

AMERICAN UNIVERSITY OF BEIRUT

UN[REAL]

by
AYA MOHAMAD RACHAD MESKAWI

An Undergraduate (Architecture Design Thesis / Graphic Design Research Project)
submitted in partial fulfillment of the requirements
for the degree of (Bachelor of Architecture / Bachelor of Fine Arts)
to the Department of Architecture and Design
of the Maroun Semaan Faculty of Engineering and Architecture
at the American University of Beirut

Beirut, Lebanon
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Approved by:



Raafat Majzoub
Department of Architecture and Design

Thesis Advisor

Date of project presentation: May 11, 2021

ABSTRACT

Title: Un[REAL]

Un [REAL] is a virtual reality immersive therapeutic retreat for palliative care patients that can impact their recovery rate and improve their quality of life. By designing virtual spaces for therapy, meditation, entertainment, information, and socializing, Un [REAL] changes the patients' perspective of hospital spaces and breaks their isolation.

My research engages with virtual experience platforms to test the possibilities of healthcare design in virtual reality.

Un[REAL]

American University of Beirut

Thesis Design | Aya Meskawi
Thesis Advisor | Raafat Majzoub

I would like to express my sincerest gratitude to my thesis advisor Raafat Majzoub for the continuous support, patience and motivation.

I would also like to thank my family for their support along the way.

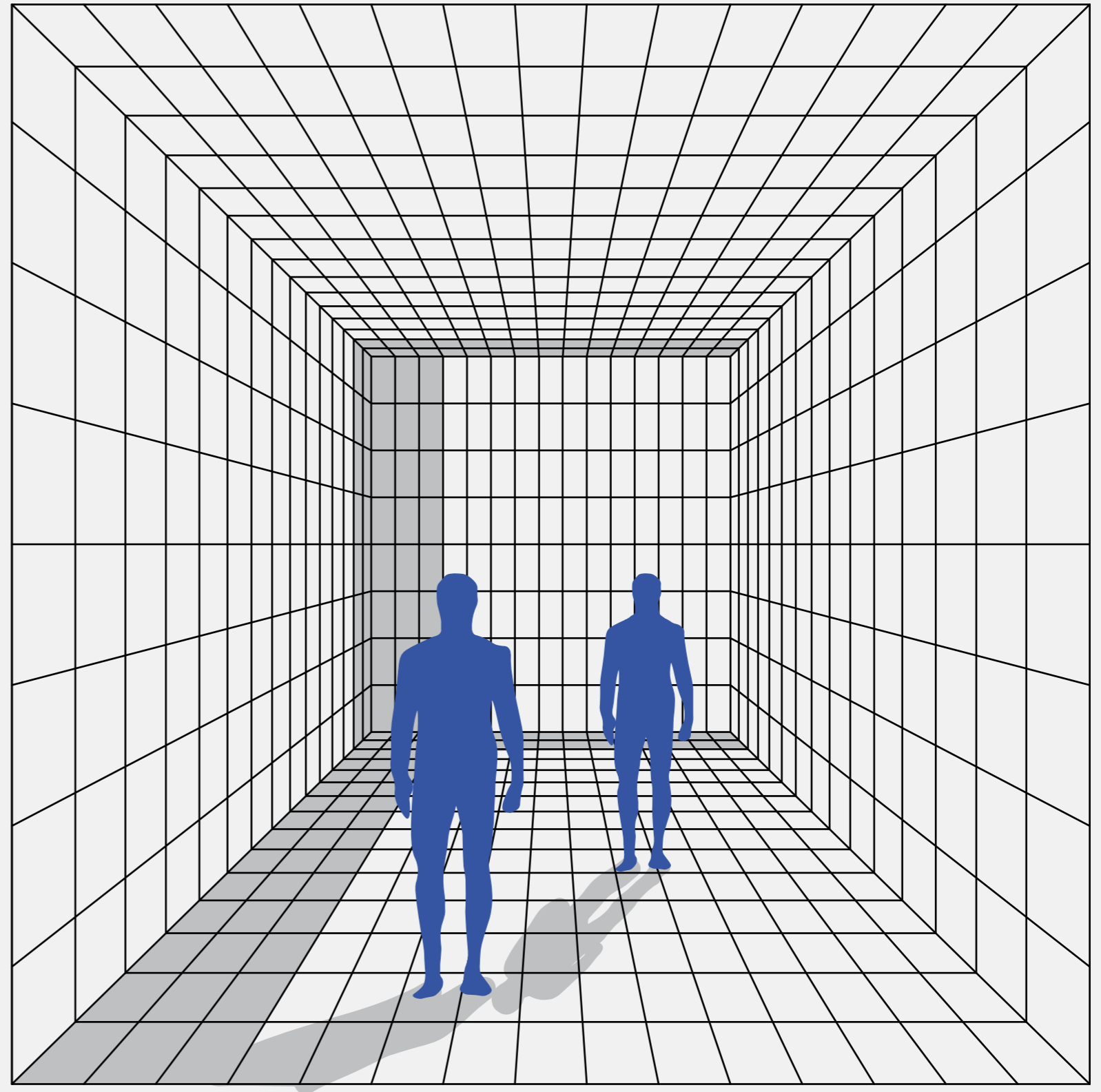
Un [REAL] is a virtual reality immersive therapeutic retreat for palliative care patients that can impact their recovery rate and improve their quality of life. By designing virtual spaces for therapy, meditation, entertainment, information, and socializing, Un [REAL] changes the patients' perspective of hospital spaces and breaks their isolation.

My research engages with virtual experience platforms to test the possibilities of healthcare design in virtual reality.

Palliative Care Patient's Needs

After consulting several health care providers to understand the patient's need during the pandemic, the basic needs were to:

1. Able to spend time with close friends and family when hospital setting is not allowing visitors amidst the pandemic (that may take on for more than 7 years).
2. To have a getaway from the hospital setting.



Palliative care is specialized medical care that focuses on providing patients relief from pain and other symptoms of a serious illness, such as:

Heart disease

Cystic fibrosis

liver disease

Kidney failure

Blood and bone marrow disorders

They are known as the frequent flyers of the hospital that develop high dementia from two mainly two risk factors despite age and genetics:

Sedentary Lifestyle comes from the Hospital Setting.

Medication used to treat pain like opioids.

Virtual Reality Headset as a Tool

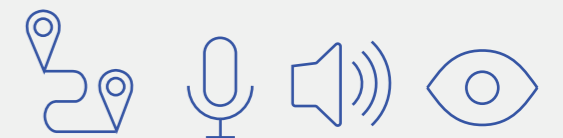
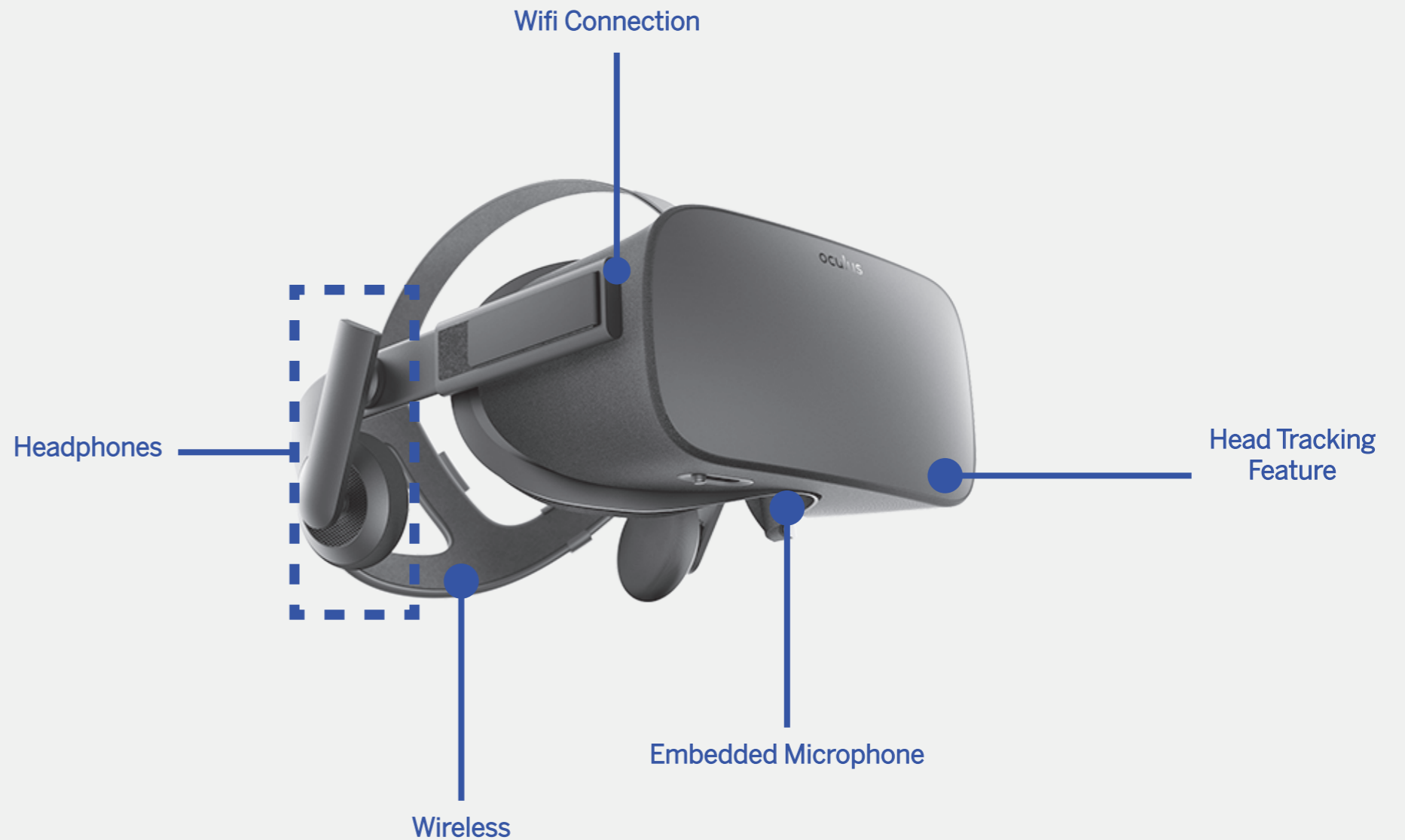
To create the experience, the technology that will be used is the Oculus Quest 2 Headset that has the specific features:

In terms of connections:

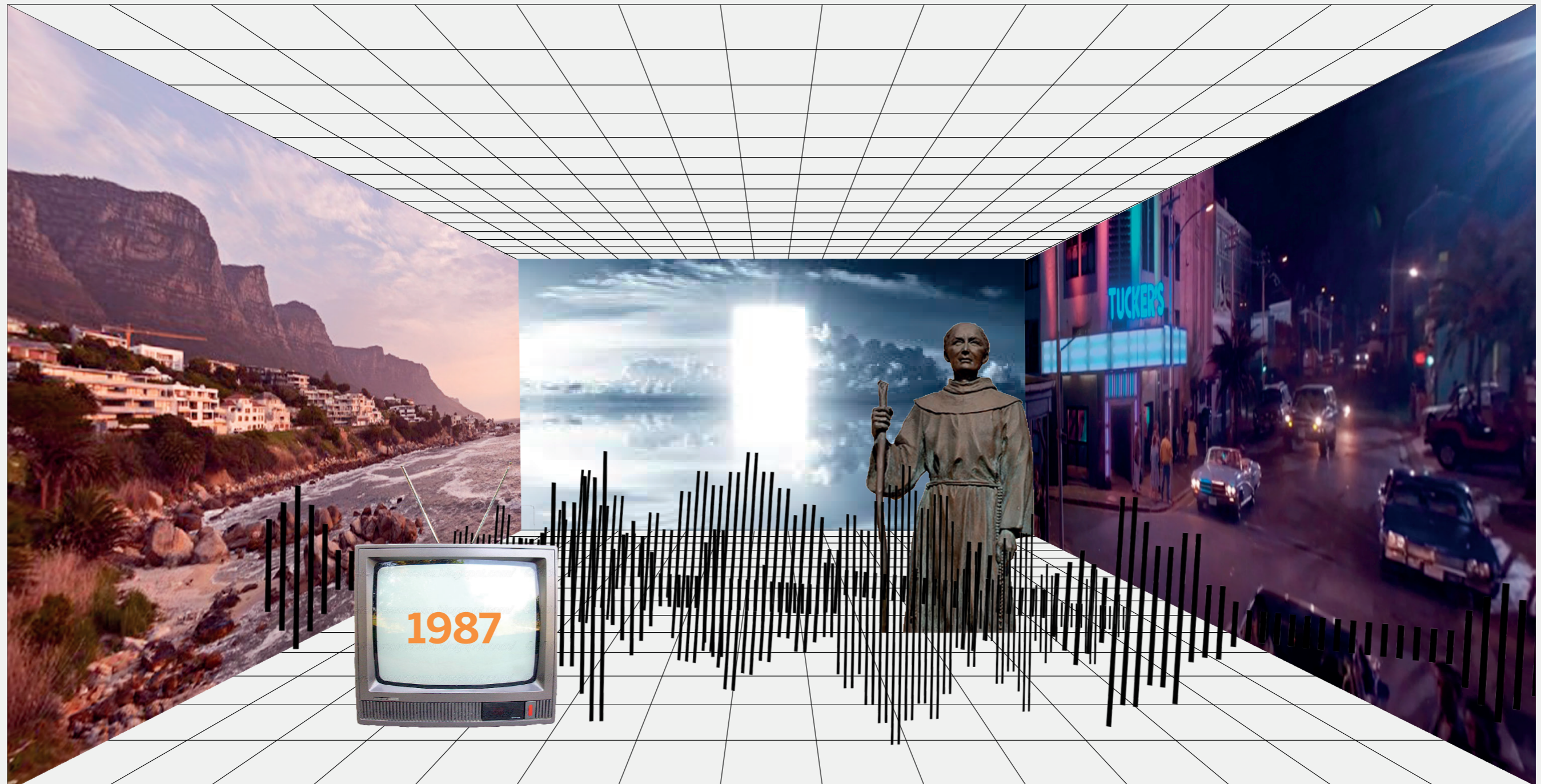
1. Wireless
2. Contains a WiFi connection

In terms of Interaction:

1. Head Tracking Features in the goggles
2. Headphones (if needed)
3. Embedded microphone inside the goggles

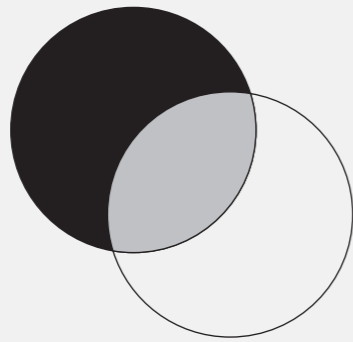


Thesis 1 Analysis

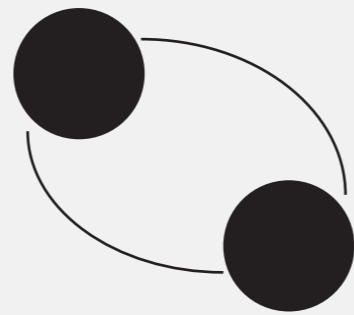


Thesis 1 research led me to deduce based on the case studies that the space should be therapeutic and customizable.

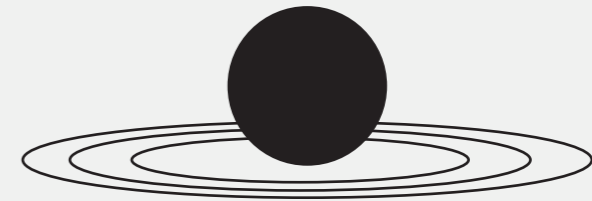
Elements of the Space



Transparency to Information



Companionship



Therapy

Thesis 1 explorations led me to deduce that the logic of designing the virtual world should include the elements of transparency to information, companionship and therapy.

Programs

This led me to create a virtual reality therapeutic retreat that is based on the Patients Needs and Thesis 1 Analysis with the specific virtual programs under these categories:

Therapy, Meditation, Transparency to Information, Socializing

The virtual reality retreat is a 20 minute journey as VR Makers have suggested not to exceed a 30 min journey every 15 minutes.

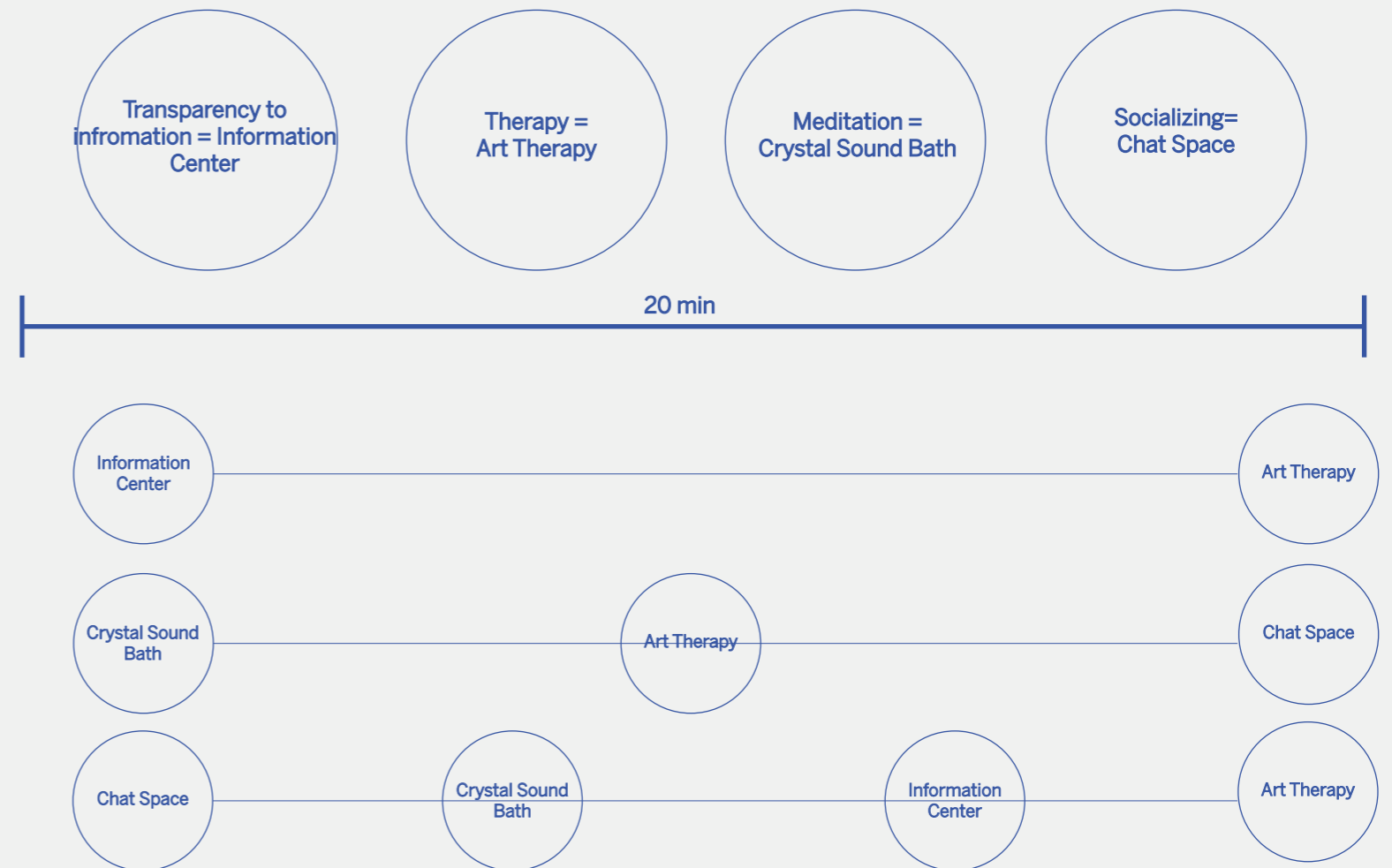
Therefore, the experience of the programs and the path that I have created is based on the 20 minutes trajectory.

The specific virtual programs that will take place in the 20 minutes trajectory are:

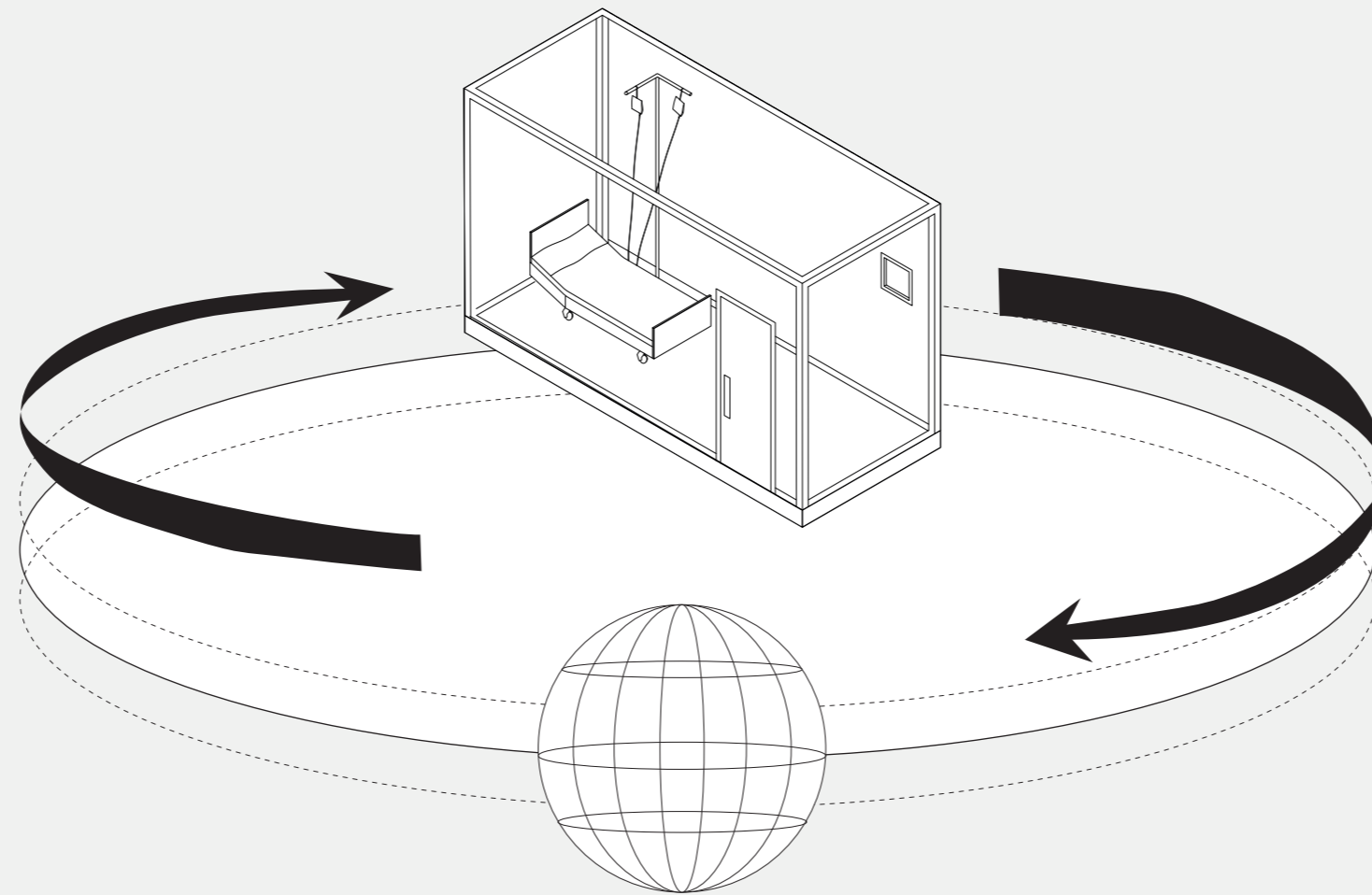
1. Art Therapy: Therapy
2. Crystal Sound Bath: Meditation
3. Chat Space: Entertainment
4. Information Center : Transparency to Information

Where the patient can choose what spaces to enter based on the 20minute journey.

To explain my project, I will be demonstrating a 20minute journey where the patient has accessed all these spaces.



Hospital Setting as a Virtual Site



The virtual site that I have chosen to intervene on is an existing hospital setting that would be a prototype for other existing hospitals. The reason I have picked the hospital itself as the virtual site is to create familiarity for the patient while morphing, extending, and inhabiting different elements of the hospital. Such that the experience creates a placebo effect to the palliative care patient every time s/he revisits them without having to wear the headset. This creates a long-lasting effect of the 20minute journey.

Case Study Scenario: Amal, a palliative care patient and Salam Hospital in Tripoli, Lebanon.

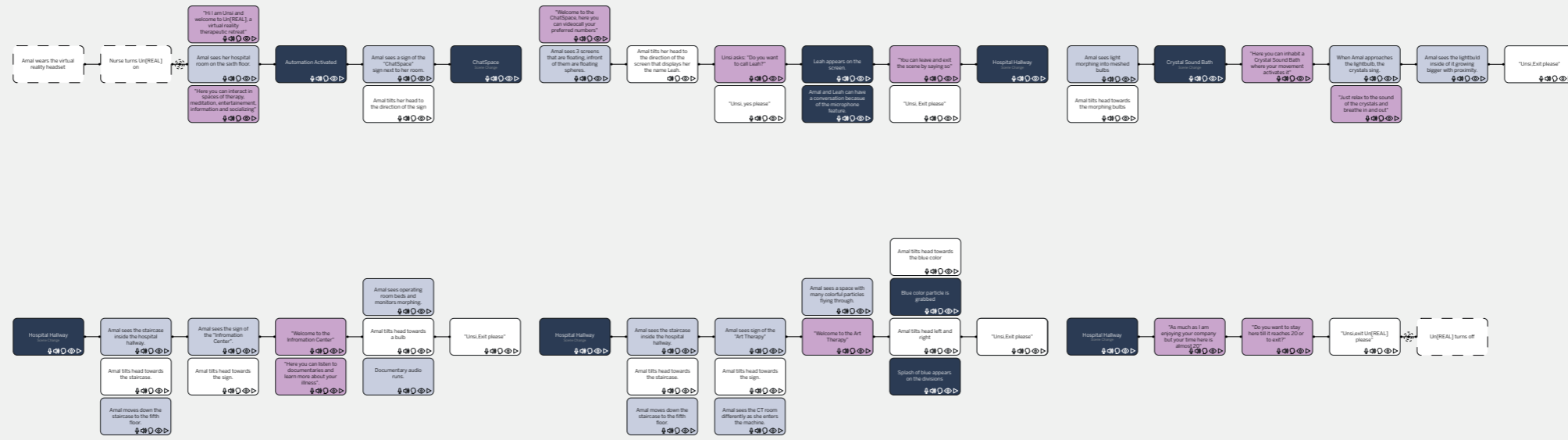
Amal is a -56year-old palliative care patient in Salam Hospital, Tripoli with congestive heart failure. She has been spending most of her days at her hospital room connected to pain killer drugs such as opioids.

Because of her frequent sedentary lifestyle, and her frequent need for pain relief medication, Amal developed dementia that affects her mental health and her physical health.

1. To counteract the high level of dementia, Amal needs to have a change of setting, a decreased intake of opioids and social interaction.
2. The best solution to counteract is the virtual therapeutic retreat Un [REAL] where she would be immersed in a therapeutic environment and would intake less opioids through therapy, meditation and distraction and interact with family and close friends.



Complete Wireframe of Amals Journey



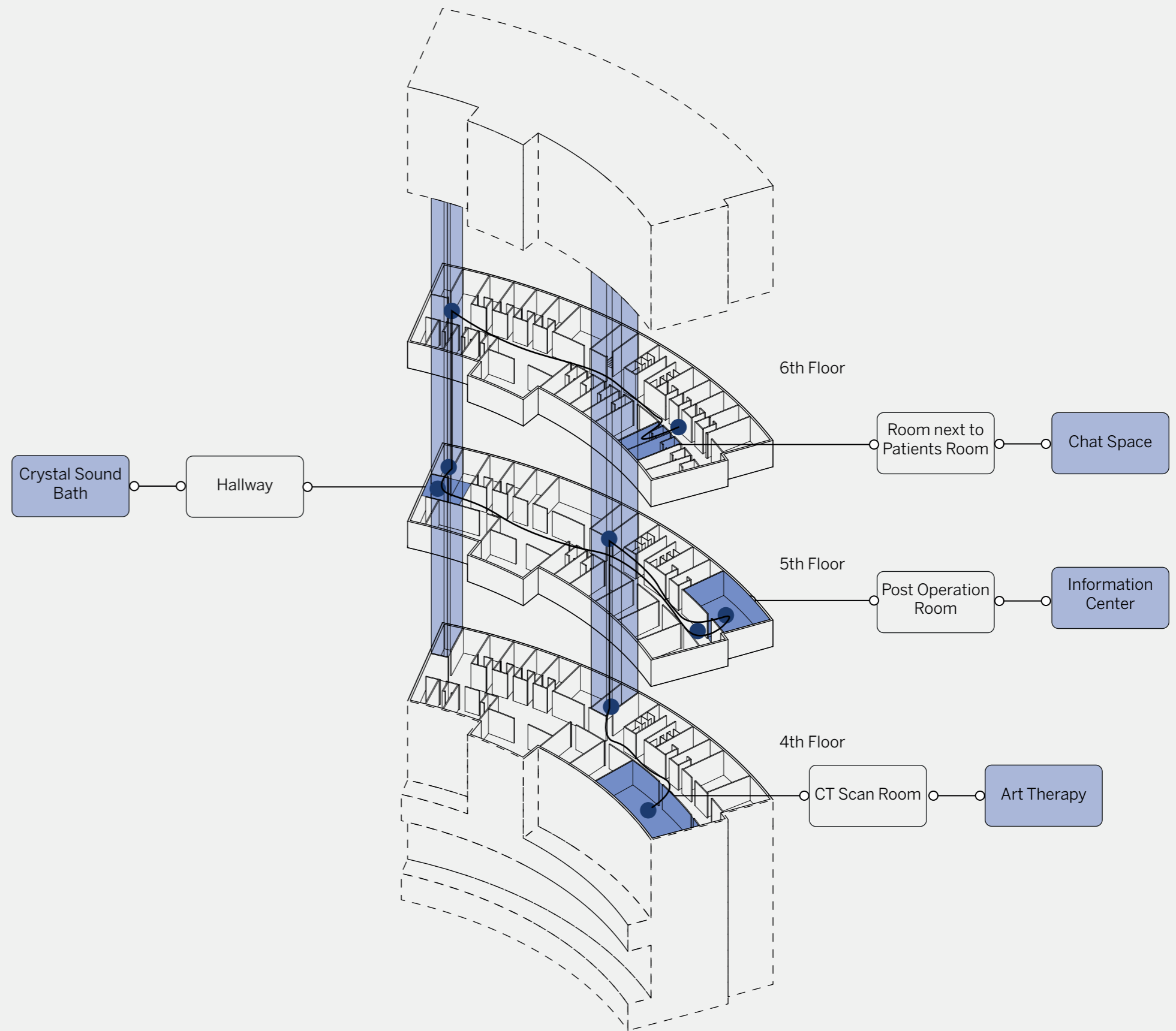
As a starting point, I used wireframe technique to layout programs and functionality of Amal's Journey in Salam Hospital which was a back-and-forth process to look at the step-by-step path and help develop the structure of the trajectory. In the Wireframe, I will introduce the trajectory that contains the four programs.

Journey Diagram

Amal is a -56year-old palliative care patient in Salam Hospital, Tripoli with congestive heart failure. She has been spending most of her days at her hospital room connected to pain killer drugs such as opioids.

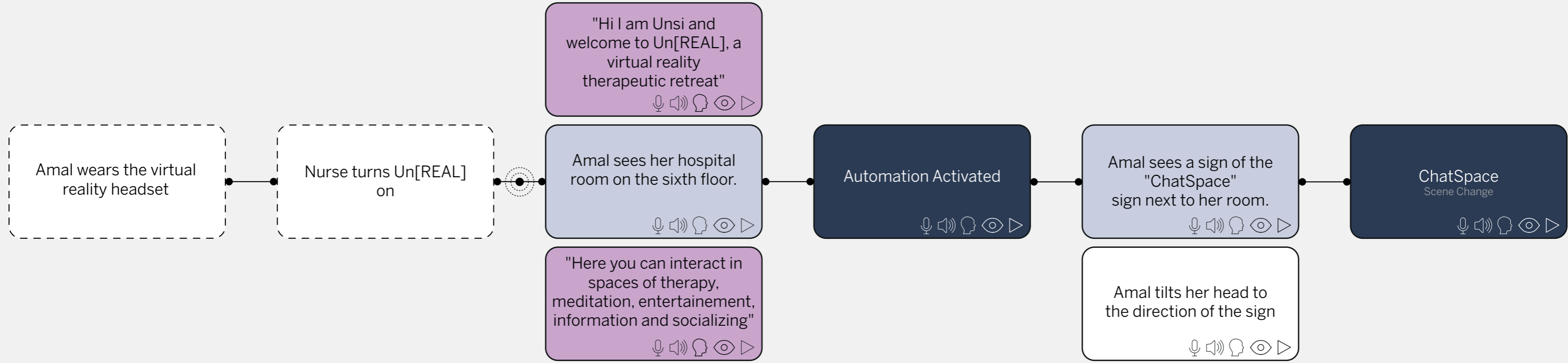
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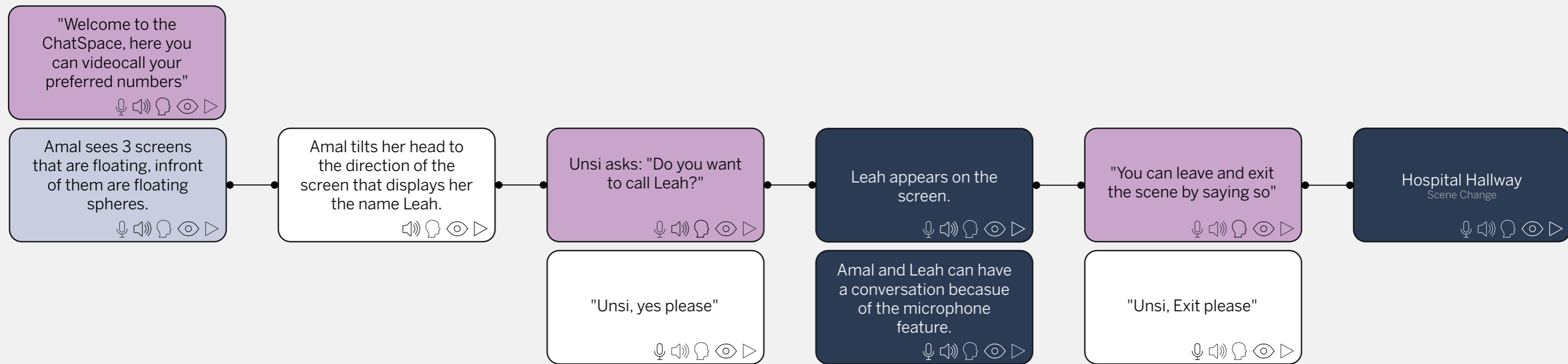
Wireframe Diagram

Start of the Journey

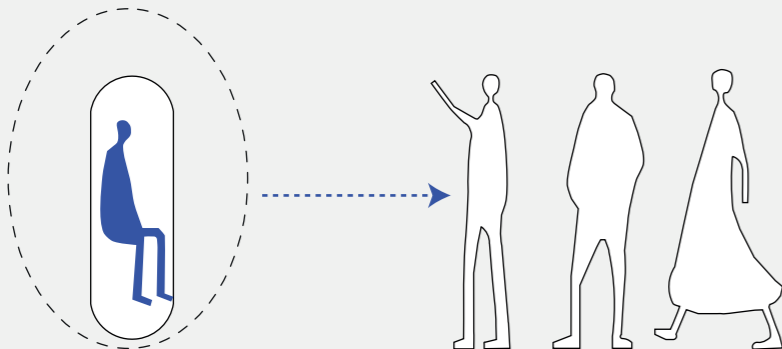


Wireframe Diagram

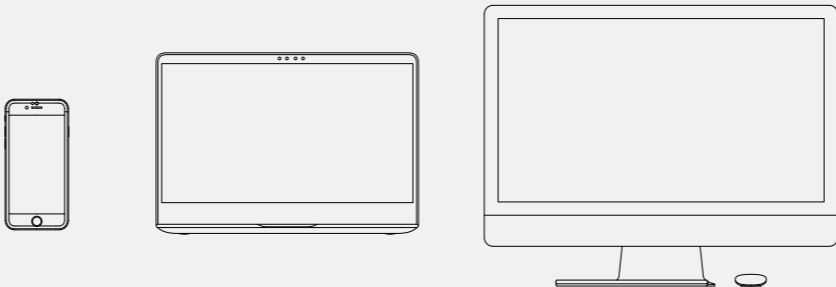
ChatSpace



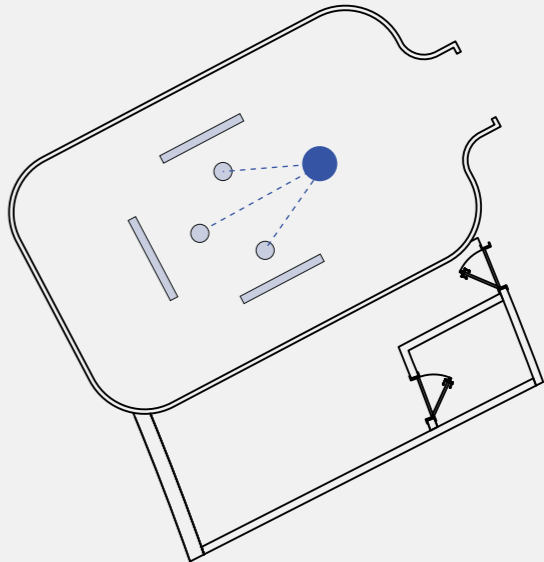
Chat Space Concept Sheet



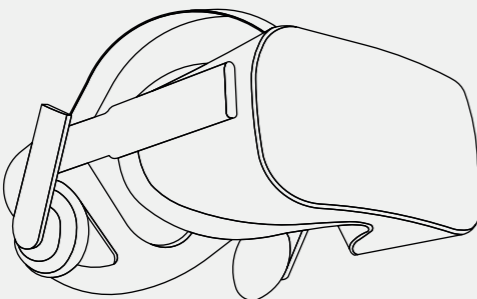
Amal wants to see her family and close friends.



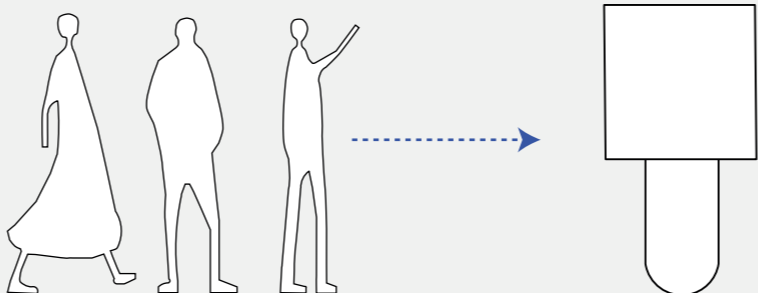
So, the visitors to Un[REAL] won't wear the virtual headset but would connect to Un[REAL] through tablets anywhere they are.



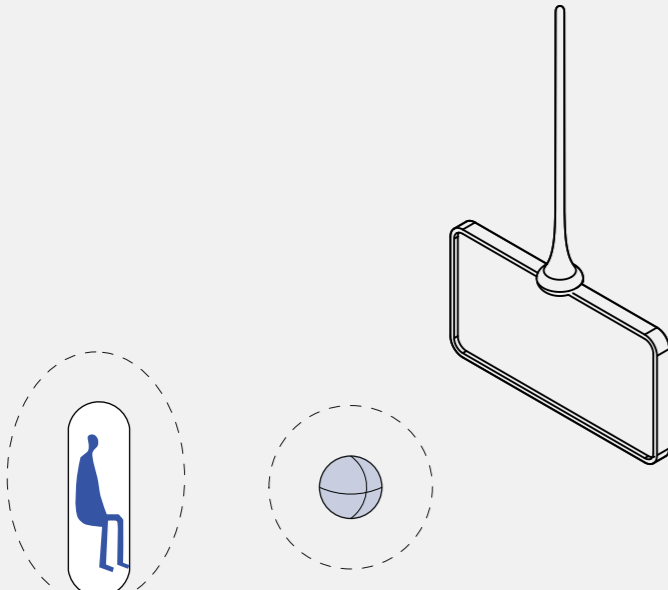
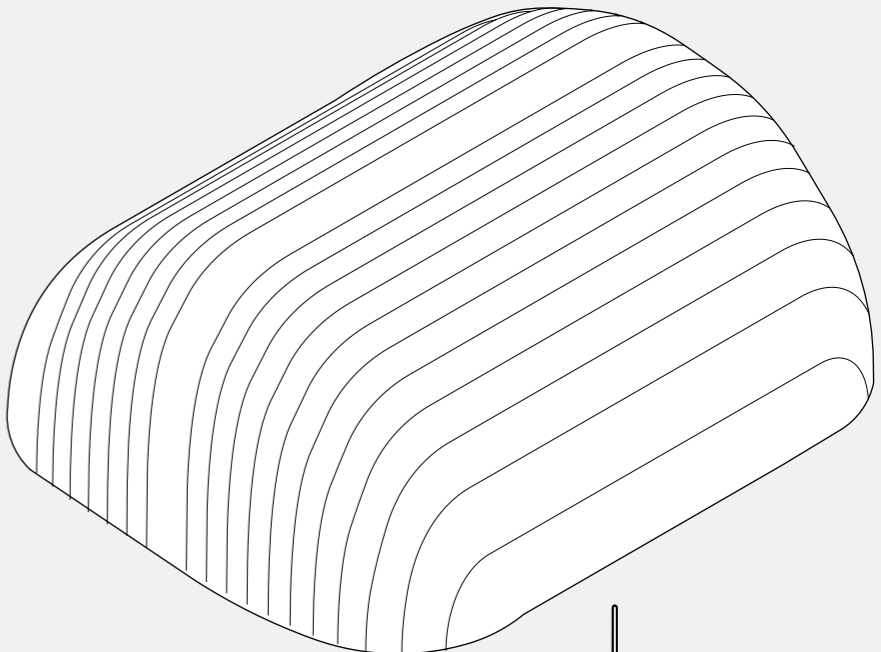
The Chat Space is simulated next to the Amal's room because this is the space where she feels she needs her family and friends the most.



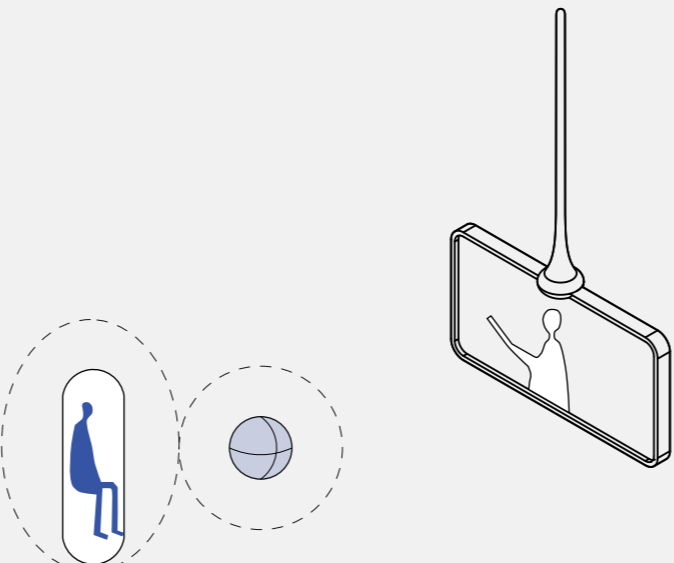
Amal is wearing the VR headset.



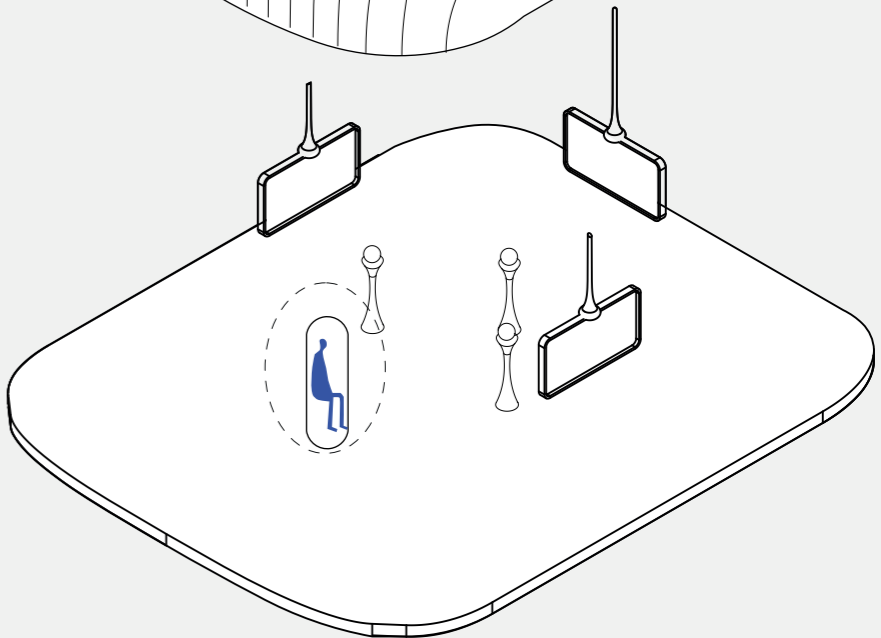
Amal's friends and family would see an image of her rather than a video.



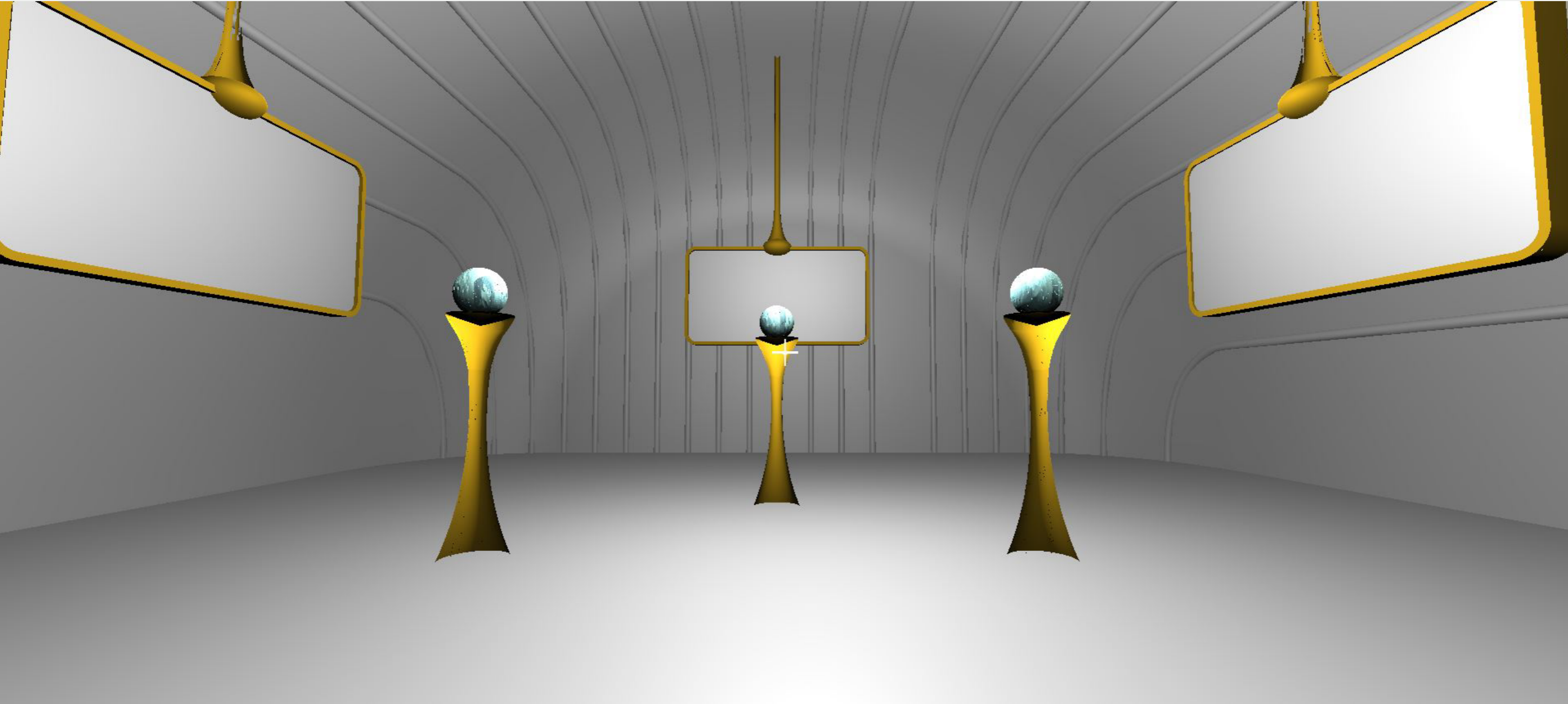
when Amal is far from the activation sphere, nothing shows just the name of a specific person..



when Amal is close to the activation sphere, Un[REAL] calls the person of the corresponding sphere.

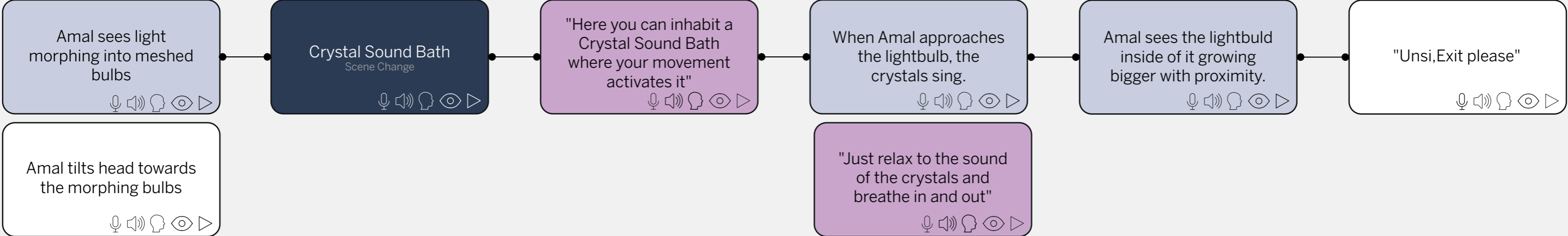


Chat Space Render

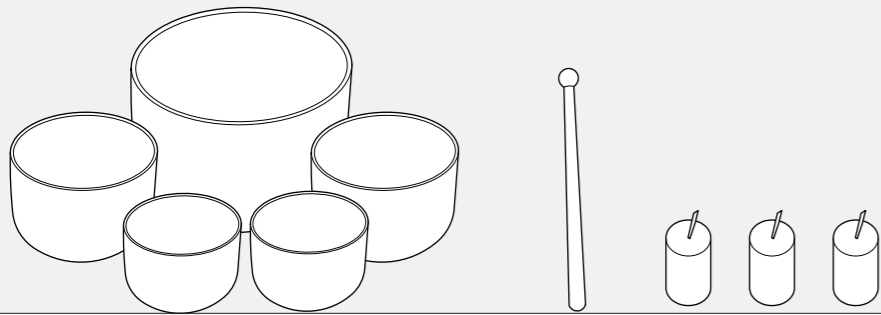


Wireframe Diagram

Crystal Sound Bath

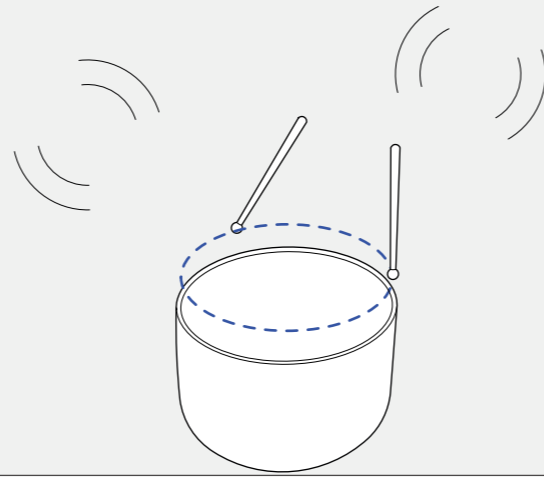


Crystal Sound Bath Concept Sheet

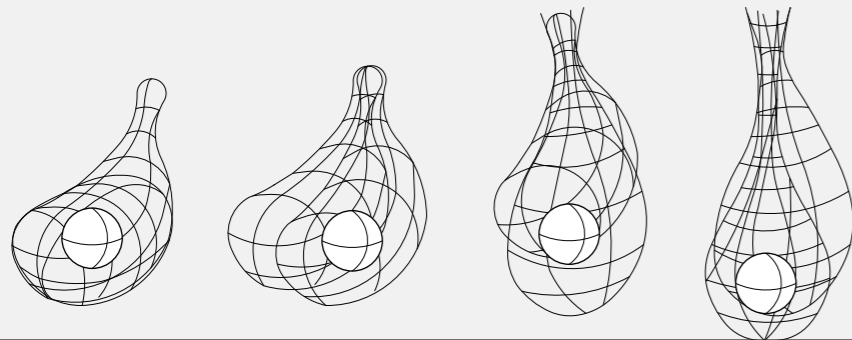


The elements and experience of the Crystal Sound Bath includes the crystal singing bowl, the ocean drums, and the candles.

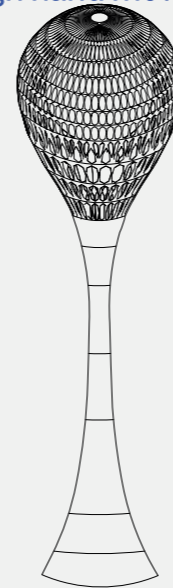
The visible key feature of the Crystal Sound Bath is the acoustical sounds.



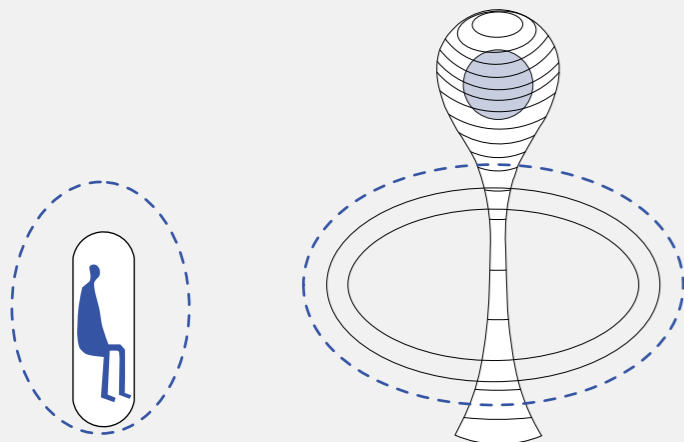
Another visible key feature is the process of creating the sound through hand movement.



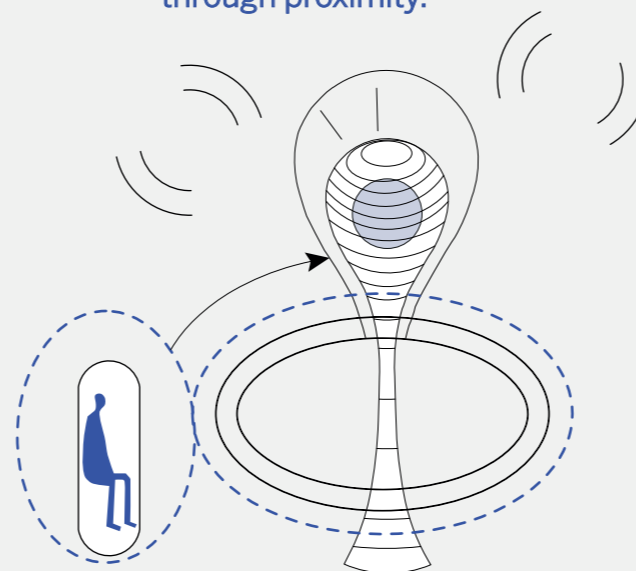
To maintain the placebo effect, elements of experiences in the real space will be visible yet morphed along the patients' movements creating an in-between space before reaching the Crystal Sound Bath. So here the light bulb will be morphed along the way to create the elements of the Crystal Sound Bath.



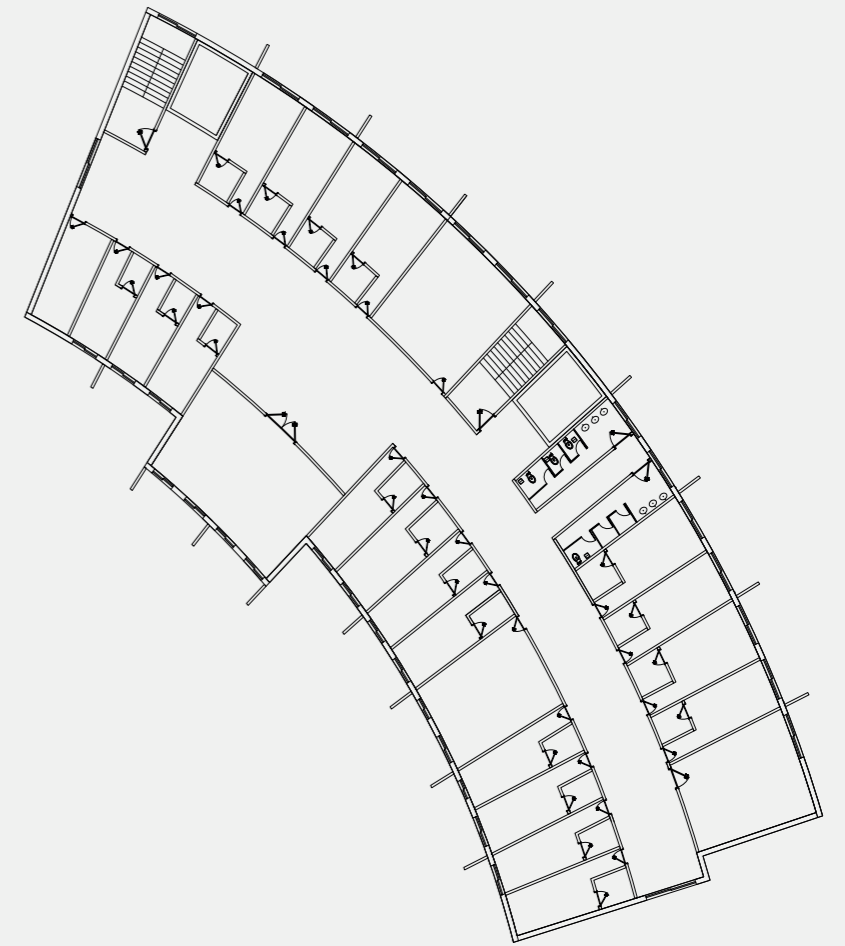
Key element of the Crystal Sound Bath: such that the patient becomes the activator of the ocean drums that generates sound through proximity.



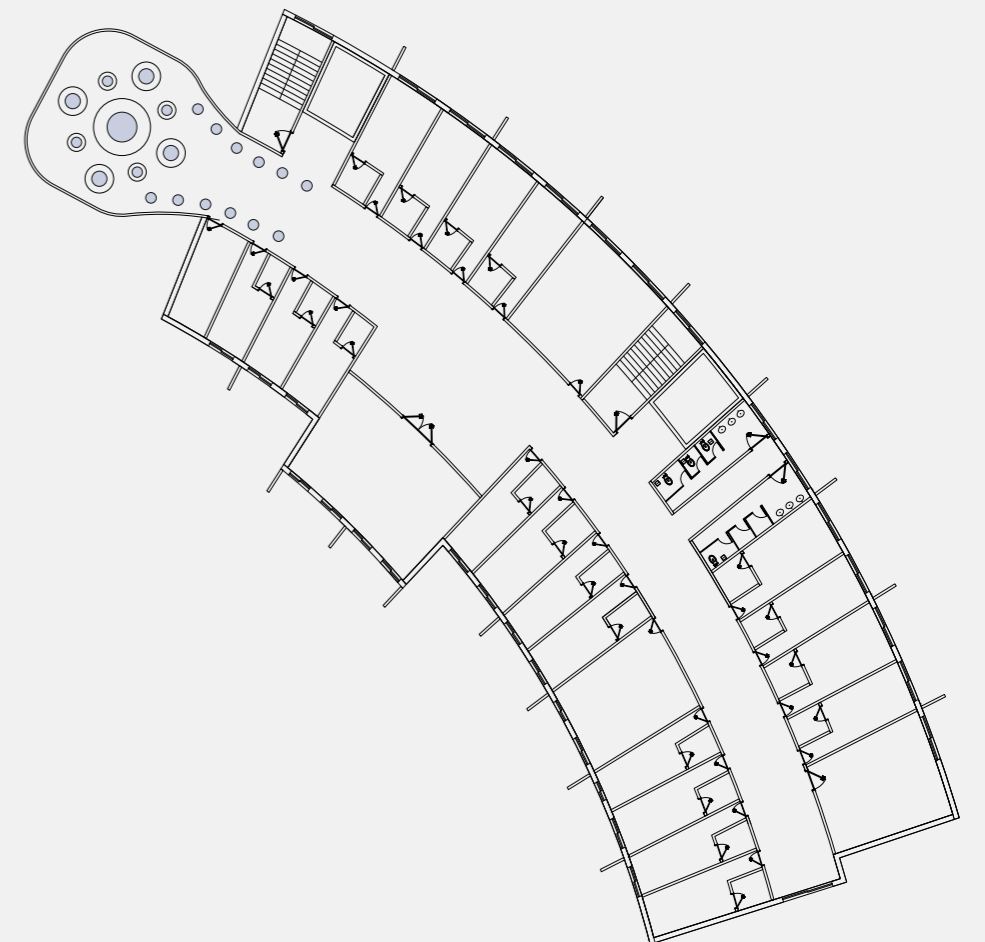
when Amal is far from the activation ring, no sound is heard.



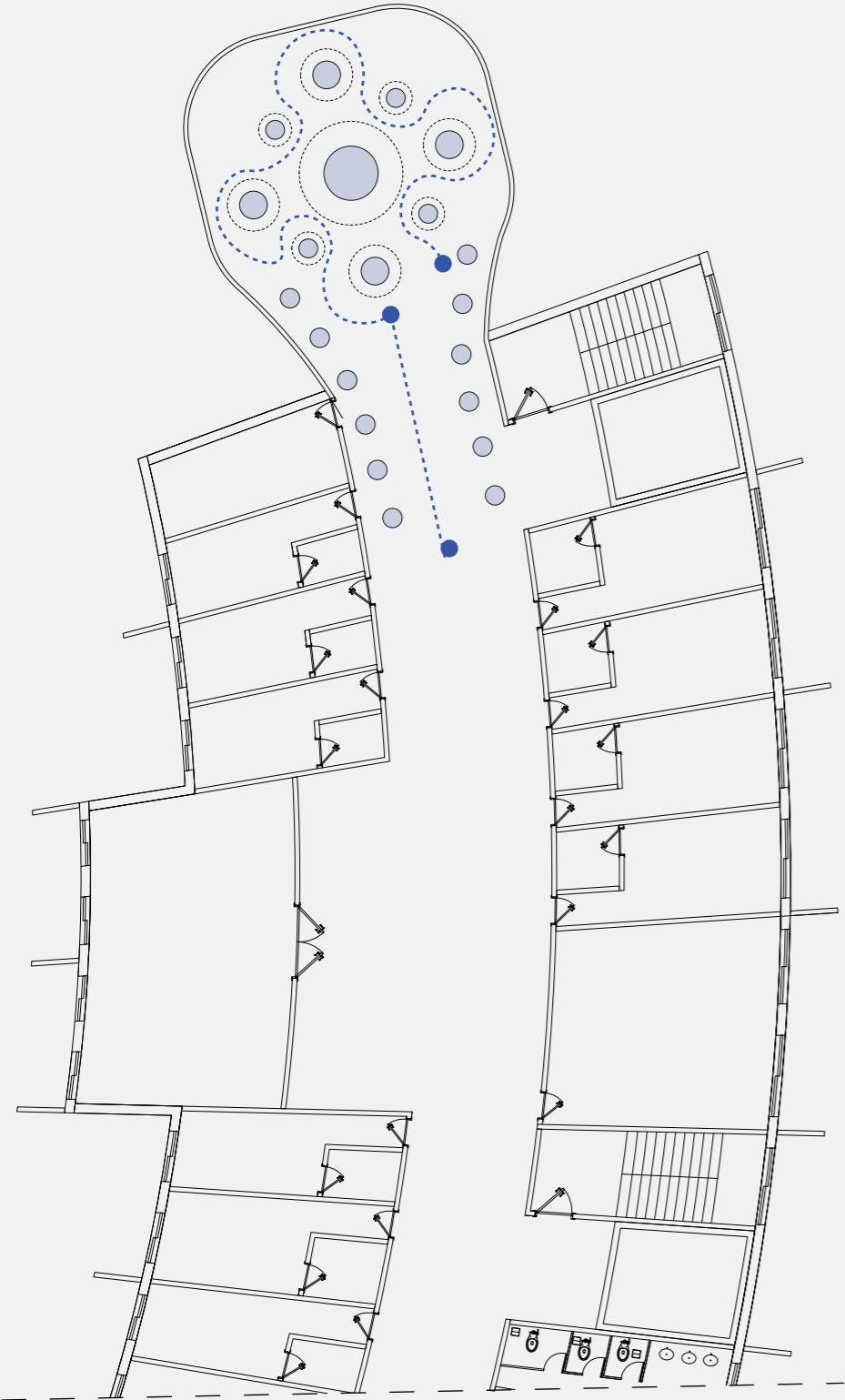
when Amal moves around the activation ring, sound is heard and the element grows.



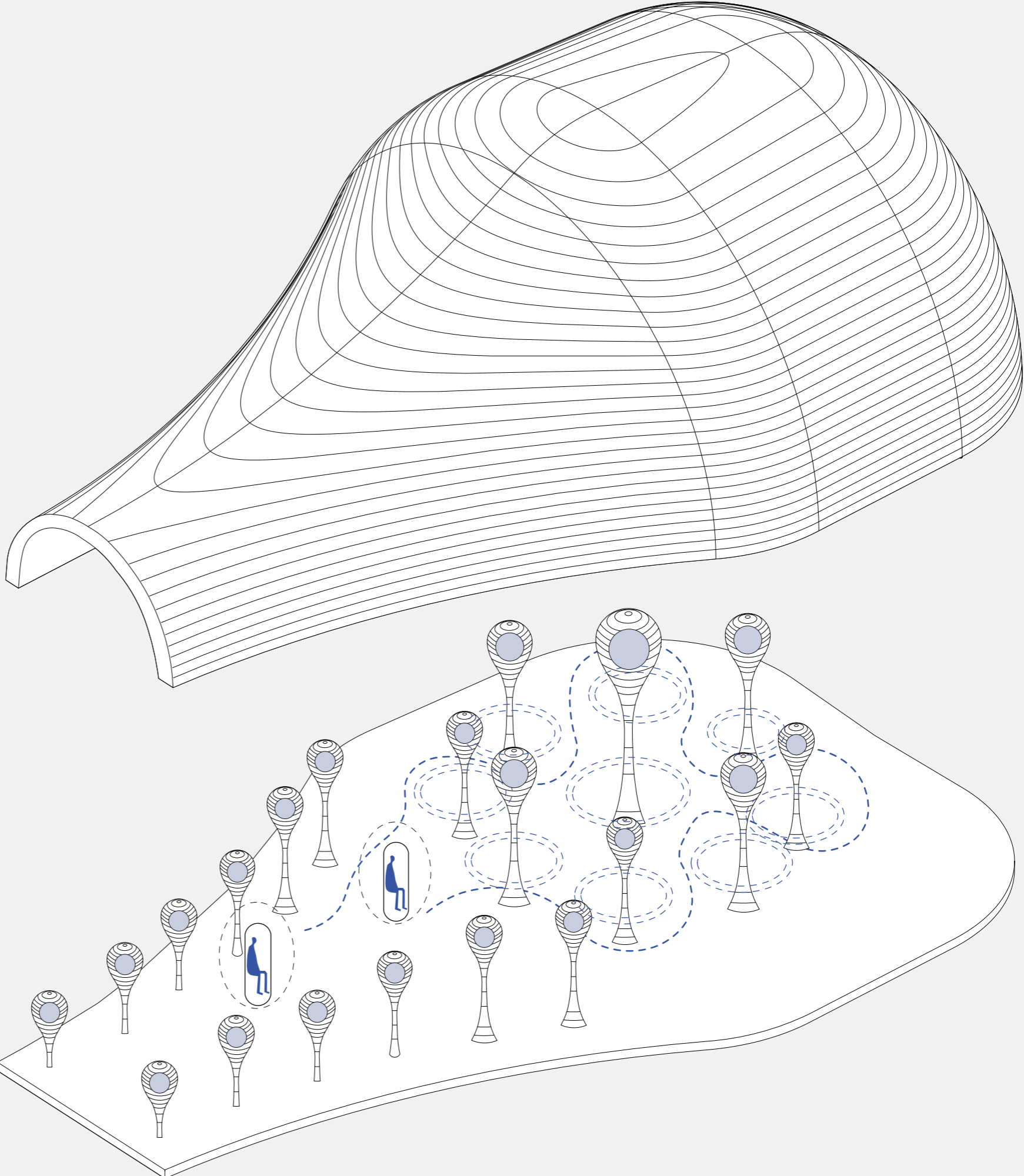
The Crystal Sound Bath is simulated at the end of the hallway because this is the space where Amal feels anxiety the most, so she needs a calm experience.



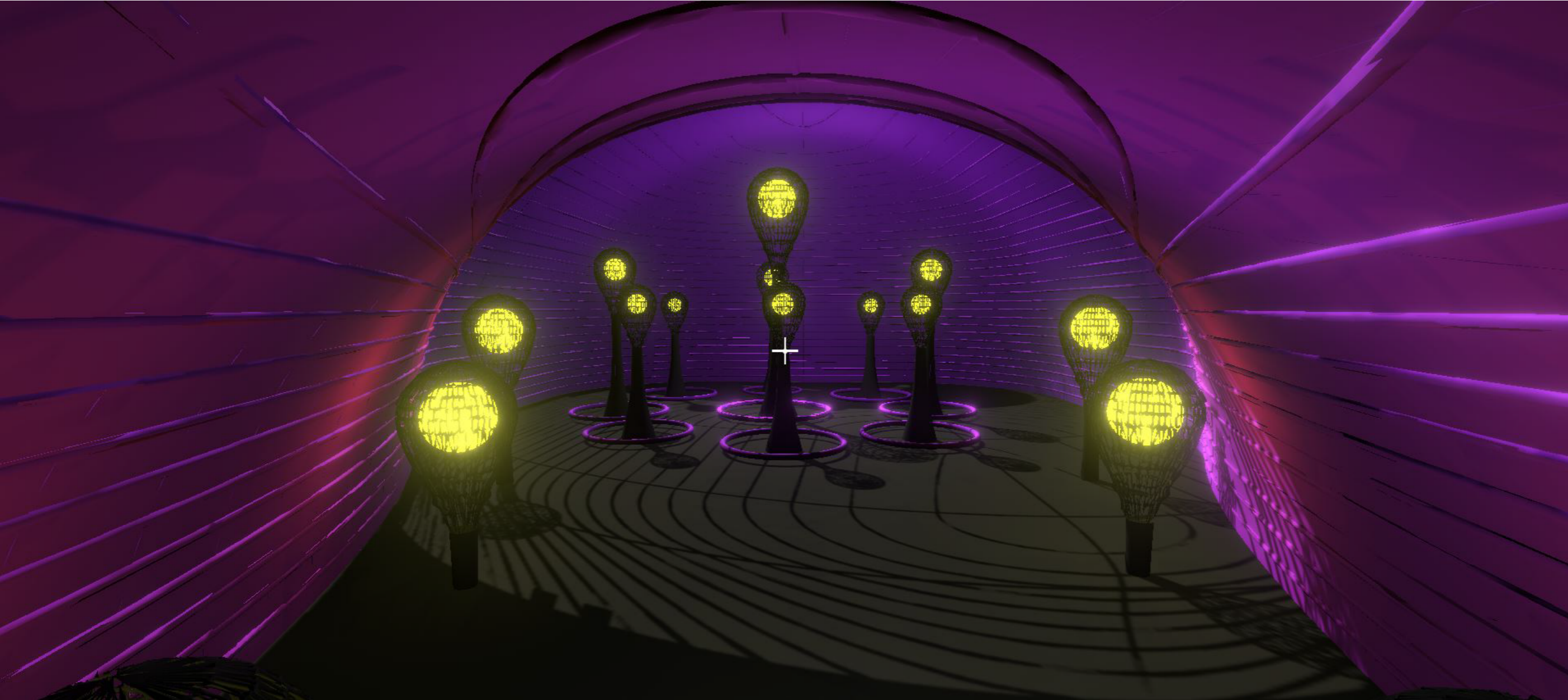
Crystal Sound Bath



Pathway inside the Crystal Sound Bath

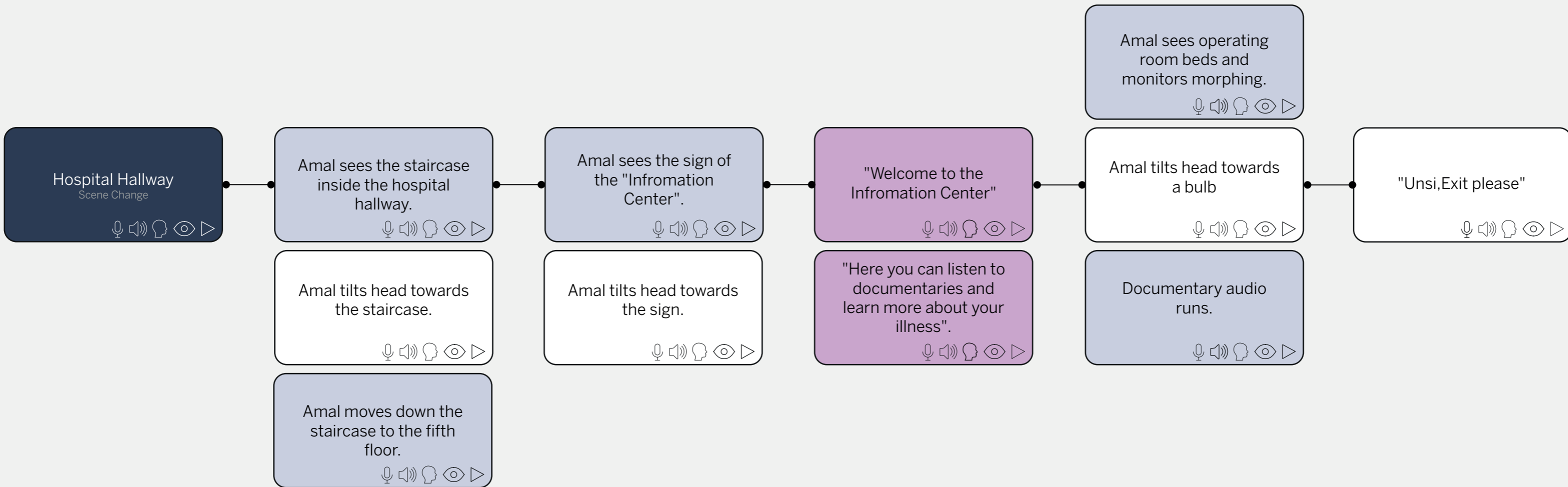


Crystal Sound Bath Render

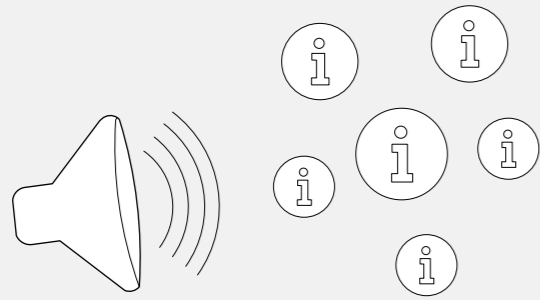


Wireframe Diagram

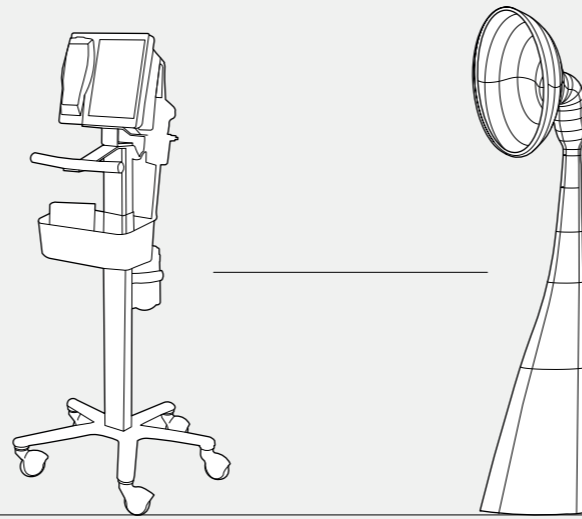
Information Center



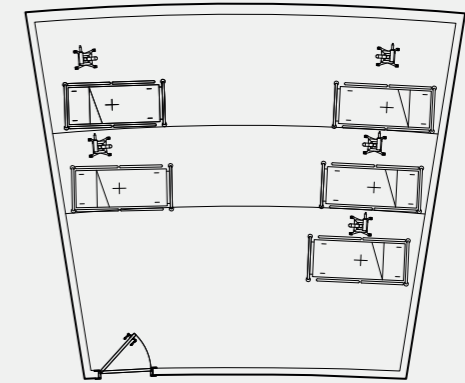
Information Center



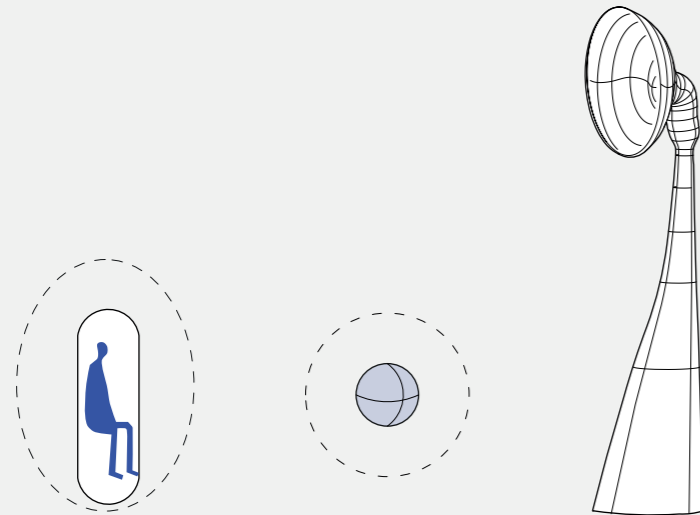
Elements for an Information center are source of giving out information and the information itself. So here the information is going to be given out in the form of an audio because it is easier for the patient than to be given out in a form of text.



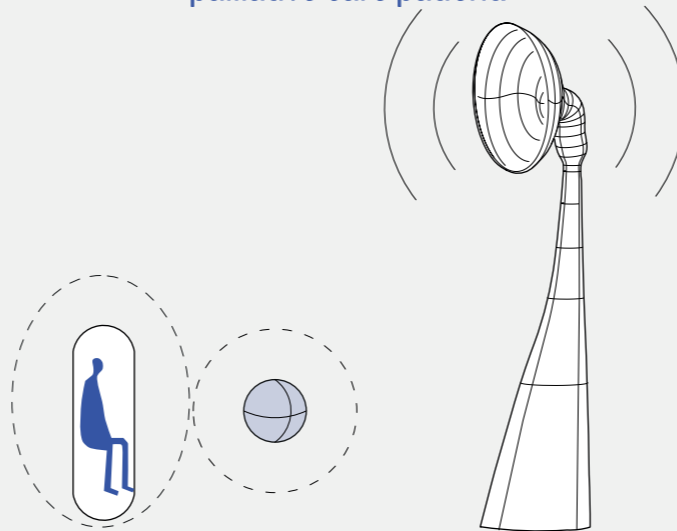
Elements being morphed in the Post-Operation room is the heart rate monitor, that is being morphed into audio generating system that each links to a documentary of a patient that was once a palliative care patient.



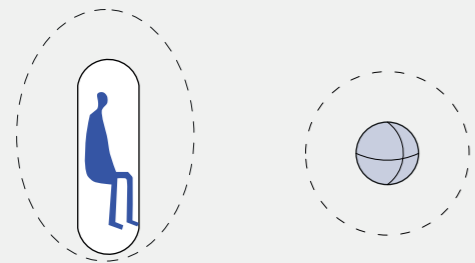
The Post-Operation Room was chosen to be morphed into the Information Center where information about the illness and similar past experiences can be shared, so that when the patients see again the post-operation room, the patient would remember not to stress and to get frightened through the recurring of the documentaries heard in the information center.



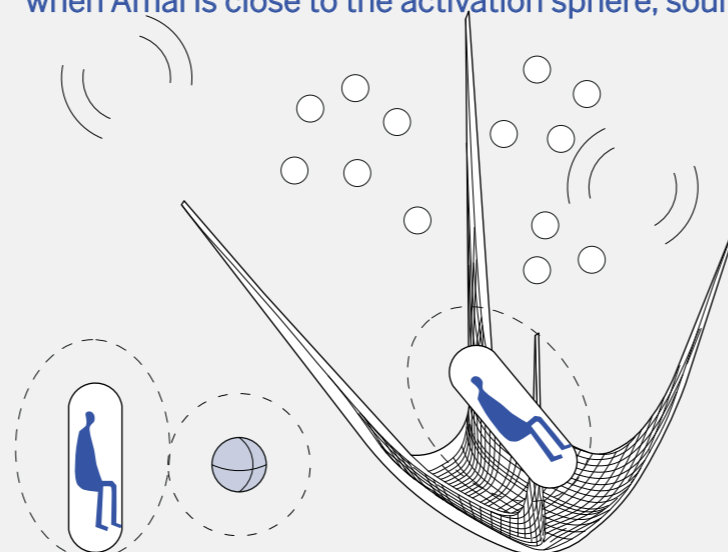
Pathway 1:
when Amal is far from the activation sphere, no sound is heard.



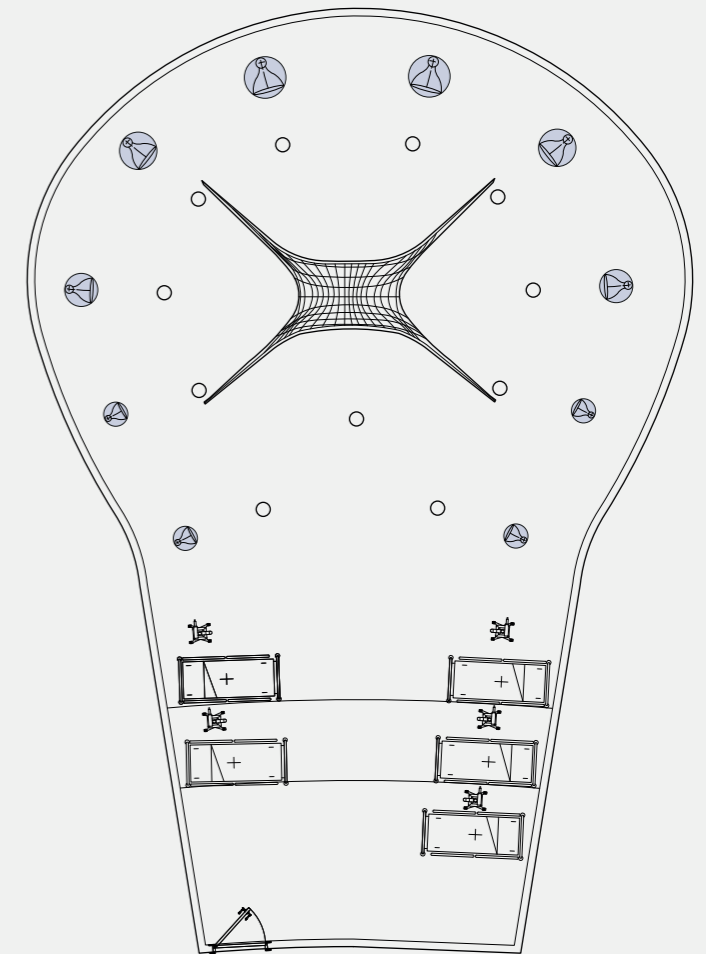
Pathway 1:
when Amal is close to the activation sphere, sound is heard.



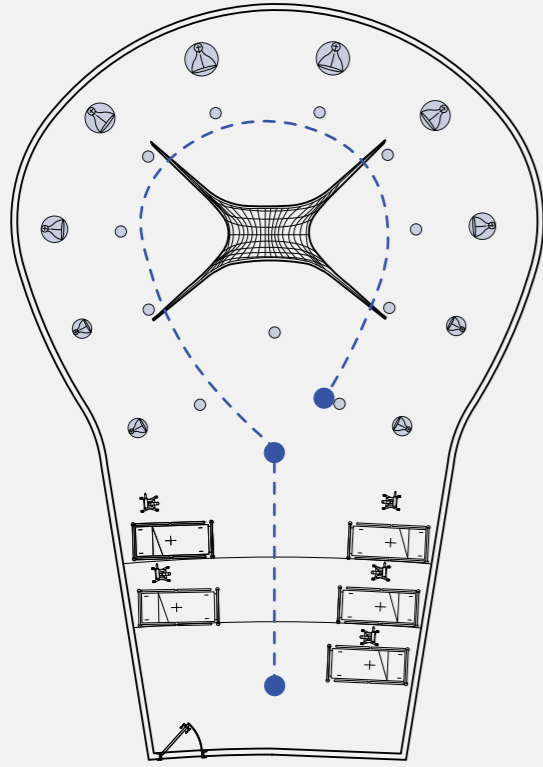
Pathway 2:
when Amal is far from the middle activation sphere, no sound is heard.



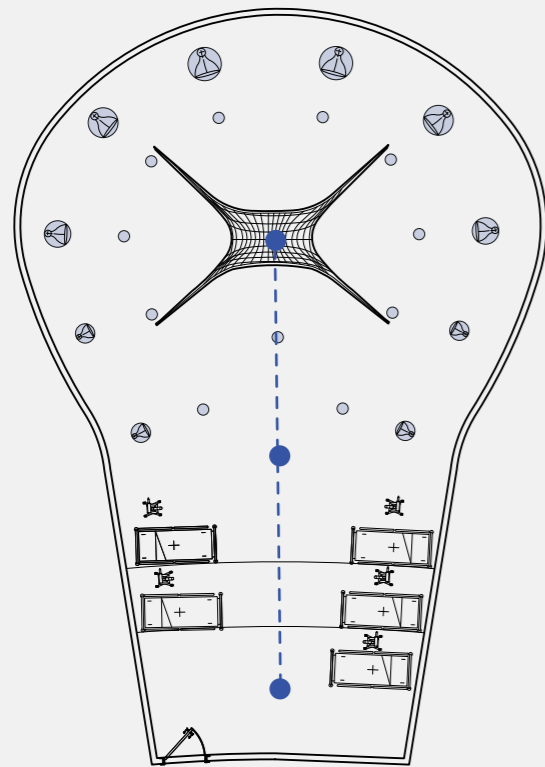
Pathway 2:
when Amal is close to the middle activation sphere, sound is heard, all documentaries play consecutively while she views the sky.



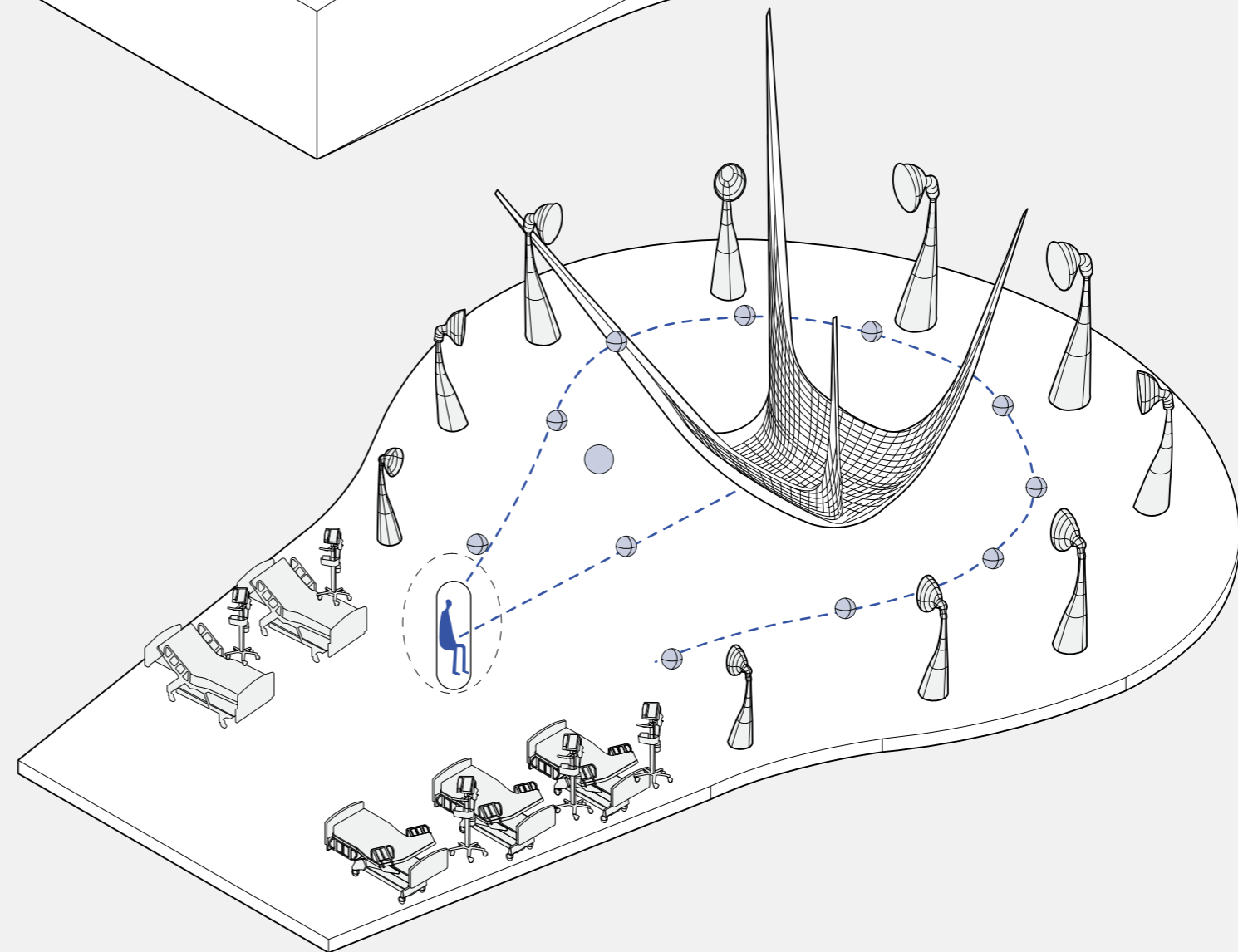
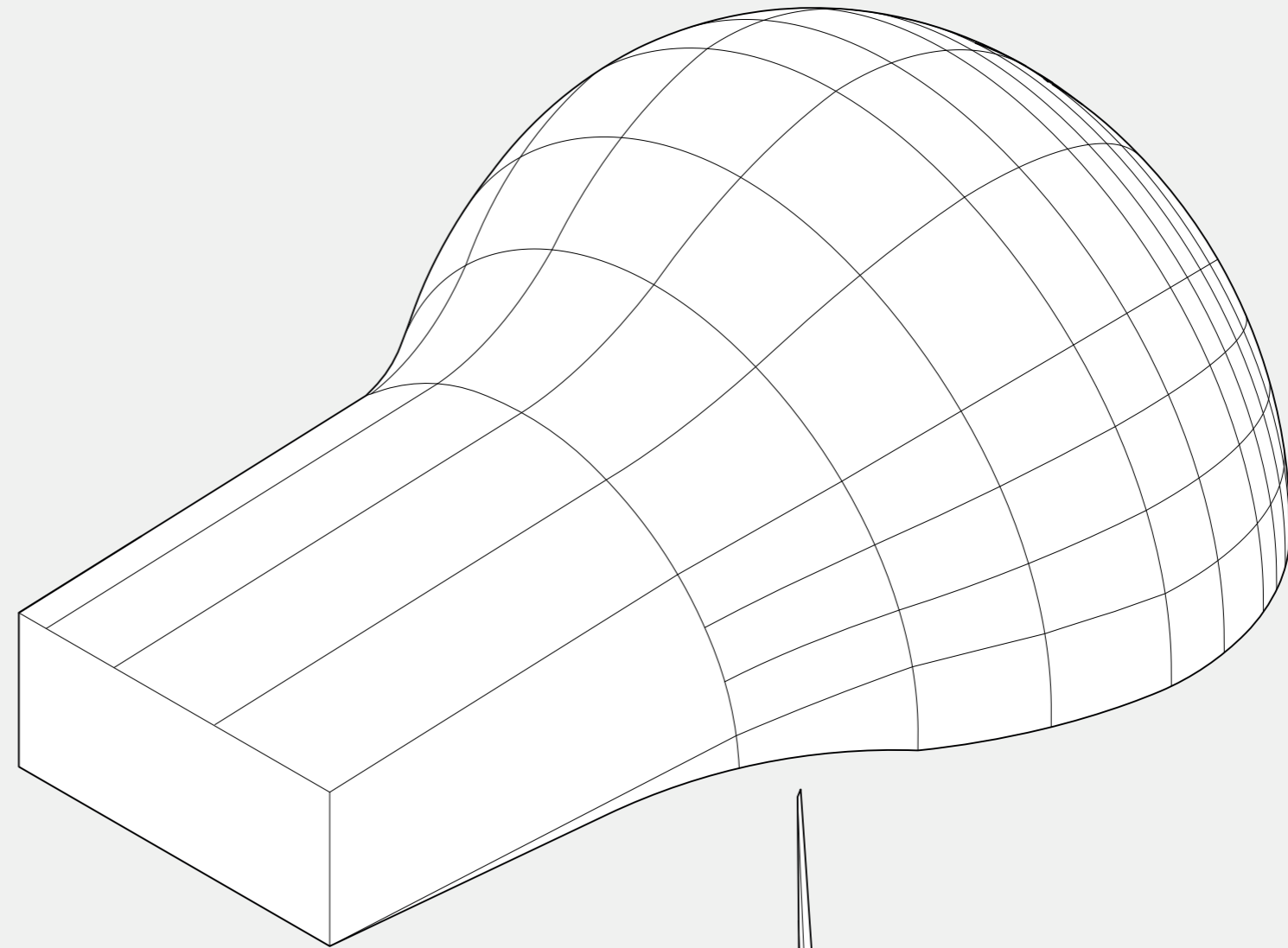
Information Center



Pathway 1:
Amal moves around each sphere to activate each documentary.



Pathway 2:
Amal moves towards the middle sphere to activate all of the documentaries while she is teleported onto the hanging bed.

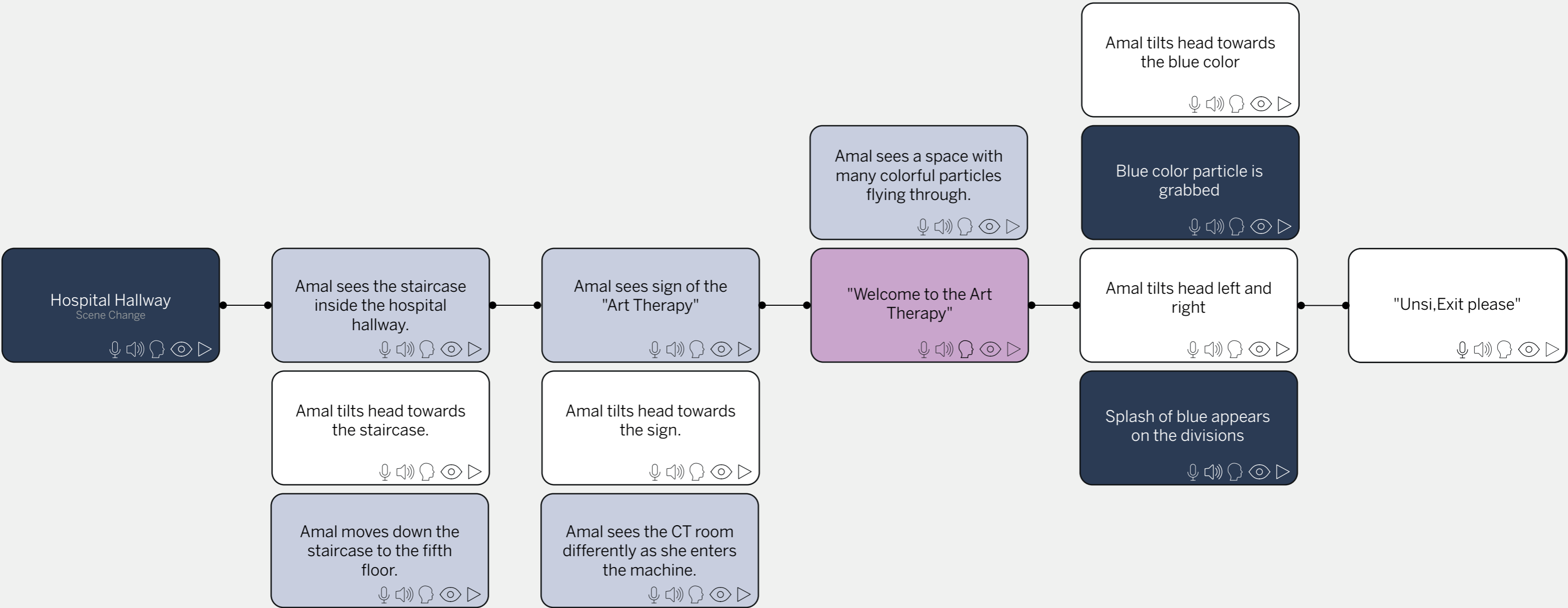


Information Center Render

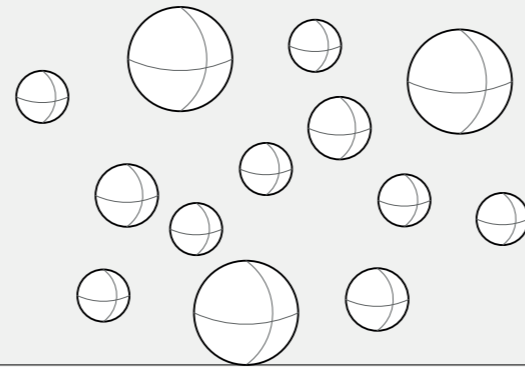
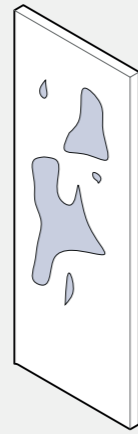
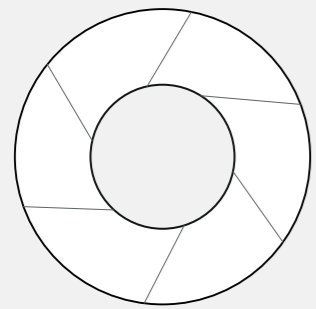


Wireframe Diagram

Art Therapy

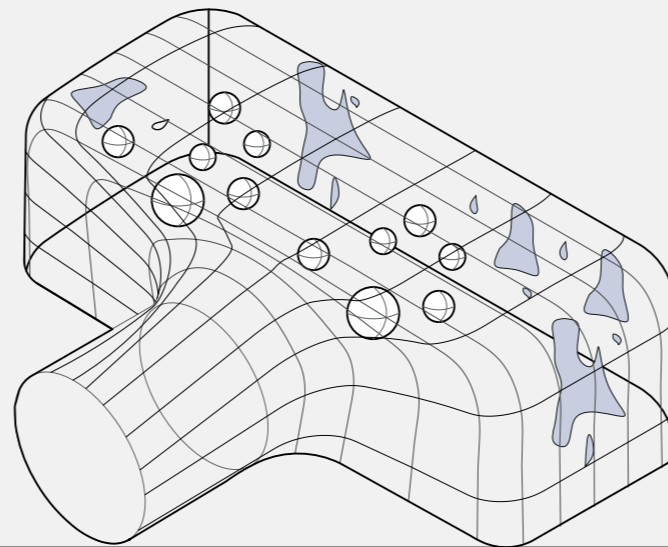
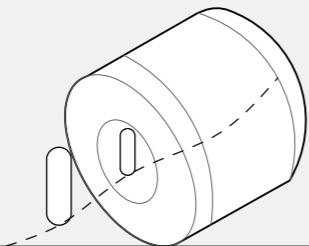
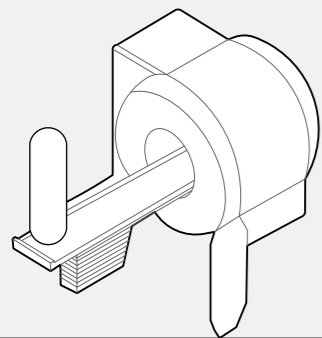
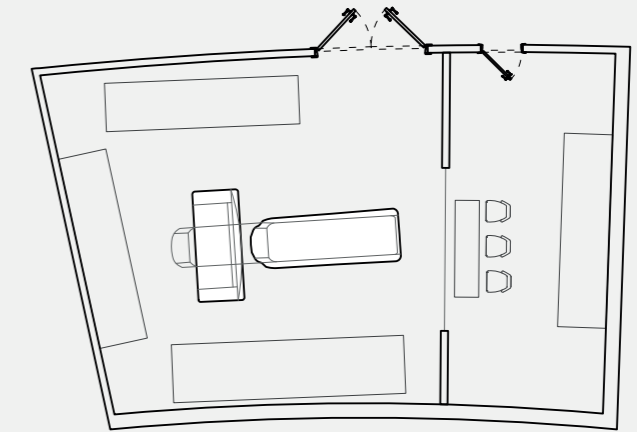


Art Therapy Concept Sheet

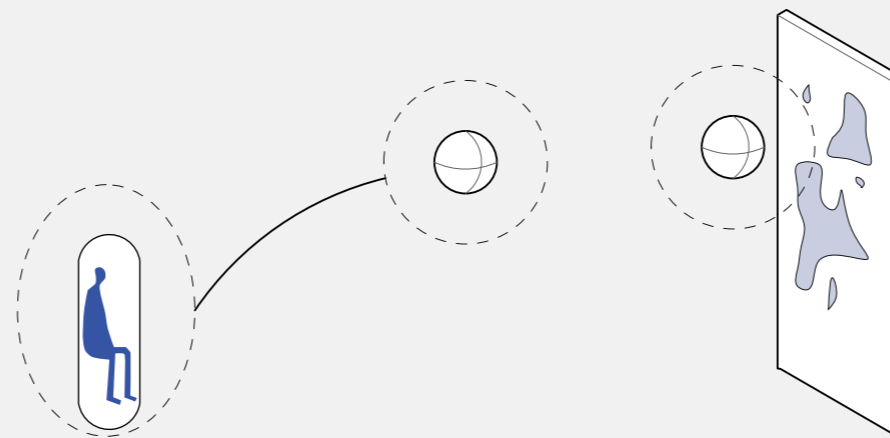
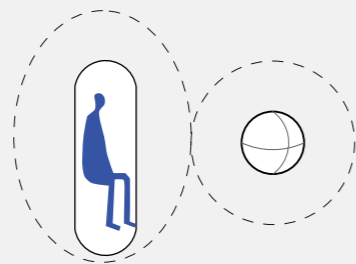
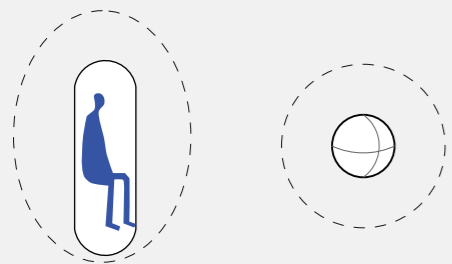
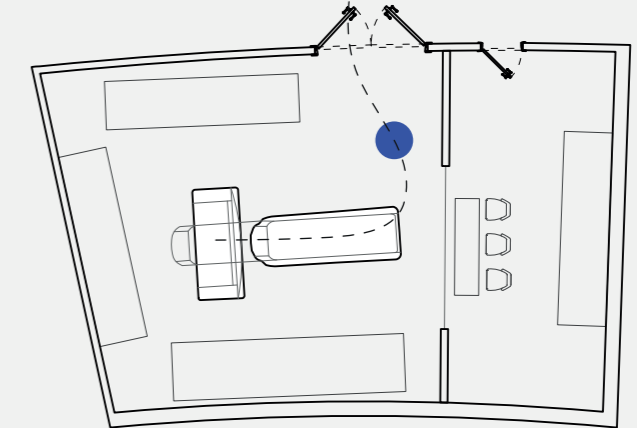


Elements for an Art Therapy are the colors and the canvas.

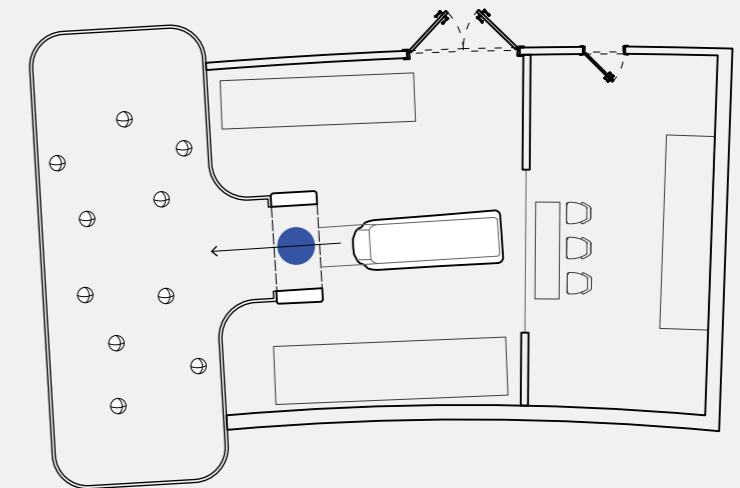
where they are being transformed into color particles.



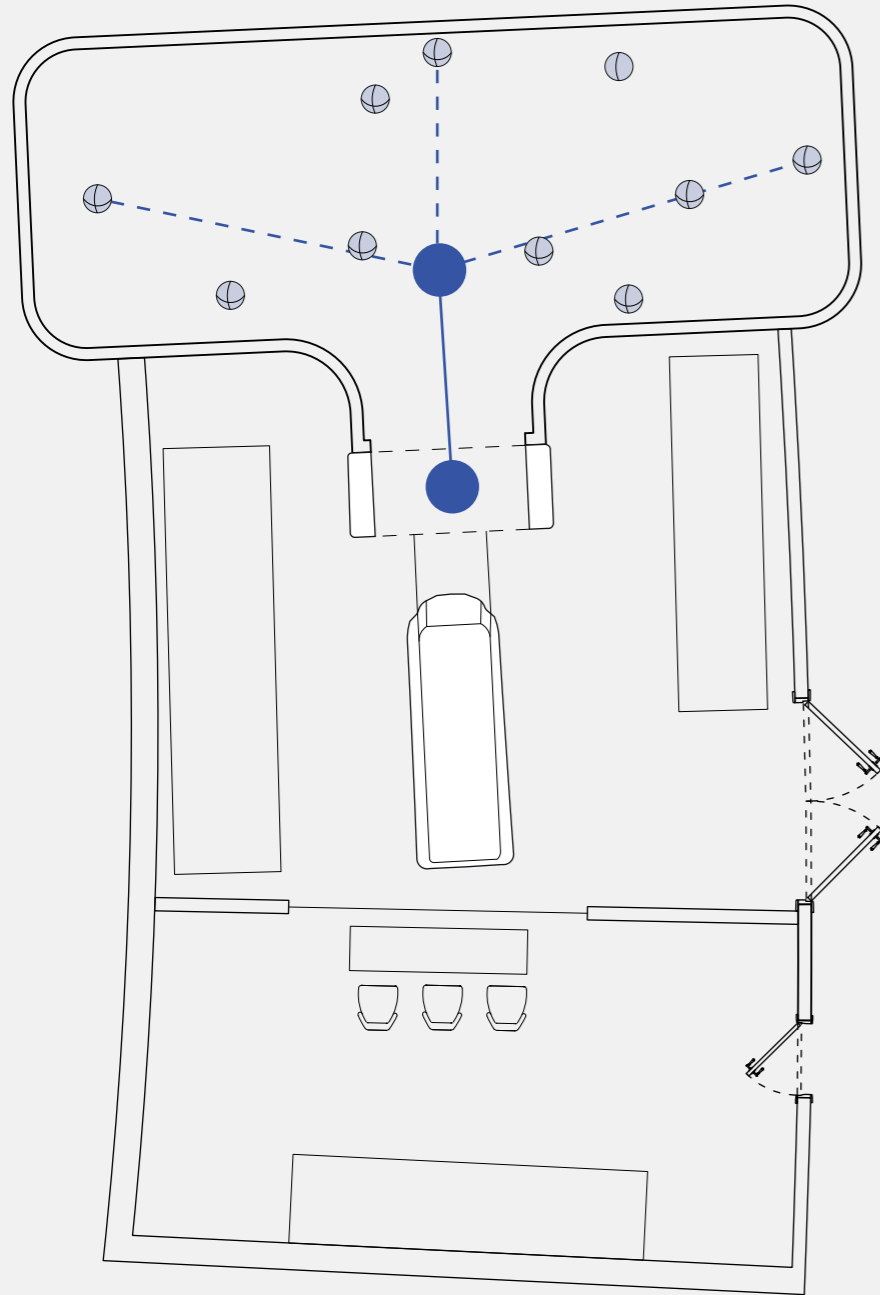
The CT scan was chosen to be morphed into the Art Therapy since both contain the experience of creating image/art through movement (CT Scan Machine moves back and forth to create an image of the entire body) and (Art Therapy human moves colors to create art).



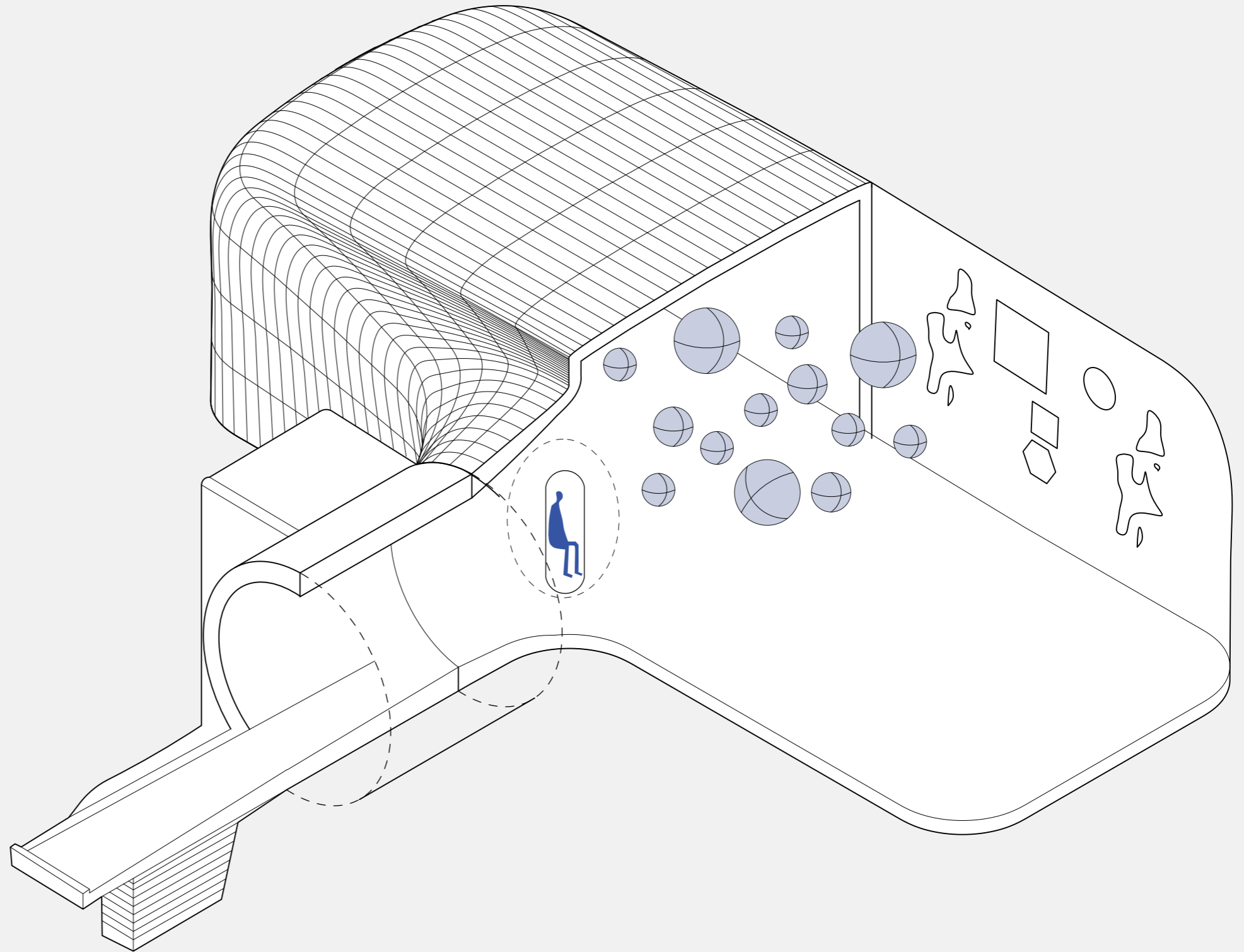
In the REAL, the most frightening element is the CT Scan Machine, so the Art Therapy will happen inside the CT Scan Machine.



Art Therapy



Pathway inside the Art Therapy



Wireframe Diagram

End of the Journey

