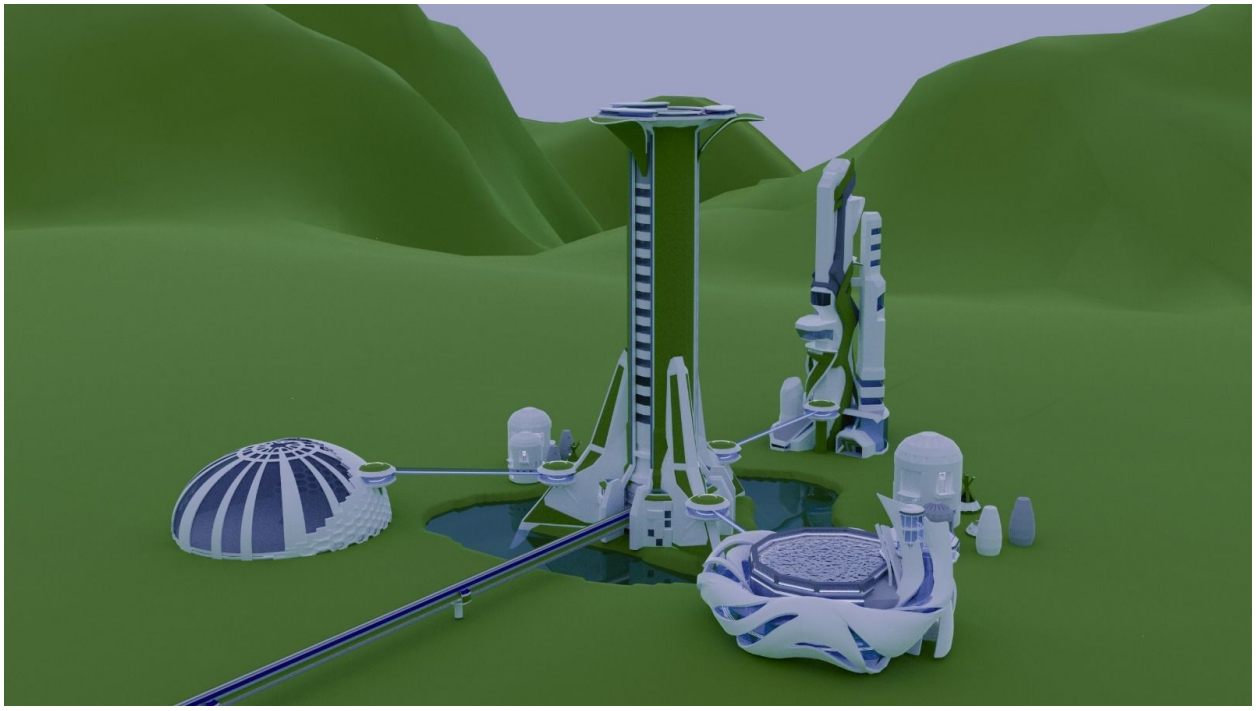


Group #5-10

Wang Xiangru (2A227), Toh Jing Kai (2A225)
Ng Boon Kong (2A219), Elton Ng (2A203) | 2019

Contents

Description of Proposal

Our project is the creation of a building that incorporates the ideas of green and futuristic architecture. It consists of a central main building, where normal facilities like shopping malls are located at, and linked to it are three smaller side buildings with different structures to represent different themes, greenery, biodiversity, and futuristic technology, showcasing our theme of futuristic and green architecture. Our design maximises the use of methods to reduce harmful impacts that it might cause to the environment.

The app used: Blender

Blender is a free and open-source 3D computer graphics software toolset that can be used for creation of 3D models and has features such as texturing and rendering that is useful features that allows our model to be more realistic and well-layered, making it more intricate, allowing the outlook of the buildings to be neater and more detailed, thus we chose Blender.

Pic 1

Pic 2

Artist Inspirations

Jewel Changi

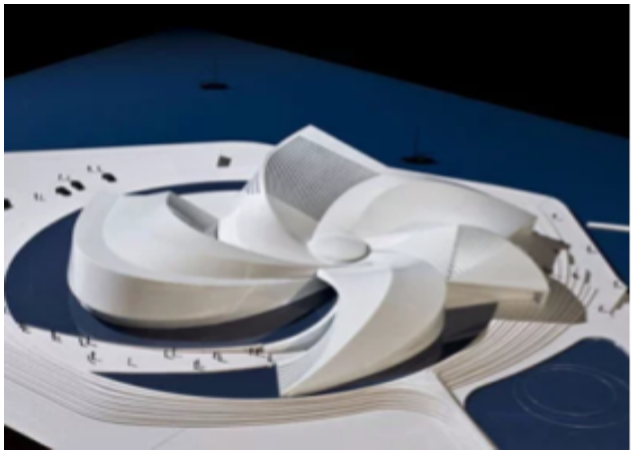
It is built with mostly glass to allow sunlight to enter the dome to the plants which inspired our dome-shaped side building. It is a building in Singapore and the architect behind it is Moshe Safdie Benoy.

Pic 3

Pic 4

Whirlpool Aquarium

The Whirlpool Aquarium is a building in Copenhagen and is shaped like a whirlpool, which seems to symbolise waves and water, inspiring the design of the first of the three side buildings which served as an aquarium.



Pic 5

Pic 6

Verge Building

The Verge Building, Miami, features a honeycomb pattern on the surface of the building, which not only appears neat and appealing but also has a touch of modernity too, which inspired the design of the second of our three side buildings.

Pic 7

Pic 8

Tree House

The Tree House in Bukit Timah, Singapore has vertical gardens. There are many patterns and the garden take up the surface of the building, which drew inspiration for our third of the three side buildings.

Pic 9

Pic 10

Utopian/Sci-Fi Architecture

We were inspired by these artworks that have a futuristic and utopian look, sparking the curiosity of the viewer, attracting the viewer's attention. The overall vibe and futuristic look that suits the theme that we have inspired the overall design of our project.

Pic 11

Pic 12

Documentation of Process

Ideation and Brainstorming

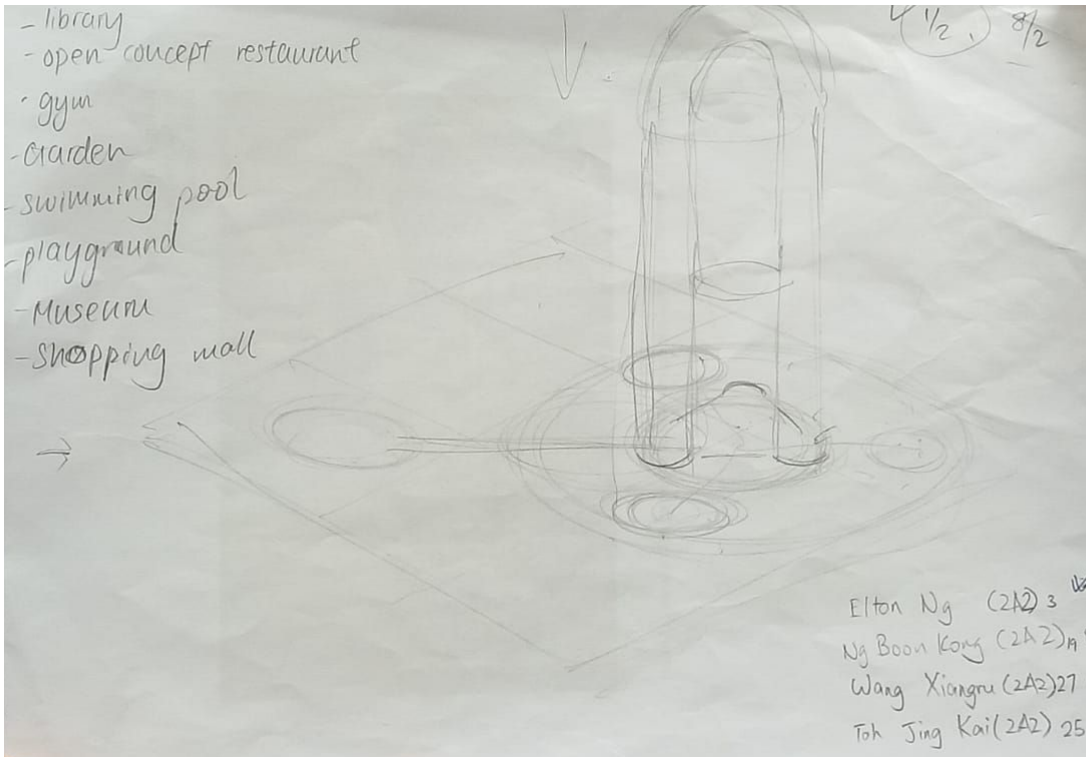
1. Futuristic Town as it could display various futuristic designs and ideas we had into the many buildings and houses in the town.
    a. A town involved too many facilities to design is too strenuous
    b. It was too much to do in the amount of time we are expected to complete it
2. Eco Building in order for the building to have a certain purpose and specific function for us to work towards which is to save the environment.
    a. It was too simple and would not stand out
    b. It may not look good in its aesthetic if we just focus on its functions.
3. Eco and Futuristic Buildings as it could mix both the aesthetics and the function.
    a. It was a split of nature and futuristic architecture in our buildings, allowing it to both have functions and look good for its design.
    b. It is a fusion of both previous ideas.

Timeline

JAN-APRIL	APRIL-MAY	MAY-JULY	JULY-AUGUST	AUGUST
Ideation / Brainstorming	Finalise the designs for the various buildings in the entire model	Start on the model in Blender	Improve and complete model in blender	Final evaluation
Sketching	Sketch out the finalised designs	Start on Mid-term evaluation slides	Written report	
Proposal		Mid term	Final evaluation	

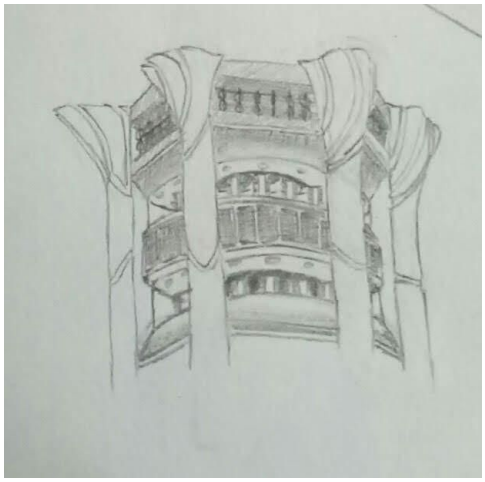
Evaluation		evaluation	slides	

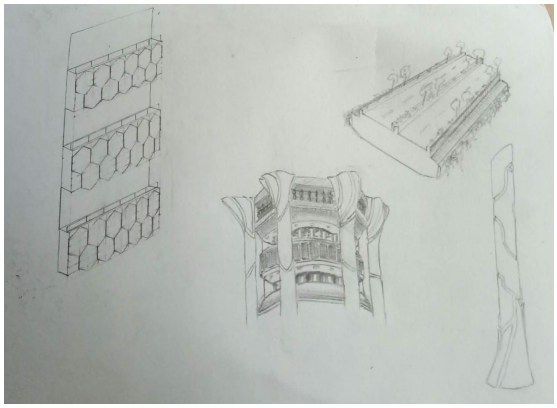
Experimenting with Building Structures and Layout



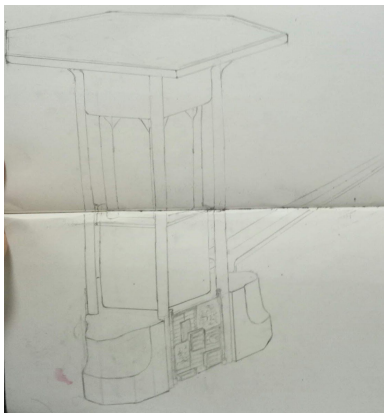
Pic 13

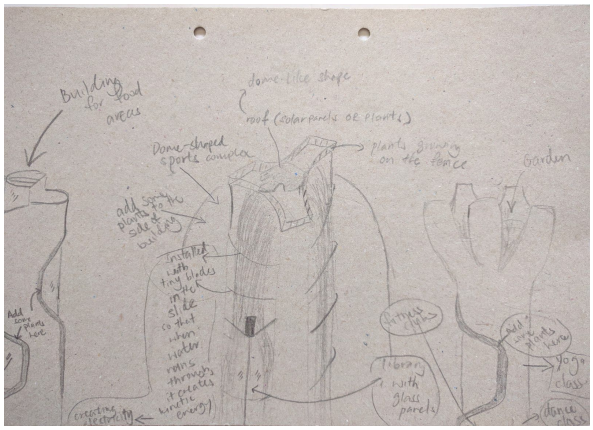
This is the layout and facilities of the building.





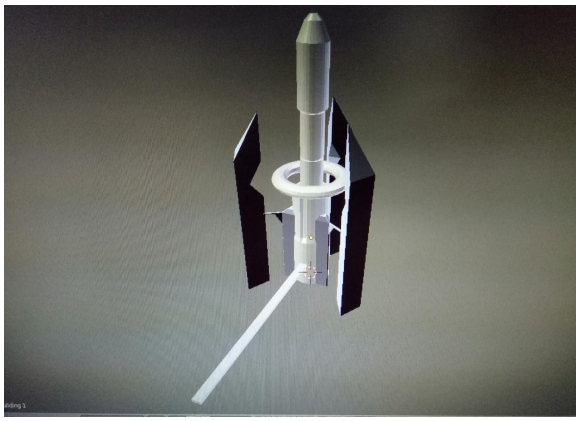
Pic 14 Pic 15





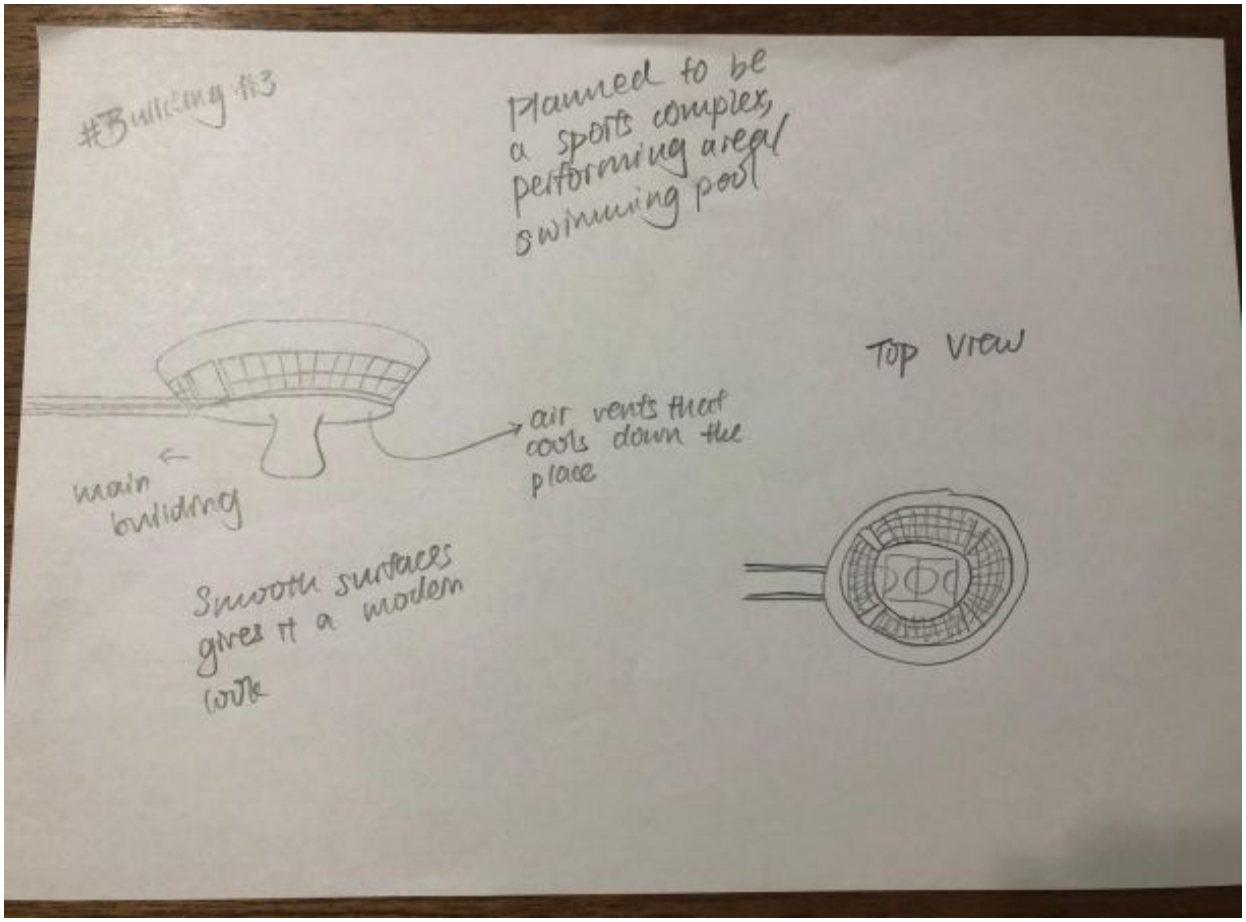
Pic 16 Pic 17

These are the initial designs of our highways and buildings for its futuristic look and eco function.



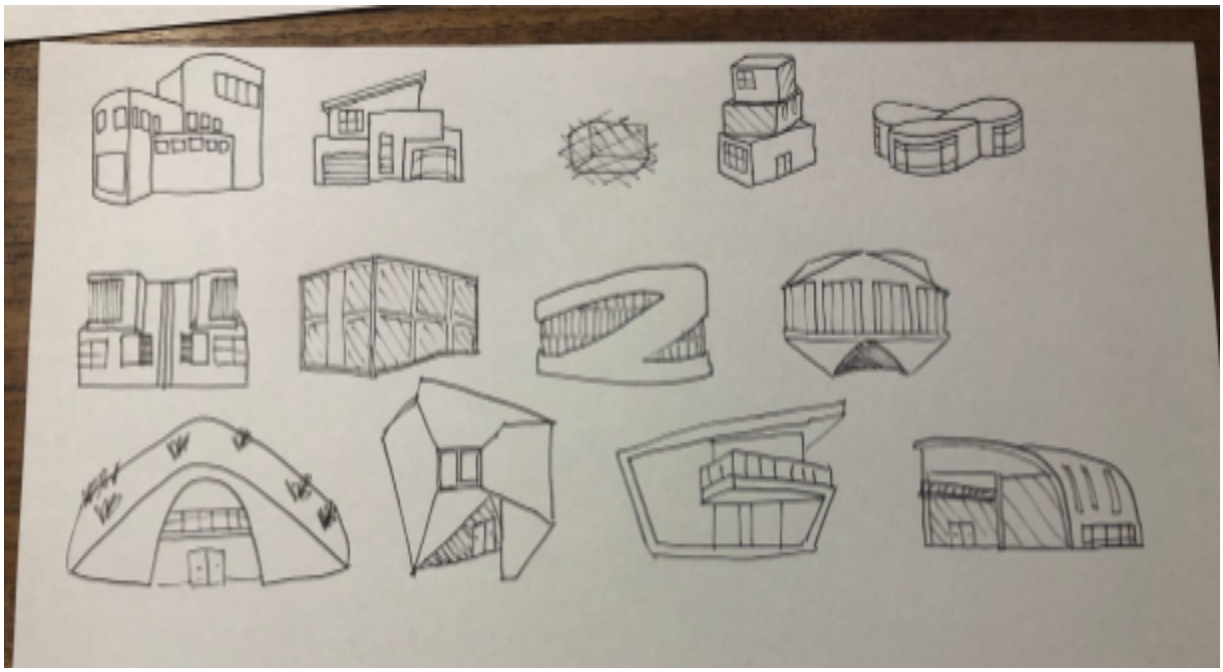
Pic 18 Pic 19

These are the initial model of our buildings in blender.



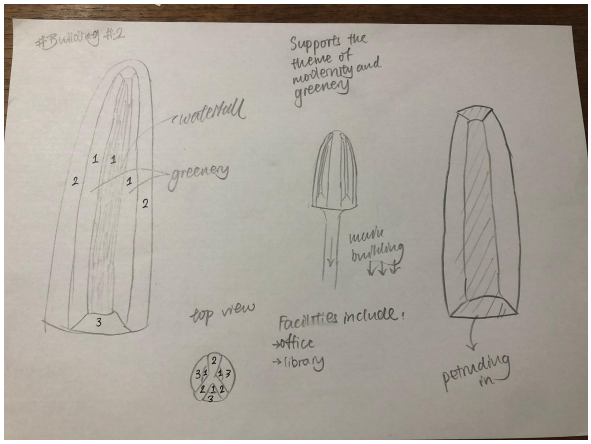
Pic 20

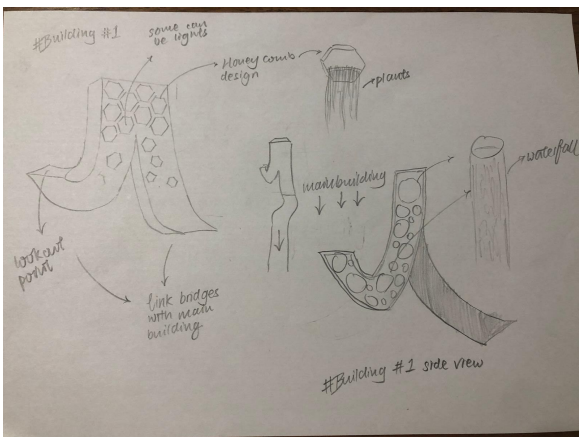
We experimented on one of the side buildings to be the same shape as watchtowers, with an open roof for recreational purposes like sports complex, but it was not used due to the simplicity of its functions, and the design, which made it less unique and futuristic.



Pic 21

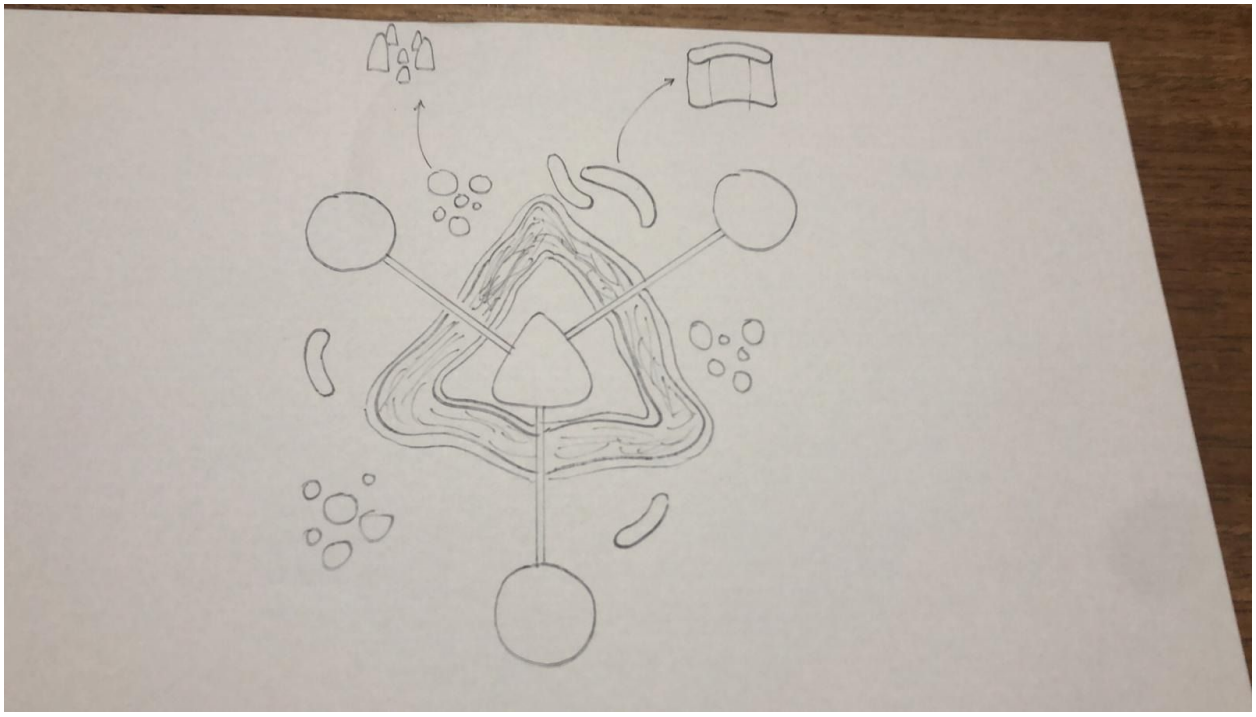
We tried out many futuristic designs for one of the side buildings, which are towards modern and unique building structures, but we decided to stick to a rectangular shape instead of all the other more messy and complicated structures which did not fit in with the overall look of all the buildings.





Pic 22 Pic 23

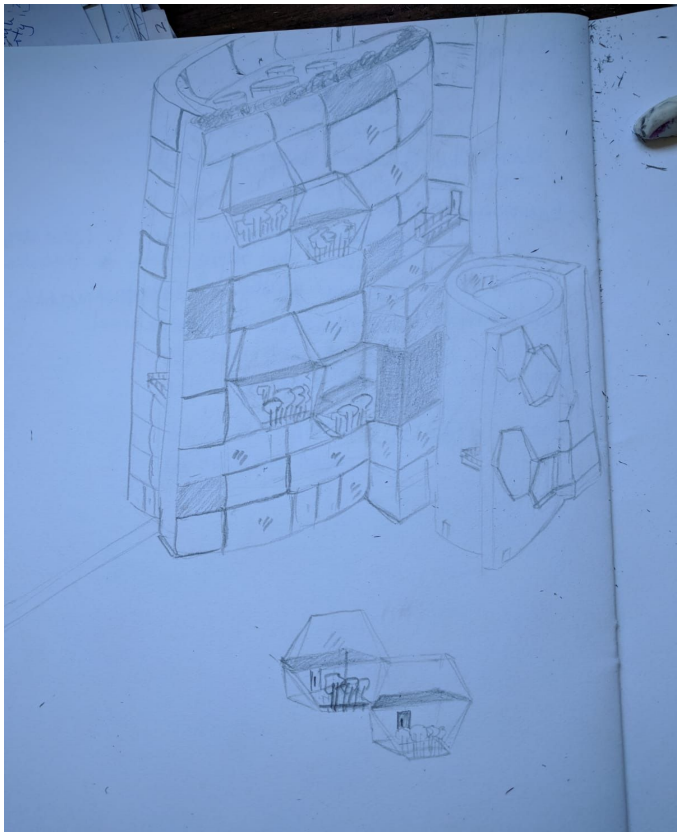
We tried out more designs for the side buildings for the buildings to look futuristic, however we decided to make a dome-shaped and circular shape instead.



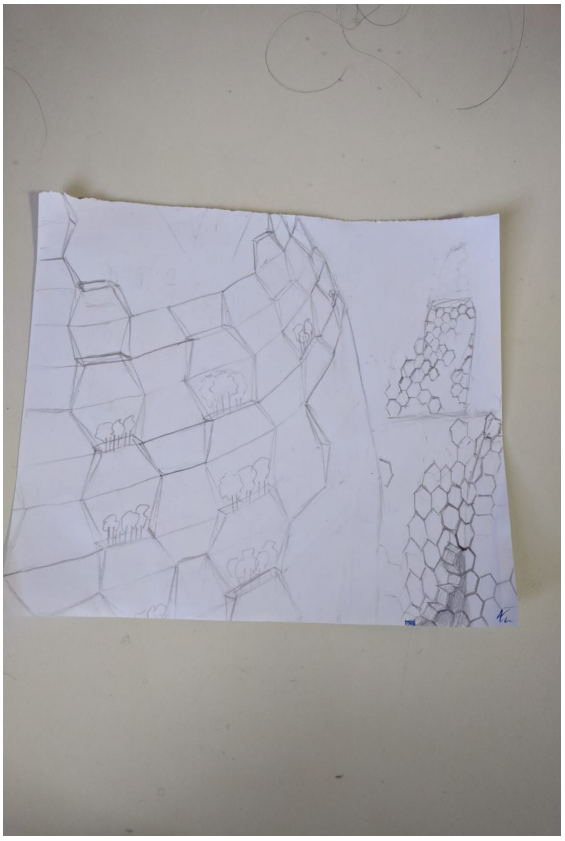
Pic 24

We also came up with a layout for the buildings, with some houses between the buildings and the river around the main building. The three circles represent each of the three side buildings, with paths leading to the central triangle that represents that main building. This is the main layout we worked on.

Experimenting with Designs



Pic 25

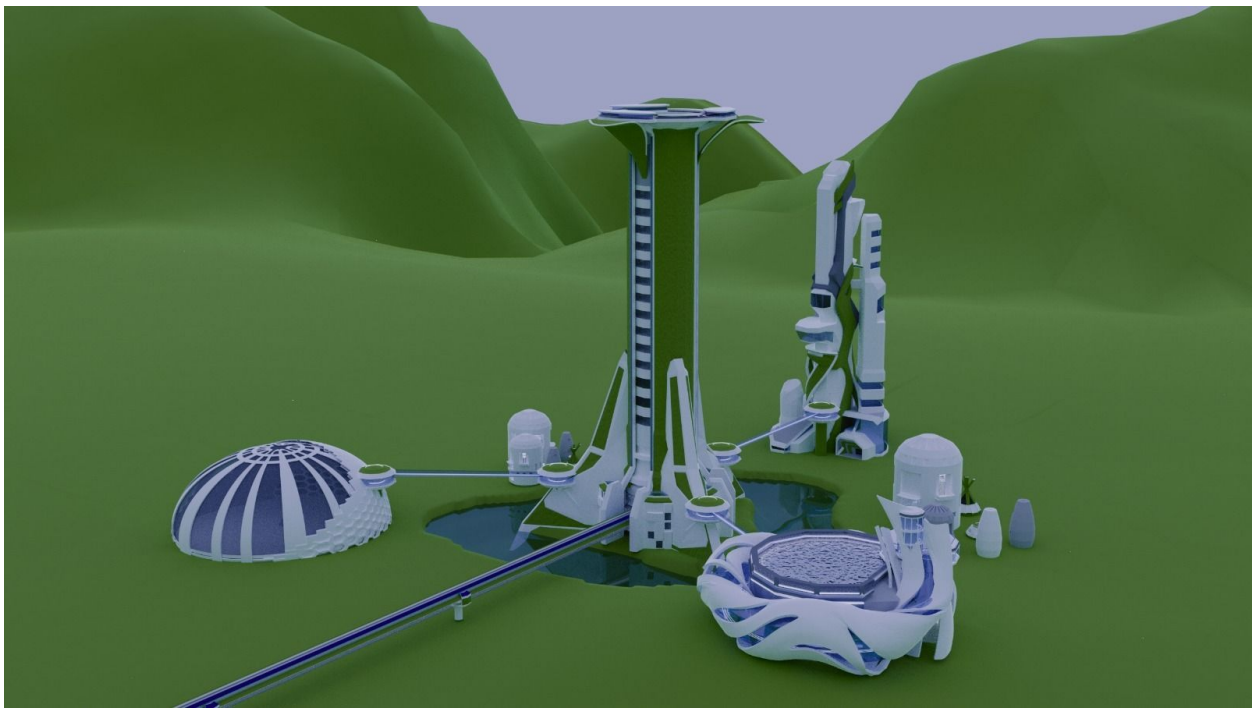


Pic 26

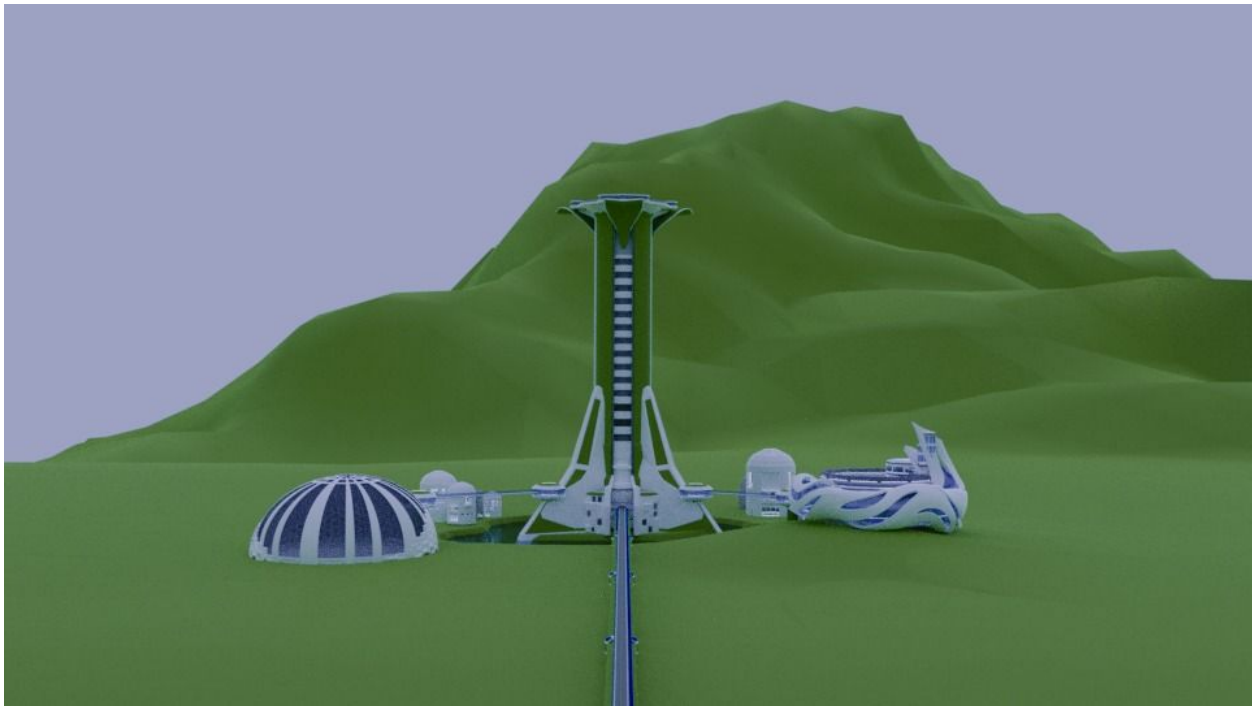
To give the futuristic technology side building a modern touch, we experimented with honeycomb patterns, and we chose it as it gave the building a modern feel as it allows for natural lighting as some parts of the honeycomb pattern are transparent and also allows plants to be planted on certain honeycombs.

Final Product:

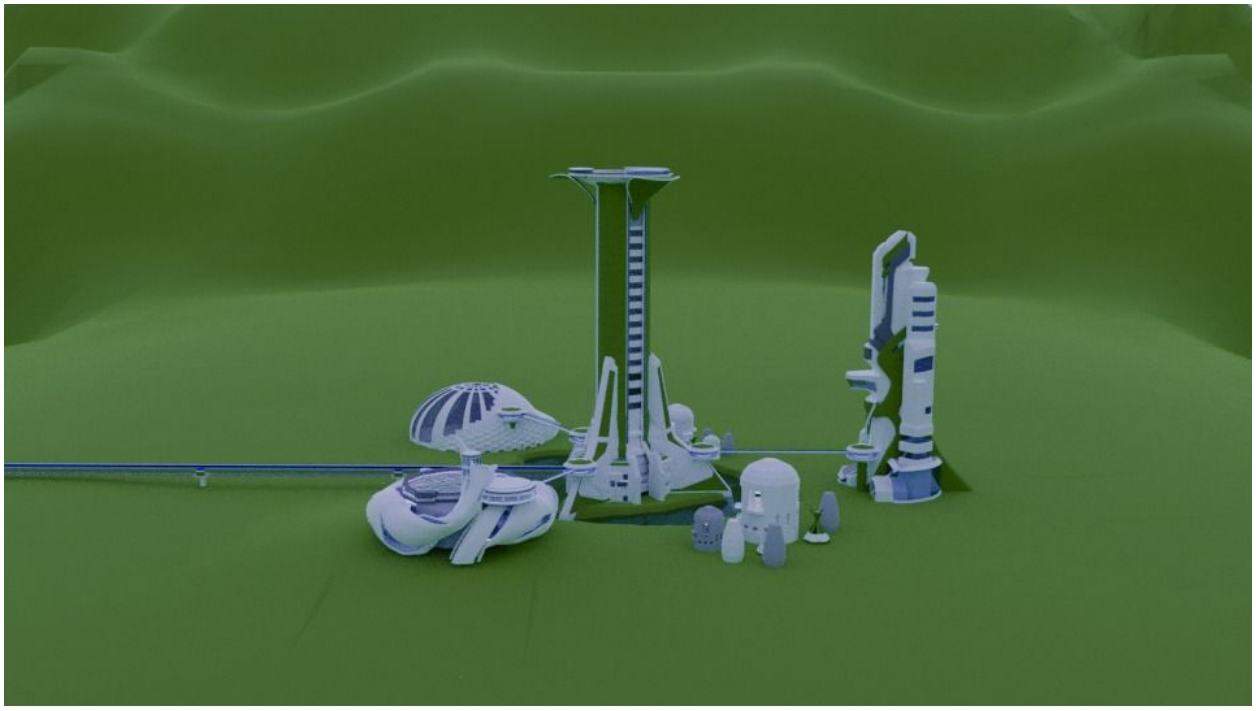
There are three side buildings along with a main building, with highway linking them. A river surrounds the base of the main building, along with some futuristic houses between the main building and the side buildings for accompaniment. The shape of the building with the aquarium is circular in shape and has a design that represents waves which represents the aquatic life. The shape of the building which is the most futuristic is rectangular with complex designs surrounding it. The last side building is a dome and has a mostly glass ceiling to let sunlight pass through to the plants inside. The main building is rectangular with a vertical garden and has. facilities that include garden, restaurants, library and other facilities.



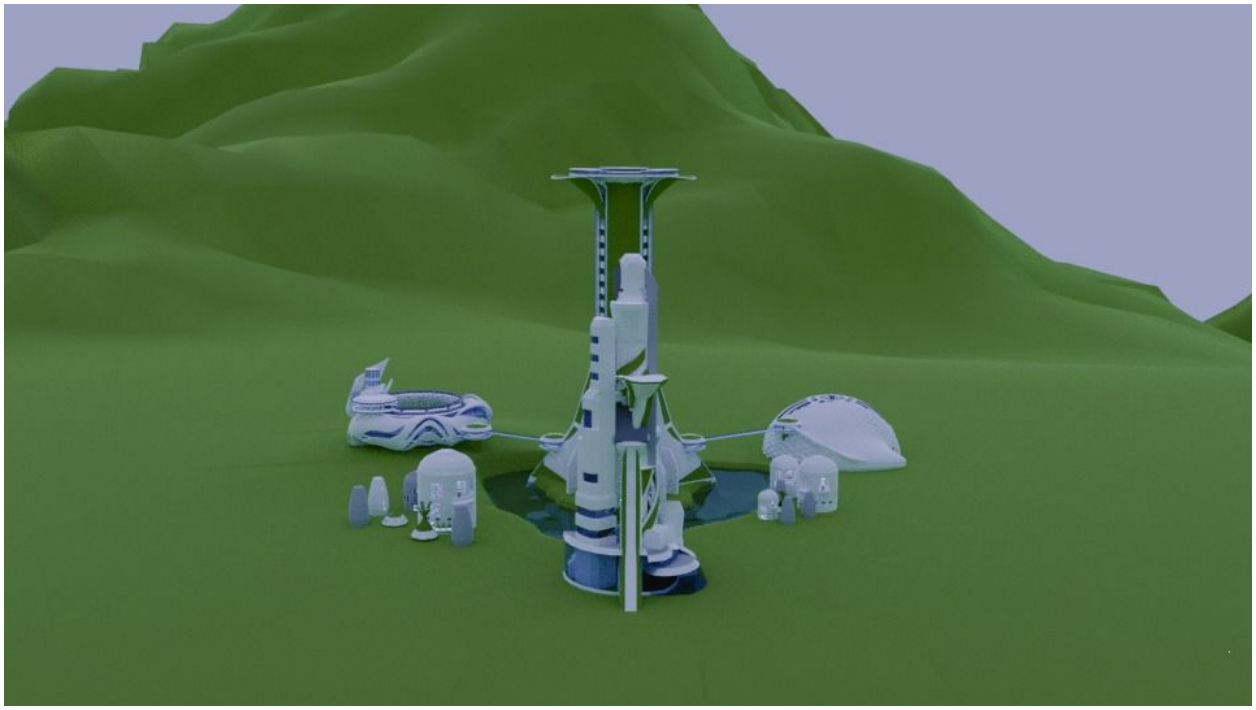
Pic 27



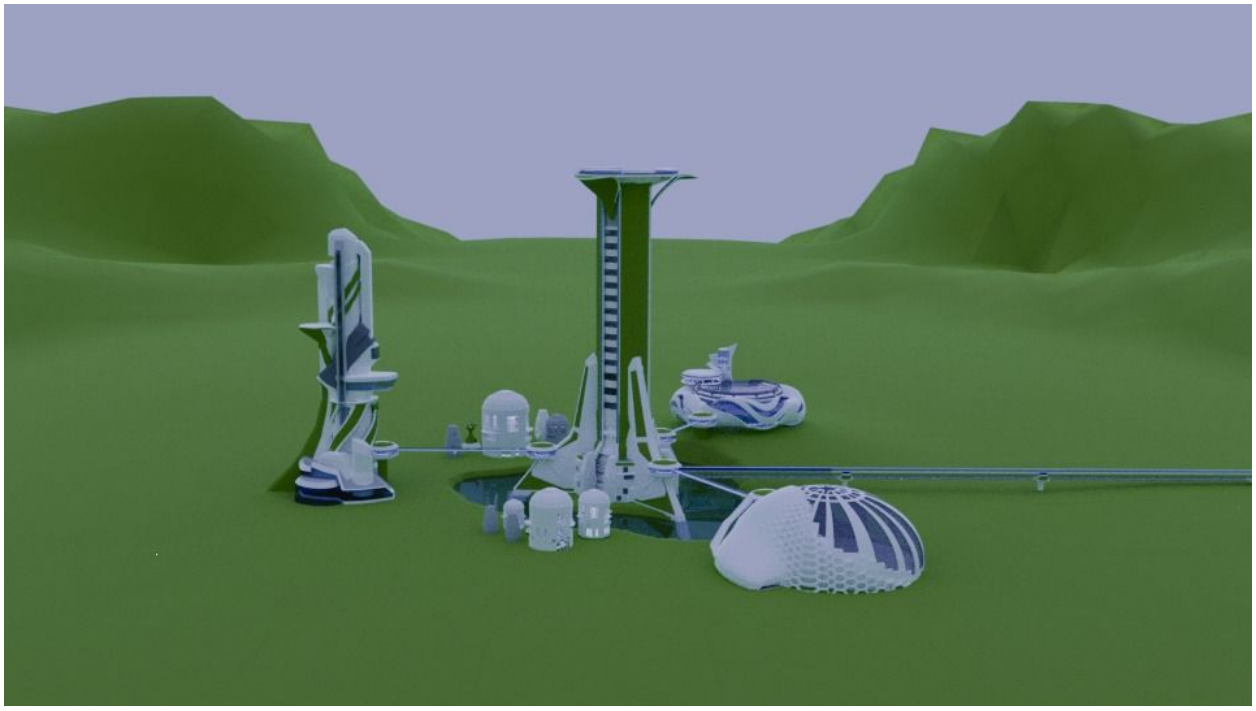
Pic 28



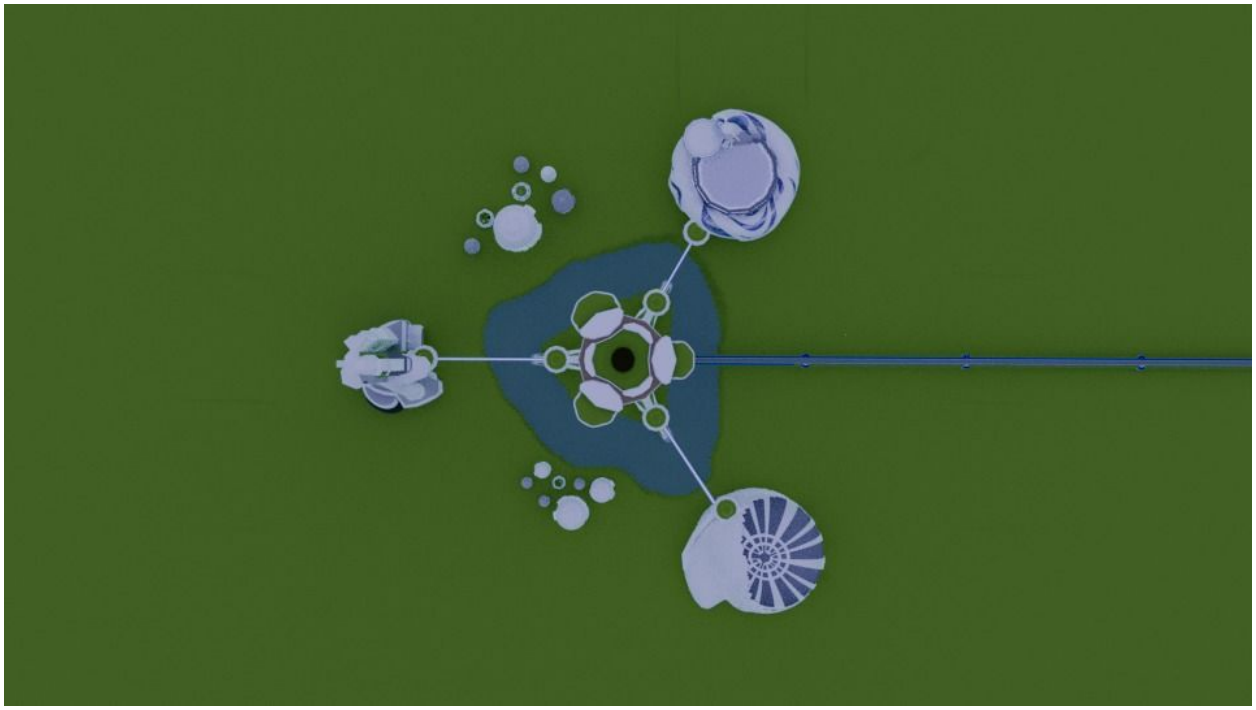
Pic 29



Pic 30



Pic 31



Pic 32

Reflection:

Challenges

We had to deal with the corruption of the hard-disk which led to the previous work done on Blender being lost. Although it was relatively earlier between the proposal and mid-term evaluation stage, we still lost some important parts of the project like the foundation of the buildings that could have shown what we experimented with in our past work. Having to start from scratch again also took away some of the precious time we had. After this incident, we always save a few more copies so we have backup files to depend on in case any files is ever lost to corruption again.

Another challenge was to adapt from the numerous inspirations we found and to be able to put together the different inspirations to form our desired outcome for each building. However, after much time spent on experimenting with various designs, we were able to settle with those that we thought were the best.

Strengths and Areas of Improvement

We feel that one of our strengths is the thorough familiarity to Blender, which allowed the group to use Blender much easier and did not have to spend too much time having to master the basics of Blender to start on our project, which saved us some time and increased the speed of our project
We know our aims for doing the architecture clearly, thus we were able to be more specific in what we do.

However, one area of improvement would be time management. Although we were accelerating at a seemingly good speed, we underestimated the complexity of having to work on the structure on Blender and how time-consuming it could get and some parts were rushed. We also spent too much time on some redundant parts which did not make it to the final product.

What we learnt

We learnt that creating models might seem relatively manageable to carry out, there are many components and factors that must be carried out for the model to look good overall, which looks easier than it really is.We must also spread the workload more evenly to allow maximum progress.

We learnt that in designing, we cannot only depend on just one or two inspirations, instead we must have a fusion to achieve our aim for the project.

Architecture is not just an area that is focused on aesthetics. Instead, architecture can only be done well if both its functionality and its aesthetics are achieved.

Other thoughts (Future plans for the work)

We hope to develop more on our building designs to ensure it can include more environmentally friendly designs that we might have missed.

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Pic 5:
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Pic 7:
Miami retail structure's honeycomb façade fluctuates between opacity and transparency. (2017, July 24). Retrieved August 6, 2019, from https://www.bdcnetwork.com/miami-retail-structure’s-honeycomb-façade-fluctuates-between-opacity-and-transparency?eid=241557962&bid=1820178

Pic 8:
Miami retail structure's honeycomb façade fluctuates between opacity and transparency. (2017, July 24). Retrieved August 6, 2019, from https://www.bdcnetwork.com/miami-retail-structure's-honeycomb-façade-fluctuates-between-opacity-and-transparency?eid=241557962&bid=1820178

Pic 9:
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Pic 11:
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