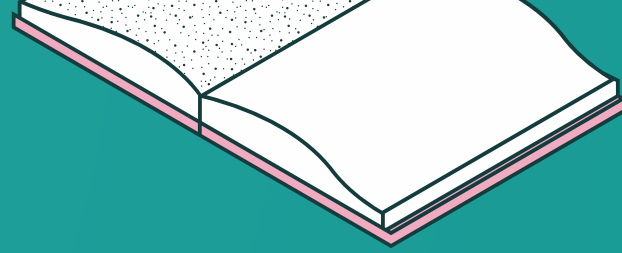
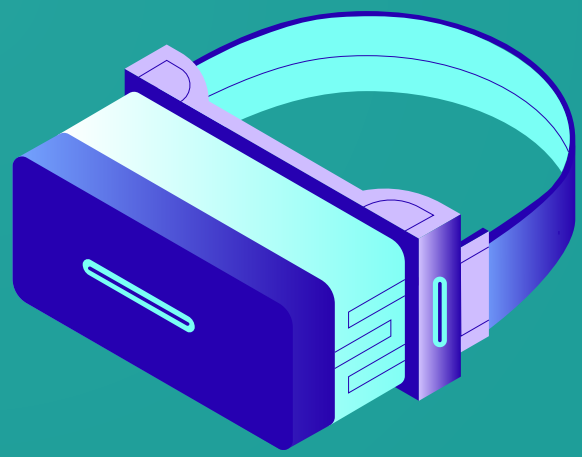


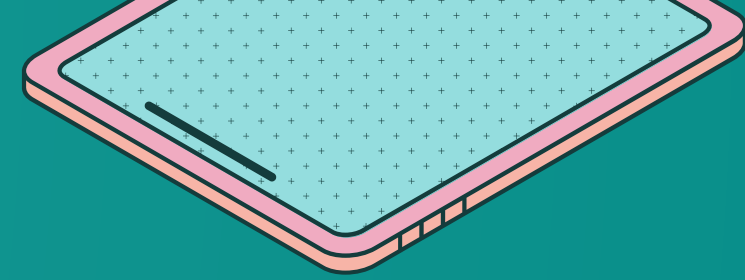


# SoCal Edison Virtual Reality Training Program





# Meet the Team



Fernando Torres



Martin Castorena



Cameron Cheng



Matthew Mendoza



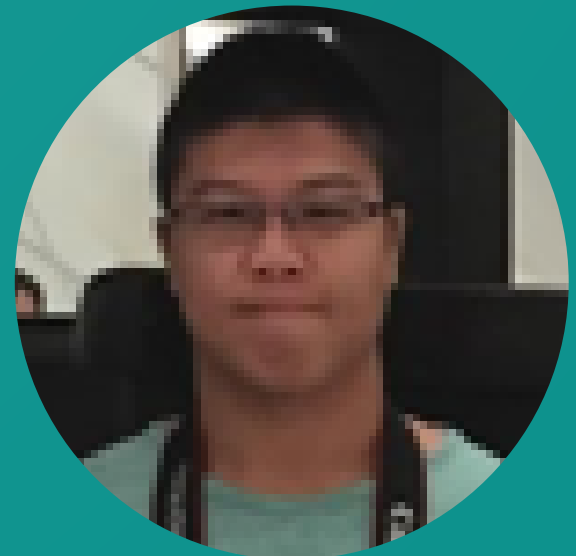
Manuel Guillen



Jaiden Holcomb



Denise Tabilas



Seng Hei James Lei

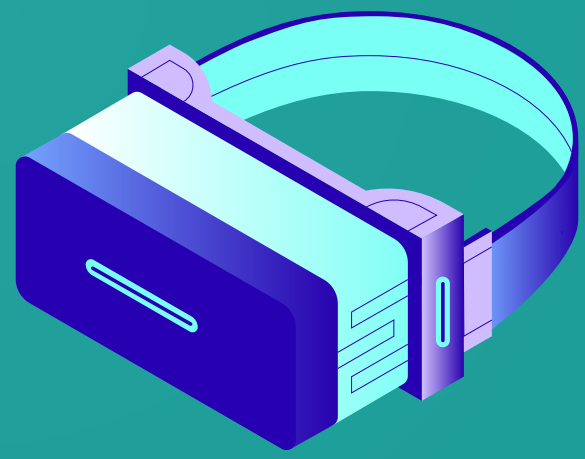


Kevin Truong

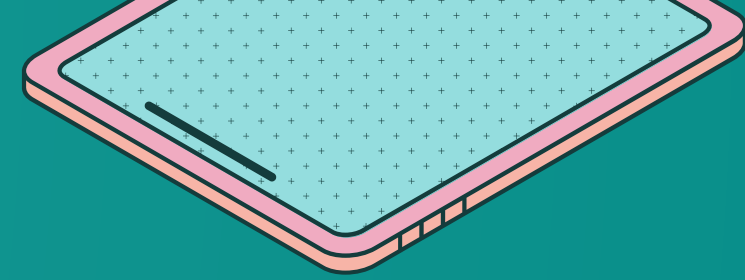


Han Cao





# Meet the Team

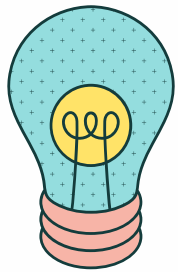


**Dr. David Krum**  
*Advisor*

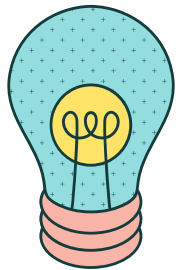


**Abder Elandaloussi**  
*Liaison*

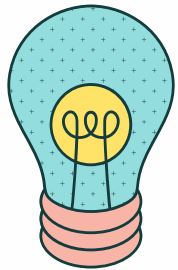
# Agenda



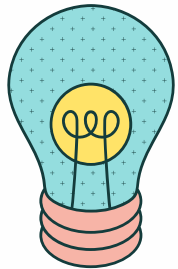
**Background**



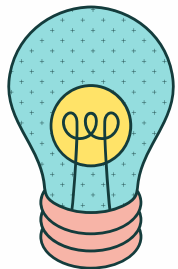
**Problem**



**Requirements and Design**



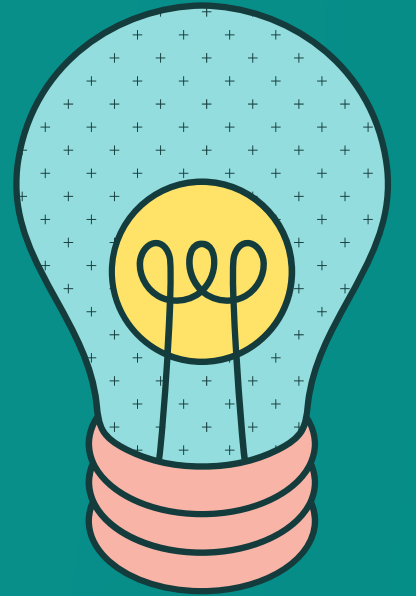
**Implementation and Demo**



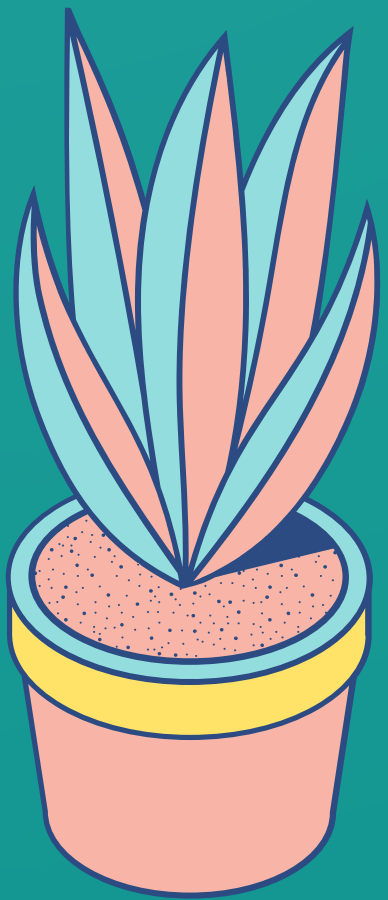
**Final Words**



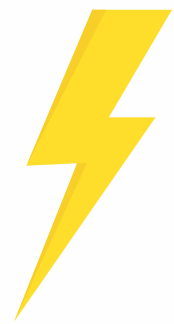




# Background



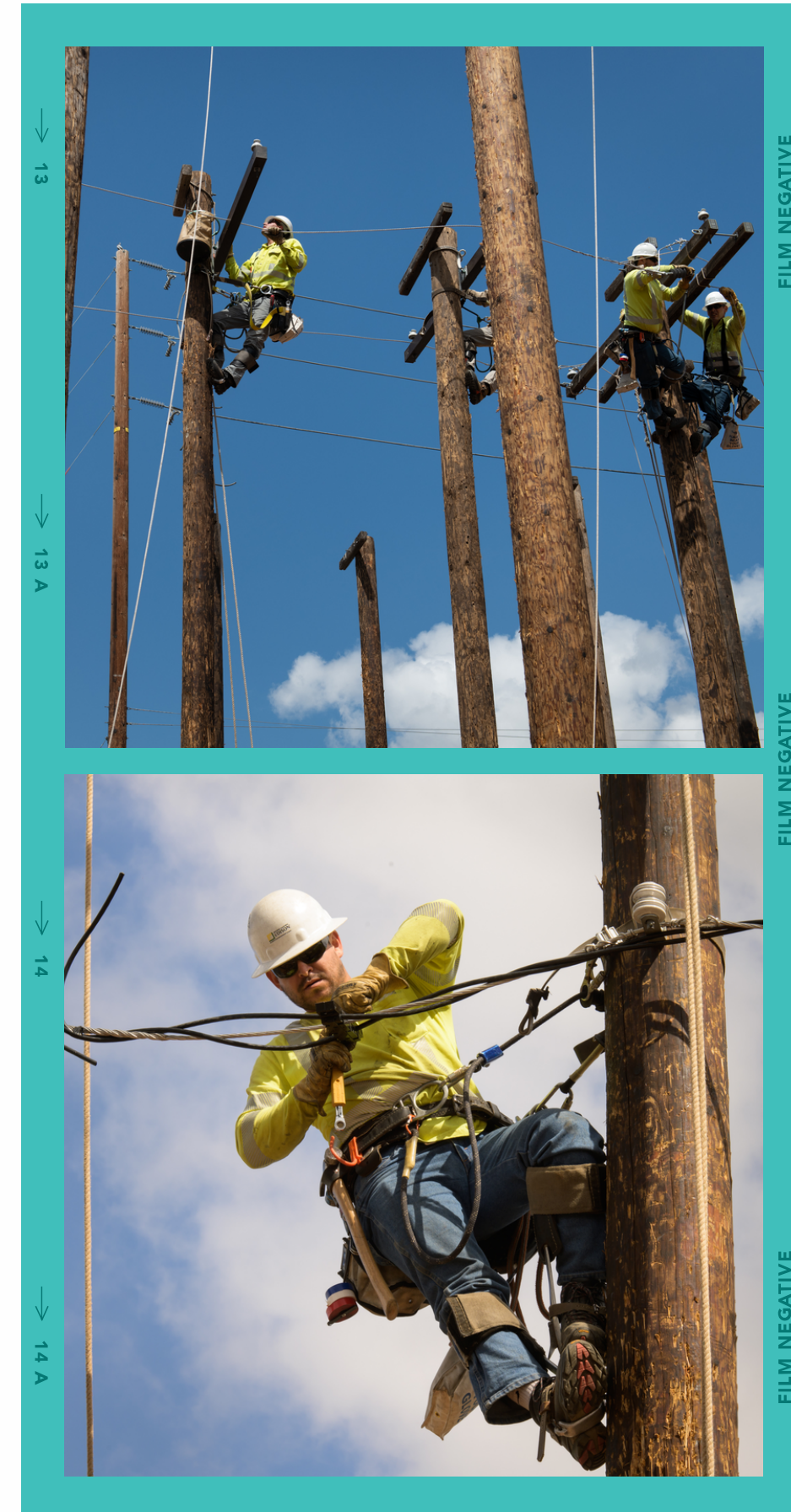
# SoCal Edison (SCE)



Largest branch of Edison International,  
serves ~15 million people

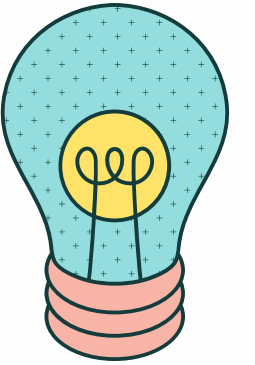


Training facility in Chino Hills





# Problem



Create a new approach to training Southern California Edison worker and contractors.

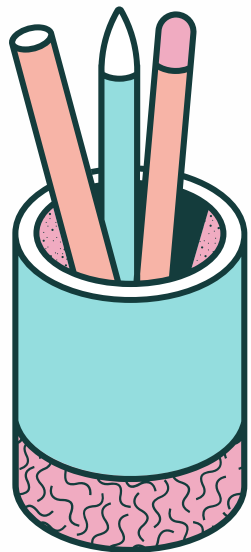
# Objective

VR training simulation for both contractors and SCE workers, emphasizing the importance of installing equipment securely and appropriately while following the provided installation guide.

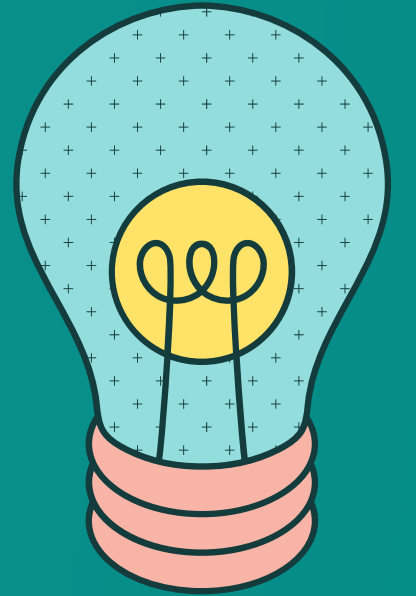


# Key Requirements and Design

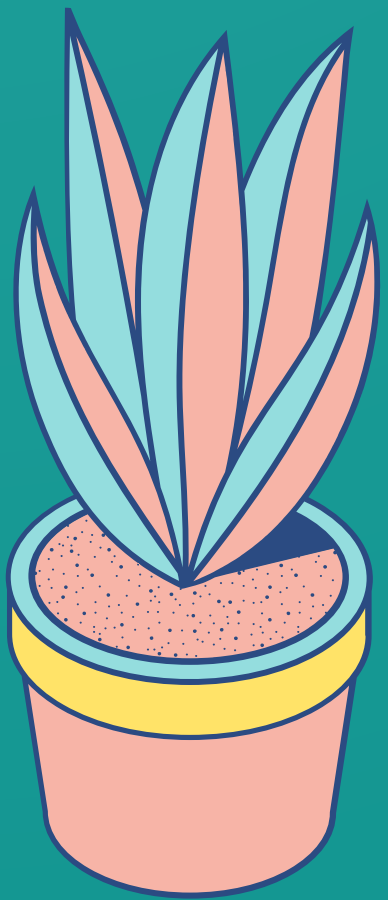
- Create a VR application to be run with the Meta Quest 2 Headset and its controllers
- Simulate field worker training
- Design UI to be user-friendly and intuitive
- Ensure that user follows safety protocols
- Installation steps are easy to follow

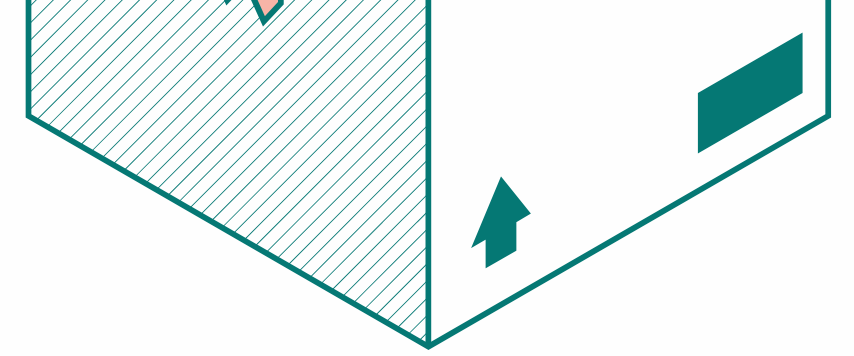
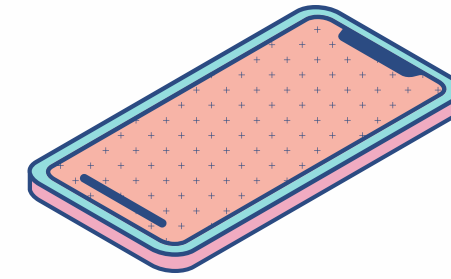
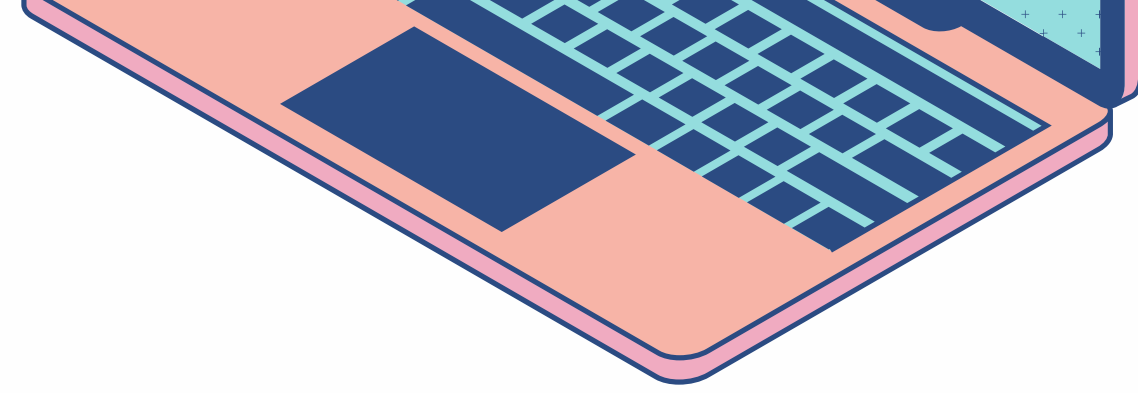
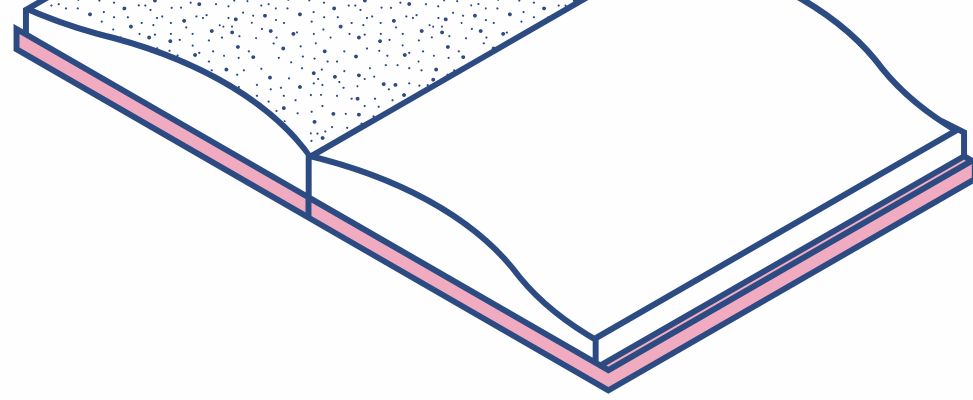






# Implementation





Han

# Software Used

## 3D Modeling

Blender

Autodesk Maya

## Development

Unity

Microsoft Visual Studio

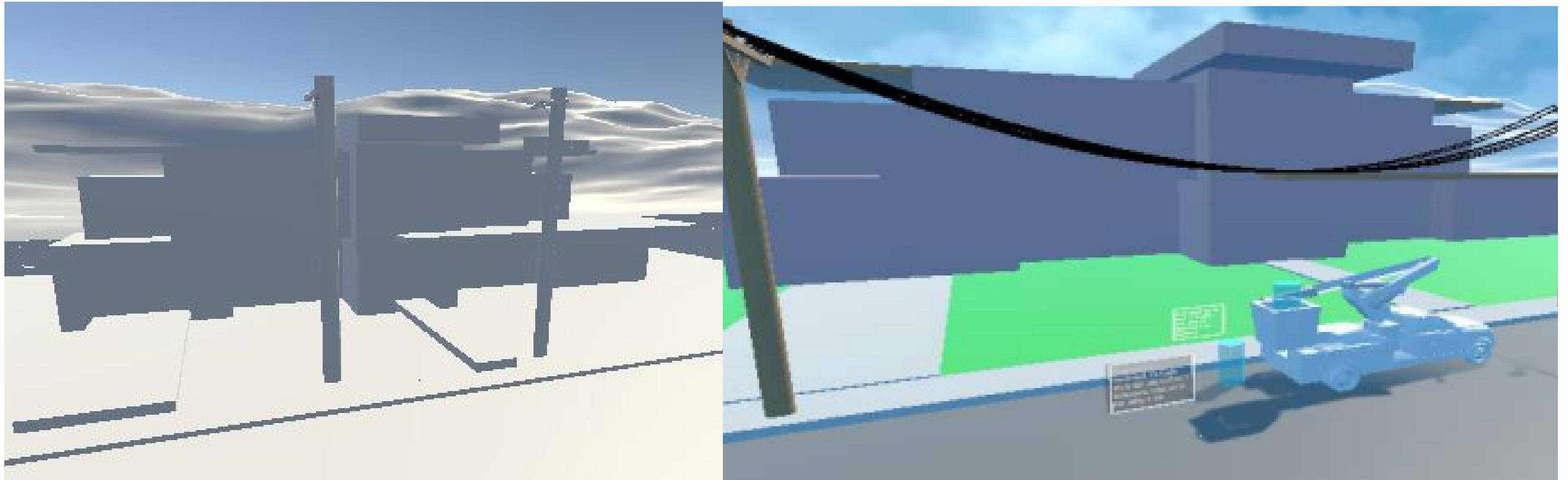
## Communication

Github

Discord



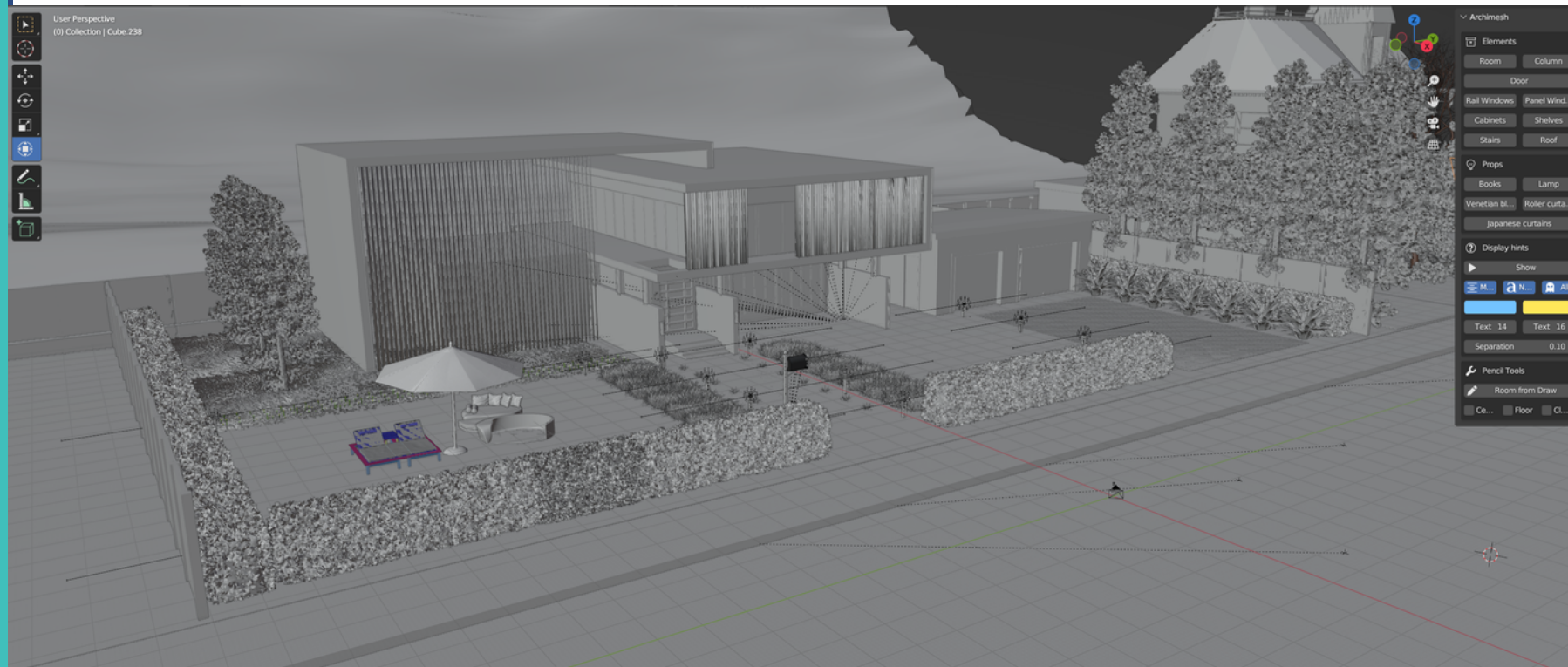
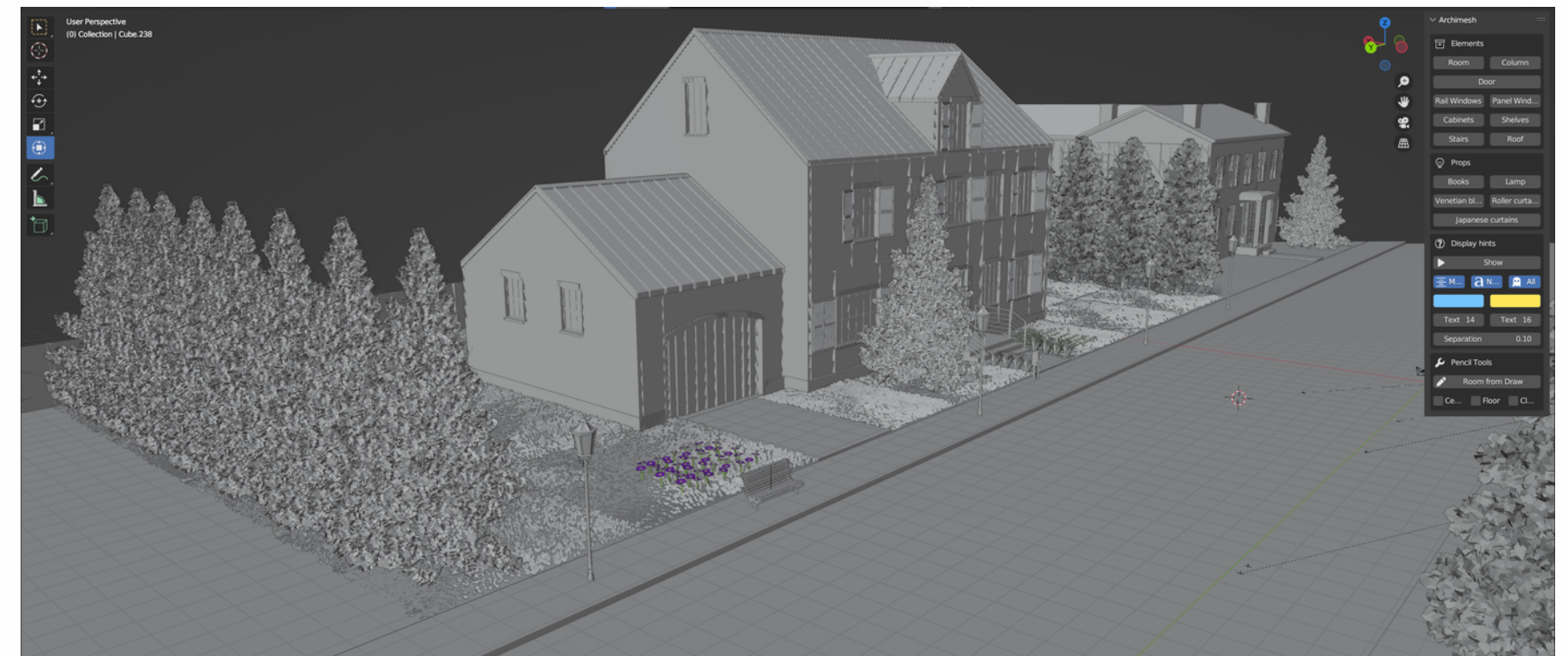
# 3D Modeling - Initial Environment



# 3D Modeling - Scene

## First concept :

- Users feel like they are in the actual world.
- Very Details of Mods
- Back yard, front yard, garage, turf, grass, trees.



## Result :

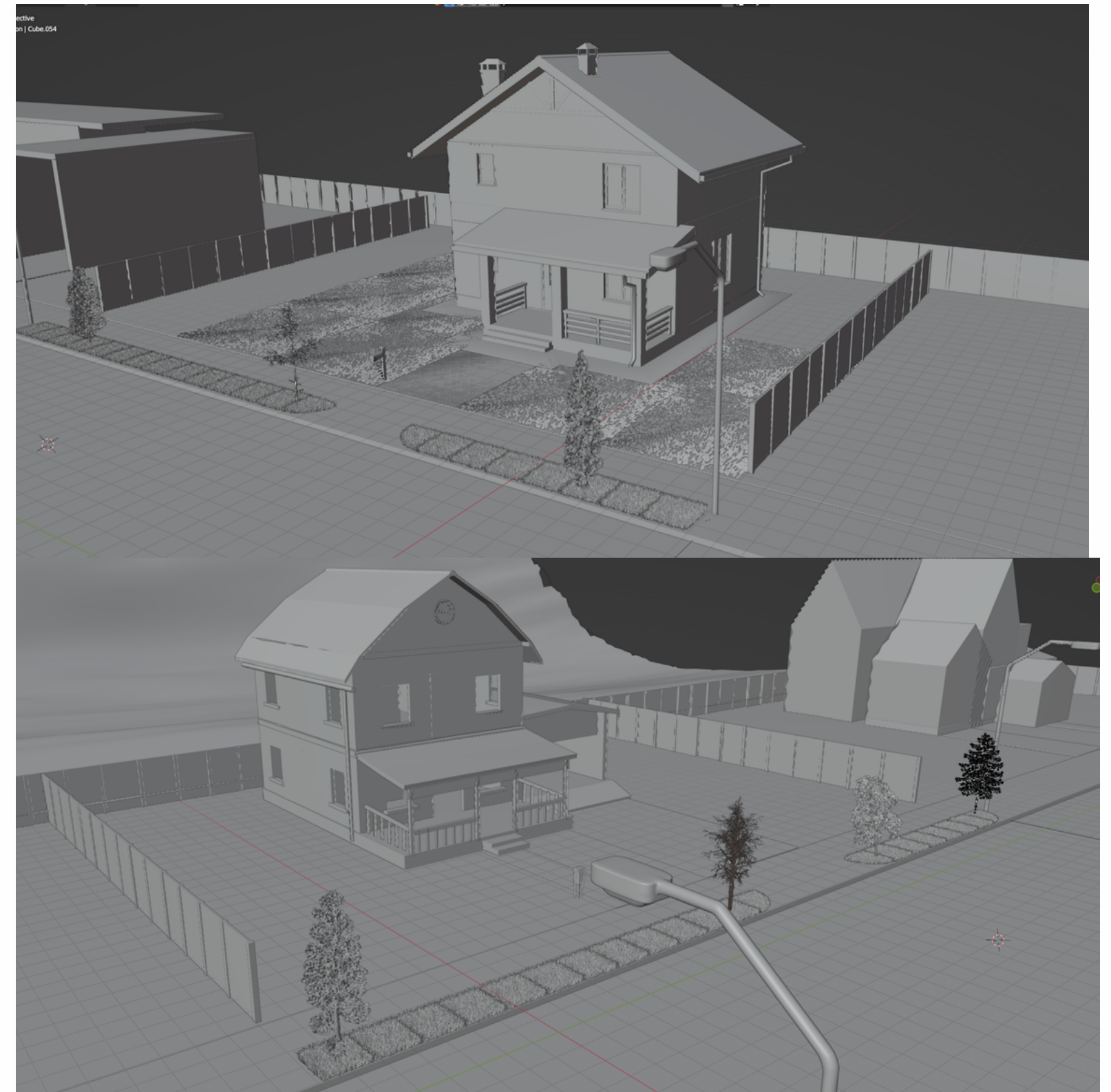
- Limitation
- File size is too big
- Not working on the VR headset



# 3D Modeling - Scene

## Second improvement:

- Use realistic photos as reference
- Less Detail of Mods
- Simplify the architecture style

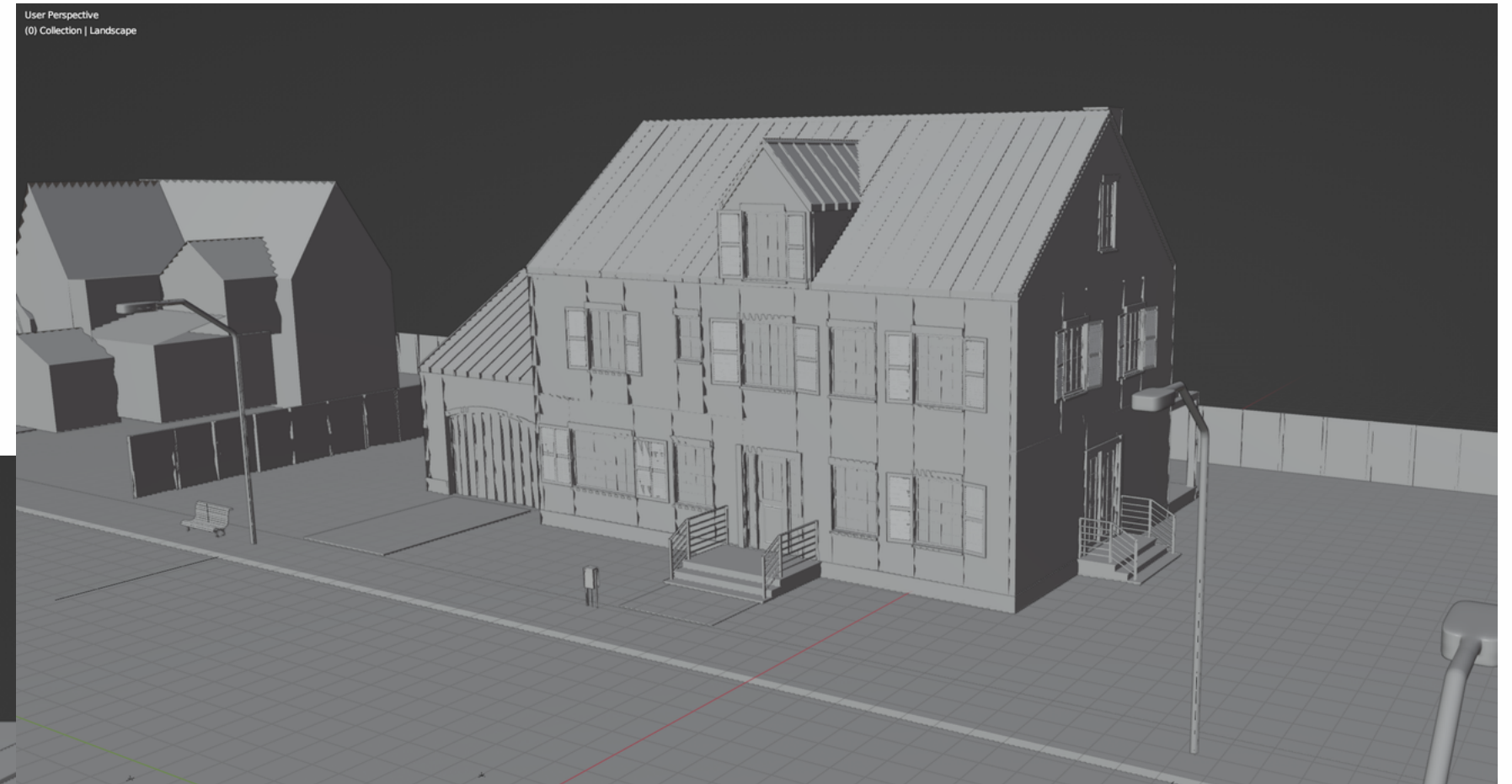
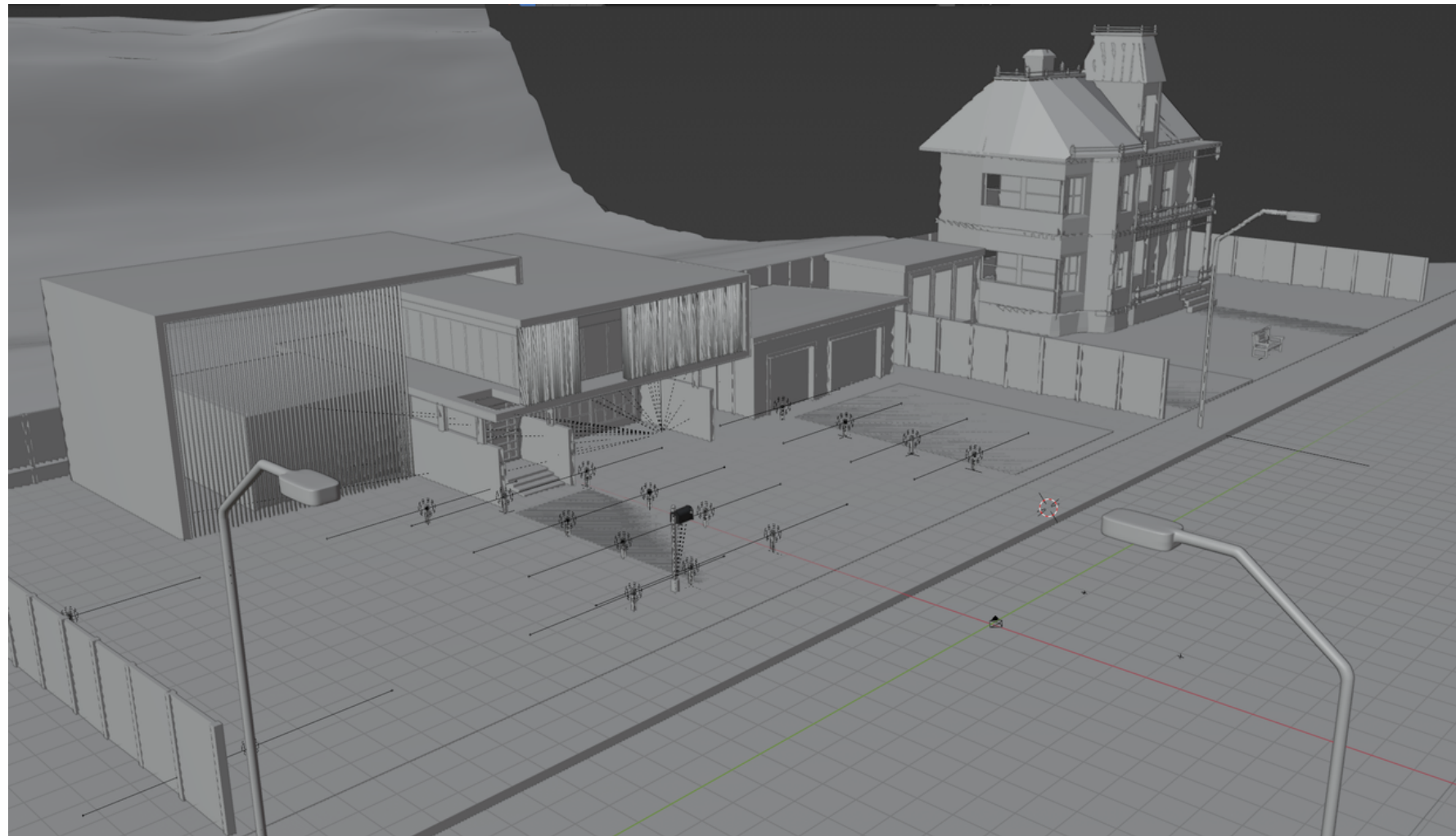




# 3D Modeling - Scene

Final decision :

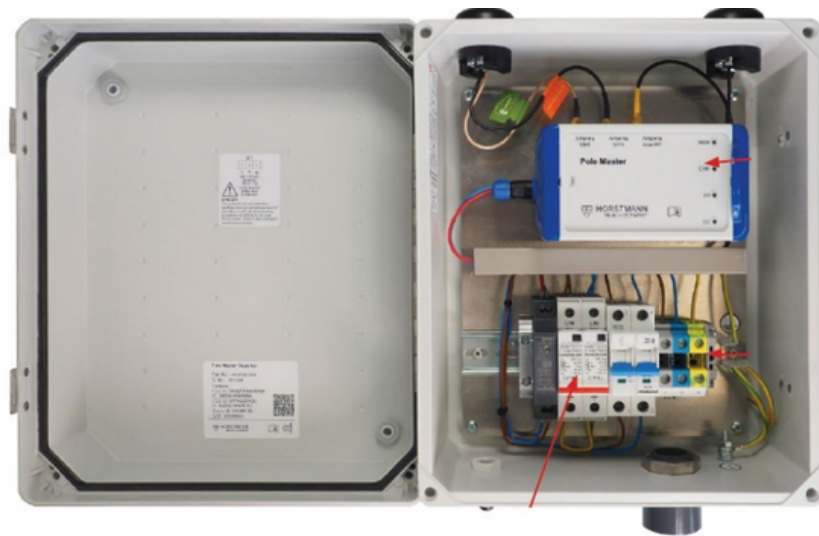
- Keep three of the fanciest houses
- Remove the unnecessary
- Reduce the size of the scene



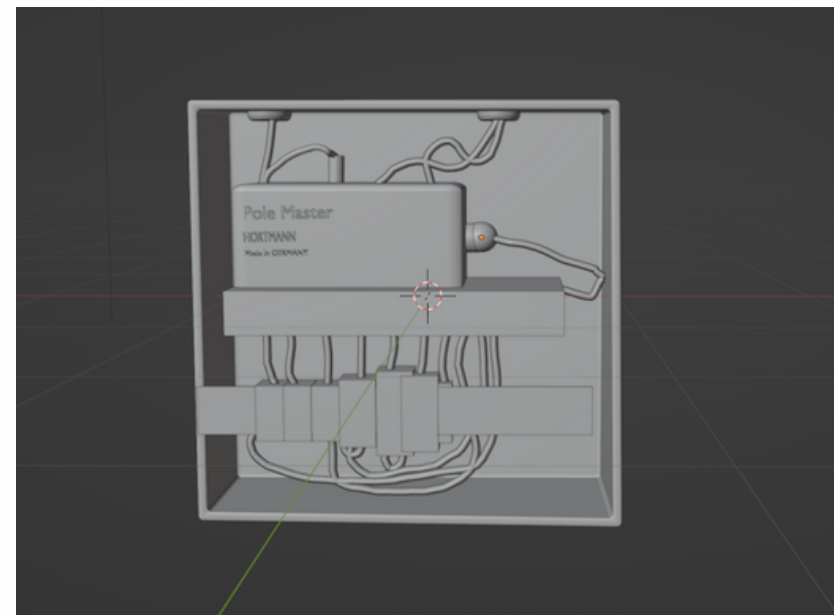
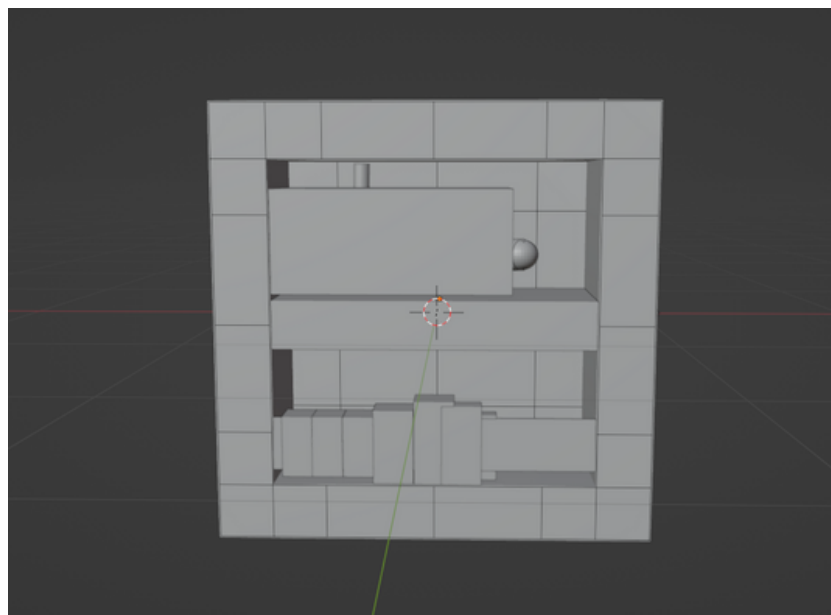
Measure:

- Modify the number of houses
- Remove grass, trees, glass etc.
- Modify the parameters of the house

# 3D Modeling - Pole Master and General Equipment



**Pole Master**

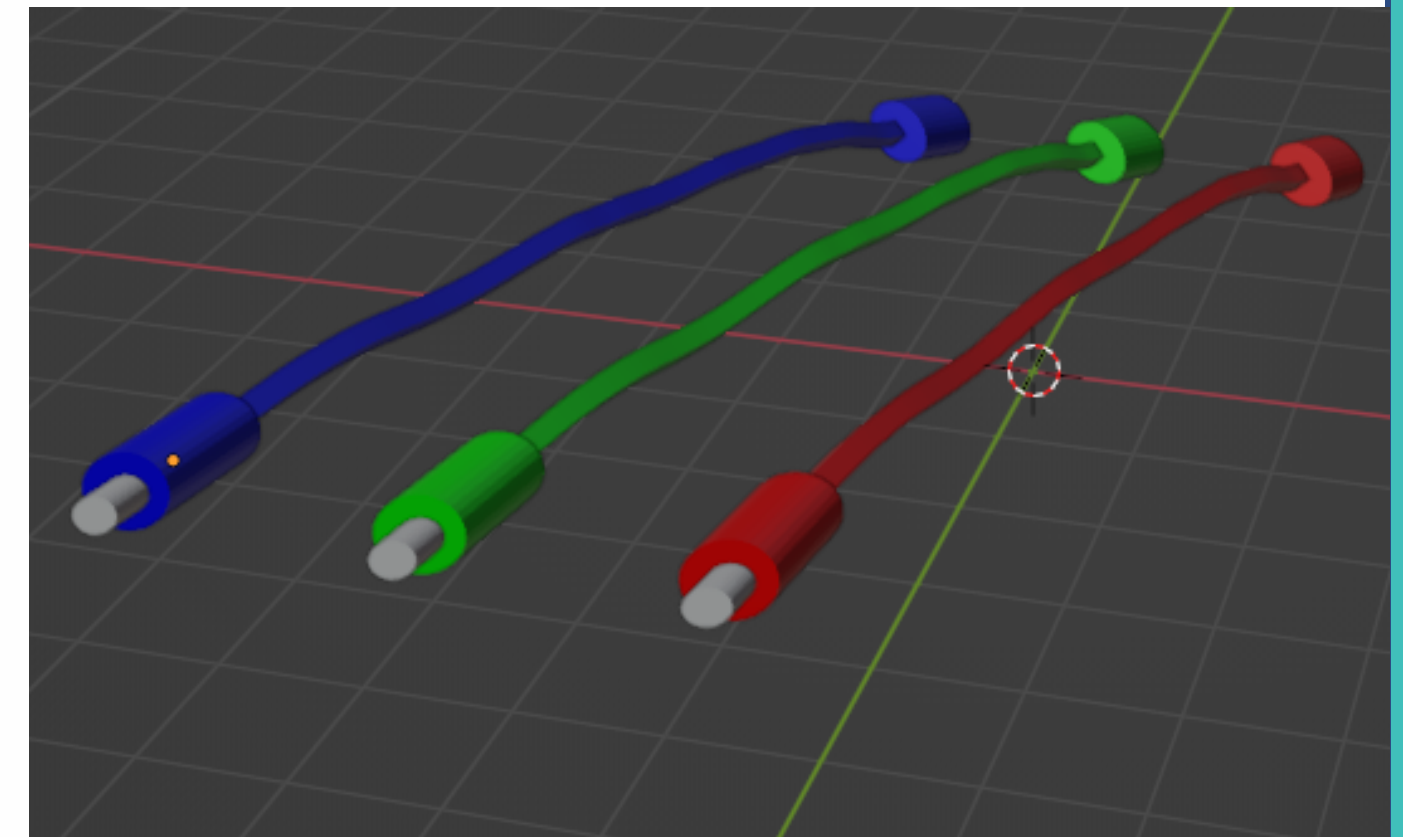
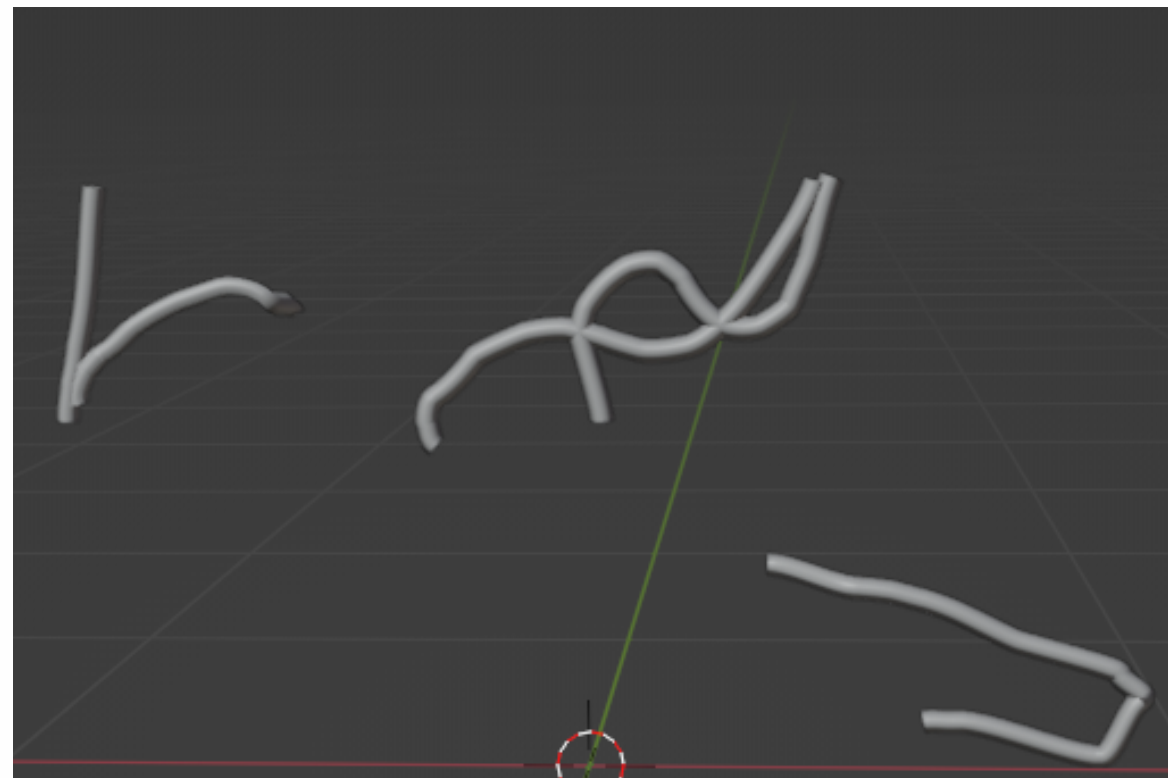
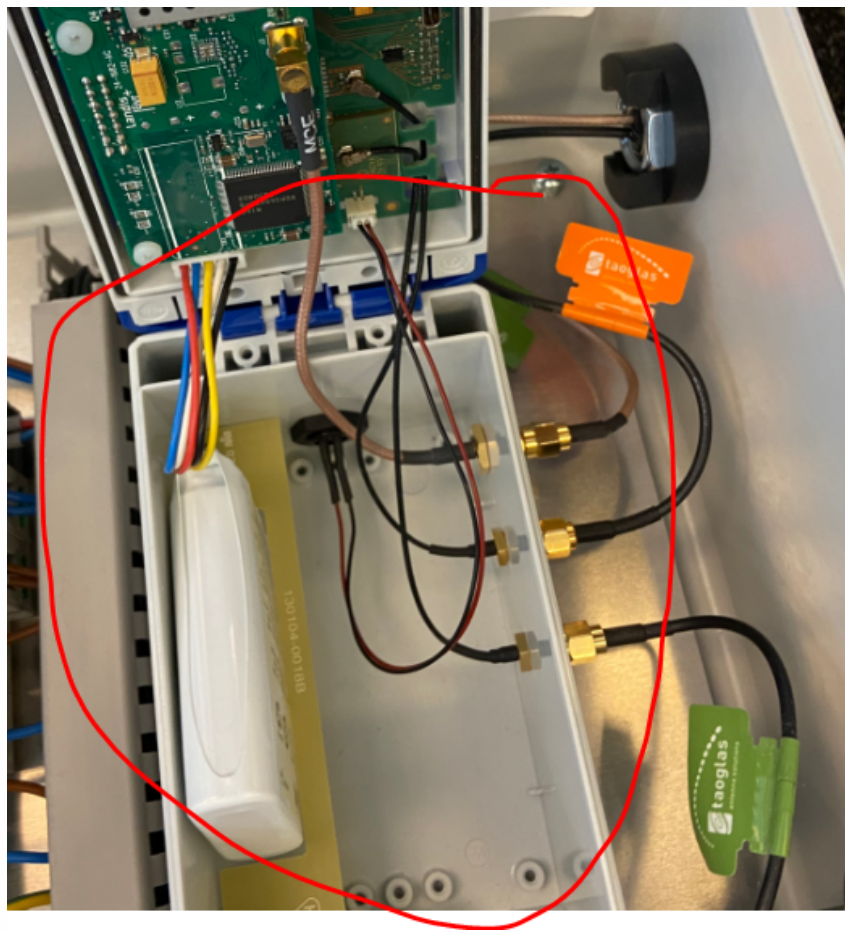




# 3D Modeling - Electrical Wiring

Important to get wiring and lights as accurate as possible

Complicated process both in VR and outside of VR, every detail on the devices matters





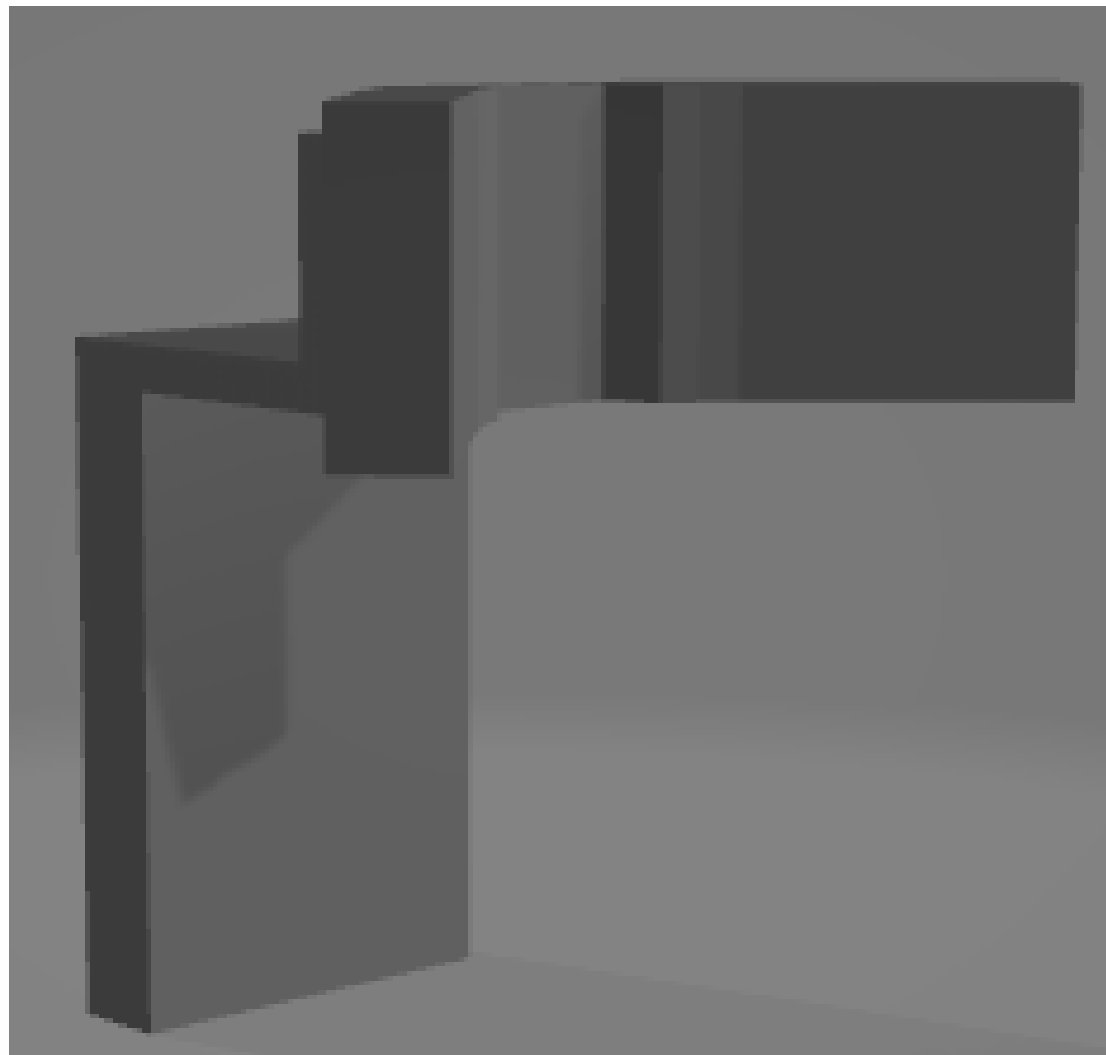
# 3D Modeling - Pole Master

- Communicates with smart navigators
- LED's which indicate different states



# Pole Master Interaction

- Placed on the pole master and smart navigators to enable pairing mode



# 3D Modeling - Smart Navigator

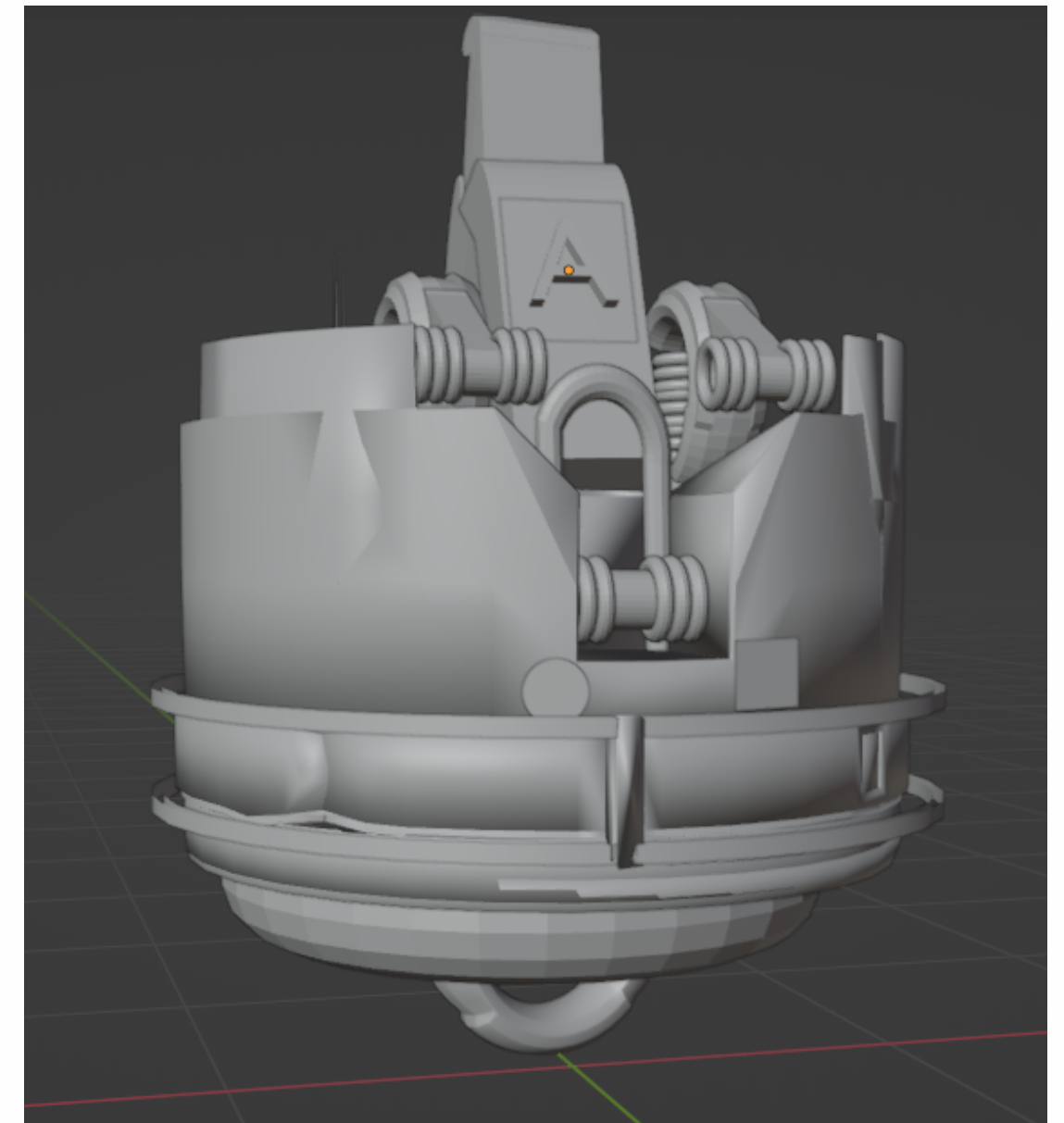
## What is a smart navigator?

- A device that monitors the flow of electricity and helps detect faults in electrical power lines
- It is used by utility companies to reduce the time it takes to fix power outages and improve customer service.

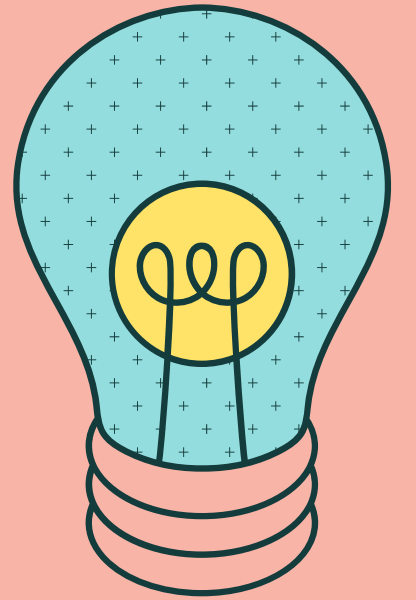


# 3D Modeling - Smart Navigator

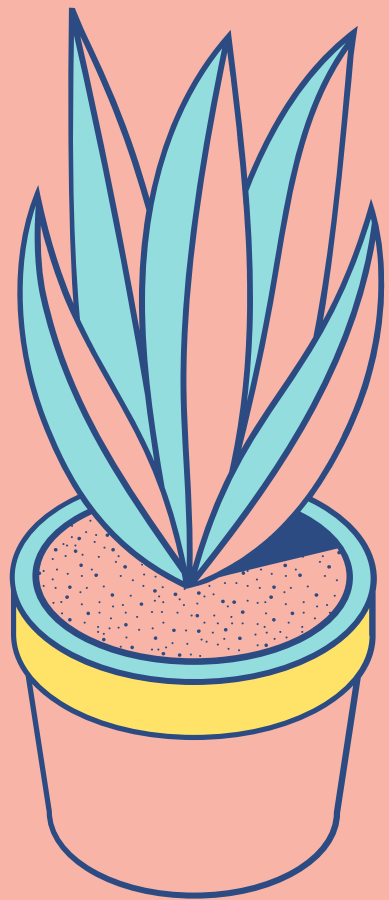
- One of the most interacted devices throughout the training
- Needed to be detailed.
- Nonexistent premade models that matched with our created environment.
- We had specific movement requirements







# Unity



# Unity - Smart Navigator

Smart Navigator installation:

Checking phase IDs: A,B,C on smart navs while working in a bucket.

## Steps:

1. Open and attach the smart nav to the hot stick.
2. Use the hot stick as an extension to connect the smart nav to the corresponding line.
3. A clamp sound and controller vibration will indicate a successful installation.
4. Proceed to place the remaining smart navigators according to phase ID labels



# Unity - User Interface

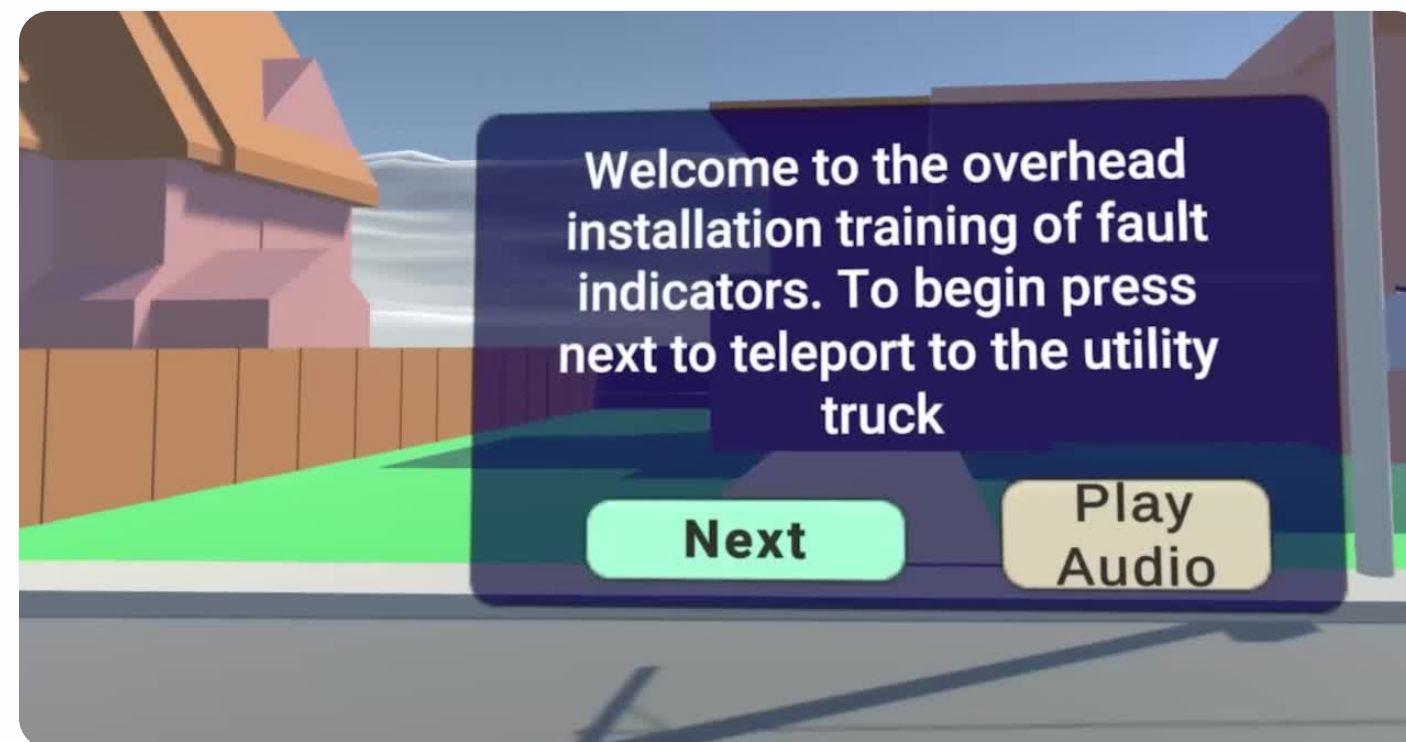
- UI helps guide user through steps of installation process
- Displays buttons to go to next or previous step
- Displays button to control audio





# Unity - Teleportation

- Opted to use teleportation as the main mode of transportation so that the user does not have trouble knowing where to go



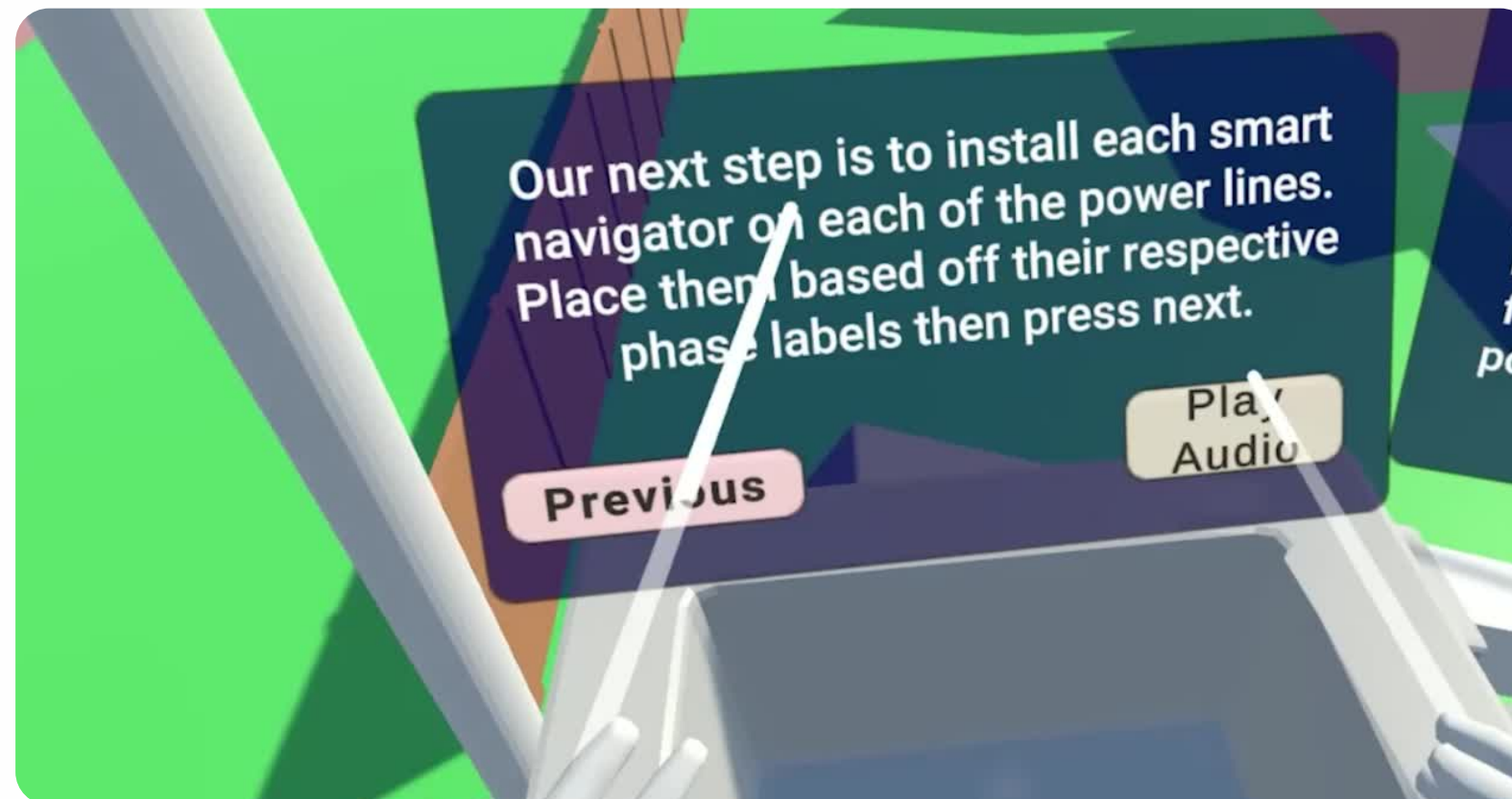
# Unity - Inventory

- Allows the user to bring equipment from one scene to another
- Toggled using the left secondary button
- Slot changes color and text label

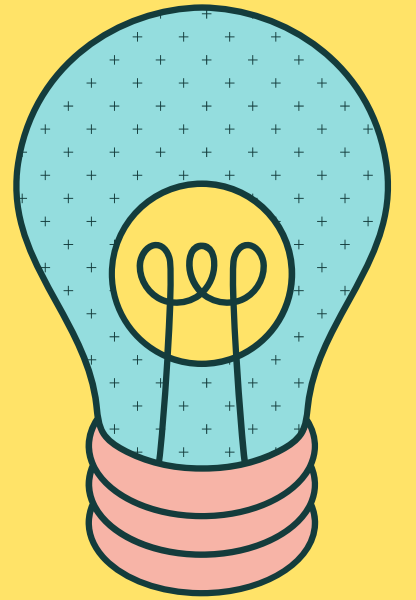


# Unity - Inventory

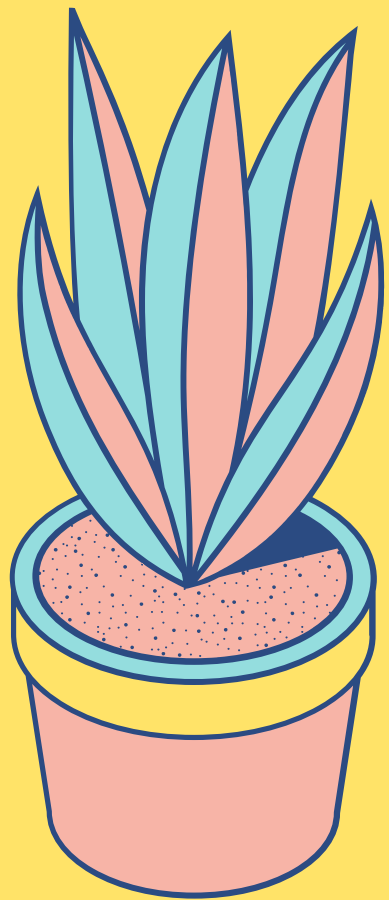
- Dropped item gets placed into special slot in inventory







# Extra Features



# Extra Features- Audio

audio help the user be more immersive with the project

we use ai voice instead of an actual voice to keep it consistent

beta version did have my voice but it was opted for ai voice better for consistencies

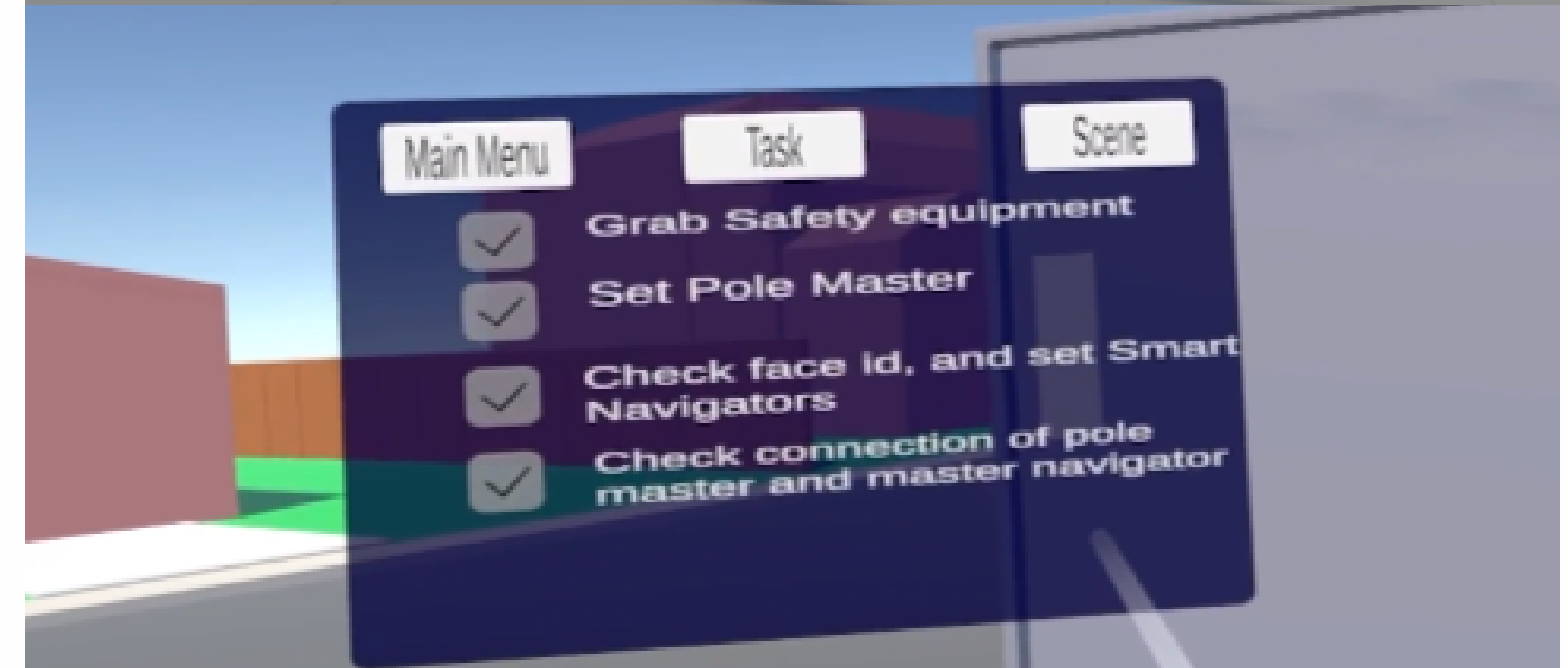
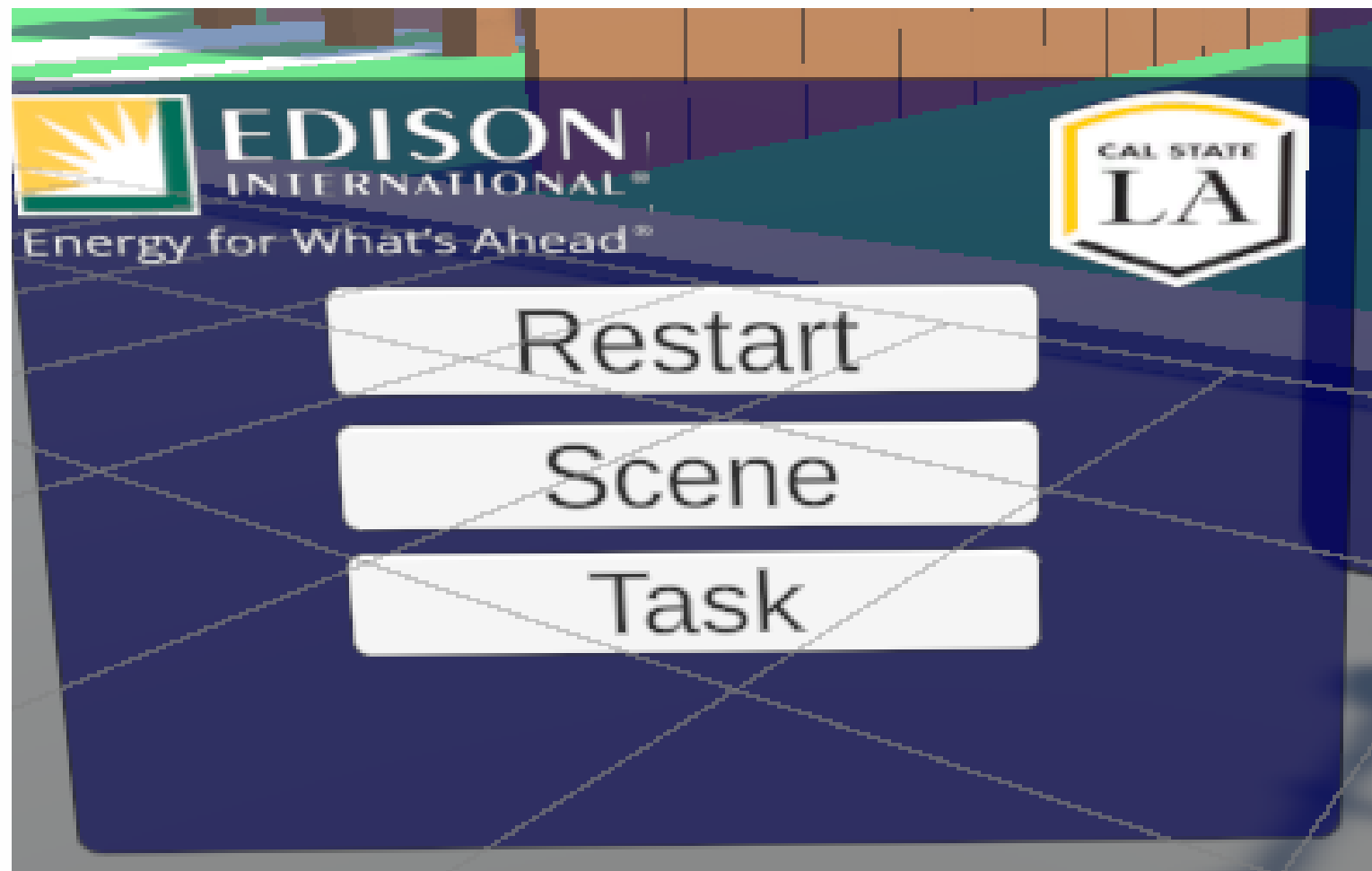
sound effects are the next step or placeholder idea right now we focus on voice feedback



# Extra Features- Implementation of Audio

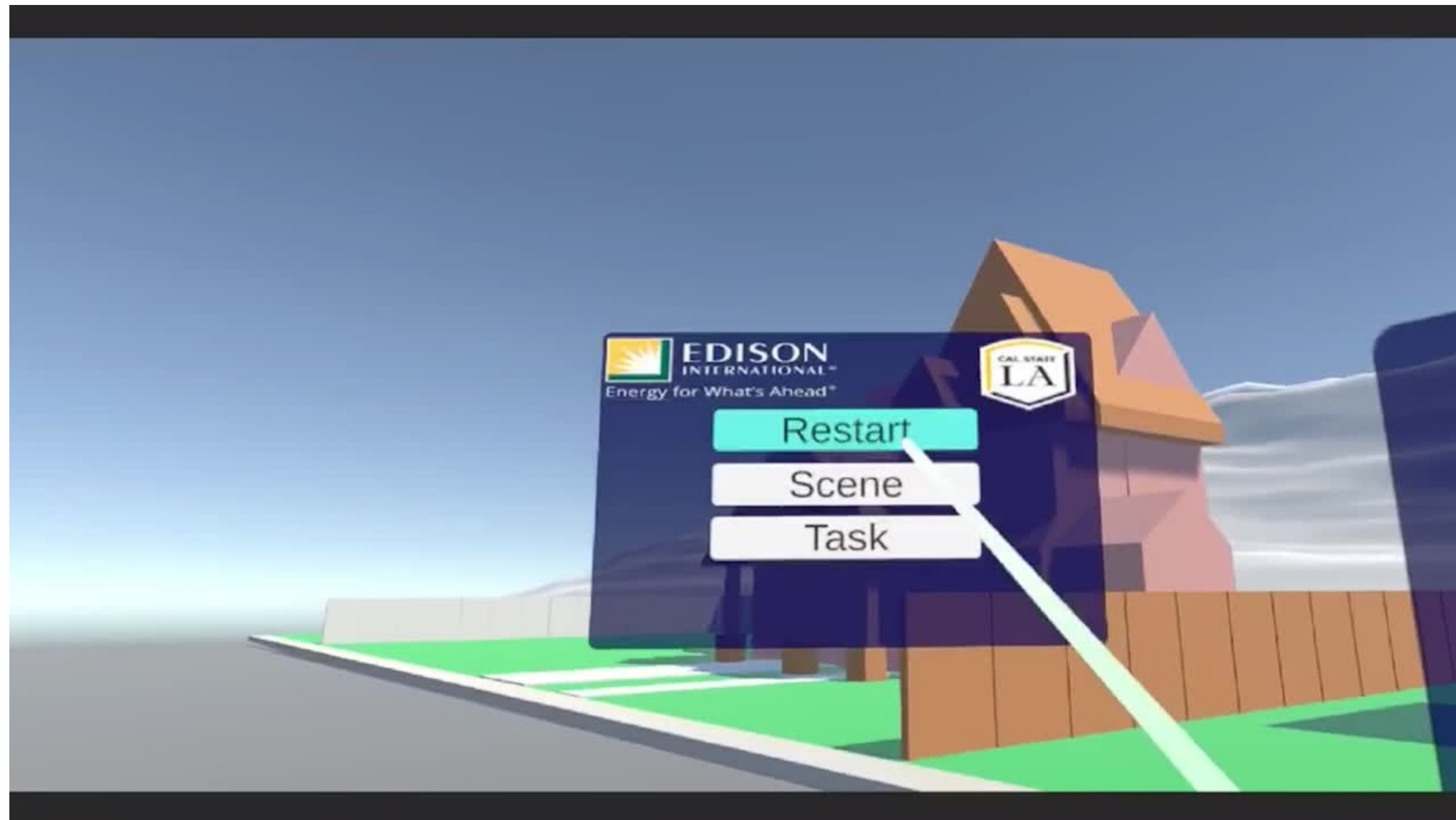
- The audio transcriptions serve as a 2nd option for the user to listen to while being interactive with the environment
- Audio effects when triggering certain things also add to the immersion for our users

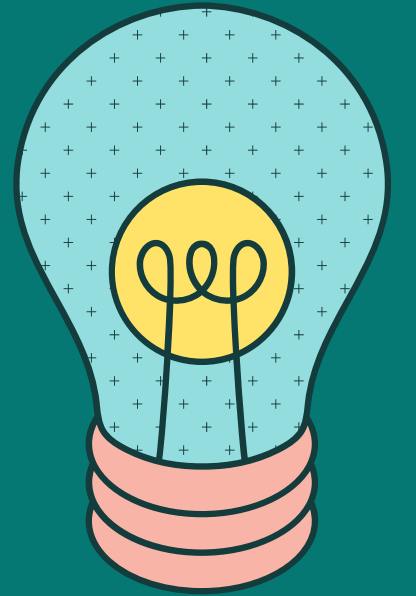
# Extra Features - Menu: Task



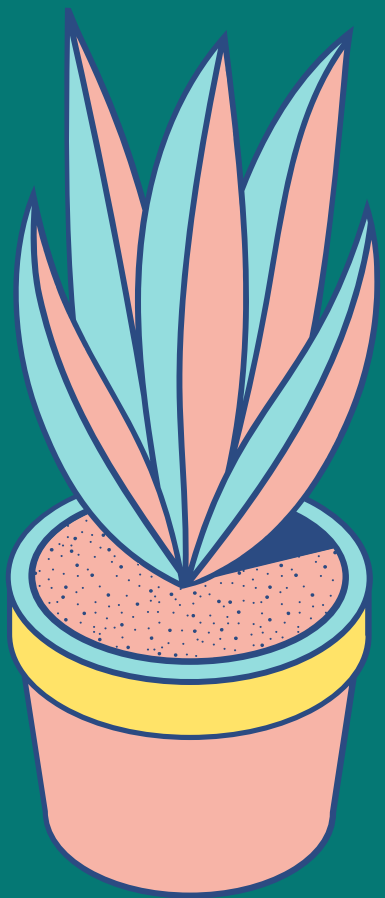


# Extra Features - Menu: Scene



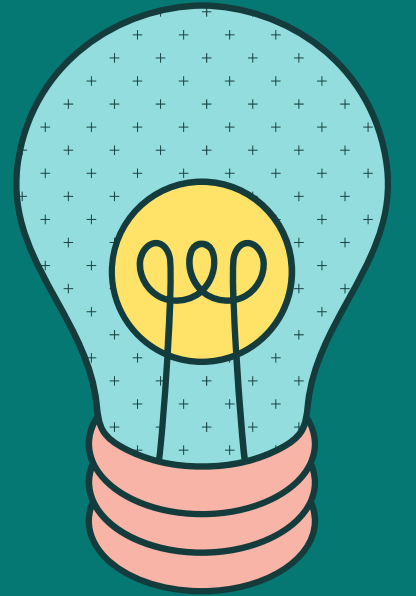


# Video Demo





# **SoCal Edison VR Training Demo**



Thank You

