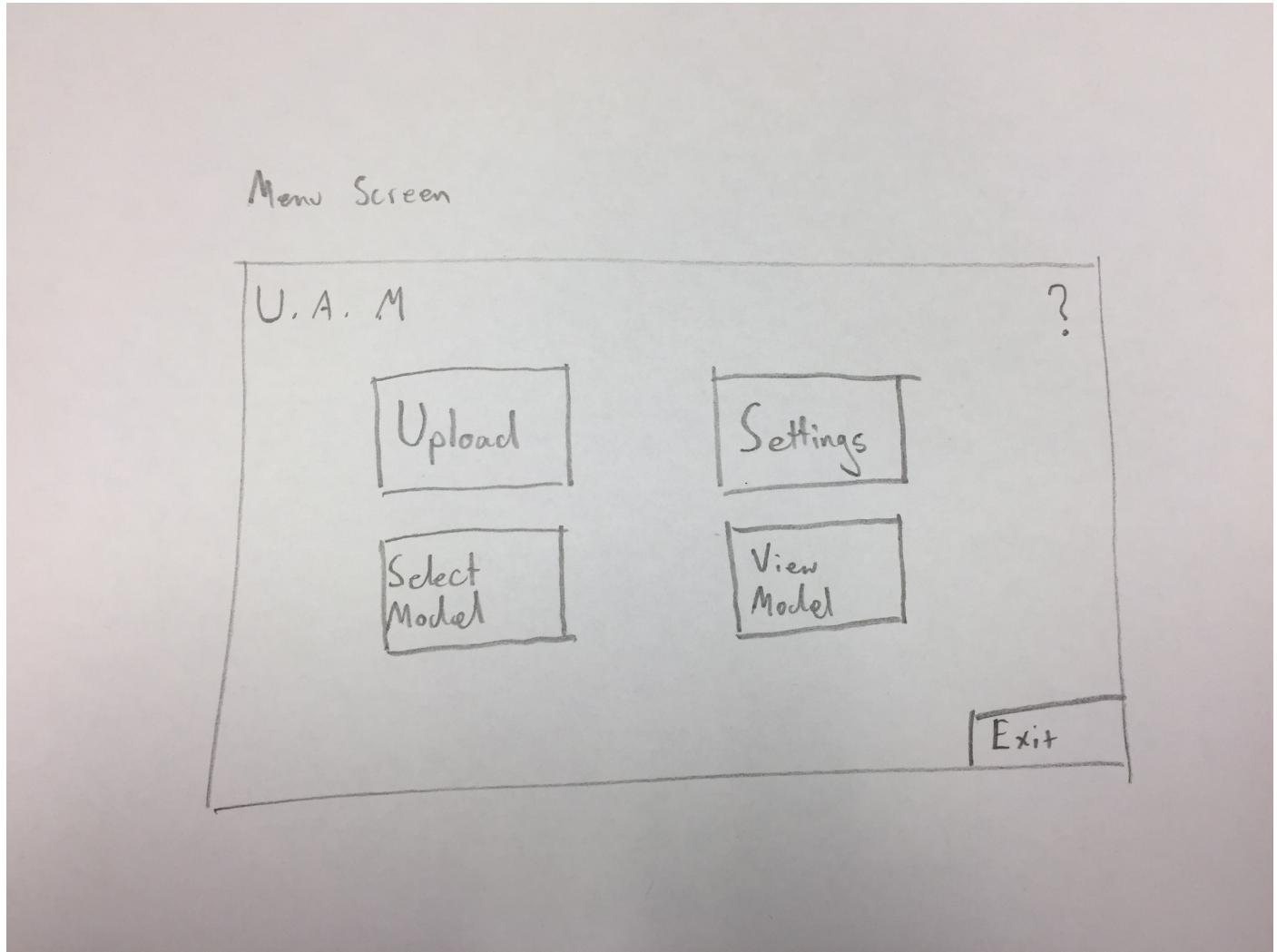
The navigational hierarchy chart was chosen to ensure that there were minimal steps for the user to access what content they wanted to see. As per Jane (Persona 2), she is looking for technology to make her life easier so with the flow chart it would make the procedure easier to get through. With each screen displaying a help option to help the user.

Large rectangular buttons were chosen to be the navigation selection buttons. This is can be seen below. These buttons are so the users can precisely choose what they want to view, alongside with the help button "?" located on the top right of the screen.

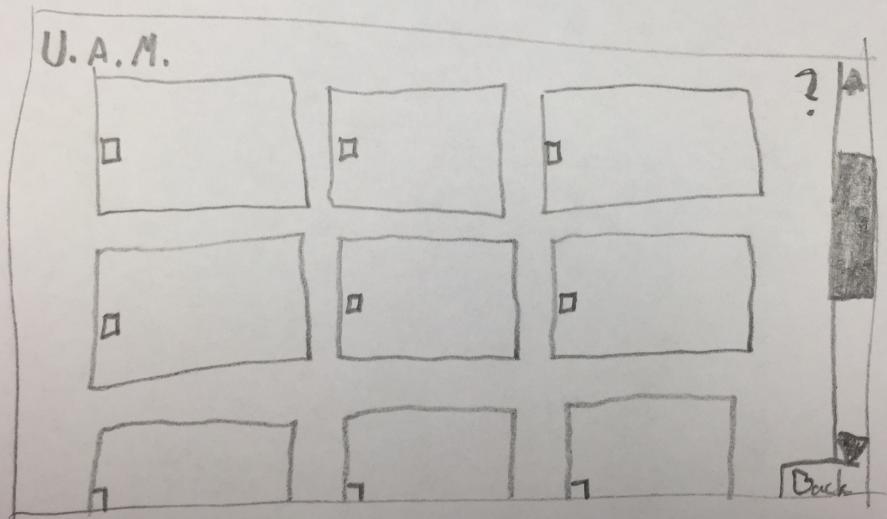
Prototype sketches (insert more pages as necessary)

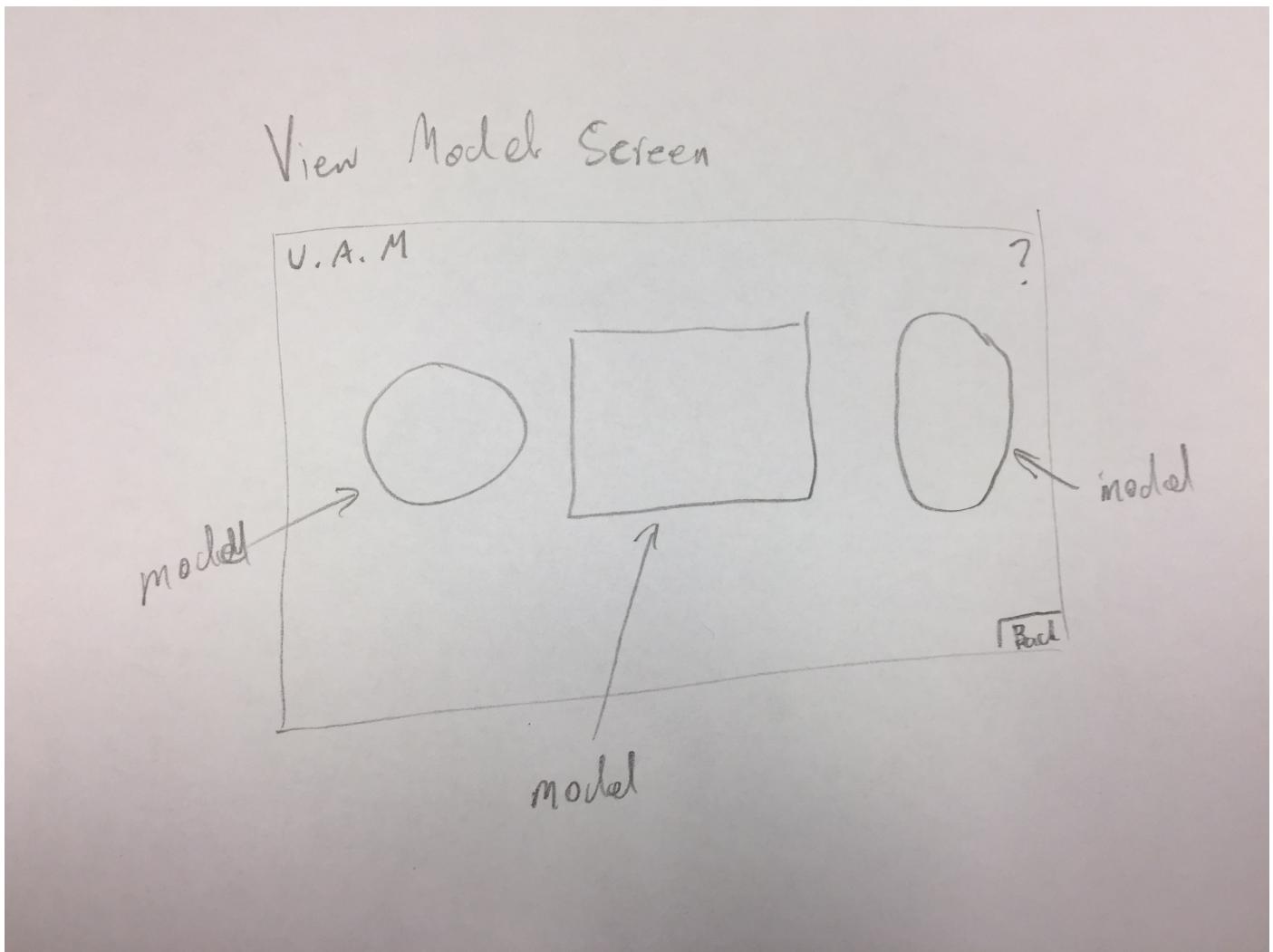


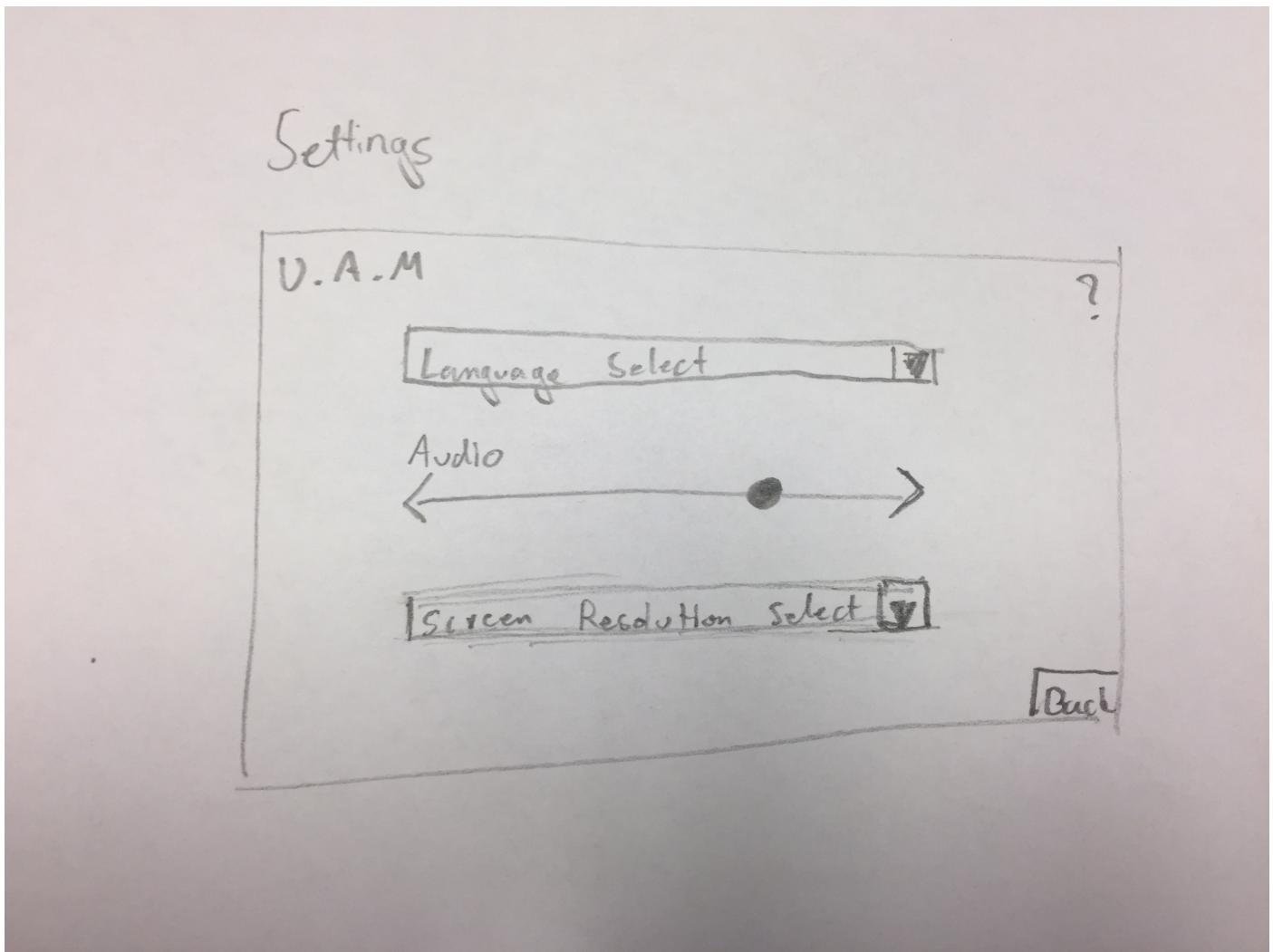
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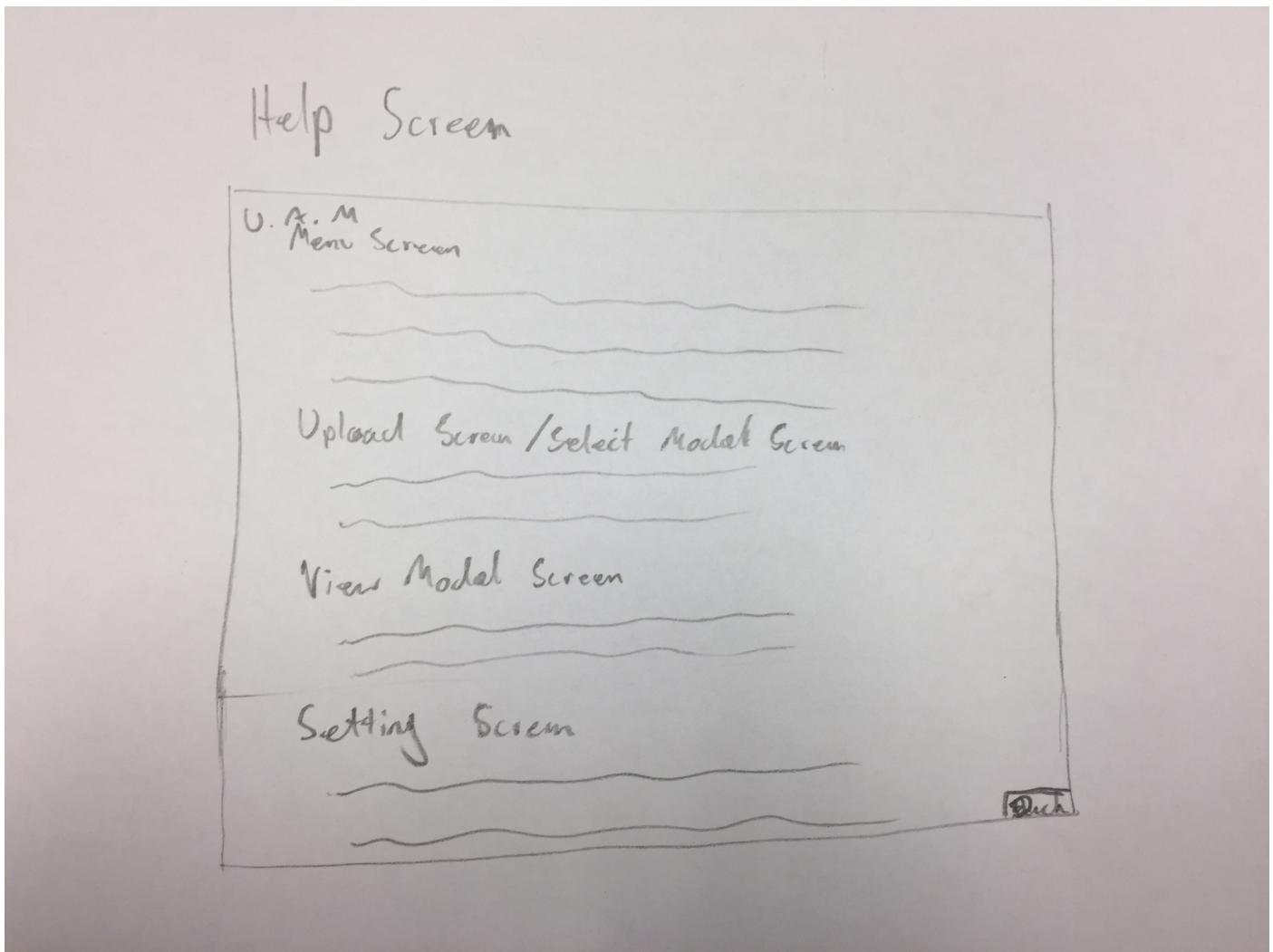


Upload / Select Models Screen









Exit Screen

Thanks for using... -

U. A. M.

Bye... -

Discussion: Why did you design it as you did? Show how you applied theory and principles to your design.

Theoretical foundations

Theory	Used? Y/N	If used, very briefly explain how and give an example of where it was used by referring to the prototype and/or flowchart
Human Factors	Y	A majority of students is expected to learn their topics better by putting on the headset, and moving their head and some body movement to inspect DNAs, anatomy models etc. It is also required for the user to use their hand gestures to interact with the AR models. Users will use their index finger to select from the menu screen and when the user touches the model, an annotation will pop out with more information on it, also pinching with two fingers to either zoom in or out.
Human Action Model	Y	The Human Action Model is based on the users forming a goal to observe an augmented model for educational purposes. The motivations and goals behind looking at a augmented model of their choice due to the fact that each model can be uploaded by the individual is to learn something of their choice and make it more interesting to the user. The interface is extremely user friendly with a help screen too if any users get confused by the interface. This allows users to easily find what they want to do. The outcome of this piece of technology is that the user should feel happy and satisfied that he/she has viewed his/her model by learning something new.
Cognitive structure of tasks	Y	As students, we thought about the kind of information that other students will want to see/experience with augmented reality, this is included with the whole application procedure. We have considered what order each page will display and how it could affect people when using it, we determined through the first task to the last to what users might want to see when using the application. We also consider how users might want to move between pages and included a help icon to ensure they know where to navigate to.
Mental models	Y	The theory of mental models was used in the design process of the design. A mental model is an explanation of an individuals' thought process, about how they interpret a certain function in the real world. It is seen as a representation and relationships of the surrounding world and its various parts. This theory was used with the personas on how they understood how the application on the Hololens would be laid out and presented.

Foundations User Interface Design

Principle	Used? Y/N	If used, briefly explain how and give an example of where it was used by referring to the prototype and/or flowchart
PARC Principles of layout	Y	<p>Proximity – was used in the menu screen where the related buttons were placed next to each other (Select Model/View Model)</p> <p>Alignment – was used throughout all the screen designs, this is seen as all of the designs are designed in alignment</p> <p>Repetition – was applied to the buttons as they are interacted with in the same way as the rest of the application</p> <p>Contrast – was used in the help screen to identify the different elements used.</p>
Scanning patterns	N	
Usability principles -Efficiency -Memorability -Satisfaction -Errors/effectiveness -Learnability	Y	<p>Efficiency - Due to the straight forward, easy to understand design, the user will easily be able to learn the tasks they have to do</p> <p>Memorability - The interface is designed to be user friendly so if a user did not use the interface for a long or short time period, the user should not forget the tasks</p> <p>Satisfaction - The user interface is extremely simple and very easy to understand this will allow users to get to the task they want to very quickly without any confusion.</p> <p>Errors/effectiveness - If a user does become confused by what to do there is a help button connected to every page other than the start and end screen this allows users to easily understand their errors by going to the help page which will also lead them to correctly do what they wanted to do.</p> <p>Learnability - The user is easily able to accomplish basic task because the interface is extremely user friendly which will allow them to easily accomplish the task the user wants to do.</p>

Other comments on your design which show how you have applied the theory and principles of HCI to your product design:

We anticipated that the application is mainly for students to use in the Red Room, and certain visitors. As we are first year this is an implementation that we would want to see for our self's.