F. BETÜL
GÜREŞ

Design Portfolio 2021

F. BETÜL GÜREŞ

ARCHİTECT, GAME DEVELOPER,
SOFTWARE ENGİNEERİNG STUDENT

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SKILLS

Game Engine
Unity 3D ●●●●●

Programming
C# ●●●●●
Java ●●●●○
Python ●●●●○
Django ●●●●○
Pascal ●●●●●

Design Software
Blender ●●●●○
Rinocheros ●●●●○
Grasshopper ●●●●○
VRay ●●●●●
Autodesk 3Ds Max ●●●●●
Autodesk Autocad ●●●●●
Autodesk Revit ●●●●○
Adobe Photoshop ●●●●●
Adobe Illustrator ●●●●○
Lumion ●●●●●
Sketchup Pro ●●●●●
Substance Painter ●●●○○

LANGUAGES

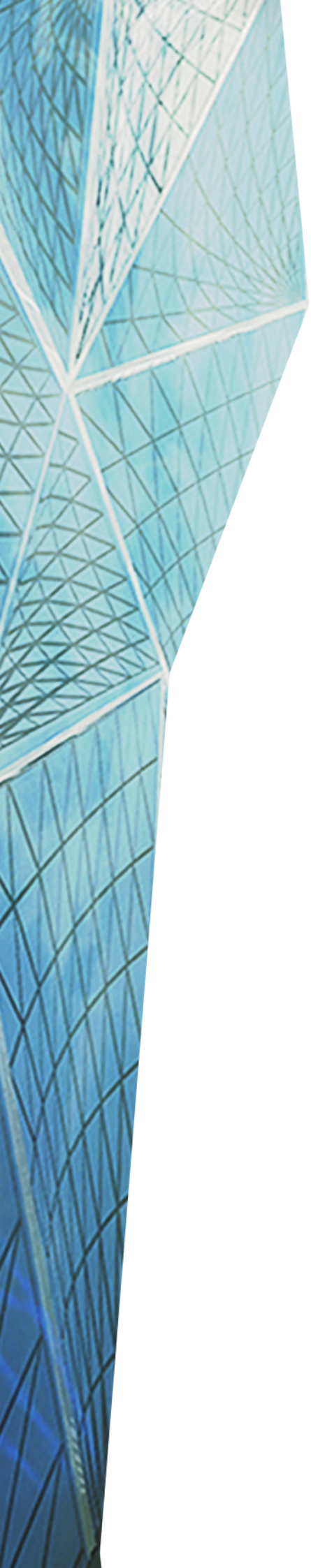
Turkish ●●●●●
C2-native speaker

Romanian ●●●●●
C2-native speaker

English ●●●●○
C1-advanced

German ●●●●○
C1-advanced

French ●●●○○
B2-upper intermediate



EDUCATION

Boğaziçi University,
MSc Software Engineering,
2020 - ongoing, GPA 3,33

Istanbul Technical University,
MSc Game and Interaction Technologies,
2019 - 2021, GPA 3,88

Anadolu University,
MBA Entrepreneurship and Innovation,
2020 - 2021, GPA 3,55

Bilkent University,
BArch Bachelor of Architecture,
2014 - 2018, GPA 3,00

High School Colegiul National
Alexandru Papiu Ilarian,
Mathematics and Computer Science
2010-2014

WORK EXPERIENCE

Instructor- Istanbul Bilgi University
Game106 Game Development with Unity,
Game 206 Contemporary Game Engines
Game 201 Advanced Game Development
February 2021- ongoing

Architect and Game Developer- Numena GmbH
Interdisiplinary design studio designing/ coding physical & virtual spaces, experiences and tools
September 2020- September 2021

Researcher Architect- Aura Istanbul
September 2018- February 2019

HONORS AND AWARDS

MIT Media Lab Course Full Scholarship-
Experiments in AI-Generated Media, Deepfakes for good, 2021

Generation Google Scholarship-
Women in gaming EMEA region, 2021

Google Get Ahead Participant-
An invite only summer development program, 2021

Tübitak Scholarship-
Masters Thesis VR project for "Relieving the Pain of Child Dental Patients", 2021

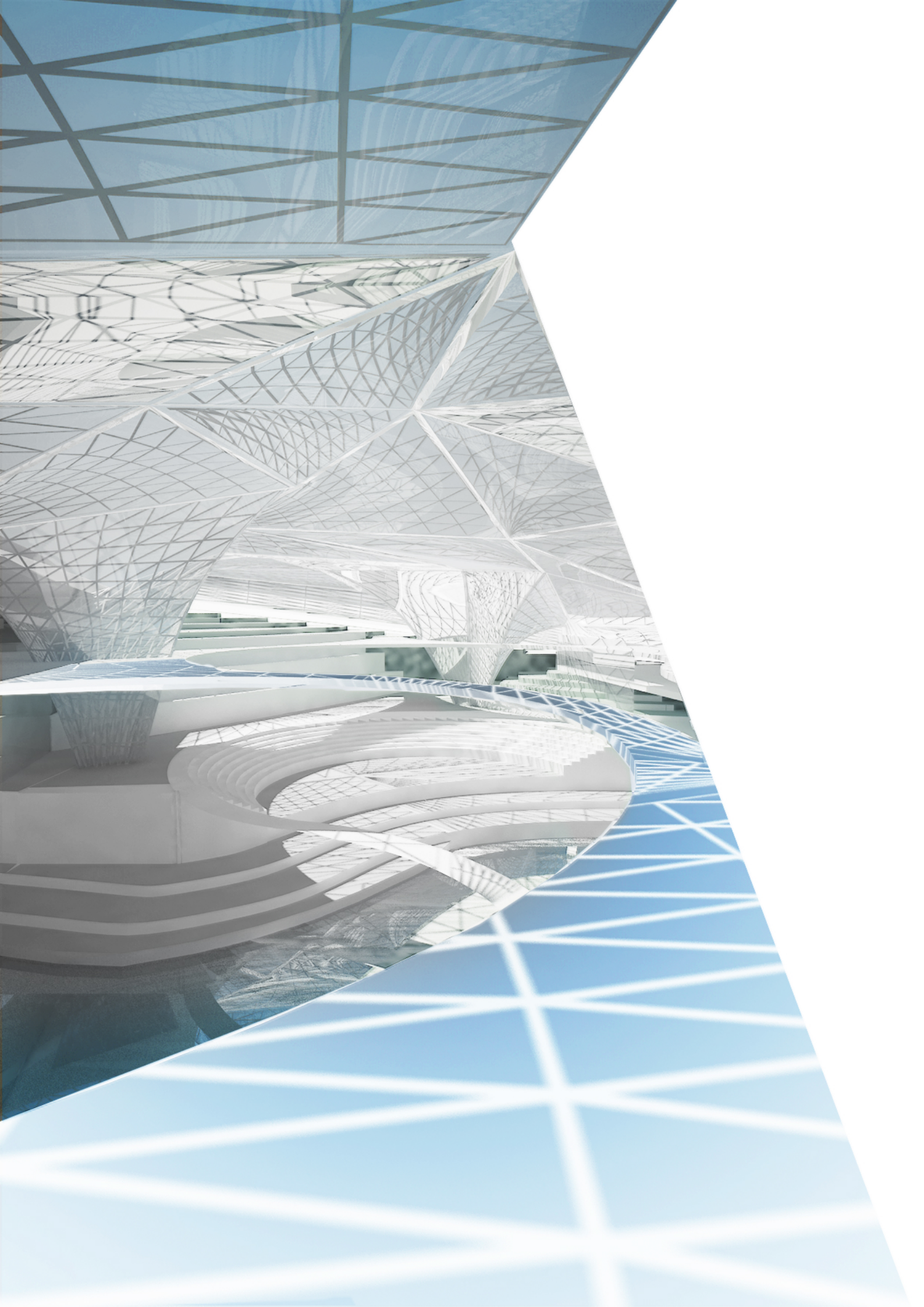
Oyna Öğren Game Competition-
Winner, hijgene game proposal- Washigo, 2020

Kod Ödülleri Game Competition-
Finalist, educational game proposal, 2020

Pudcad Universal Design Practice Conference-
Game and Education, publication, 2020

Women In Games Turkey + Art Hackathon + CATS
Special award for VR application idea, AR board game design, mentor at the creativity and game conference for kids, Indieway 2021 speaker

Global Game Jam + AirConsole Game Competition
Participant, 2019



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CONTENTS

■ ARCHITECTURAL

■ INTERDICIPLINARY

■ PROFESSIONAL

01

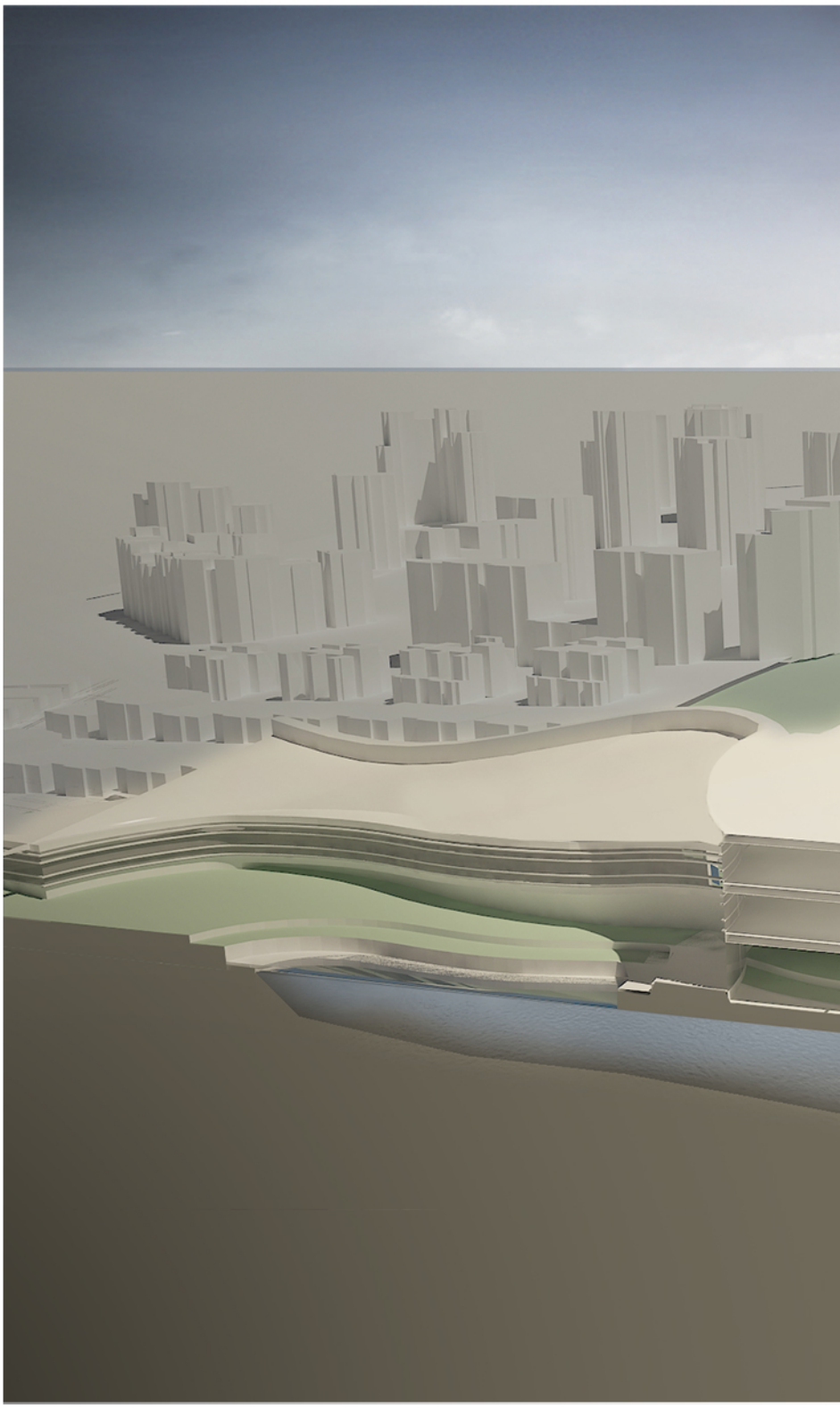
RE-Creation Project

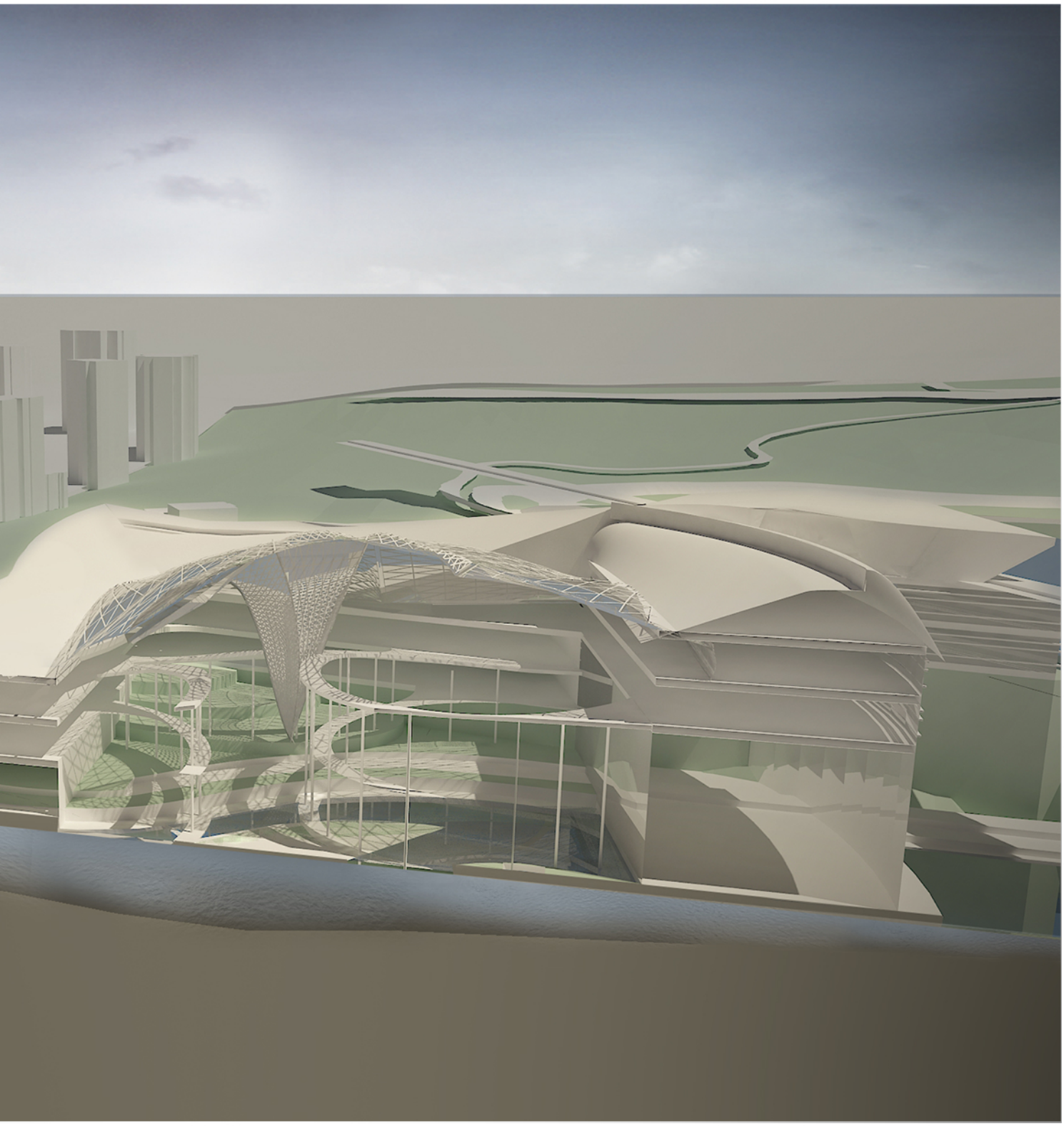
CLIENT: Final Project (Academic)
LOCATION: Ankara, Bilkent University Campus
PROGRAM: Workshop Center + Botanic Garden
DESIGNER: Fatma Betül Güres: All tasks
INSTRUCTOR: Yigit Acar

Ankara is a city of Shopping Centers.
In my design, I wanted to offer something better for the locals: a bio-dome that would enable the citizens to pass time in nature any time of the year, regardless of the harsh weather conditions of Ankara.

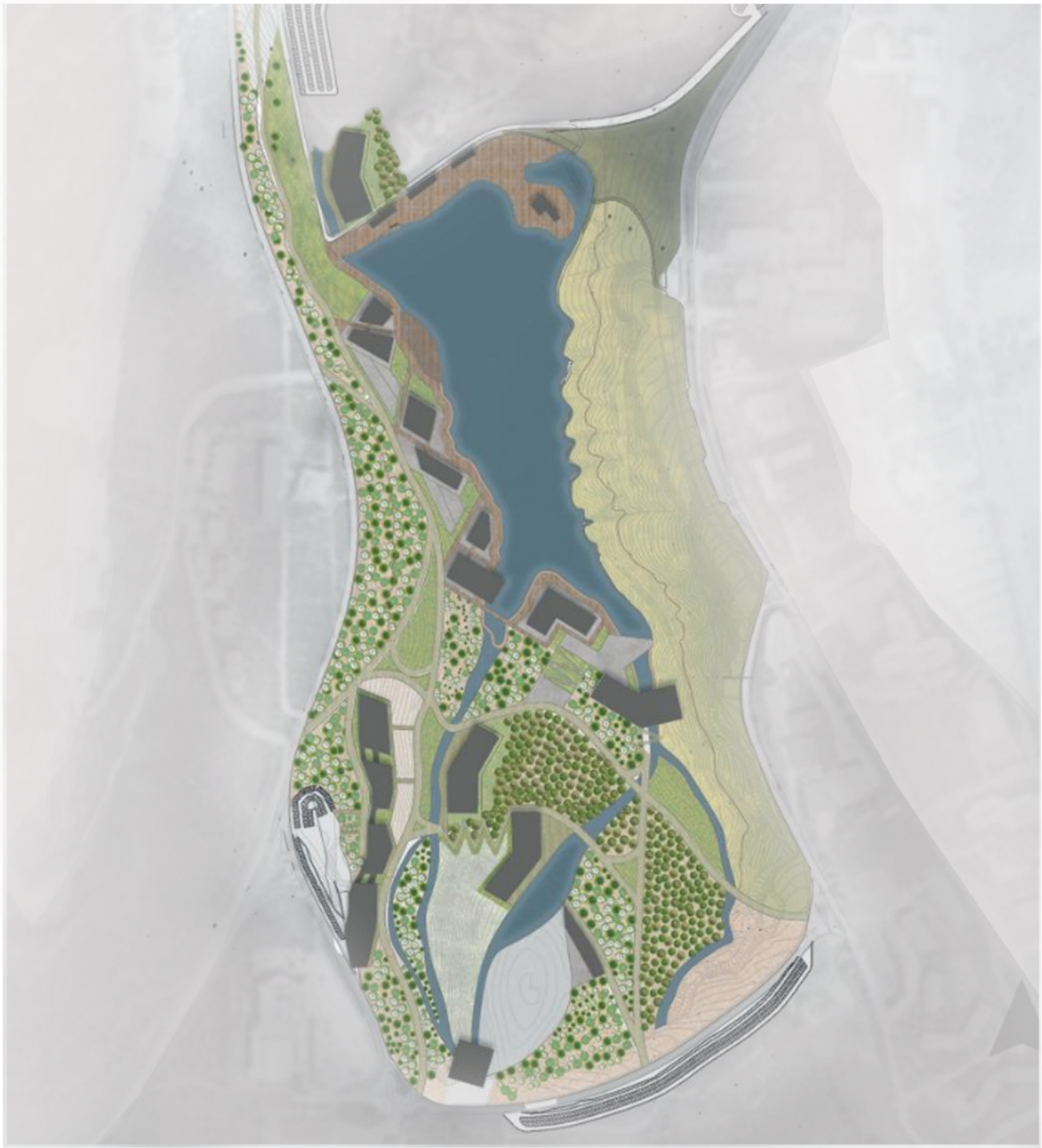
In this purpose, the first thing was designing the lake extension according to the site levels. The water is brought to a lower level through terraces. After this process, I obtained two lakesides. The building will be paced on both sides of this lake extension, and will provide bridges perpendicular to the lake, allowing circulation possibilities.

These connections might be under, on and above the water level, allowing different experiences for the visitors. This might provide possibilities to observe a waterfall, walk very close to the water such that they might touch the water or walk underneath and observe the lake through a glass ceiling. Inside the bio-dome there will be greenery as well- a beautiful Flora.

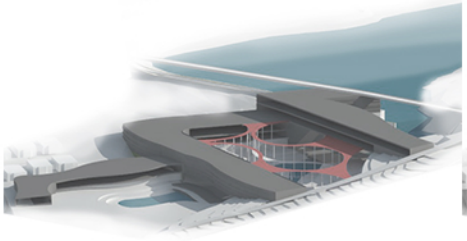




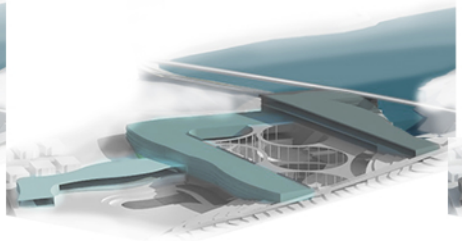
Masterplan



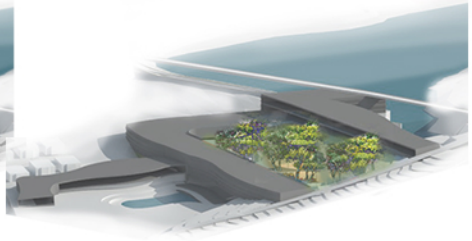
Interior Ramps



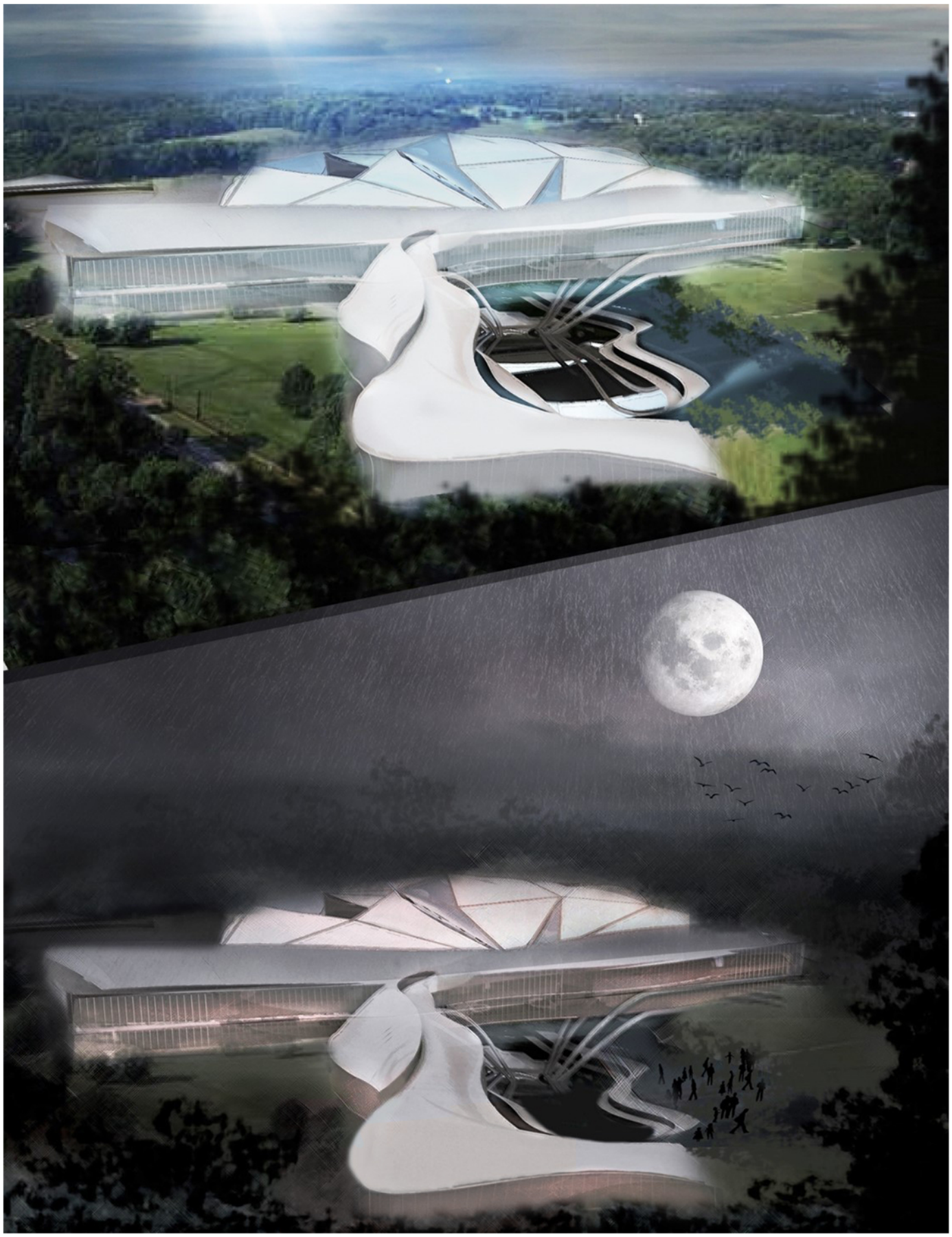
Massing



Interior Garden



Day and Night

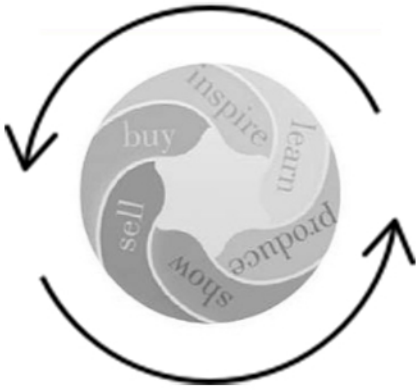


Interior Garden

Ankara is a city of Shopping Centers.

In my design, I wanted to offer something better for the locals:
a bio-dome that would enable the citizens to pass time in nature any time,
regardless os the harsh weather conditions of Ankara.

Functionally this is a place where people can:

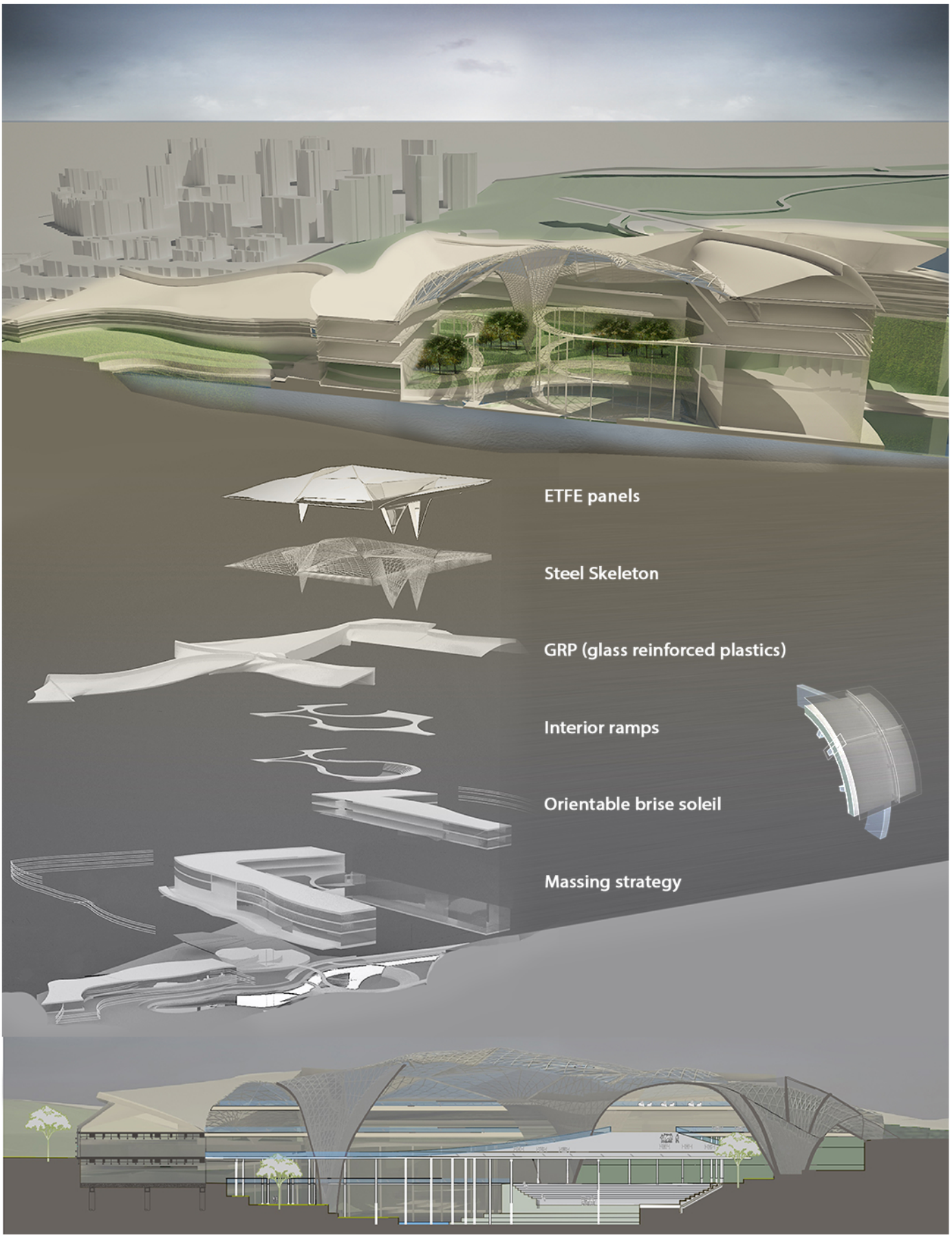


Inspire from nature
Learn by attending lectures
Produce in workshops
Show in exhibitions
Sell and Buy in shops

The Re-creation project is names after:

Recreation oppotunities provided by the bio dome
Creation of new products
Creation of a functionally and architecturally better alternative for shopping centers

Section


ETFE panels
Steel Skeleton
GRP (glass reinforced plastics)
Interior ramps
Orientable brise soleil
Massing strategy

02

Nevsehir Retreat Center

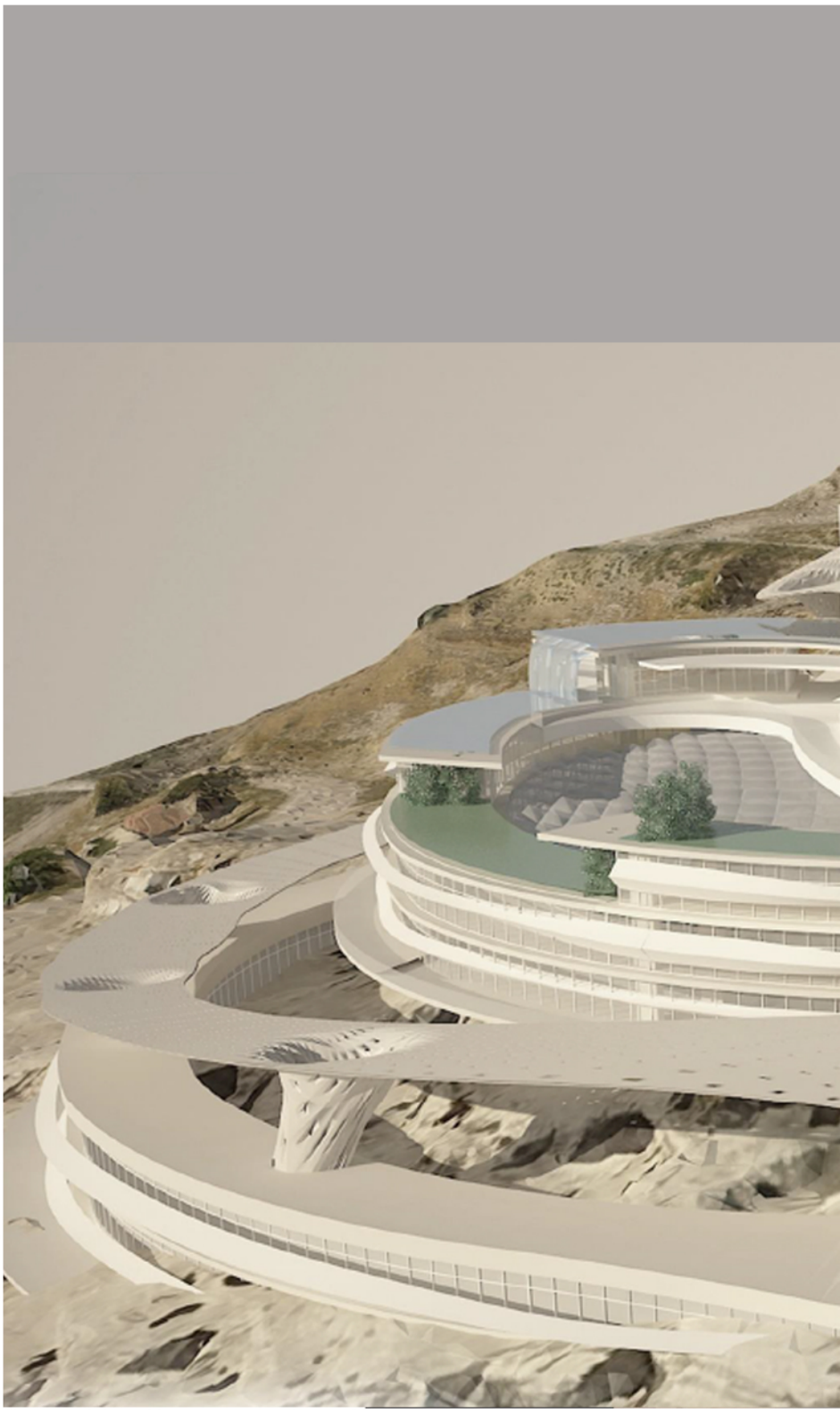
CLIENT: ARCH 401 Project (Academic)
LOCATION: Nevşehir, Archeological Site
PROGRAM: Retreat Center
DESIGNER: Fatma Betül Güres: All tasks
INSTRUCTOR: Jesus Espinoza Alvarez

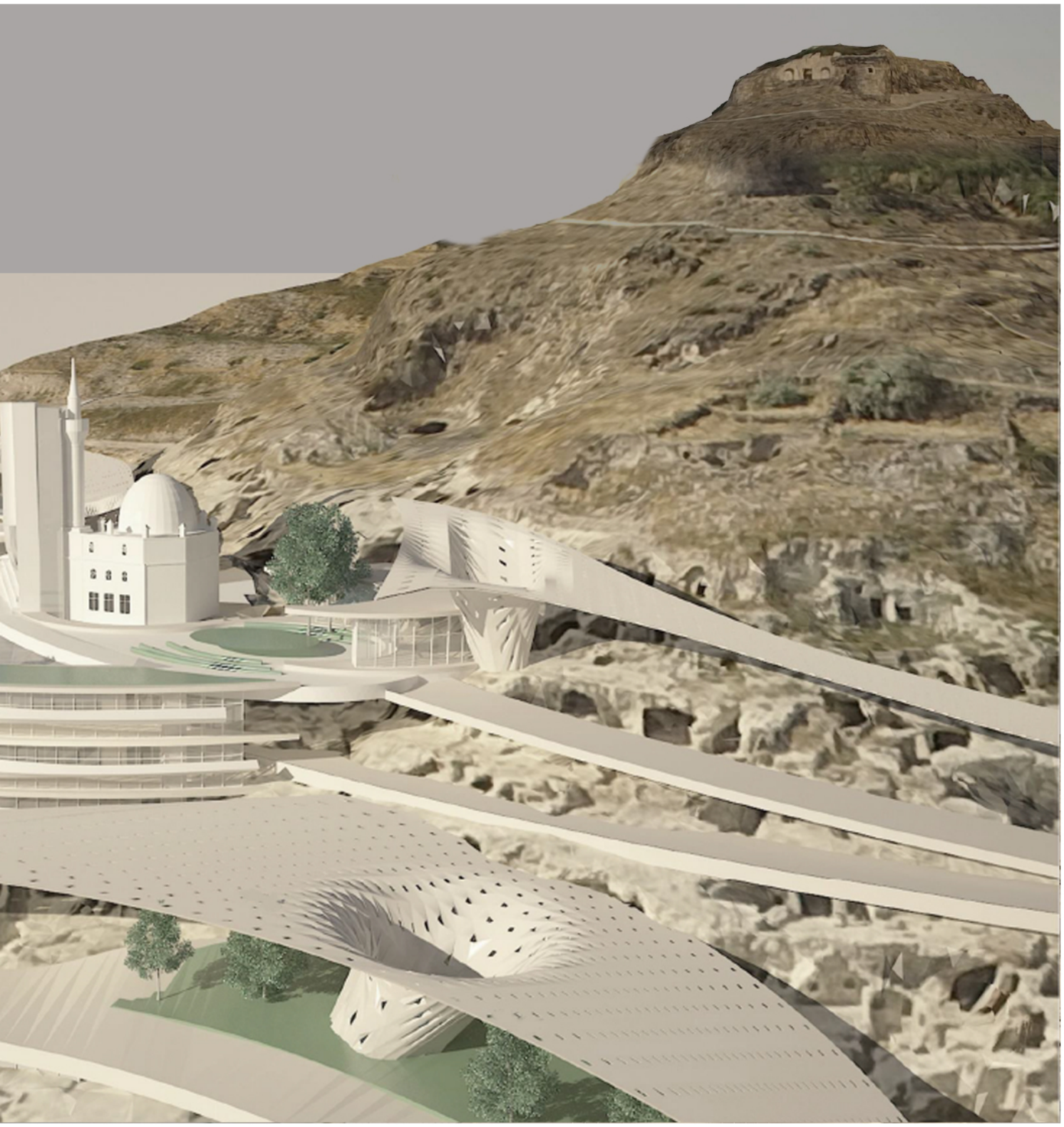
As 401-design project, we had to create a Retreat Center on the archeological site in Nevşehir. The design process started with site analysis, which was a harder task than usual because of the geographical conditions and there was a historical mosque: Kaya M.

I decided to preserve this mosque and integrate it to the building that I were to design. This integration was from several points of view: topography, mosque, function and form.

For the integration in topography, I have analyzed the previously existing roads and the levels. I have observed that there is a natural plaza, which I could integrate into my design. At the intersection of the roads, I created my design. The roof of the second building acts like a road that connects the site- and is an alternative for people who want to bypass.

For integrating the mosque, I have worked both in plan and in elevation. In plan, the platform is embracing the mosque and in elevation, it is rising to the minaret of it. In between there is an elevator for enabling the visitors to see the site from a higher perspective.





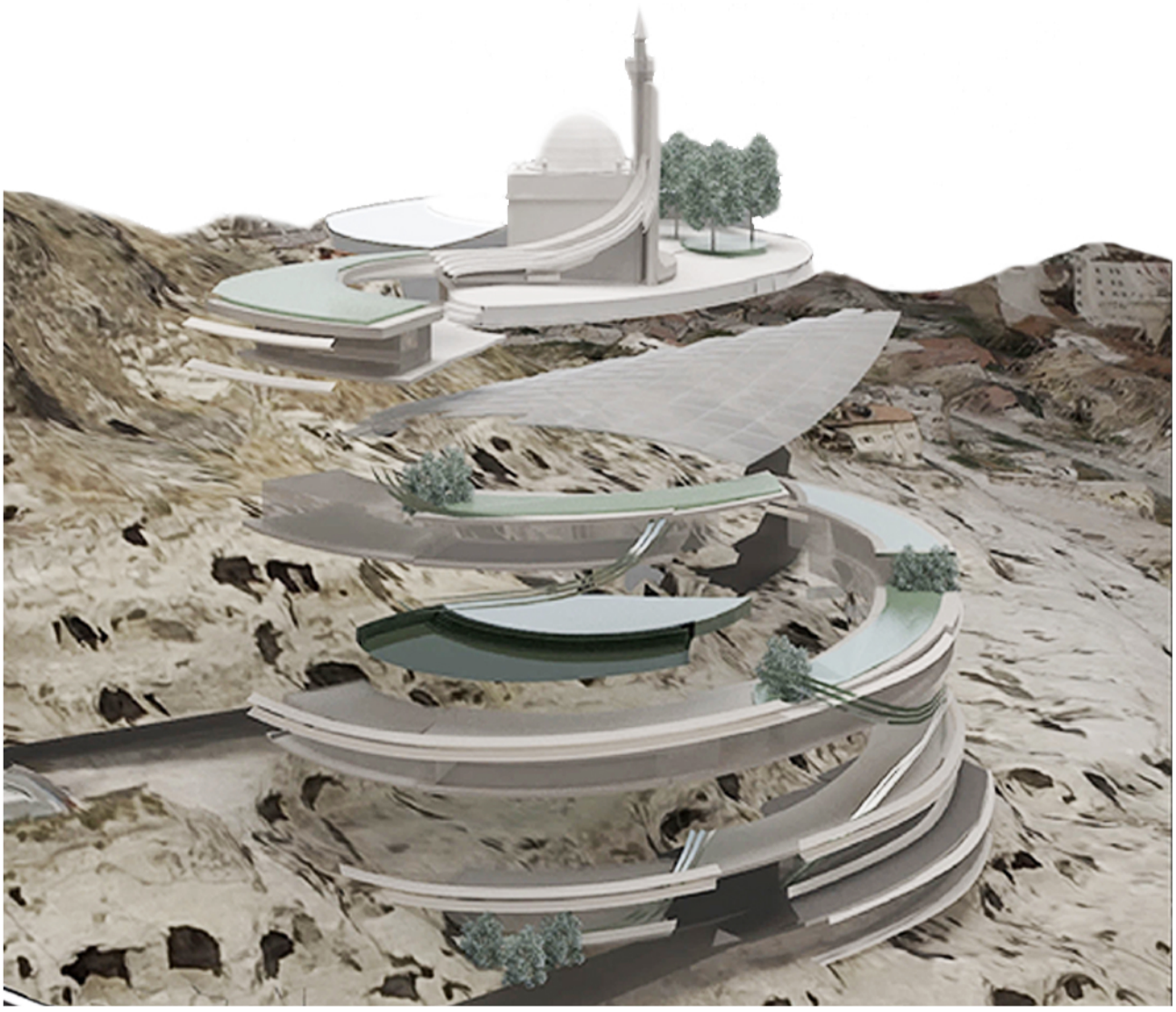
Exploded Axonometric

Functionally, the integration was created by thinking of the retreat center as a wellness center, where people can become healthier from every point of view. The complex works as a sports center, retreat center and a religious center. Specific functions were dedicated to each. I chose a closed form, in order to create a microclimate inside. This is also useful for the protection of the site as erosion is prevented.

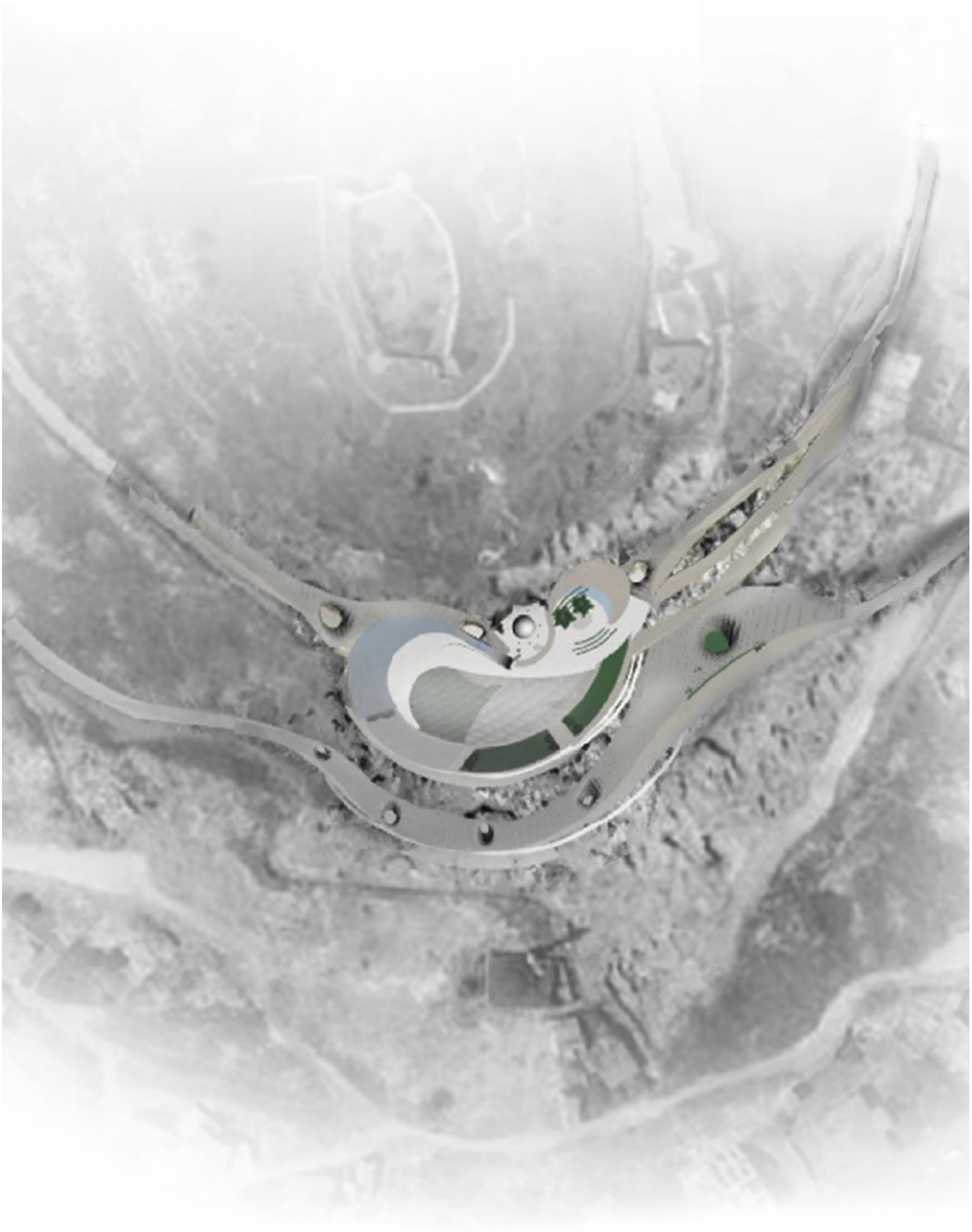
Inside this space, I have a green Amphitheatre, which connects the floor with some specific historical caves. Meanwhile the road that connects to this Amphitheatre goes by the historical cave- that is located under the mosque.

Structurally, I wanted to be as sensitive as I could, so I used minimum number of columns and long span beams. On other parts of the project, I used platforms. For dealing with privacy and sun issues I created a kinetic façade system which is adjustable to the needs of the users. For providing shelter to the visitors and defining the entrances- main circulation axes I have designed a semi open pavilion. Due to the perforated design, this structure creates different kinds of shadows, which enrich the user experience.

Finally, I would also like to add an information from archeology class. In Burra charter adaptive reuse is defined as making minimum changes to a cultural heritage in order to reuse it- with the appropriate functions. This has been my guideline during the design process



Site Plan



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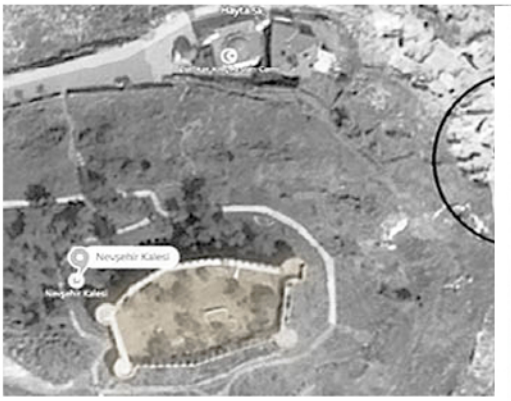
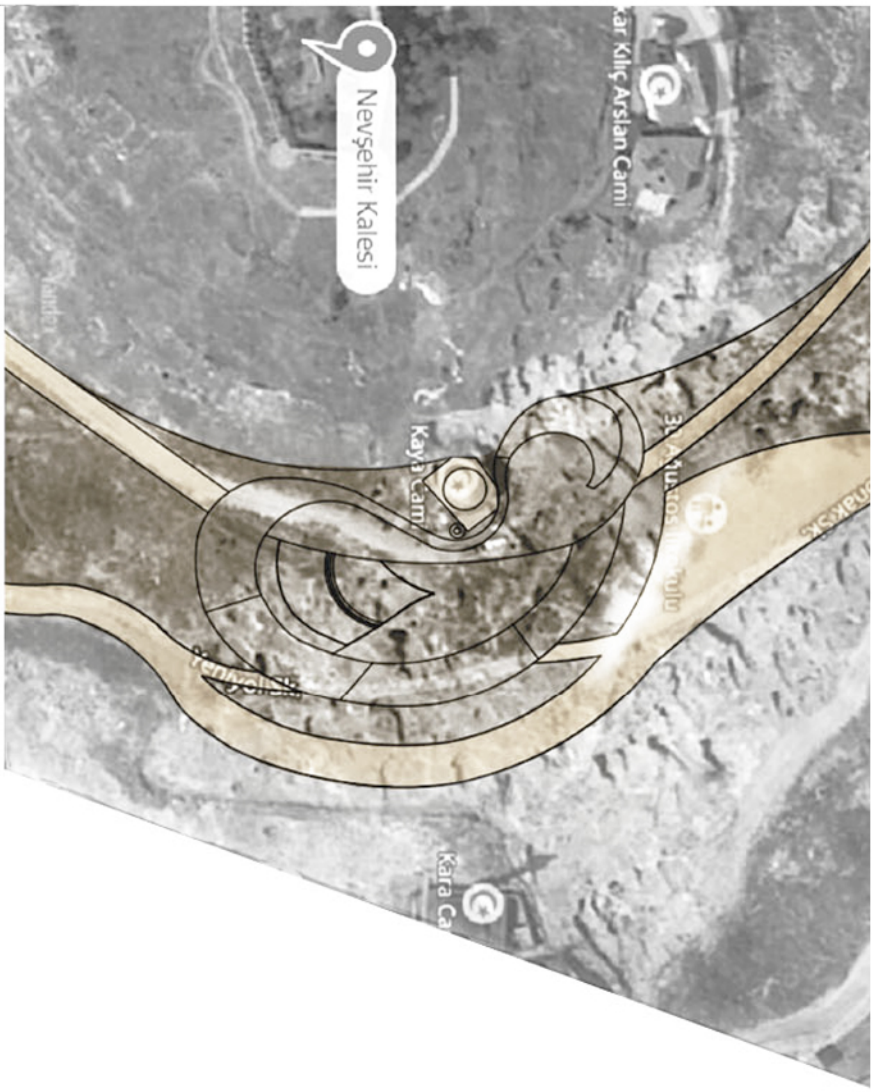
Site Analysis





03

Konya Performance Hall

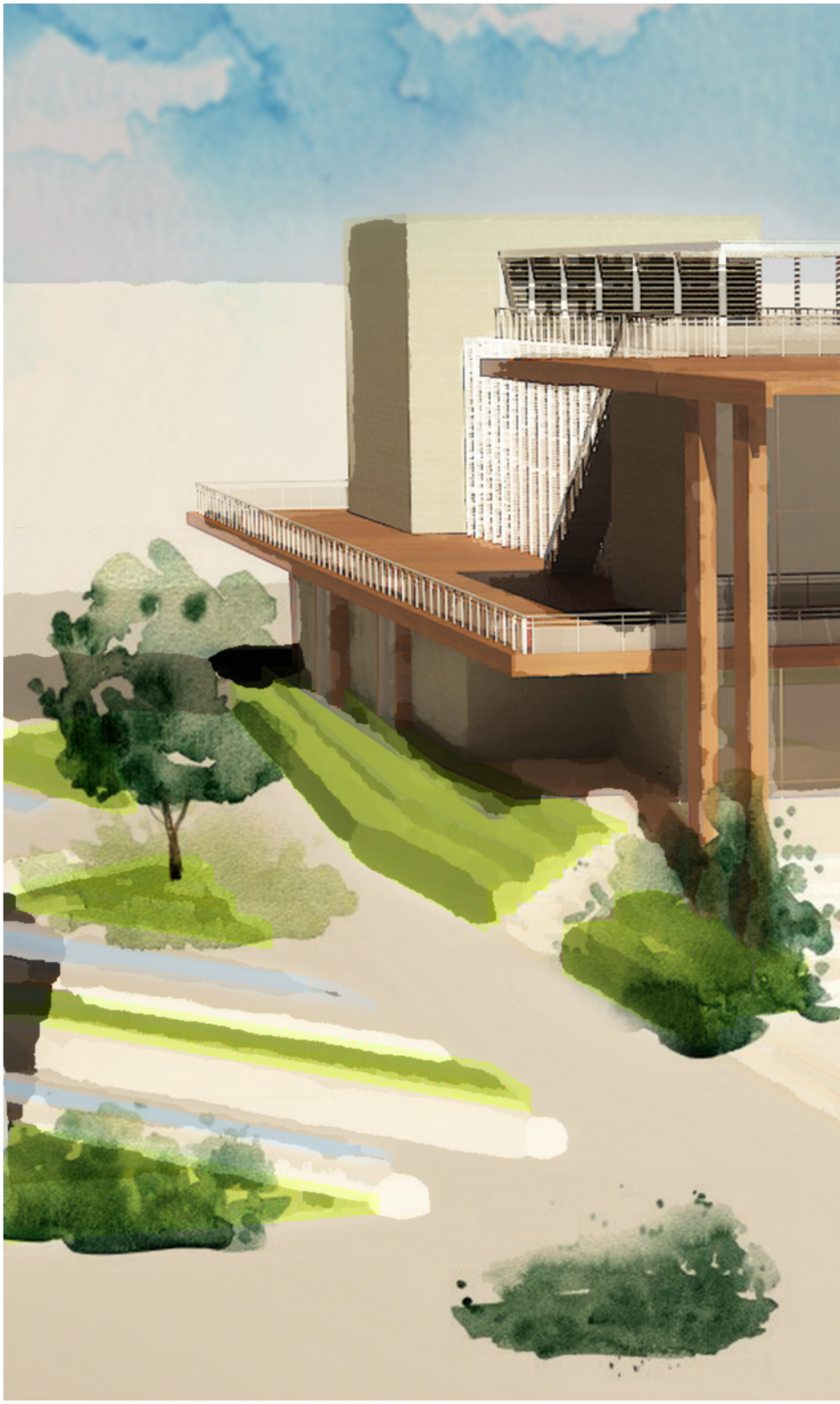
CLIENT: ARCH 302 Project (Academic)
LOCATION: Konya
PROGRAM: Performance Hall
DESIGNER: Fatma Betül Güres: All tasks
INSTRUCTOR: Selen Özge Duran

During this ARCH 302 studio, we were not given a specific program, but we had to analyse the site and than propose a suiteable masterplan.

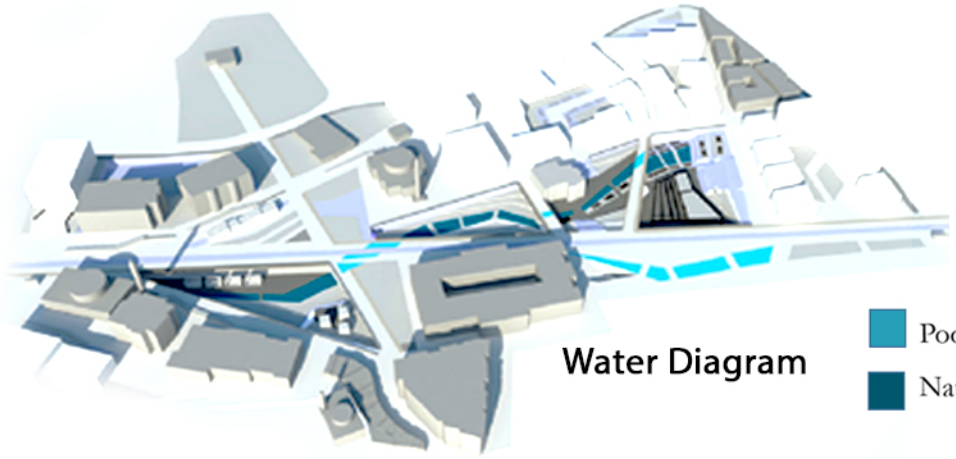
During the masterplan stage, we developed a zoning strategy with adequate functions, a green belt that was connecting two historic buildings.

Afterwards, this building was proposed next to a historic art school, a performance hall for the students.

As Konya is a very conservative city, the architectural language was chosen in this respect. The colors were chosen to be in harmony with the surrounding buildings.



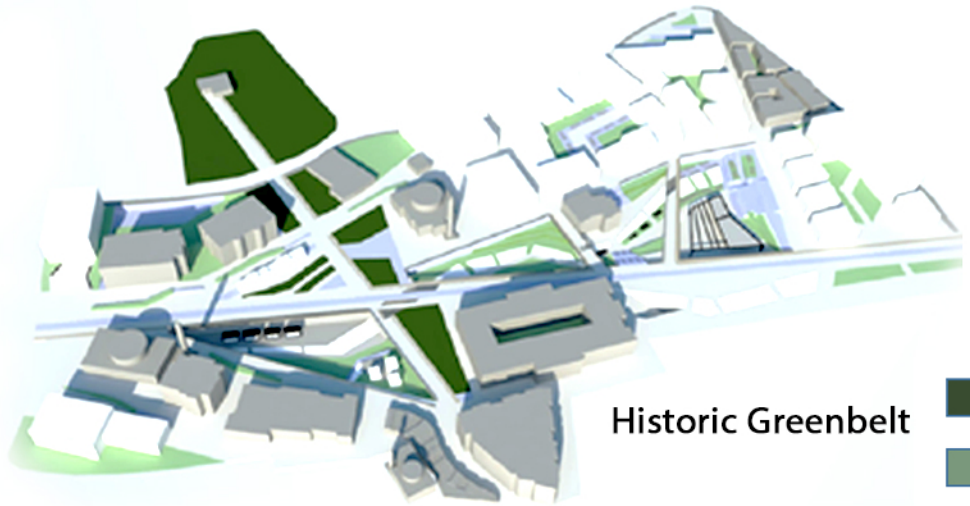
Masterplan Diagrams



Water Diagram

Pools as roofing elements

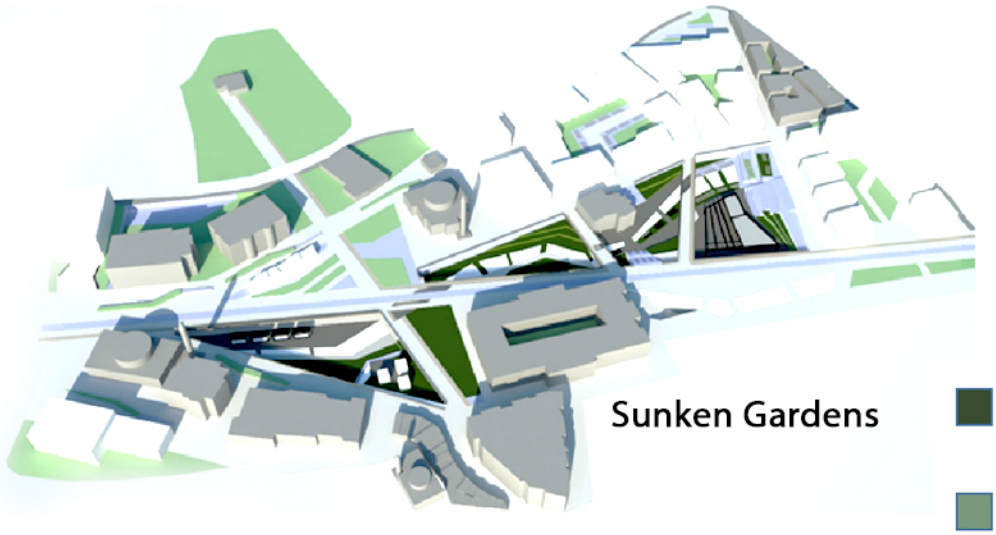
Natural pools



Historic Greenbelt

Green Belt

Other green areas

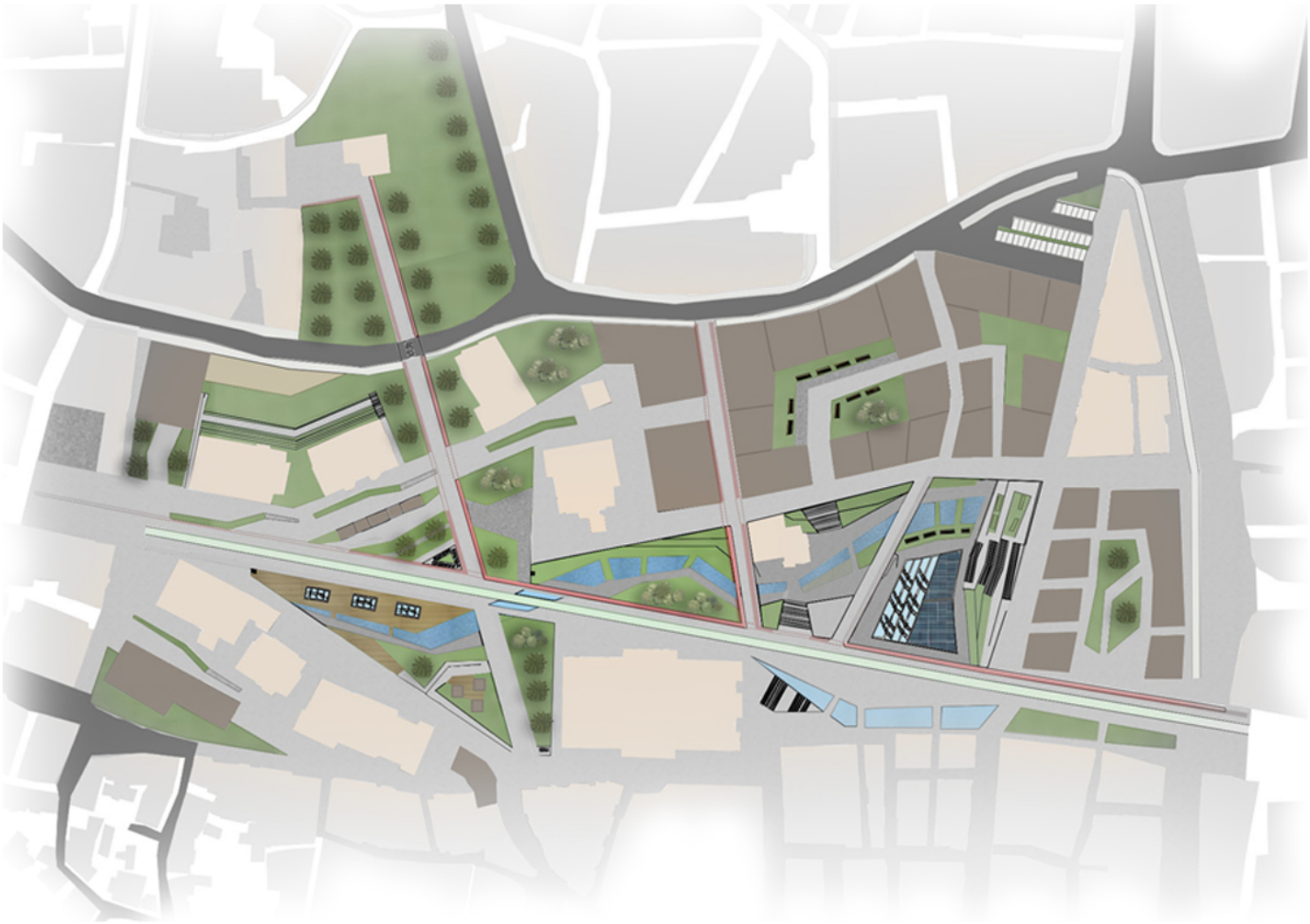


Sunken Gardens

Sunken Garden green areas

Other green areas

Masterplan



Design strategies:

- Pedestrianizing main axe
- Historical Green Belt
- Zoning Strategies
- Sunken Gardens
- Open & closed bazaar
- Natural pools

About Konya:

Konya is a city in Central Anatolia in Turkey which has protected its name for centuries. Archaeology shows that the Konya region is one of the most ancient settlements of Anatolia. The results of excavations in Catalhöyük, Karahöyük, Cukurkent and Kucukoy show the region was inhabited as far back as the Neolithic Period (Late Stone Age) of BC 7000.

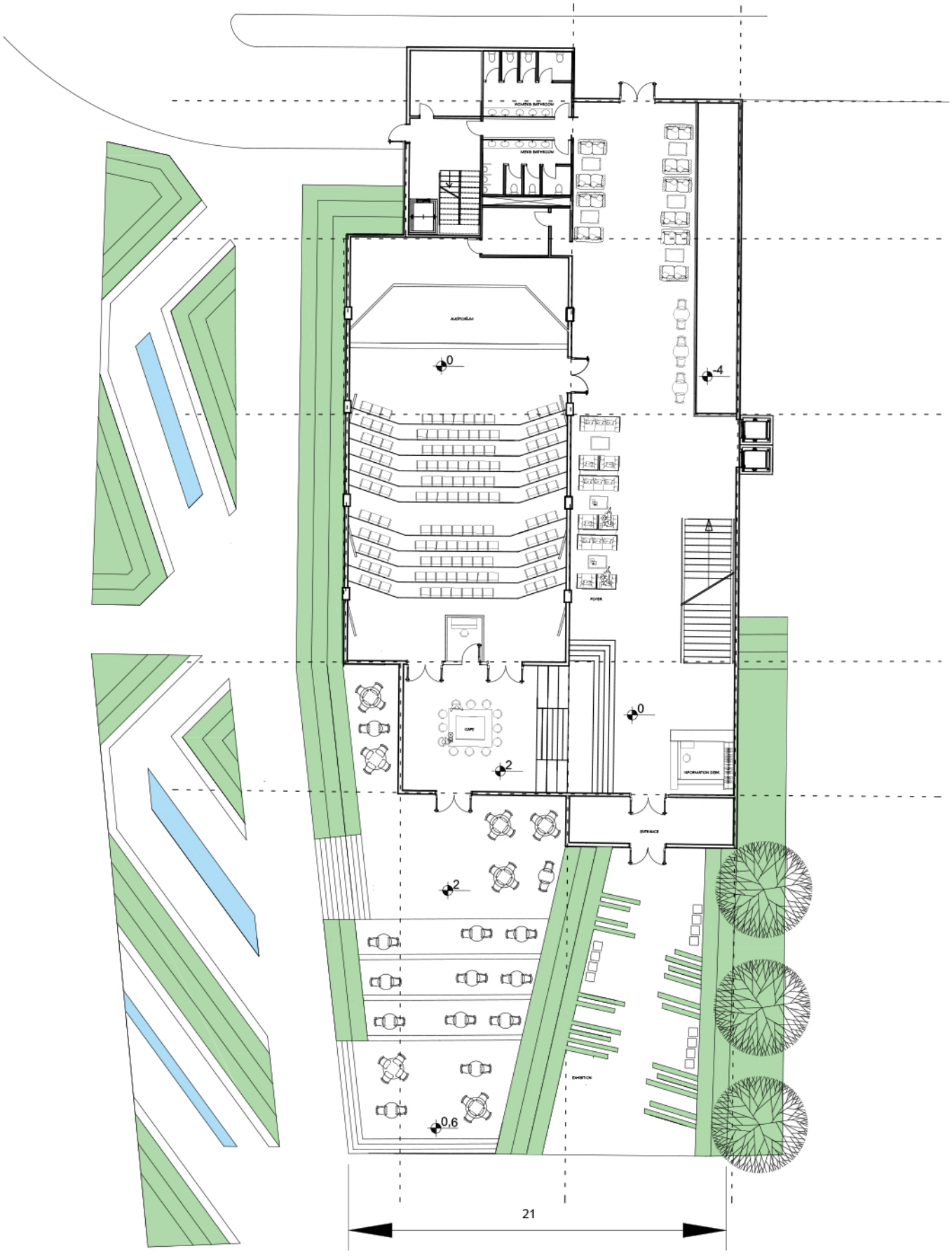
Other settlers of the city before Islam were; the Calcolitic Period (Copper Age) civilizations, Bronze Age civilizations, Hittites, Frigians, Lidians, Persians, Romans and finally Byzantines.

Konya is an important place for Christians as well because St. Paul and St. Barnabas came to the city on one of their journeys in Asia Minor around 50 AD. St. Paul preached in Konya but they angered both Jews and Gentiles so they had to leave the city and went to Derbe and Lystra.

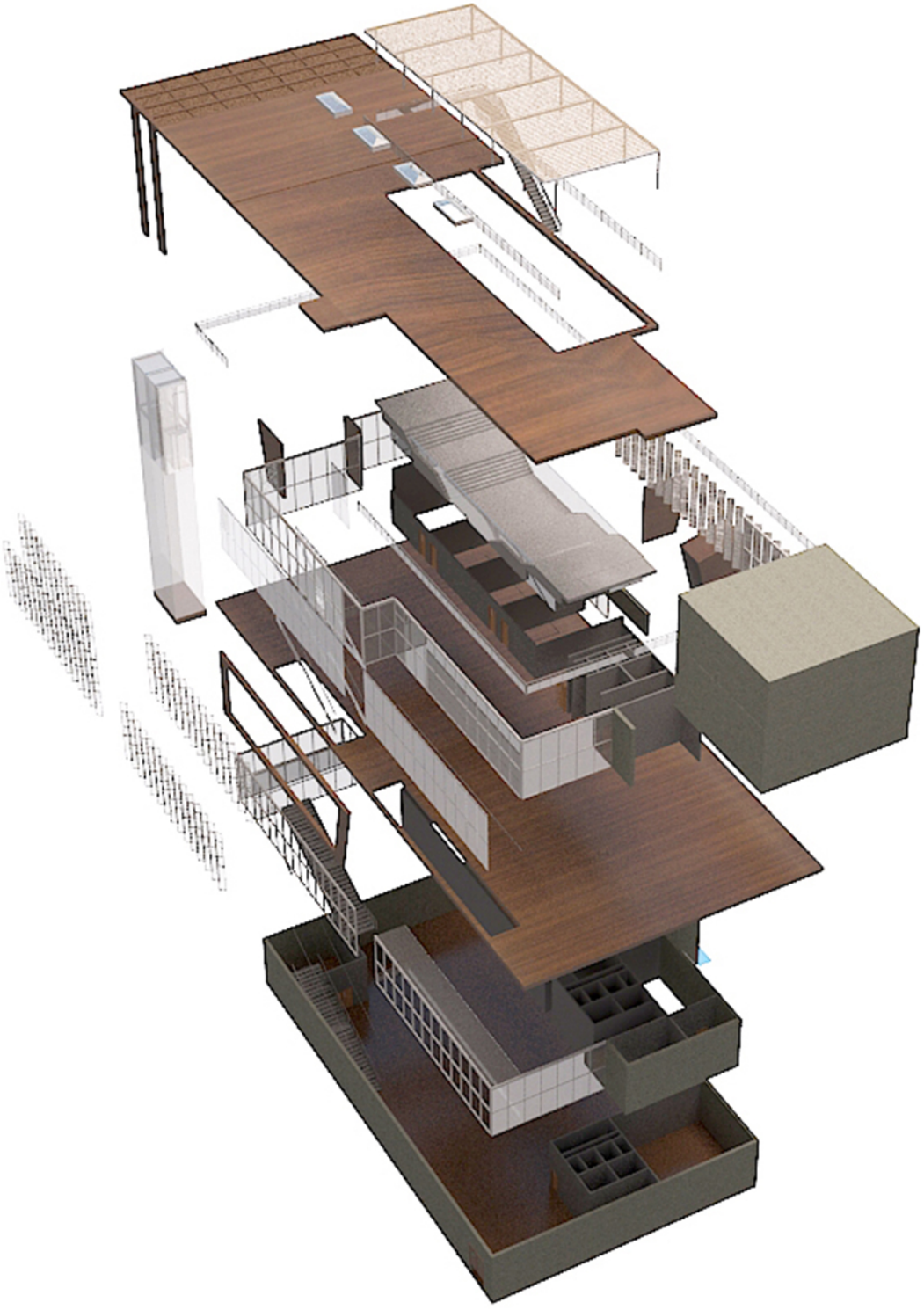
Site Plan


Female dormitory
Hatuniye Street
Male dormitory
Tram station
Music and Stage Arts
High School
Fine Arts High Schoo
Mevlana Caddesi
Comercia

Ground Floor Plan



Exploded Axonometric



Renderings

04

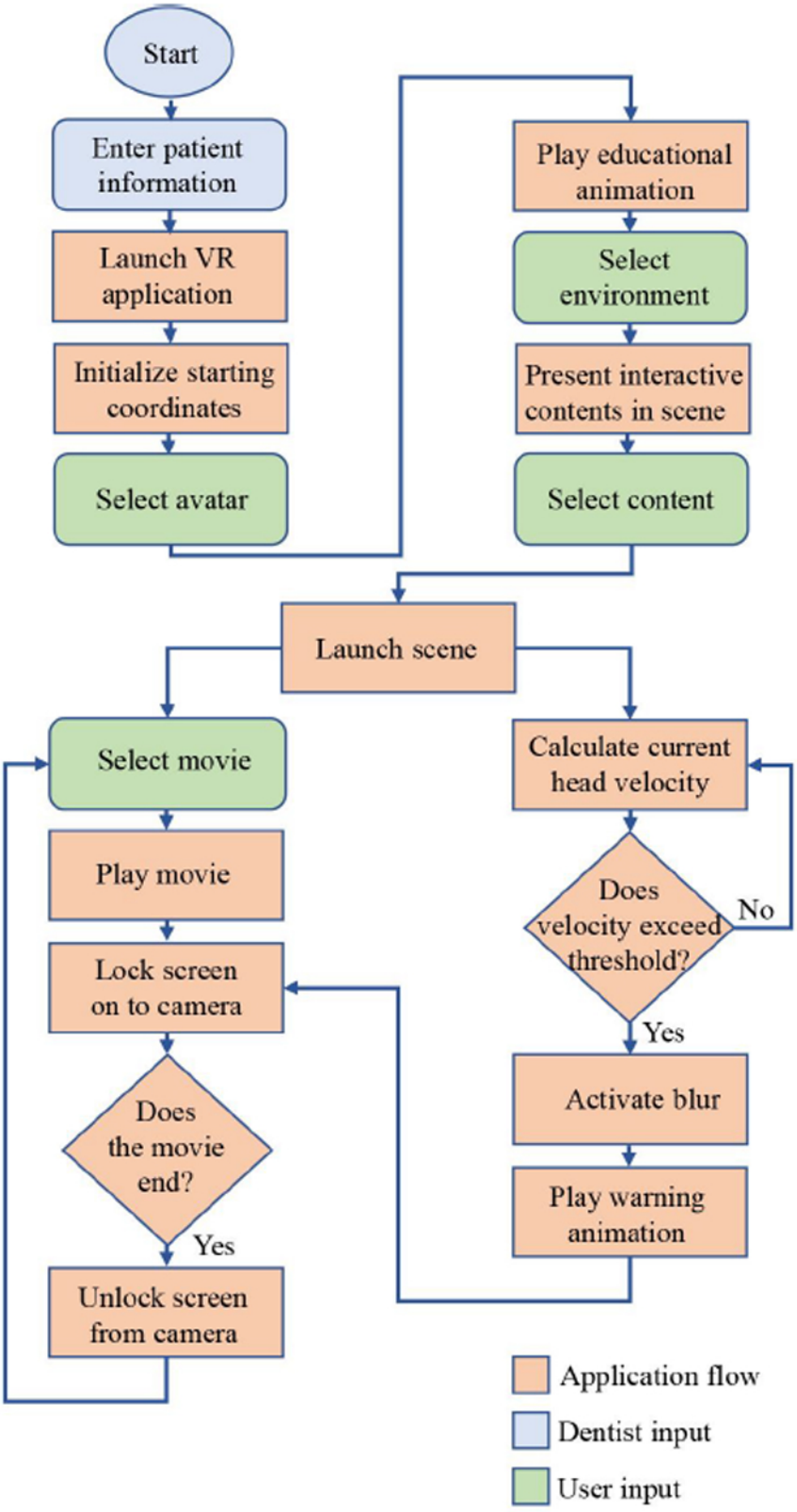
Reduction of dental anxiety in children using VR

CLIENT: Thesis Project (Academic)
LOCATION: ITU Istanbul Technical University
PROGRAM: Game and Interaction Technologies
DESIGNER: Fatma Betül Güres: All tasks
INSTRUCTOR: Gökhan İnce

One of the main targets of dentists is to offer high quality dental care to their patients in a stress-free environment. Studies have shown that dental anxiety is linked to behavioral issues before or during treatment. Additionally, it increases the perception of pain and as a result, angry and nervous children are hesitant to go to future treatment appointments.

In this research, it is aimed to reduce the dental anxiety of children with novel methods of interaction specifically prepared for dental treatments. The application is implemented using virtual reality headsets, to assess and prevent the level of stress encountered by patients during dental care and to decrease the workload of dentists.

Flow diagram of the application

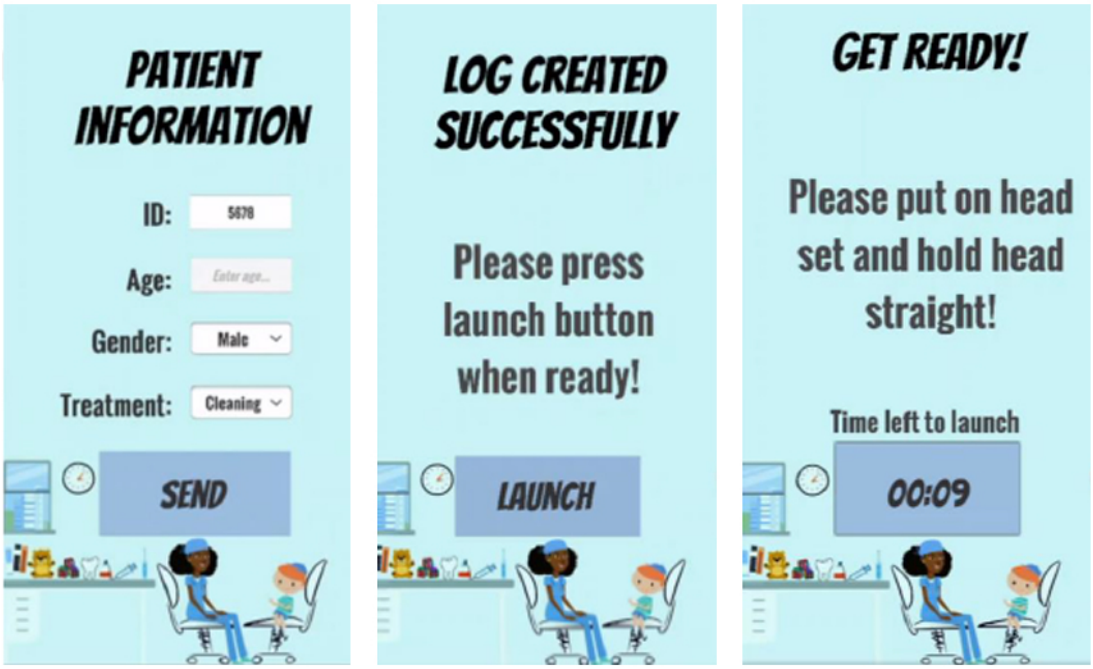


Flow diagram explained

Each step is colored according to the agent executing the described procedure. Blue boxes represent the inputs given by the dentist, at the beginning of the application. Green boxes illustrate the user inputs, which are the selections of the pediatric dental patients via gaze selection. The rest of the states are orange, representing the flow of the application.

These steps constitute our algorithm for the VR application assisting the dental procedure. The VR application for soothing child dental patients is structured in such a way that it provides interactivity while ensuring that the child is staying stable during the treatment due to security requirements of a dental procedure. The application running on a mobile device (i.e., phone) begins as a mobile application where the dentist enters the patient information regarding ID, gender, age and treatment type to be executed. Afterwards, the UI leads to the launch screen where the doctor is supposed to insert the mobile device inside the headset and the virtual reality format is enabled. After launching the VR application, the starting coordinates of the patient are recorded. This is an important step for the application content to be displayed in the field of view of the patient, who must stay sitting during the dental procedure. The application begins inside the virtual dentist clinic scene. Gaze selection is explained to the user interactively, as the animation characters ask the child which avatar to select. Afterwards, the user is allowed to choose whoever he/she wants and the application continues with the selected avatar from that moment on.

The educational animations take place, incuding the general explanation of the treatment and the dental tools are presented playfully (e.g., the suction tube is compared to an elephant trunk). After the educational animations are over, the user is allowed to choose between two different virtual worlds that were designed for children. It is expected that the girls would choose the girl avatar and pink castle world while the boys would choose the boy avatar and the blue sci-fi world. Lastly, the user is teleported to the selected scene, where he/she has the movie tiles at disposal. From this point of the application, the child is free to choose the desired movie. The movie screen locks with the user viewport, ensuring the ability to watch the movies even if the dentist may ask the child to change head position or rotation. The application contains one last feature: blurriness effect is enabled if the patient is unstill and non-cooperative, as sudden movements are dangerous and undesired by the dentist during the treatment. The user must stay still for the blurriness to go away and the video to become clear again. Head movements are measured with the help of the accelerometer inside the mobile phone, and when the movements exeed the specified limit blurriness effect is enabled. The avatar character appears in front of the locked in movie screen and warns the user.



User interface design

The application begins as a 2D mobile application and then transforms into a virtual reality environment. This transposition occurs when the user presses the launch button. As displayed in the figure above, there are three mobile screens that were designed for a vertical use layout. First of the images is for entering user information, second displays the "Launch" button and third is displaying a countdown. This time period gives the dentist enough time to insert the mobile phone inside the VR Headset and putting it on to the patient. The VR related process of the application has no UI, as the user interaction utilizes the gaze selection feature.

Design of the Virtual Clinic

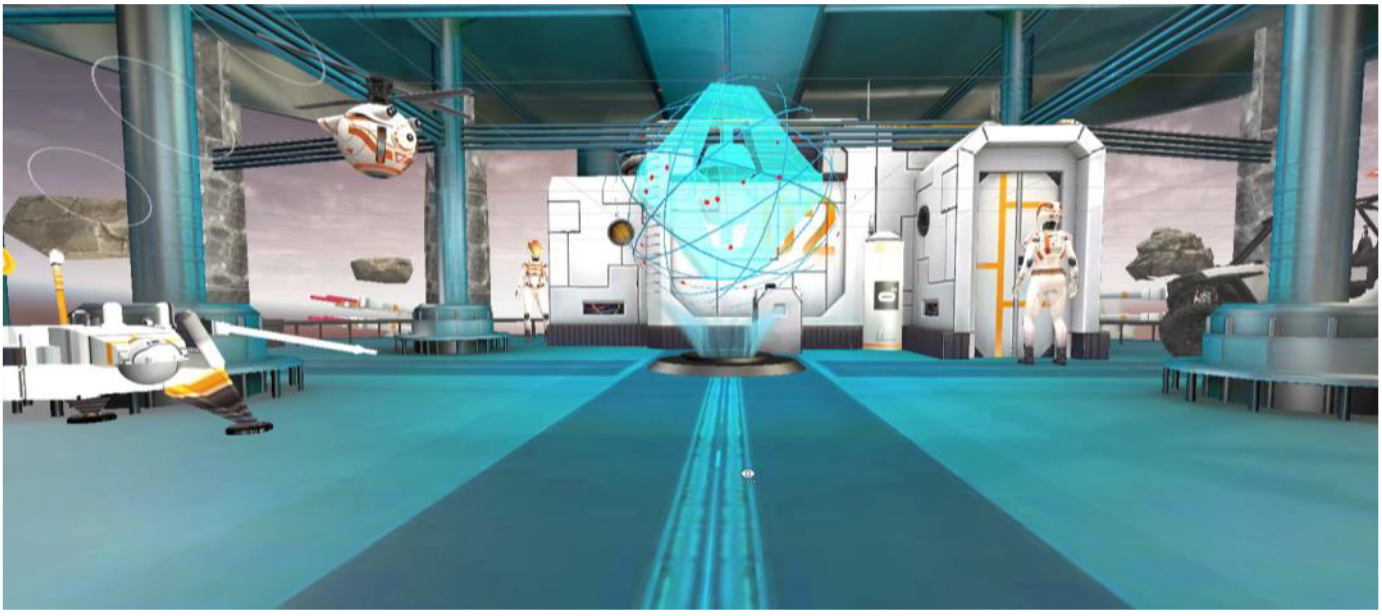
Design of alternative environments

In order for the software to keep the patient mentally away from the treatment process and anxiety, the VR application must offer an immersive and effective environment. The main elements of such an environment are the characters and the virtual world where these characters are positioned. These 3D scenes are places where the patient should feel comfortable.

In this respect, an appropriate virtual clinical scene and two fantasy lands (targeting boy and girl patients) are created considering the age range of the test group.

The design process of the virtual dental clinic scene started with an architectural research on the production of child-oriented clinical interior design. A mood board is an arrangement of images, a type of visual presentation or collage consisting of photographs, text, and object samples in a composition. The mood board was created after reviewing real world case studies of the pediatric medical clinics.

The other two scenes were created for offering the user two different versions of virtual enviroments to be teleported. The user has the freedom choose whichever he/she may prefer. The expectation is for the girls to choose the fairy world and boys the futuristic world.



Recording of the animations via MC Suit

unity

Unity Game Engine

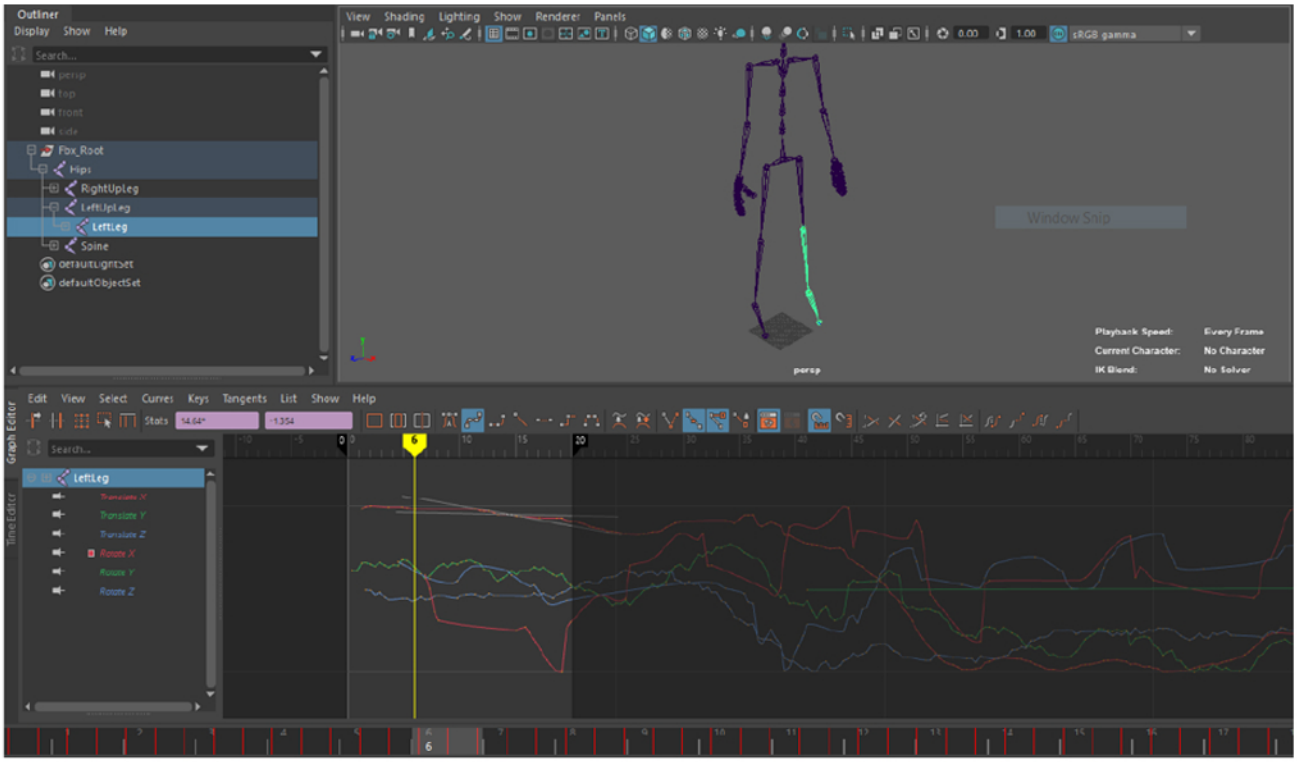
PERCEPTION NEURON™

Motion Capture Software

AUTODESK® MAYA®

Animation Creation Software

Polishing via animation curves



Character Rig

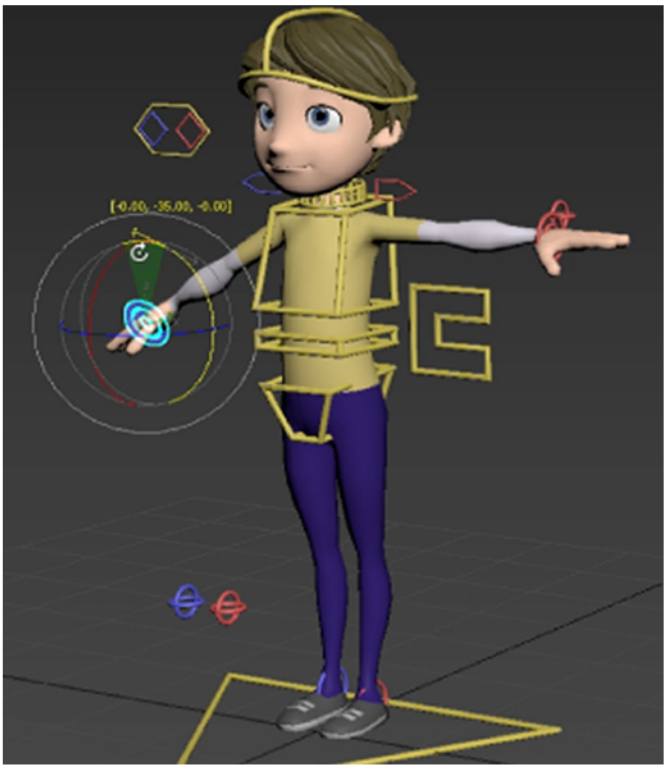
Animations are one of the essential aspects of this thesis, as the whole child- dentist communication is replaced with the characters inside VR environment. Therefore, the characters need to act naturally and portray adequate behaviour. During the creation process of the animations, some gestures like standing idle, clapping etc. could be found on on open-source asset stores. However, some special movements of dentists (such as showing dental tools etc.) are not available as ready-made animations.

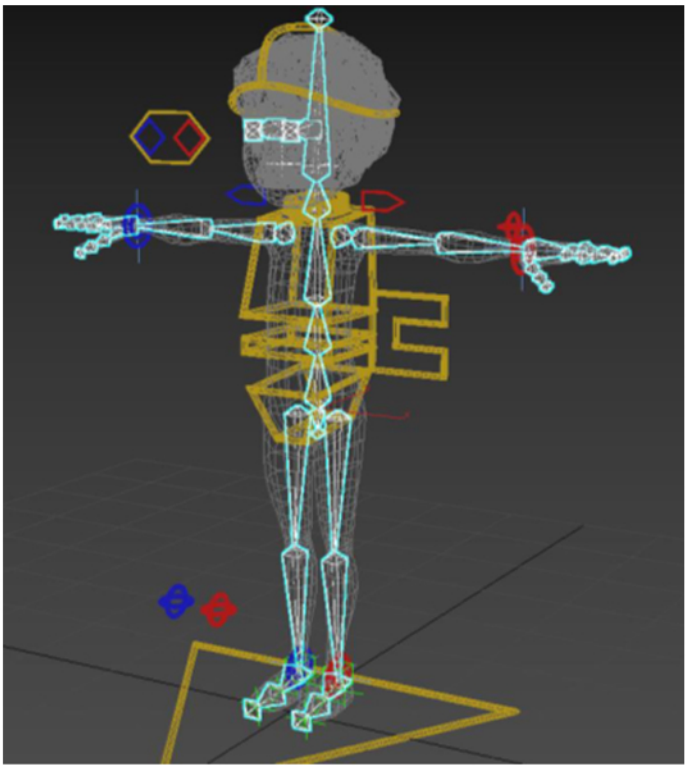
Therefore, the special animations were created to reflect the movements of dentists exactly, thanks to a motion capture system. These animations were captured using motion capture, as the default animations available on external sources did not cover the thesis scope entirely. With the motion capture system, new animations have been made. This system is made of a wearable suit device and has the ability to transmit the movements to the computer environment. After the captured animation is transferred to the computer environment, the created animation is attached on the previously rigged characters. In this way, animations in which the characters move in the most natural way are obtained and realistic virtual reality environments are created for the patients.
The humanoid model is used for animation after the character formation and rigging process is over. Two steps are primarily important for this process. First step is designing humanoid animations that are to be placed on rigged characters and the second is assigning the animation to the desired character by using Unity's in-built Animator.

For attaching the animation on the character, the animation file and the targeted character must be of the same animation type (meaning humanoid animation and rigging) to make the assigning process possible. The created animations are not for a single character, but for all human-like rigged characters. The character model has a humanoid rig specific bone structure (Figure 3.13). When imported into Unity, both the animations and the characters must be picked as humanoid from their property screen. This makes it possible for Unity to attach the animations to the corresponding body parts of the character. Thus, the animations and the model can work together.

Phases of rigging :

skin: a surface representation
bones: hierarchical interconnected parts
extra: building animation controls





Gaze Selection

The user view is described in Unity as a camera from which the user sees the virtual world. This point can be used as an input by finding the precise location in which the user's vision is oriented. Through Unity's raycasting and collider schemes, raycasting can be accomplished. Raycasting can be envisioned as shooting an invisible ray from a point with a specificdirection. Any object in the path of that beam collides with the ray, if the object has a collider body attached inside the game engine.

The origin of the ray is the camera's position, and the path of the ray is the angle of the camera, which is bound to the user's head orientation. The necessary choices are shown as 3D models in the virtual world when the user is asked to make a decision, to make them available for gaze selection interaction. The inclusion of rigidbody and collider components to the selectable objects enables the method of gaze selection. Unity calculates the path of the ray in each frame and in case of collision, the corresponding event is triggered.

Colliding this ray a certain amount of time with an entity decides the feedback of the user and the object becomes red if the collision with the target object lasts for a certain amount of time as seen in Figure 3.10. In the left panel, the pointer is standing in the middle without colliding with any of the boxes.

```
1  public void PointerEnter()
2  {
3      gazedAt = true;
4  }
5
6  public void PointerExit()
7  {
8      gazedAt = false;
9      timer = 0;
10     TimeCircle.GetComponent<Image>().fillAmount = 0;
11 }
```

```
1  if (timer > gazeTime)
2  {
3      ExecuteEvents.Execute(gameObject, new PointerEventData(
       EventSystem.current), ExecuteEvents.pointerDownHandler);
4  }
```

```
1  GvrVideoPlayerTexture player = videoPlayer.
       GetComponentInChildren<GvrVideoPlayerTexture>();
2
3  player.videoURL = Application.streamingAssetsPath +
       videoName;
4  player.ReInitializeVideo();
5
6  ActivatePlayer();
```

Motion Blur

The patient is expected to keep the head movements to a minimum during the treatment. For this purpose, head movement measurements can be used. With these measurements, an increase in the patient's head movements can be detected instantly. In cases where these increases exceed the desired levels, the patient can be warned and automatically asked to keep his/her head still.

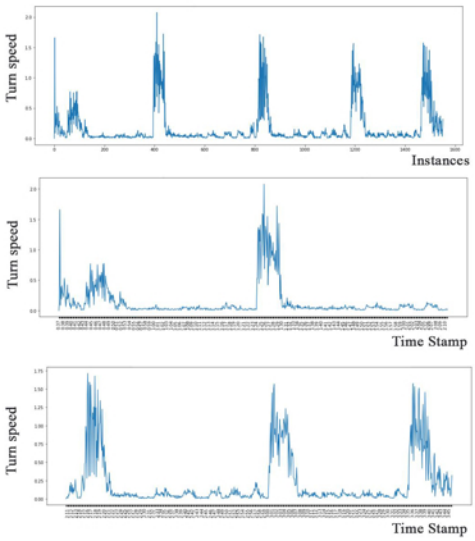
Considering the patient age range, an additional incentive to reduce head movements may be required. For this purpose, the content seen by the patient in the virtual reality environment can be artificially blurred in case of unwanted increase in head movements. Then, the patient is warned by the animation character that this blurring is caused by head movements and can be eliminated.

```
void Update () {
    float dif_x = x - Input.acceleration.x;
    float dif_y = y - Input.acceleration.y;
    float dif_z = z - Input.acceleration.z;

    float dif_total = Mathf.Abs(dif_x) + Mathf.Abs(dif_y) +
   Mathf.Abs(dif_z);

    x = Input.acceleration.x;
    y = Input.acceleration.y;
    z = Input.acceleration.z;
}
```

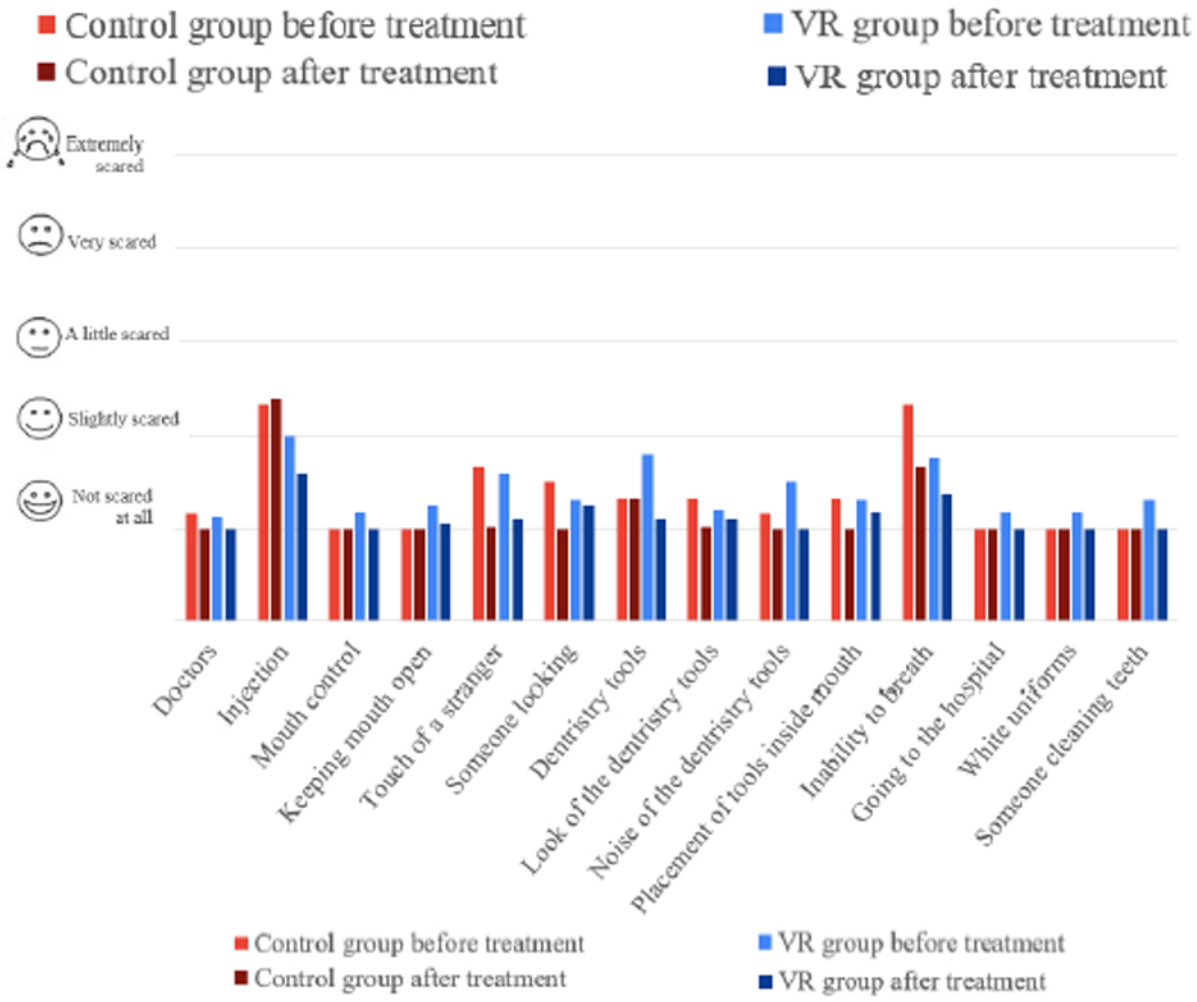
```
System.DateTime dateTime = System.DateTime.Now;
fileName = Application.persistentDataPath + "/" + dateTime.
   ToString("dd-MM-yyyy_HH-mm") + ".txt";
```

```
int minutes = Mathf.FloorToInt(Time.time / 60F);
int seconds = Mathf.FloorToInt(Time.time - minutes * 60);
string niceTime = string.Format("{0:0}:{1:00}", minutes,
   seconds);

accData.Add(niceTime + "," + dif_total + "," + dif_x.
   ToString() + "," + dif_y.ToString() + ","  + dif_z.
   ToString());
```

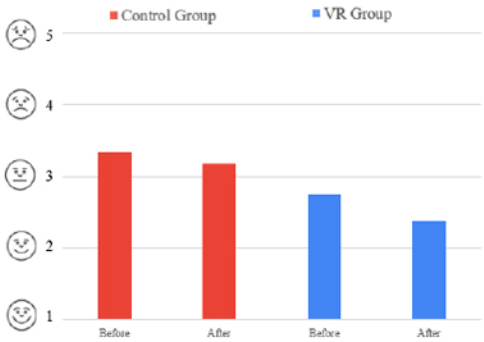
```
distortionObject.GetComponent<Renderer>().material.SetFloat
   ("_BumpAmt", distortion);
if (dif_total < 0.06) distortion -= 7f;
else if (dif_total < 0.1) distortion += 40f;
else distortion += 80f;

if (distortion <= 0f) distortion = 0f;
else if (distortion > 120f) distortion = 120f;

distortionObject.GetComponent<Renderer>().material.SetFloat
   ("_BumpAmt", distortion);
```



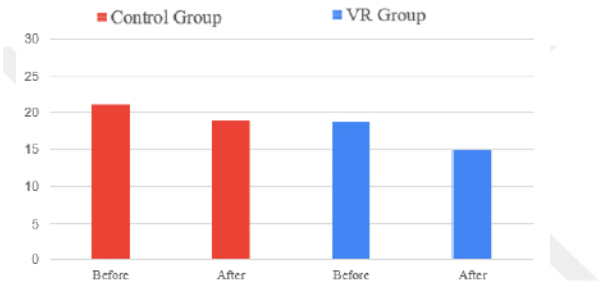
Test Subjects



Conclusion



e 5.1: Average FIS records of the Control and VR Groups before and after treatment.



5.2: Average total scores Using Children's Fear Survey Schedule-Dental Subscale.

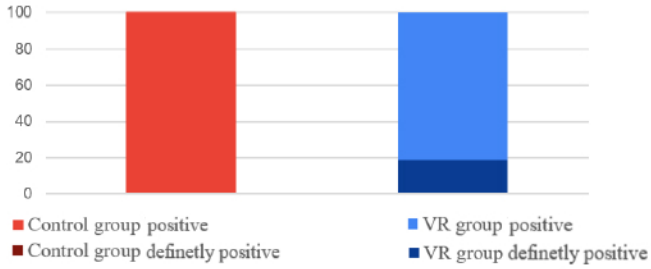


Figure 5.5: Percentage distribution of Frankl's Behavior Rating Scale before treatment.

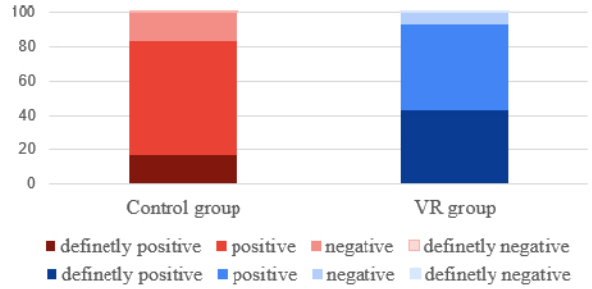


Figure 5.6: Percentage distribution of Frankl's Behavior Rating Scale after treatment.

The main purpose of this thesis is to develop a virtual reality application that, by providing a virtual world, can soothe the discomfort endured by child patients during dental procedures. So far, the realizations can be summed up as follows. The child's mood is improved by turning the ambiance into a place of happiness, carefully designed for this purpose. In a vivid dentist room, the explanatory introduction part takes place while the movies are watched in a fairy world or a futuristic world to separate the user from the actual location and context. Specially created animations have enhanced the virtual environment. The application was designed to function in such a way as not to require outside intervention. From start to finish, the application interacts with the user through gaze selection and head tracking mechanisms. The avatar characters provide information related to the dental treatment in a joyful manner. Gamification elements such as gaining stars and collecting rewards have been used to keep the patient engaged. Motion blur feature ensures the patient to keep head still as sudden movements are dangerous and undesired by the dentist during the treatment.

The most important finding of the thesis is that, the developed system has proved itself to be beneficial for both sides: the child patients and the dentists. The collected data demonstrates the soothing effect of the VR application on children, both physically (improvement in the measurement of vital signs- blood pressure) and psychologically (improvement of the applied psychological/psychometric scales). Additionally, the results on the questionnaire applied to VR Group demonstrates that nearly all children included in the experimental group are willing to use VR at their next dental appointments. This data validates the positive tendencies of children towards VR technology. Similarly, the beneficial aspects of the VR application for the dentists have been demonstrated in the shorter duration of treatment and high system usability scores. Finally, it is observed that this system is helpful to dentists because they do not have to repeat the same explanations at each procedure, instead this becomes an automated feature of the VR application.

For further development of the system, the gaze selection feature can be improved and a short tutorial might be added to the start of the application. Furthermore, instead of the gaze selection technology, the possibilities with eye-based selection can be investigated by the use of eye tracking VR headsets- which are unaffordable in the present but may become accessible in the near future. This way the child patient could realize even more interactable tasks, as he/she could give inputs while holding head still- as required during the dental treatment. The animations can be further polished for additional development. In addition, it is possible to enlarge the scope of the study in such a way that the use of this program will not be restricted to dentists. Starting with other medical areas, new areas of use can be explored. A child who is afraid of vaccines, for example, may use another extended version of the application to overcome fear and get vaccinated easily. After consultation with doctors from different medical fields, this form of use can be expanded. The use of virtual reality in fields such as dentistry is still experimental, but compelling advances can be seen in this field with the help of researchers, experts, scientists and industry leaders.

05

Yedikule Urban Gardens

Cultural Heritage game in VR with heptic gloves

CLIENT: Term Project (Academic)
LOCATION: AURA Istanbul
PROGRAM: Arch. & Urban Research Academy
DESIGNER: Fatma Betül Güres: All tasks
INSTRUCTOR: Yılmaz Değer

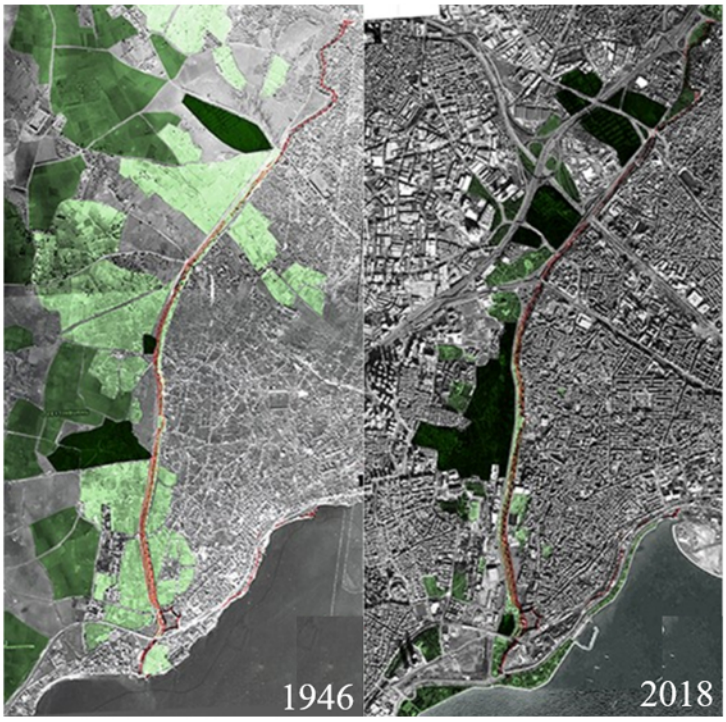
Yedikule Urban Gardens- world heritage

Yedikule Urban Gardens constitute the historical greenbelt of the city. The term "Yedikule" refers to the seven towers of the Theodosius walls. As the "historic peninsula" of Istanbul is highly populated, green spaces as the Urban Gardens of Yedikule are exceptional. Thus, they are protected by UNESCO, under the status of World Heritage Site.

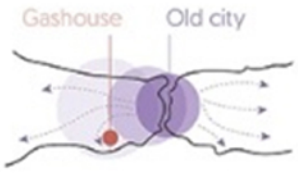
Archive researches have demonstrated that the bostan's date back to 1500 years. The historical maps, drawings and old photographs are evidences of their existence as agricultural land in an historic environment. These gardens have been offering local goods since the Roman Empire. Empires have collapsed but they have survived, during Roman, Byzantine and Ottoman times.

Unfortunately, this area that has surpassed centuries had difficulties in the recent history, once the site was announced as a World Heritage due to a problematic restoration plan. Some of the Bostan's were transformed into urban parks, which meant that the site faced its first destruction.

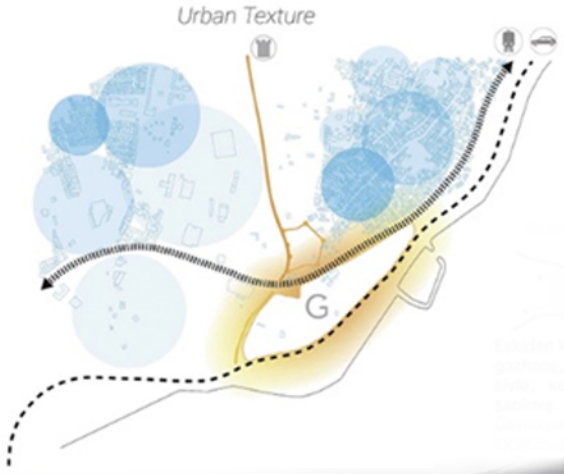
Historic evolution of the site



Cementary
Urban Garden
Green area



The historic site that was in a rural location is surrounded in urban texture due to the city expansion



Destruction of Yedikule Urban Gardens

Since the 70's and especially during 80's there was a great expansion of Istanbul, due to industrialization and migrations from rural Anatolia.

"This social problem combined with the worldwide trends of "modernization" and "globalization" have caused a peak in the housing development, which was going on without proper urban planning."

As it can be read even today from the variety of the urban texture, the historic city scape had undergone drastic changes due to new residential blocks and over-scale transportation passageways.

"Natural areas- the most sensible places when faced with urban development- in Istanbul were inevitably affected by this urbanization and growth tendencies and they started to disappear, by losing their ecological, economical and social values. There was a conflict between conservation and economic development."

At one stage, the urban gardens were kind of abandoned wich lead to a drastic degradation in terms of maintenance, being full of rubbish and becoming a place of illegal activities. The oversized highway made the area inaccessible, so the visitors did not even want to access the site.

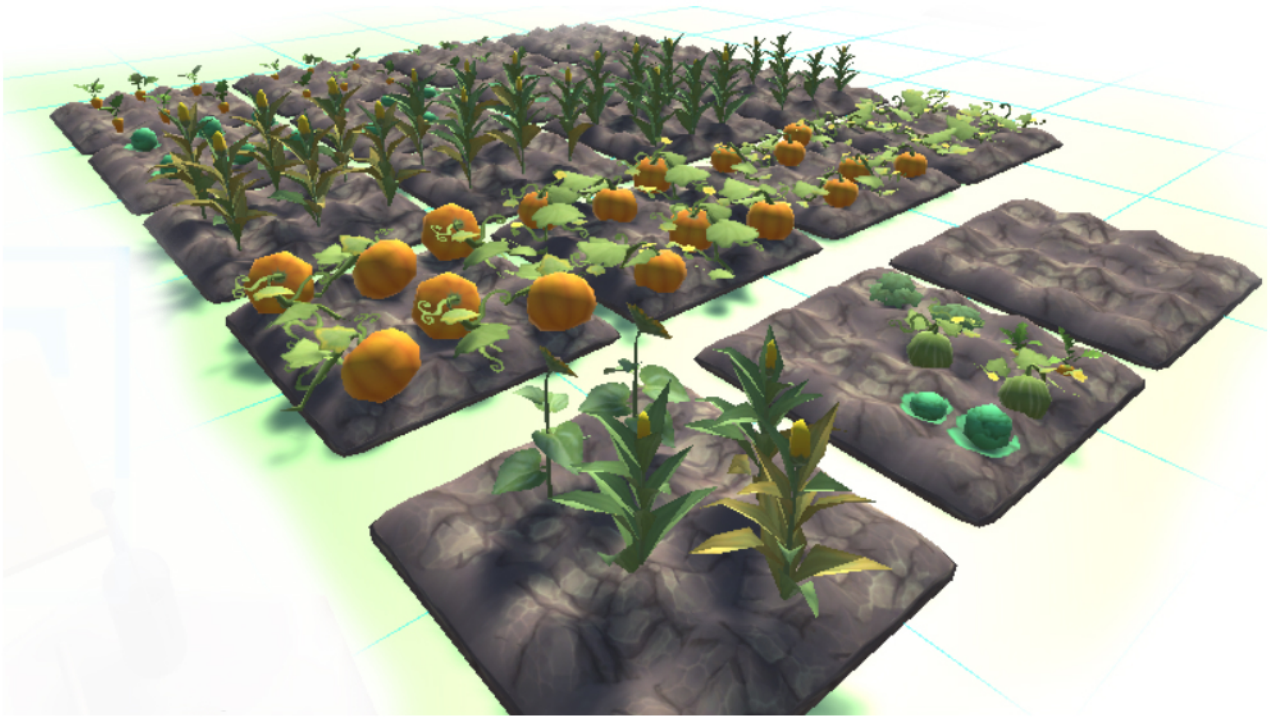
Additionally, other damage occurred when the site was claimed as "renewal area" in September, 2006. "This decision was completely disastrous as bulldozers of Fatih Municipality came to the site and demolished two urban gardens."
"After four years of stagnation, Fatih Municipality proposed a thematic urban park project entitled "Recreation Implementation Project for Yedikule" just next to Yedikule Villas in 2010."

Thanks to the activists, leaded by Aleksander Shopov, a researcher from Harvard University, the site was saved from becoming an urban park. Unfortunately we cannot deny that they are still under thread. At any time can the unstoppable urbanization win the battle.

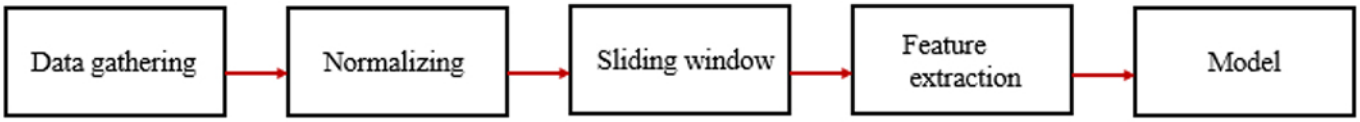
Game to raise awareness

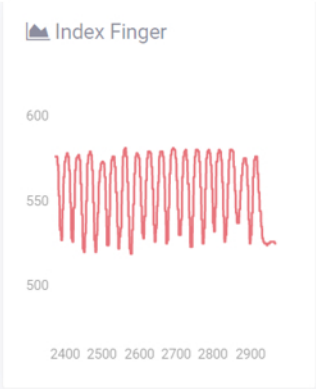
Due to the zone being in danger, I have been in search for possible solutions. During my studies in AURA, I have been thinking of architectural solutions, modeled the site and worked on an architectural project. Later during my studies in İTU, I have decided to transform it into a VR game. As simulating the "bostans" and integrating them into the daily lives of the players, awareness on the topic can be raised.

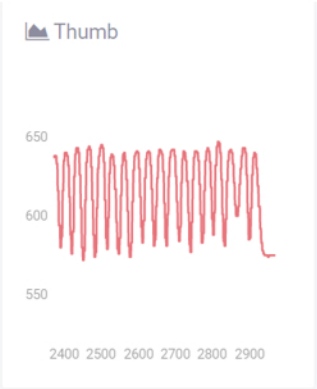
The game has been prototyped as a VR Cardboard game, but the work is still in progress. Additionally at Boğaziçi University we are developing a heptic glove for this game to be used in the digging mechanics, with the guidance of my mentors.

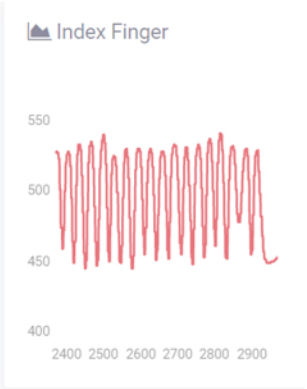


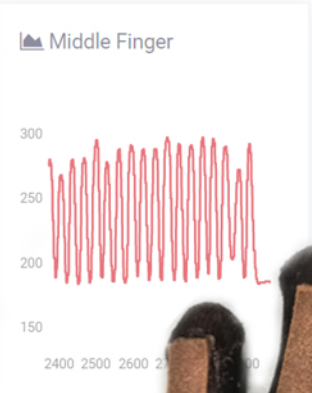
VR Heptic Gloves



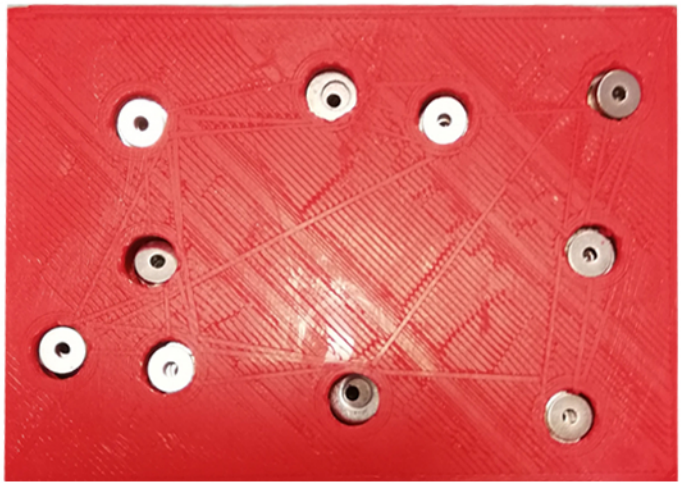




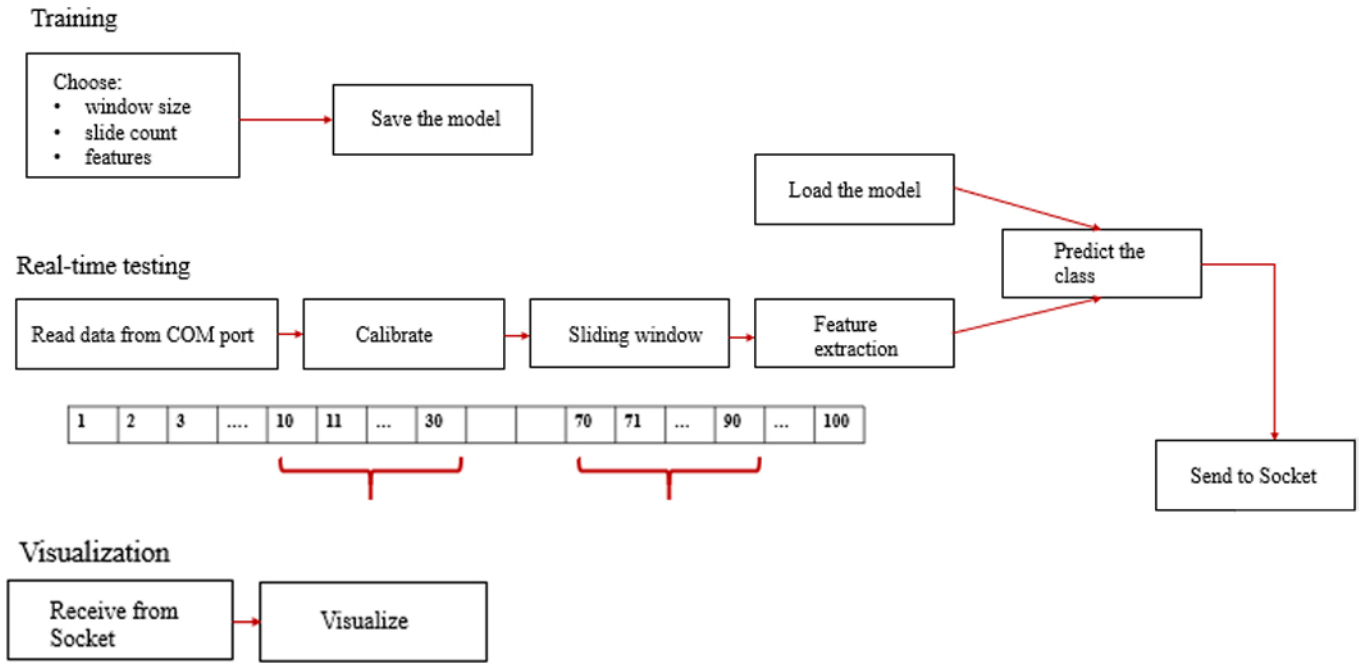


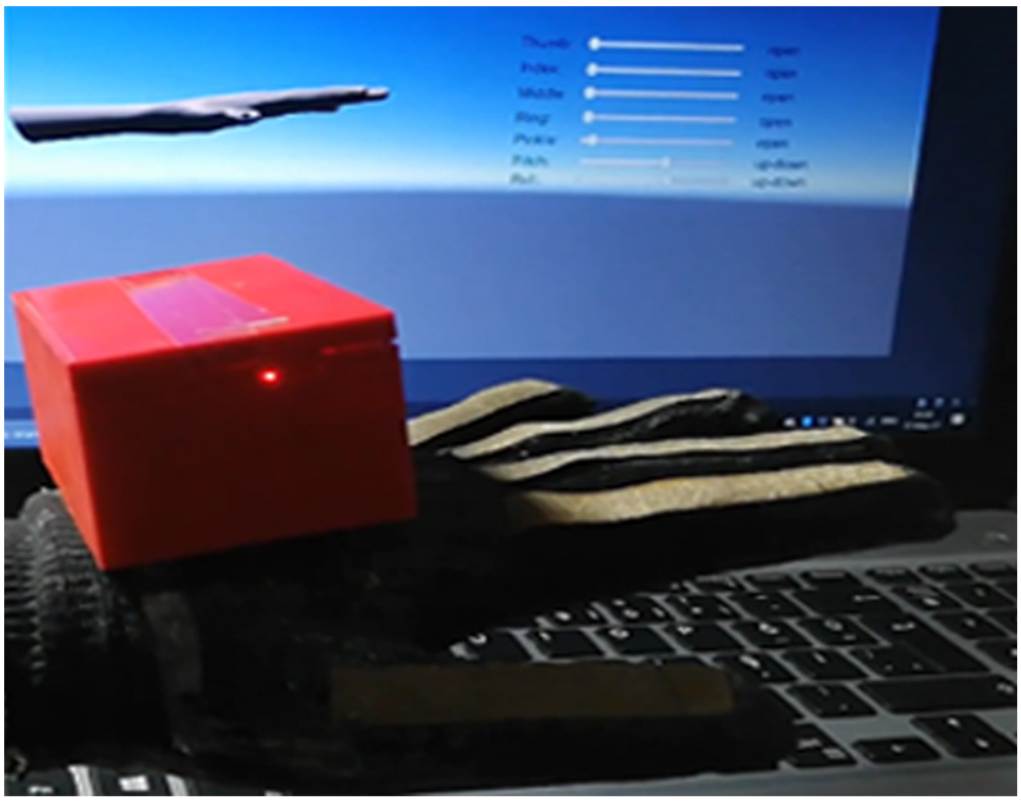


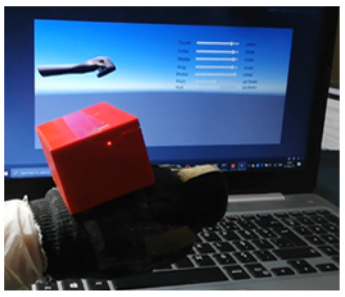
Data Gathering



Visualize in Unity







06

Under My Hood

CLIENT: Airconsole
OCCASION: Game Competition
TEAM: Ece Sefercioğlu, Tuğçe Avşar, rerda Aydın, İrem Pilehvarian and me
MY CONTRIBUTION: Game Design, 2D game art, UI Design, Unity Multiplayer integration

We are all the same under the hood
So different but still the same

We are three robots that may seem to have nothing in common

Our backgrounds are so different, our ages are so different

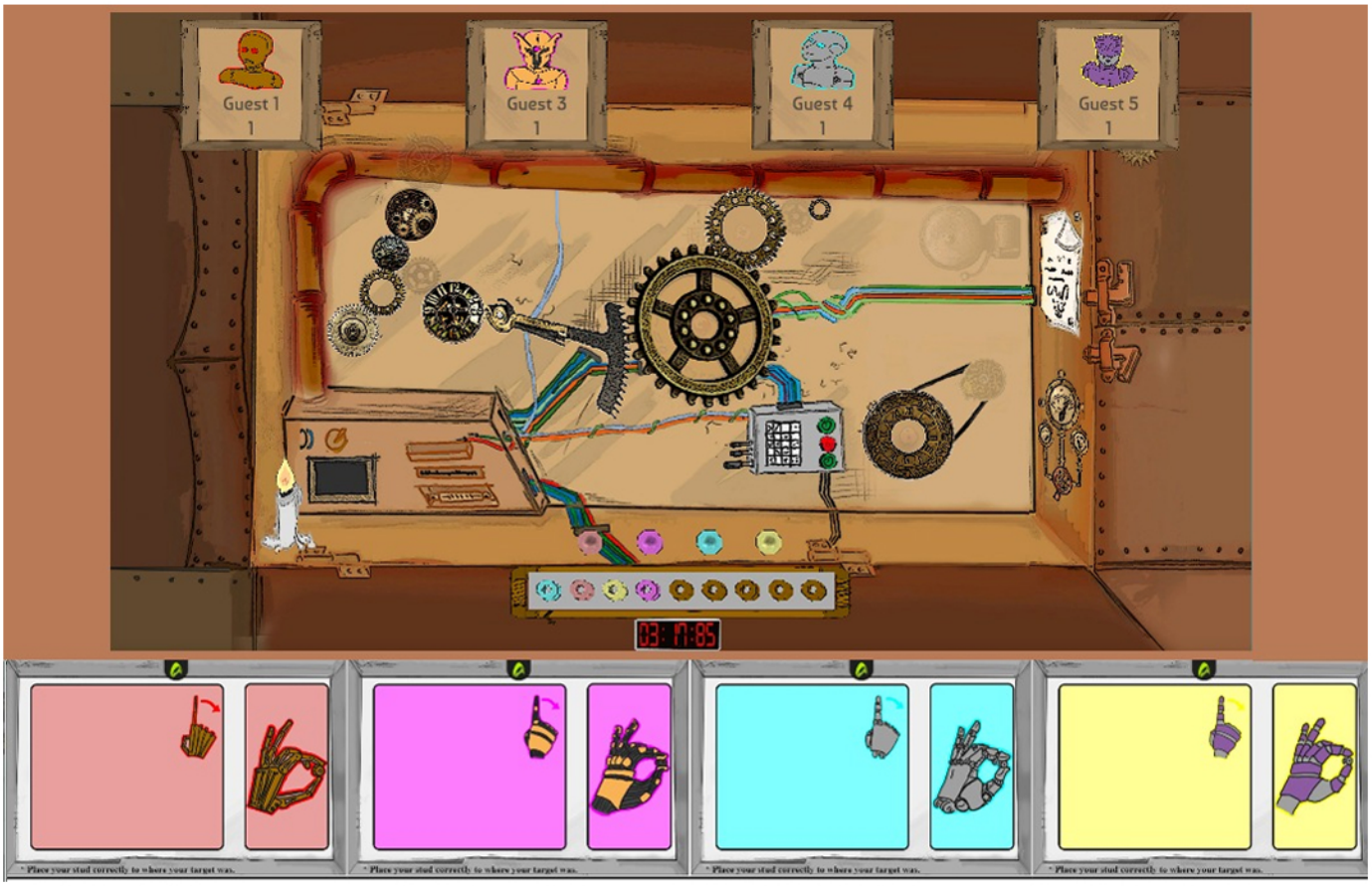
Each of us belong to different generations, singing the songs of their times

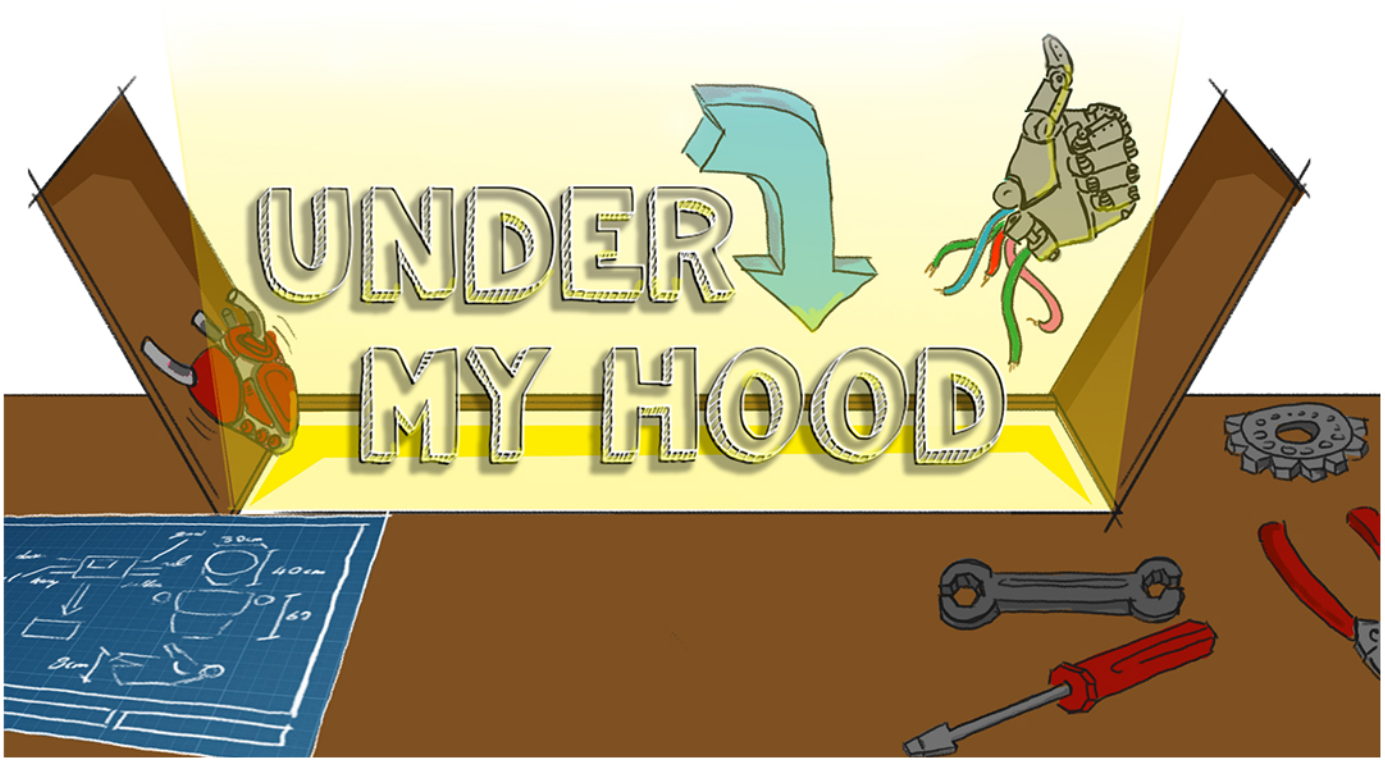
But you know, destiny may be so funny. After all, we are just robots that desperately need a technicians help to survive.

https://twitter.com/undermyhoodgame

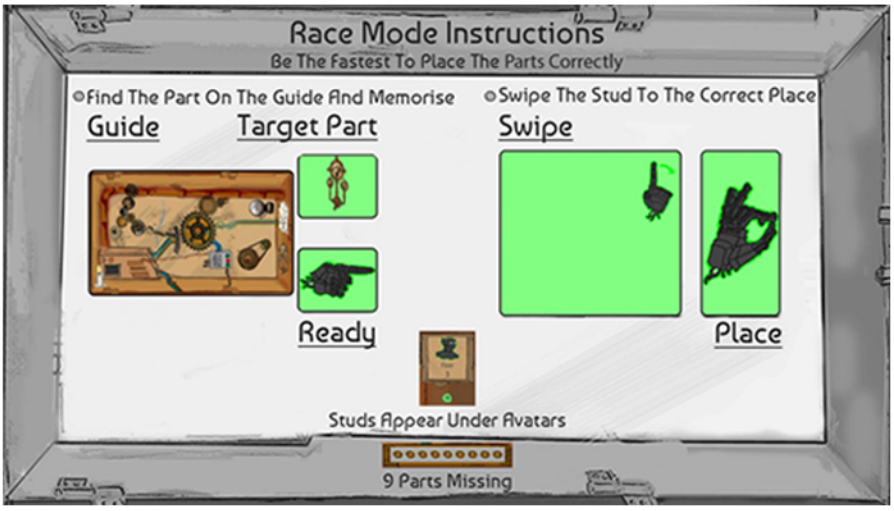

R MY HOOD

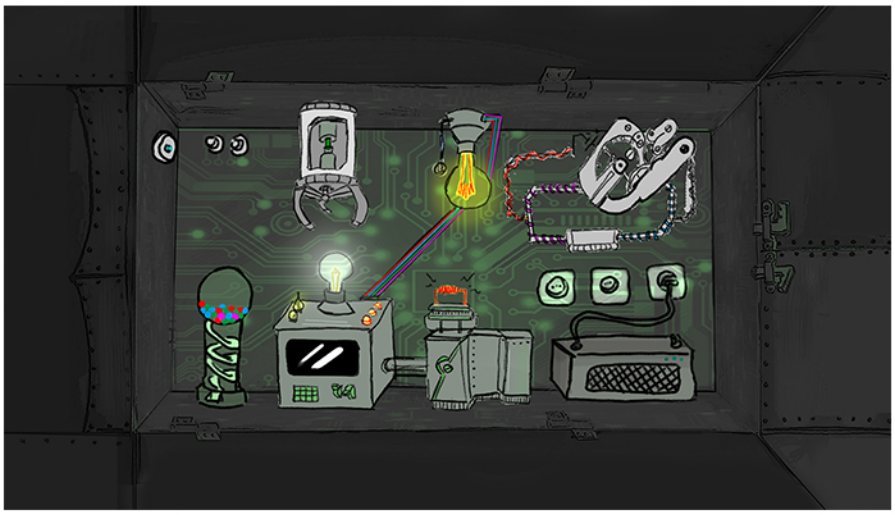
Multiplayer Game

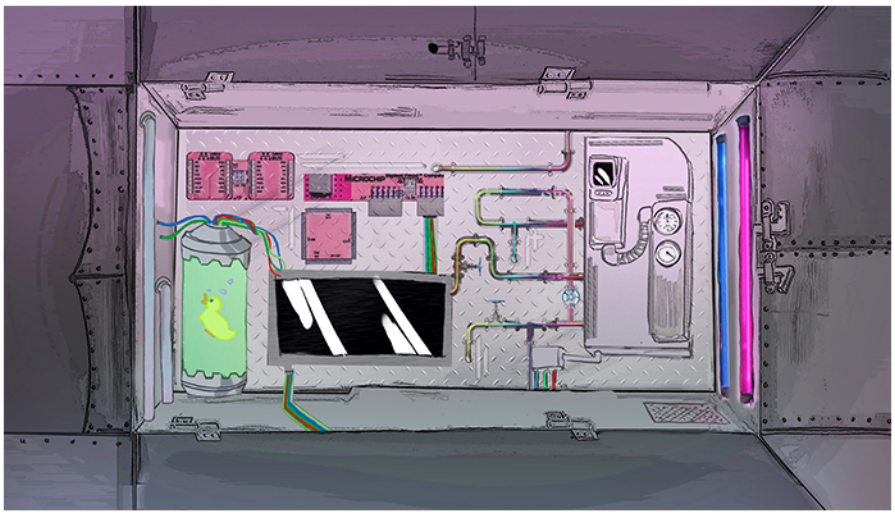




Airconsole







This is a multiplayer game that can be played in two modes: team mode or race mode. In race mode, everyone is on their own. The player must moove their icon on the pc screen by panning on their mobile phones (this is possible due to airconsole technology). First the player memorises the location of the tool that they must place on the robot, afterwards by panning it on screen they locate the tool to the right position.

In the team mode, people must play in teams of two. One player is describing the location of the tool while the other one is panning and placing the tool, according to the instructions given by their teammate.

07

The Secret Dig AR

AR game for Franziskaner Museum

PROJECT: The Secret Dig AR
LOCATION: Villingen Schwenningen, Germany
CLIENT: Franziskaner Museum
PROGRAM: AR Game for museum content
DESIGNER: NUMENA

What is an AR game, a 'proper' game with gameplay, an exciting story and NPGs? Will museum visitors be ready and willing to play it? Are museums even places where people go to engage in this type of activity?

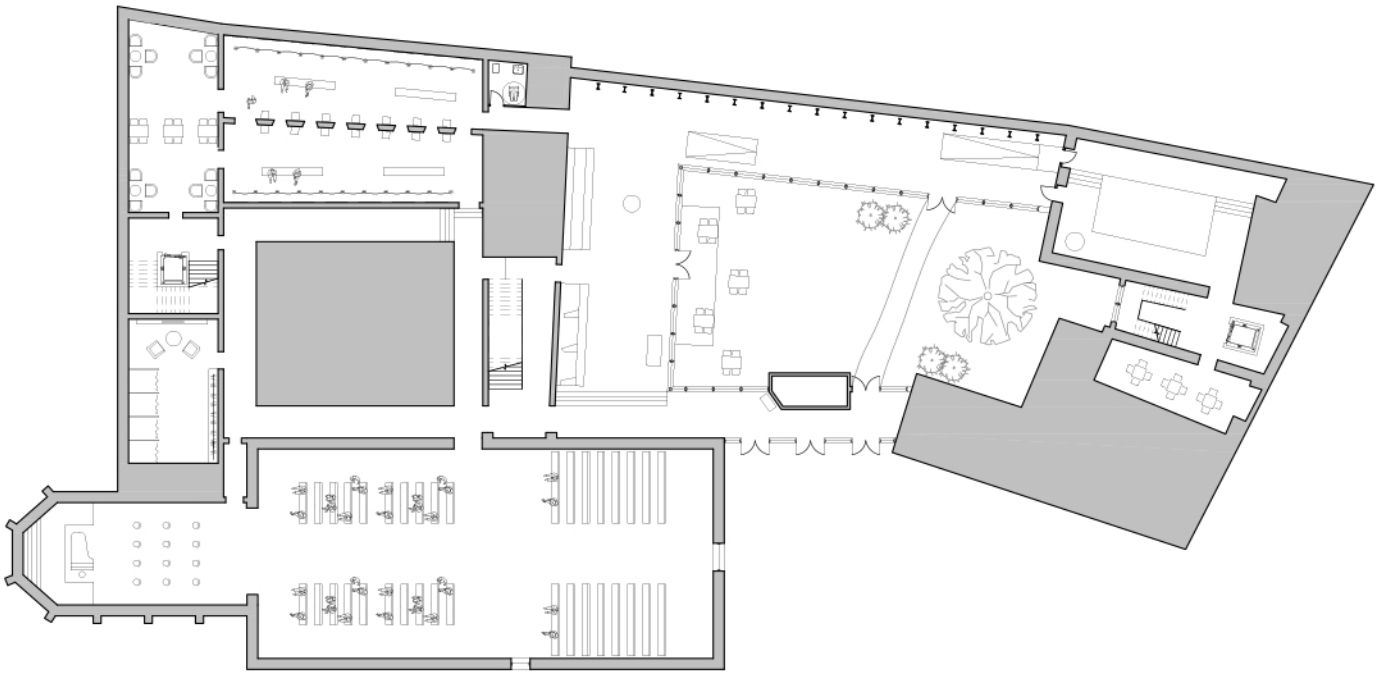
Over a year ago, Numena team and the Franziskanermuseum began a journey to find some answers.

The Secret Dig, a location-based AR game with ARG elements, was launch on September 1st 2021. It is located in a room that houses a 2600 year old Celtic tomb and has a playtime of about an hour.

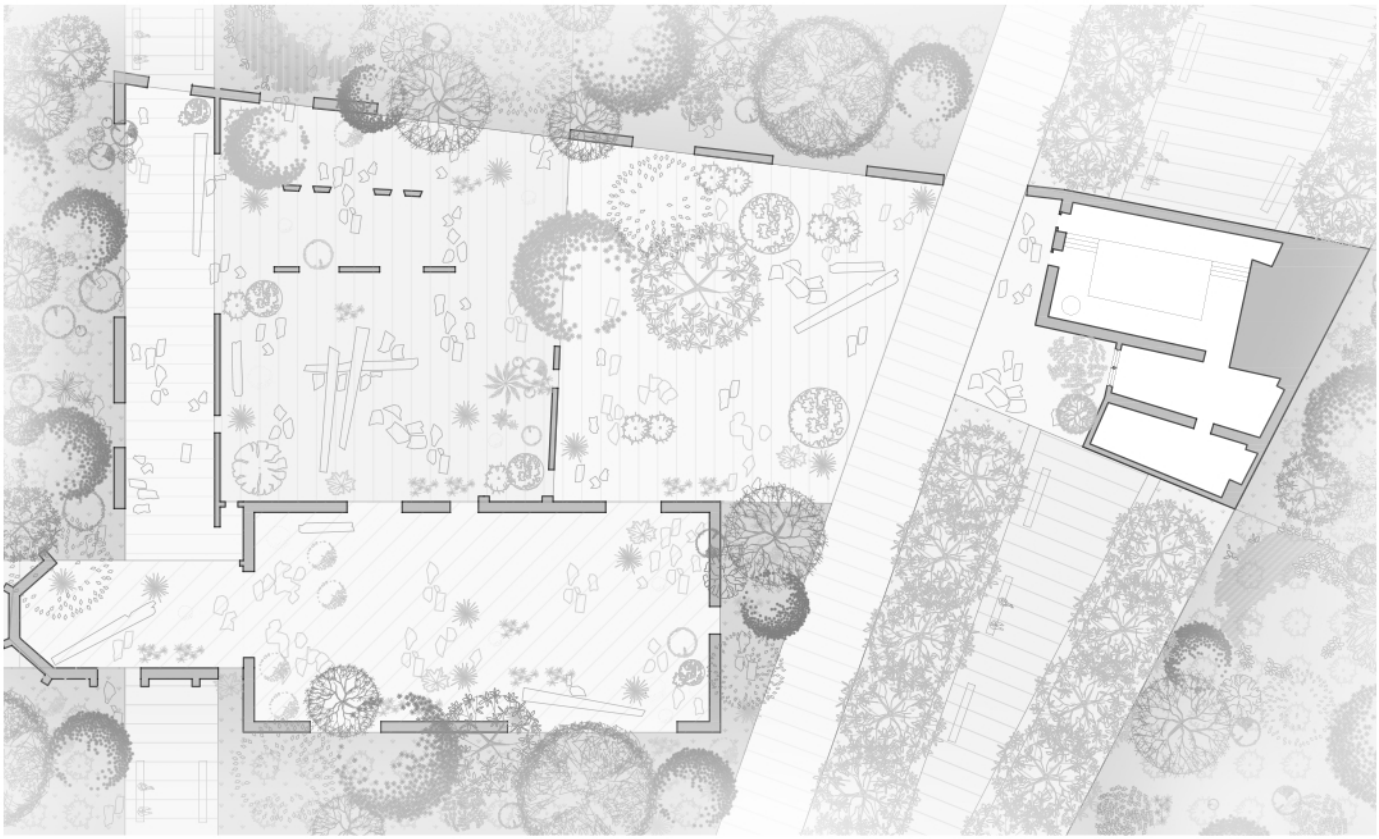
https://www.youtube.com/watch?v=3WfXIxO2dXo


REIT?
erei: Ein Augmented-Reality-Spiel
nziskanermuseum #keltenfürst
Sparkasse
Schwarzwald-Baar
INNOVATIONSFONDS
KUNST
BADEN-WÜRTTEMBERG
ium für Wissenschaft, Forschung und Kunst Baden-Württemberg

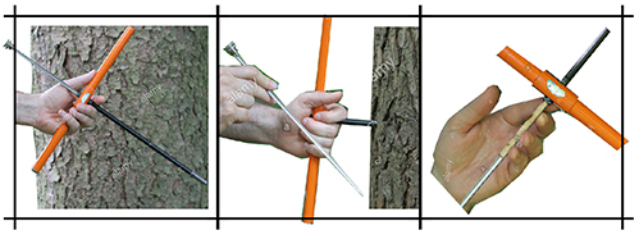
Plans of the museum

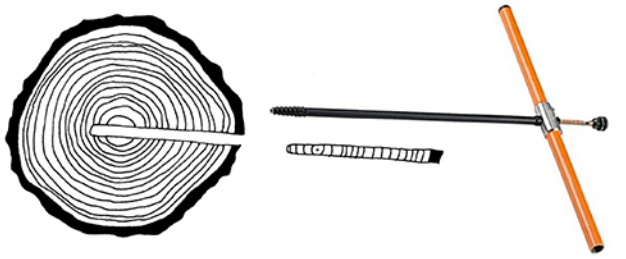


Plan in ruins for a level in the game

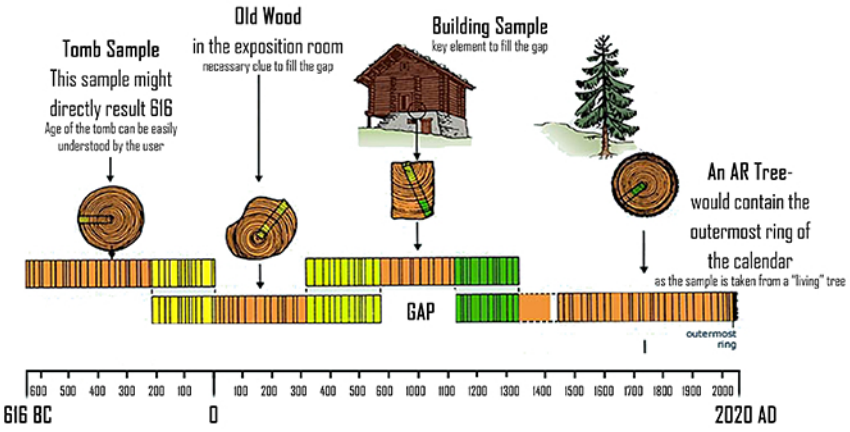


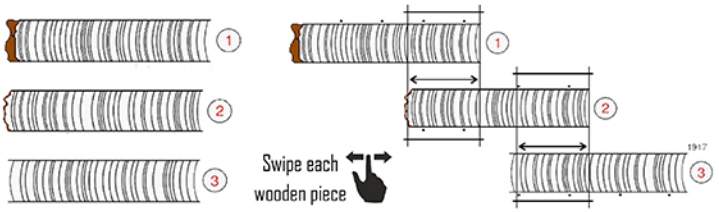
Game ideas





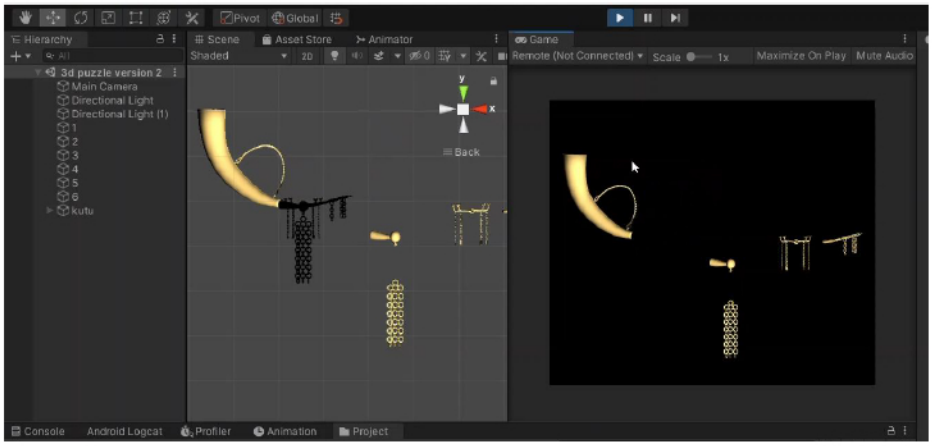
Sample 1 Sample 2 Sample 3



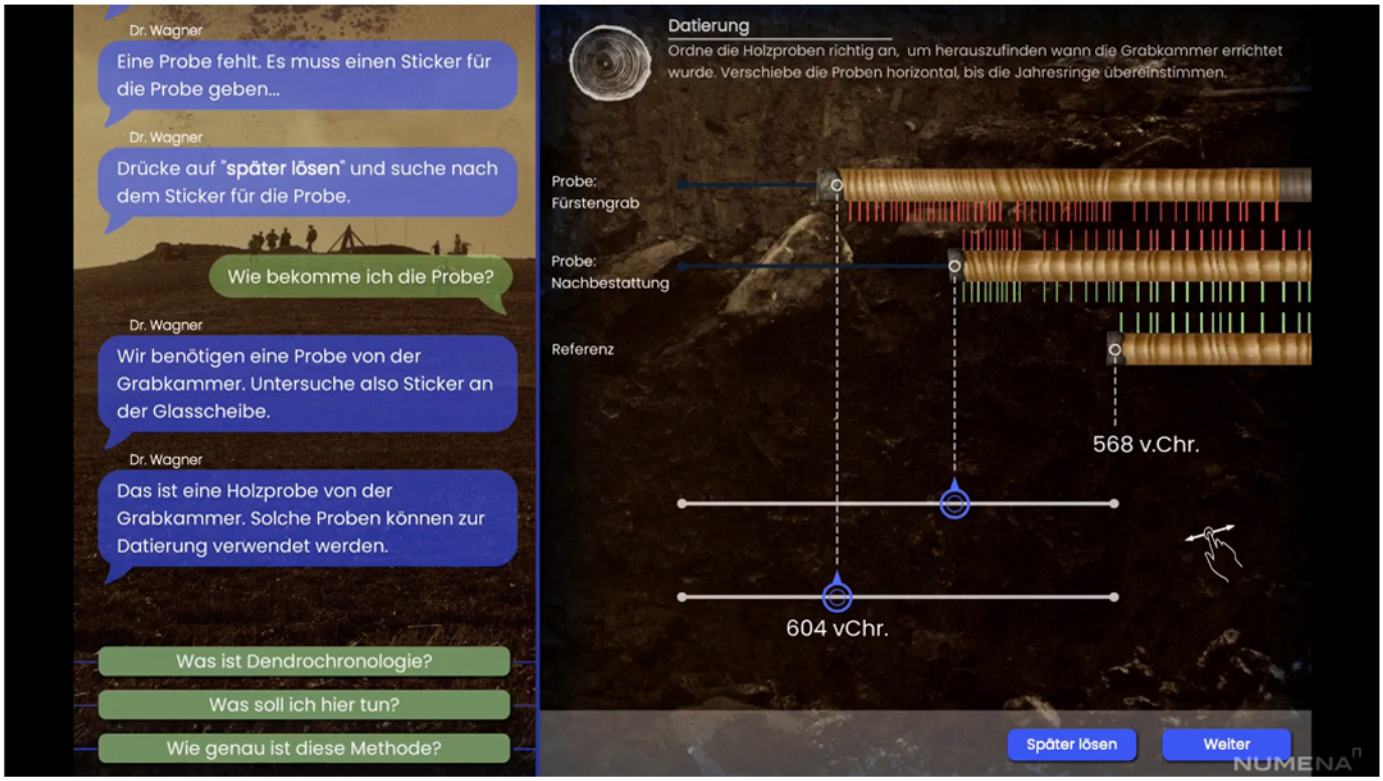


As many rows as the number of wooden samples-

AR Puzzle Game (with Vuforia SDK)



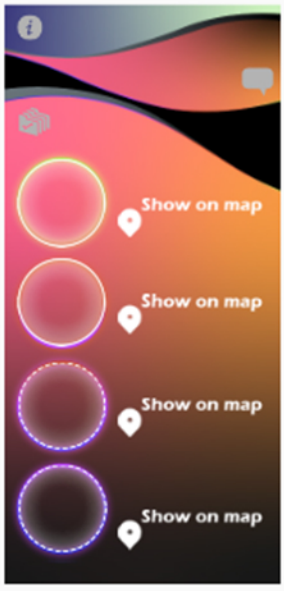
UI design for Dendrochronology puzzle



UI Design for the upcoming Secret dig 2 game (outdoor AR game on the

map screen

camera screen



collection screen

Game played in museum

e historic Magdalenenberg site)

info screen

dialog box extended

08

Spectra Cities

Digital Twin project and Architectural tool in VR

PROJECT: Spectra Cities
LOCATION: Chile
PROGRAM: Social Housing
DESIGNER: NUMENA

Spectra Cities is a social housing project located in Chile. The project is still in progress, being designed by Numena.

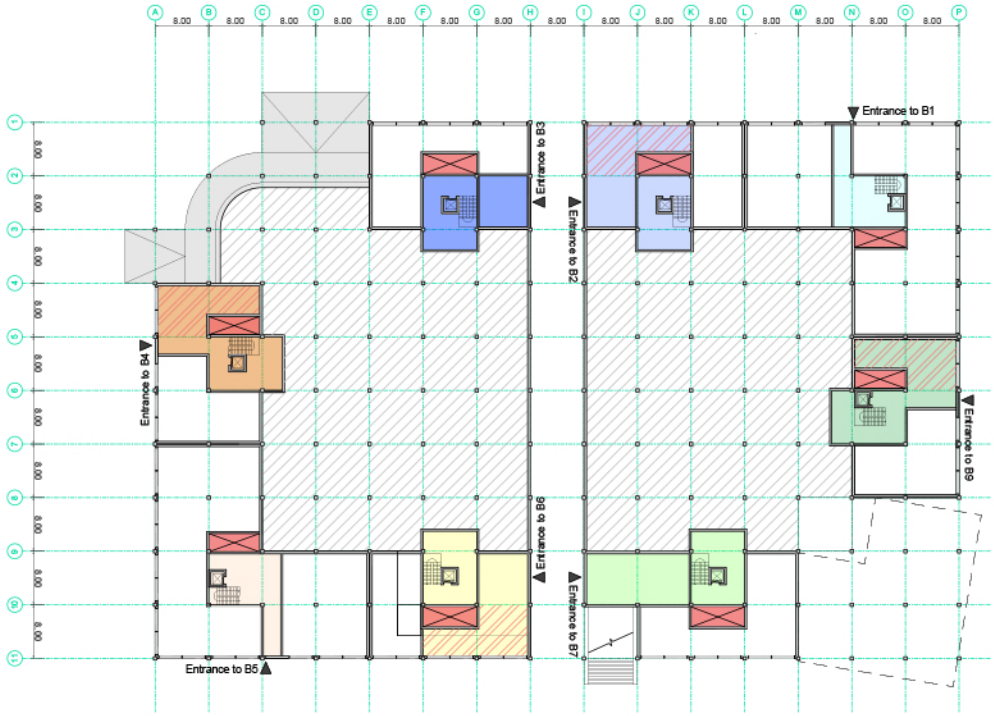
What makes this project special is the fact that the real architectural project also has an associated digital twin that is being developed.

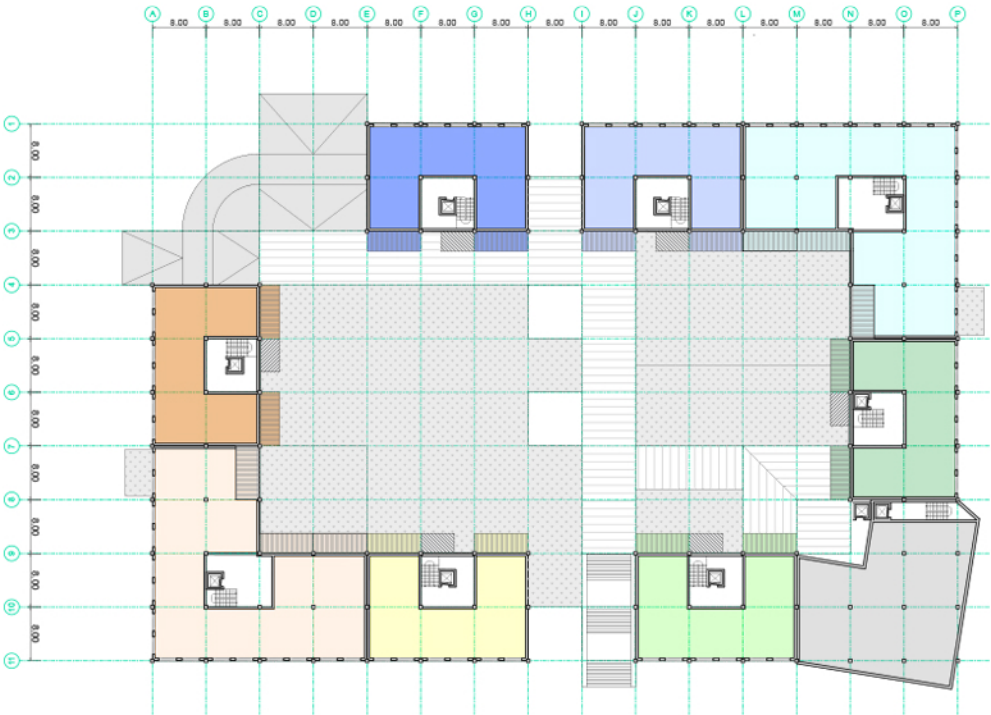
The digital version and the real architectural site will have places of overlap, like the footsteps of the avatars in the digital realm, will appear on some of the pavements in the real world.

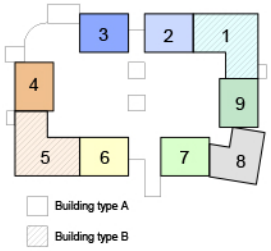
Another special feature of the project is that the architectural design process is enriched with visualising the progress in VR, and using the architectural modeling tool that was created by the Numena team. This way the feeling of the project can be experienced before construction and design decisions can be taken during this process.


BERRY
coffee shop

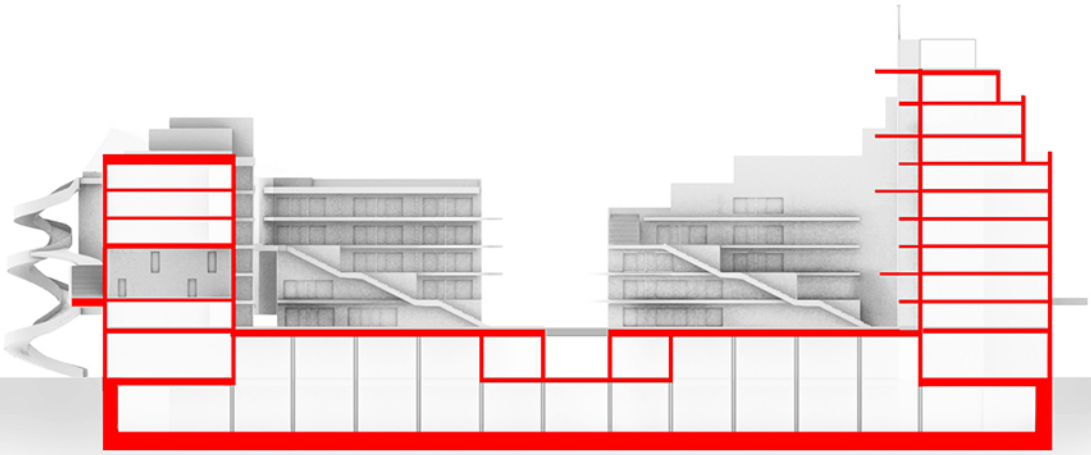
Plans

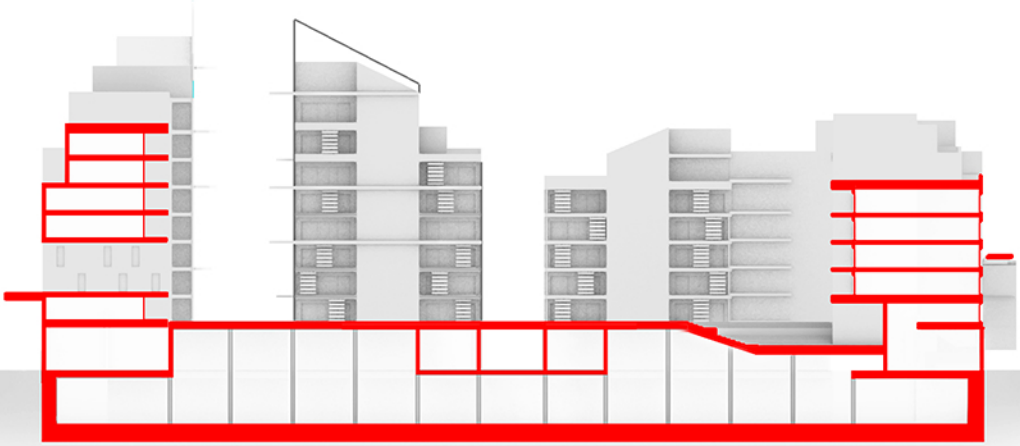

Entrance to B1
Entrance to B2
Entrance to B3
Entrance to B4
Entrance to B5
Entrance to B6
Entrance to B7
Entrance to B9

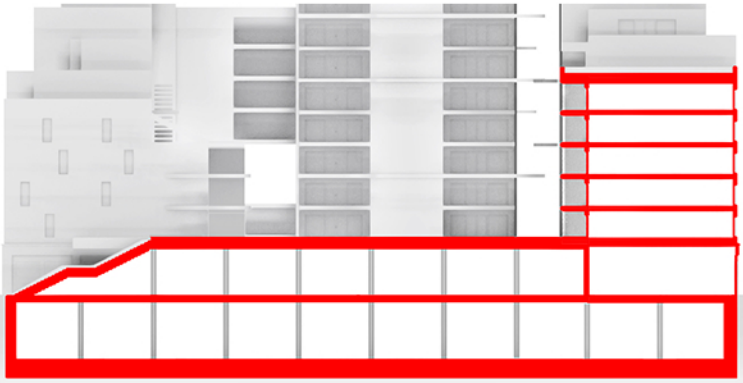



1
2
3
4
5
6
7
8
9
Building type A
Building type B

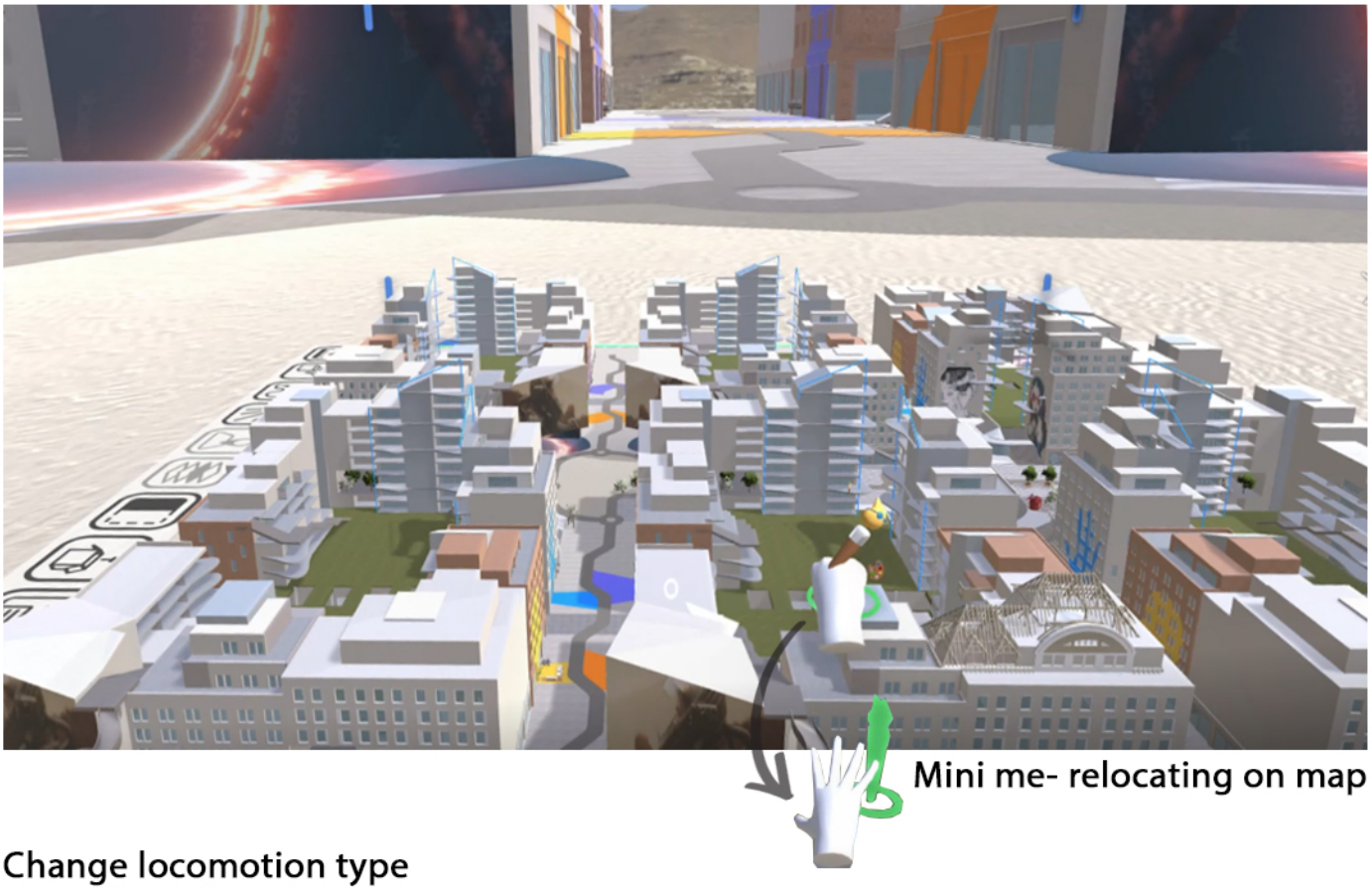
Sections





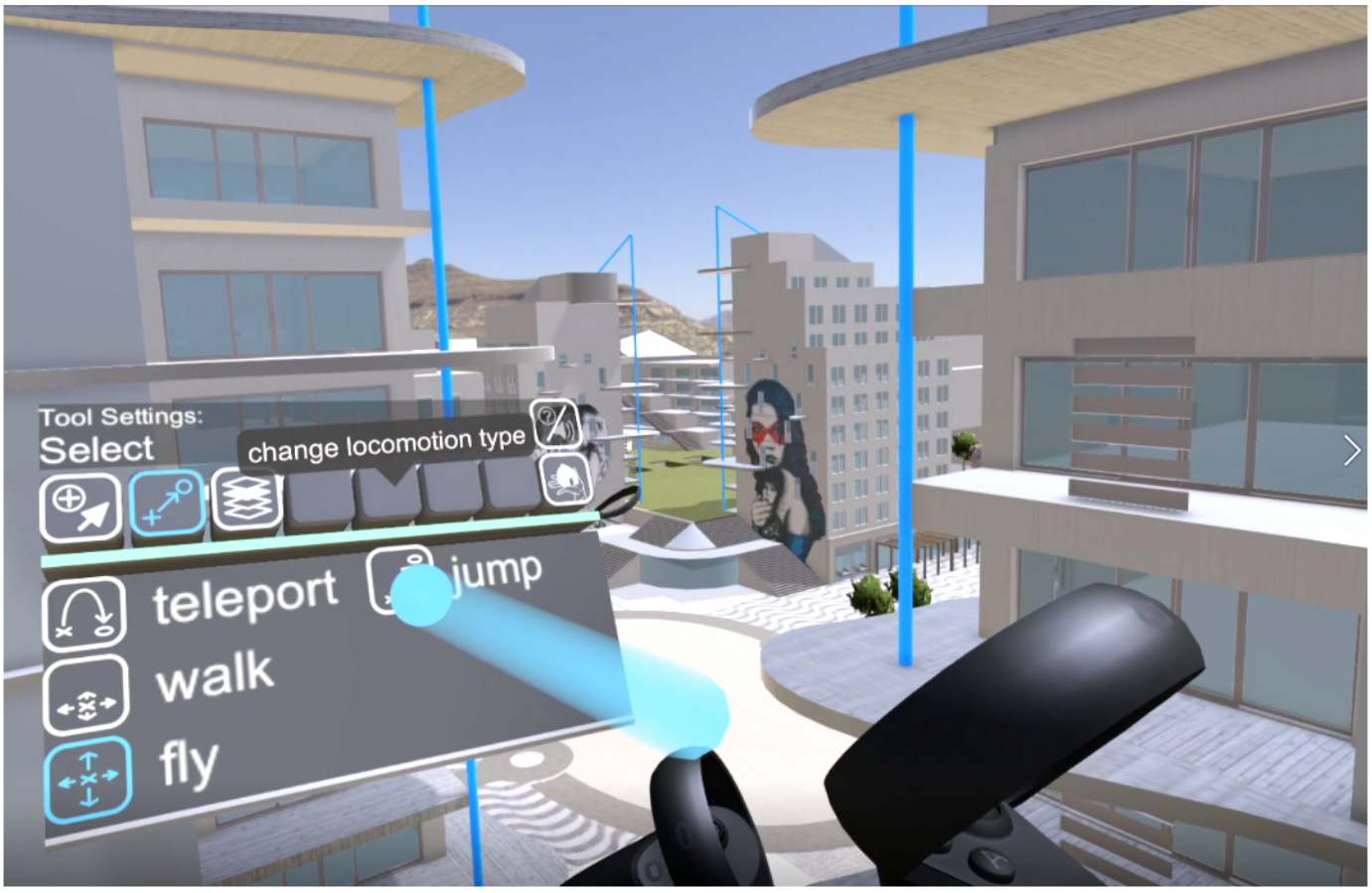


Navigation in the digital twin

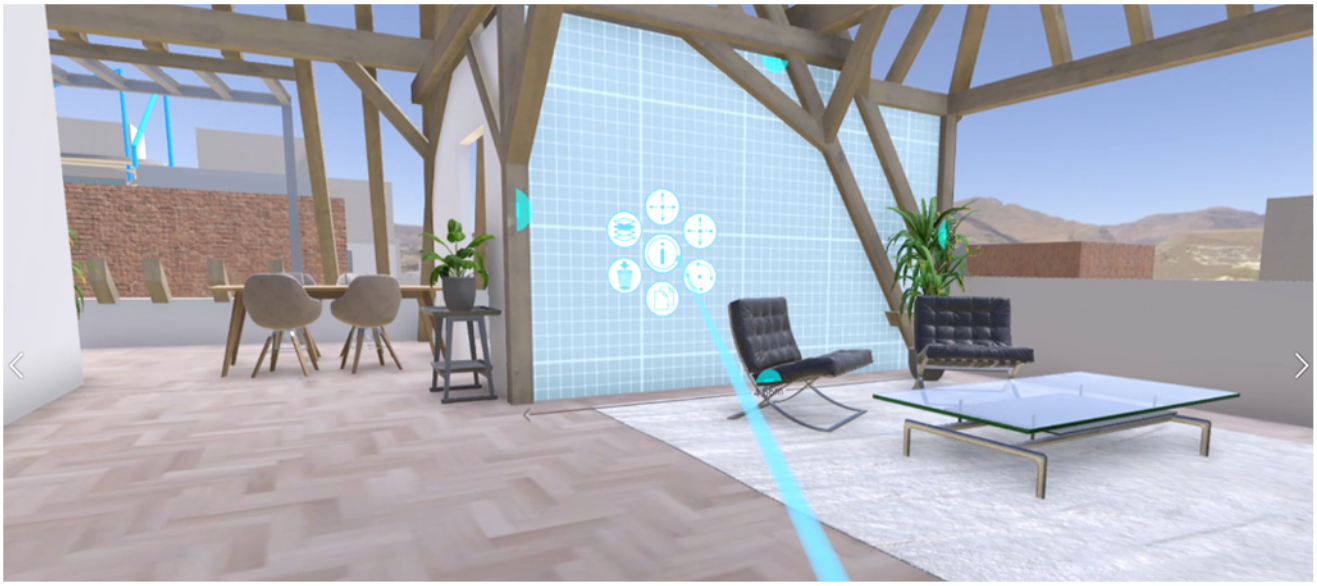


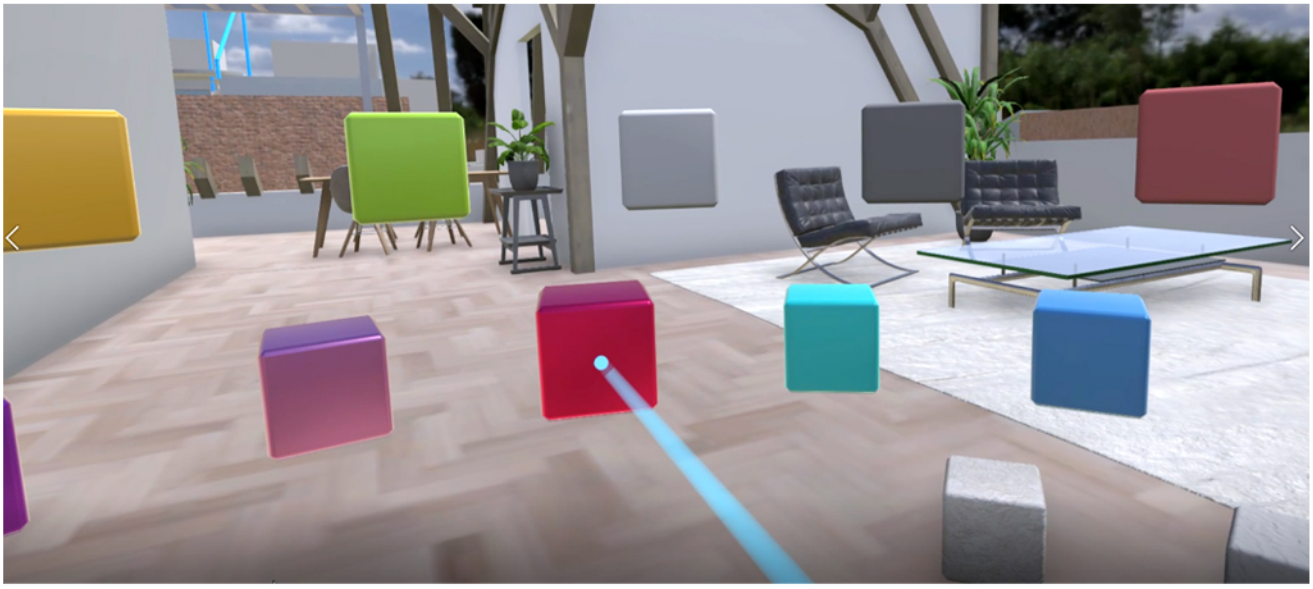
Mini me- relocating on map

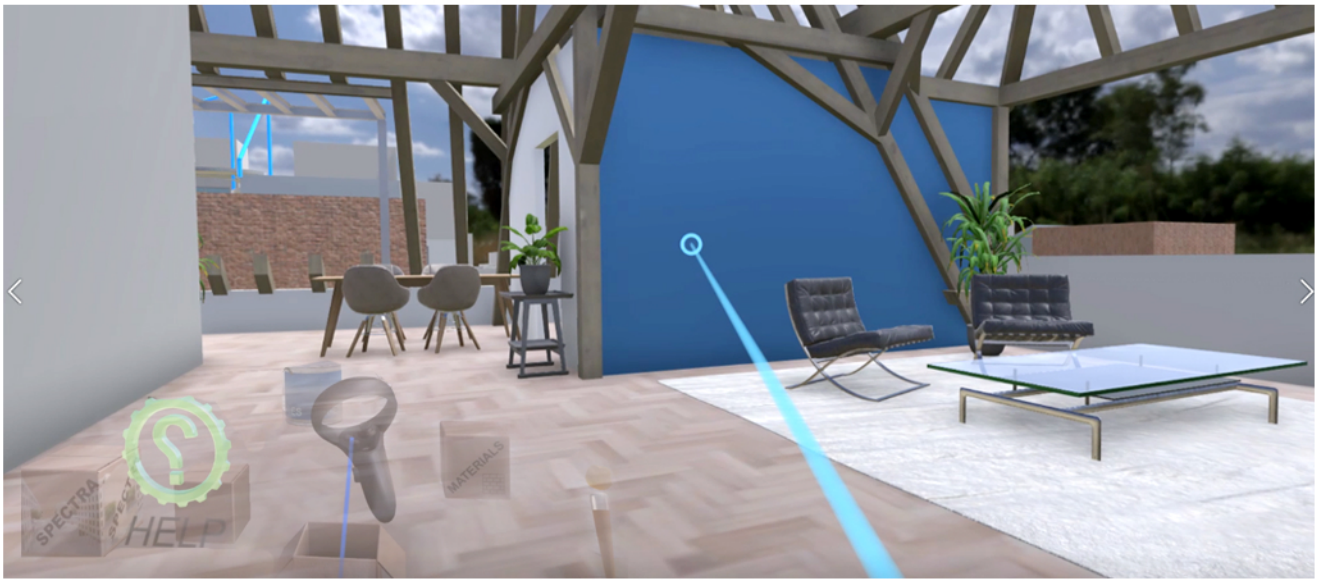
Change locomotion type



Architectural modeling tool in VR







End of Design Portfolio 2021

F. BETÜL GÜREŞ

Combining design and code through game and interaction technologies

#design #code #game #interaction technologies #architecture #software engineering #virtual reality #augmented reality #human-computer interaction #computational design #art