Description:

This project was made for our Virtual Reality / Augmented Reality course at the University of Illinois at Chicago. For this project, we were instructed to remake our classrooms at EVL into a room that would be our ideal office area. Our approach was to make a room that made us feel comfortable and at ease when working.

In order to achieve both those goals, we decided to divide our office space into two main areas - a work area and a lounging area. For our work area, we added our desk necessities along with some decorations to and around our desks to make it feel more homely. We also decided to add a small kitchen area near our desks for quick fresheners during work. For our lounging area, we decided to add a home entertainment system which included a TV, speakers, and PlayStation 4 for our virtual entertainment. We also included a basketball hoop to shoot some baskets from time to time and a skeeball machine to pass time when we were tired of watching television or playing games during our break time.

In order to make the whole office space more realistic and interactive, we tried to add physics to as many objects as we could. Our general decision making for whether we could make something be intractable was if we could pick it up in real life by ourselves, we should add physics to it and be able to throw it around. Everything that we gave physics to could be picked up, thrown around, or knocked off its location with enough force.

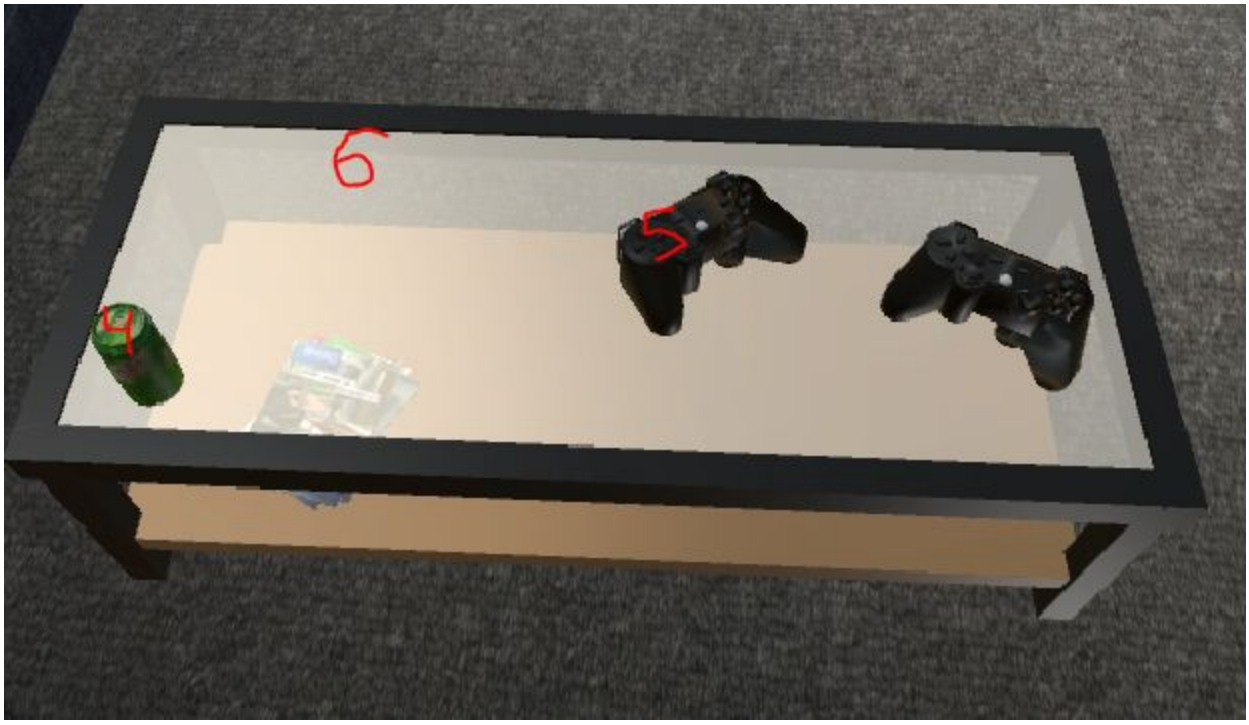
Sounds:

1. Sound for the coffee/tea machine : Making Espresso sound - http://soundbible.com/548-Making-Espresso.html
2. AC / Background noise - http://soundbible.com/1508-Background-Noise.html
3. Smooth Jazz (Poppers and Prosecco) - http://incompetech.com/music/royalty-free/?genre=Jazz
4. Clock ticking sound - http://soundbible.com/1580-Ticking-Clock.html
5. Disco ball song, Running in the 90's by Initial D - https://downloads.khinsider.com/game-soundtracks/album/initial-d-d-selection-1/09-running-in-the-90-s.mp3
6. Arcade Music - https://freesound.org/people/zagi2/sounds/219824/
7. Basketball Bounce - https://freesound.org/people/andre.rocha.nascimento/sounds/51460/
8. Printer Sound - http://soundbible.com/495-LaserJet-Printer.html
9. Phone Ringing Sound: https://freesound.org/people/visualasylum/sounds/329781/
10. Game of Thrones Opening: https://www.youtube.com/watch?v=s7L2PVdrb_8 CONVERTED to MP3

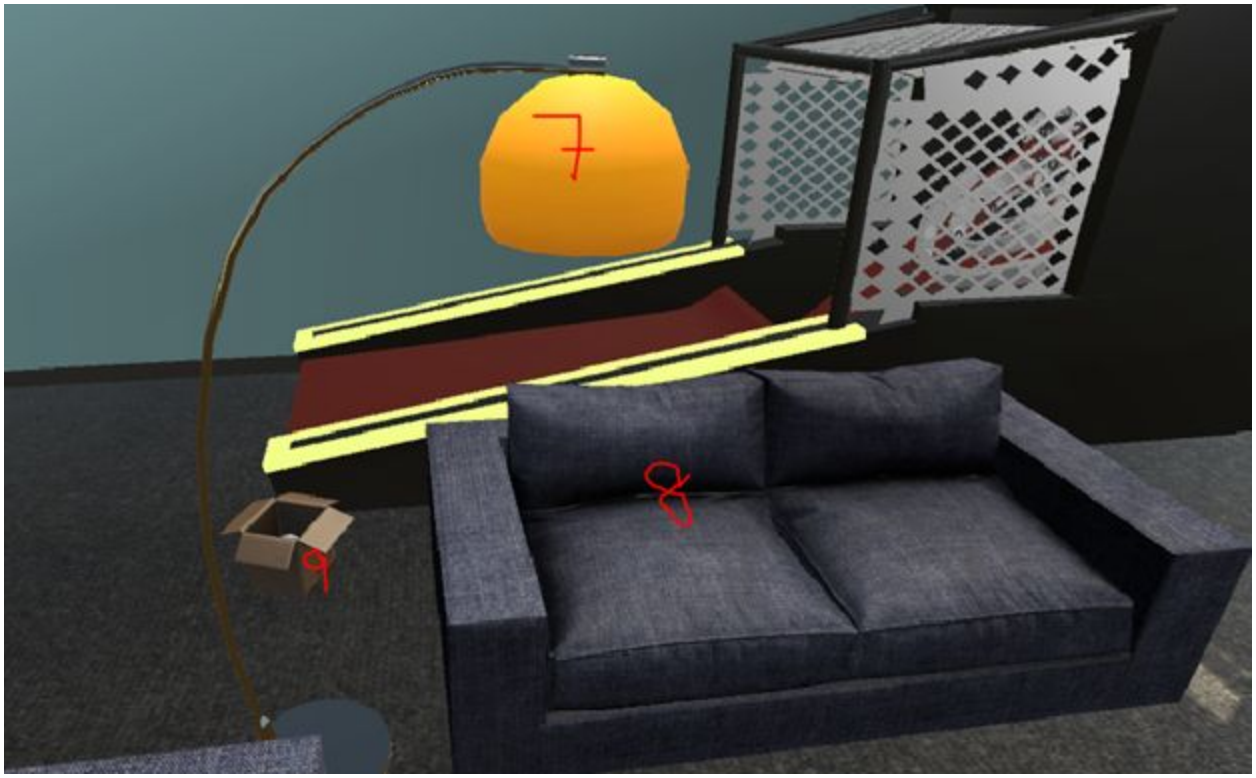
Objects:

1. Big Speakers – CUSTOM MADE
2. TV Screen + Game of Thrones Picture Plane – CUSTOM MADE(TV)
   a. Picture:
   http://www.geeksofdoom.com/GoD/img/2012/07/2012-07-14-game_of_thrones-e1467163504626.jpg
3. TV Stand – CUSTOM MADE

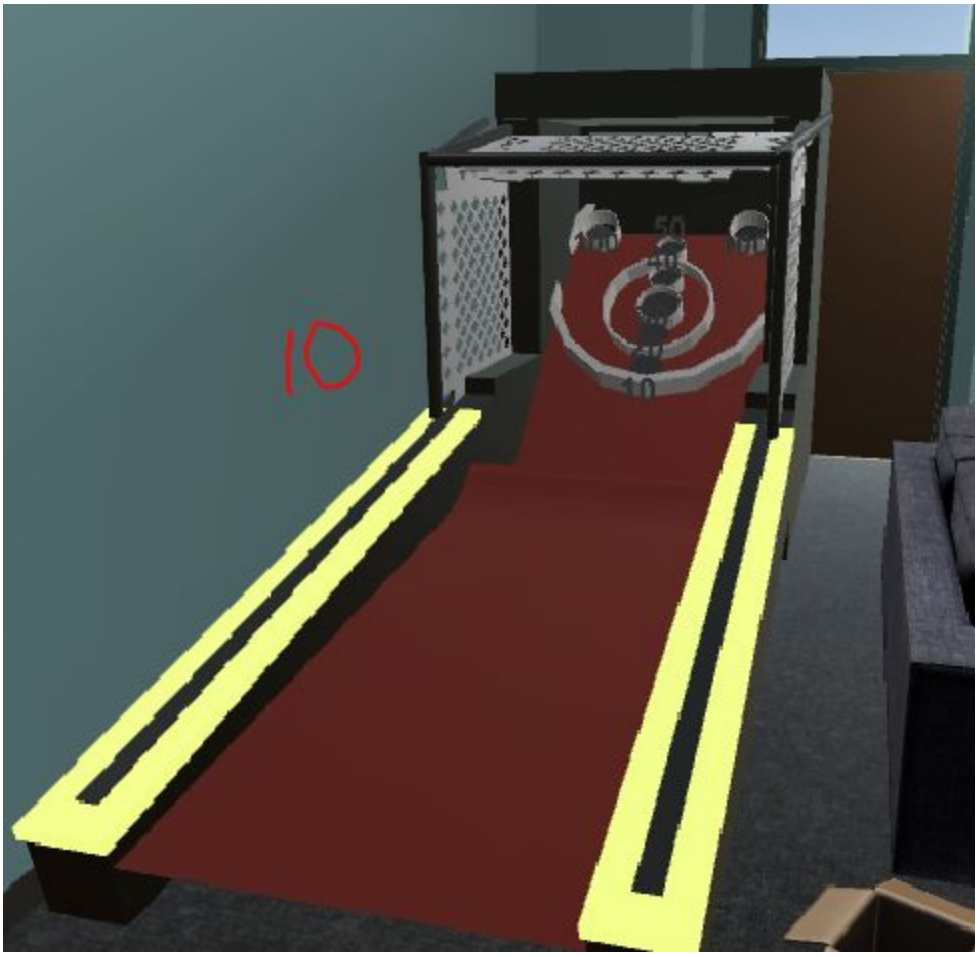
4. Mountain Dew Can:
http://www.domawe.net/2014/09/mountain-dew-code-red-soda-can-3d-model.html
5. Console Controller: https://free3d.com/3d-model/console-game-controller-68588.html
6. Coffee Table – CUSTOM MADE



7. Blue Sofa: ASSET STORE - http://u3d.as/aTe
8. Lamp: ASSET-STORE - http://u3d.as/o1r
9. Cardboard Box: ASSET-STORE - http://u3d.as/bNN

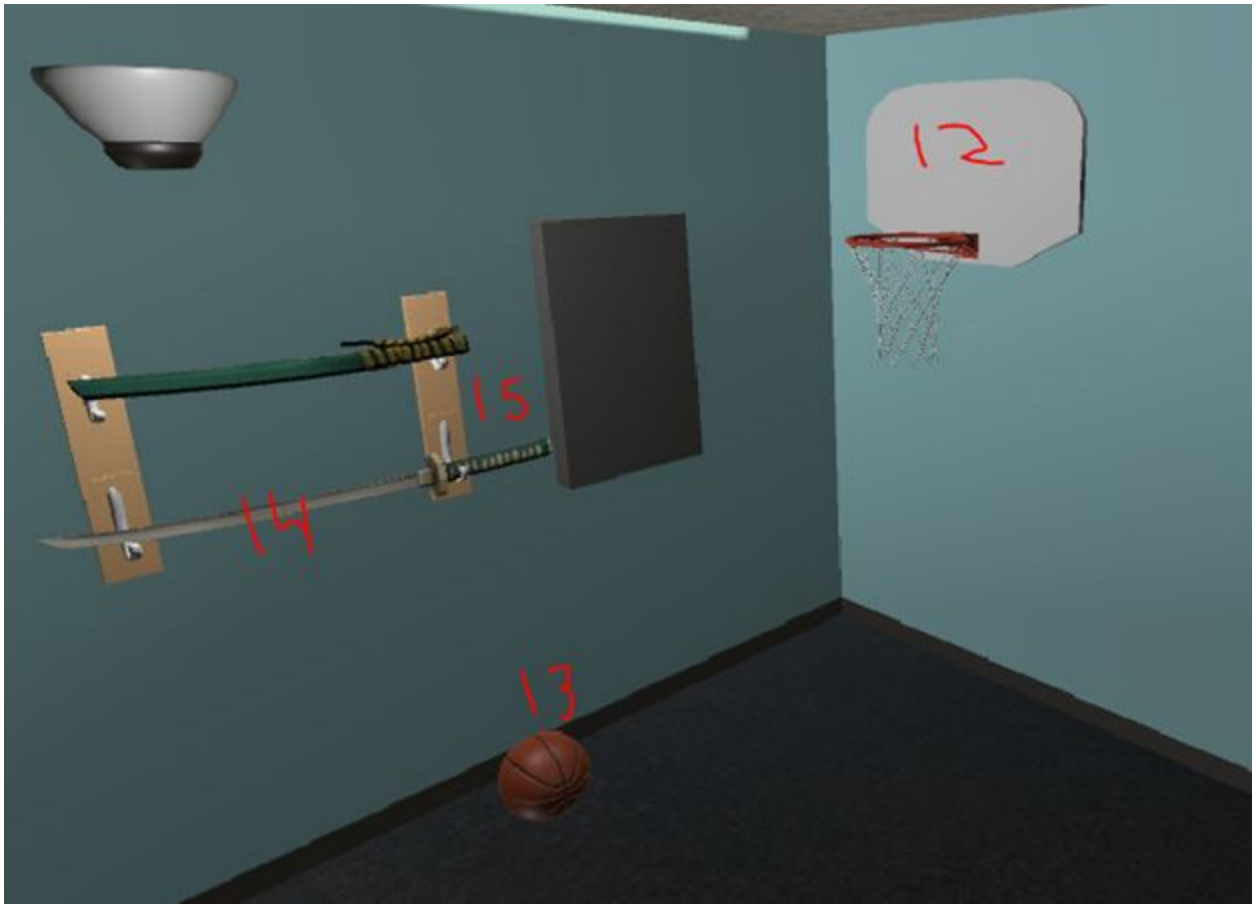


10. SkeeBall Machine – CUSTOM MADE (The nets were the only thing I got from somewhere but it was a long time ago so I forgot where)



11. Pile of Magazines: http://www.sweethome3d.com/freeModels.jsp

12. Basketball Hoop + Rim: https://resources.blogscopia.com/2014/10/27/basketball-net-and-board/
13. Basketball Ball: http://www.cadnav.com/3d-models/model-36224.html
14. Katana Sword + Sheath: ASSET-STORE: http://u3d.as/sTN
15. Hooks on Wall: CUSTOM MADE

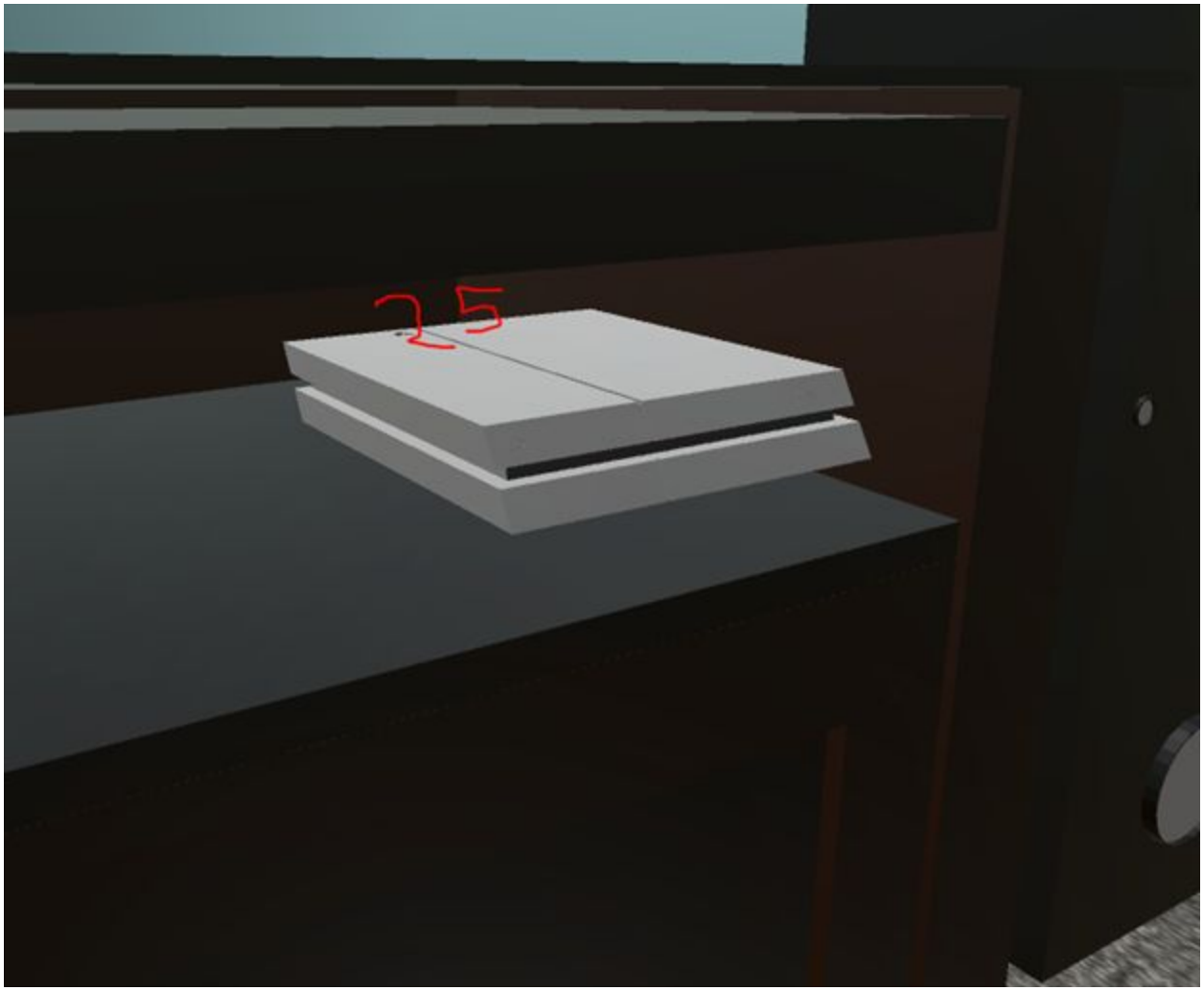


16. Greatsword: ASSET-STORE: http://u3d.as/sTN
17. Filing Cabinets: CUSTOM MADE

18. ASUS Monitors: https://sketchfab.com/models/f02cd4f9ef5746888ad93e6f92c9d28a#
19. Computer Mouse: https://sketchfab.com/models/e0bc8c1d5c8f4be0af37ea852d42d6d9#
20. Wireless Phone: https://www.sharecg.com/v/81027/view/5/3D-Model/Wireless-office-phone-Low-Poly
21. Office Chair: https://archive3d.net/?a=download&id=326f91c7
22. Printer: ASSET-STORE: http://u3d.as/3x4
23. Way of Kings Painting: https://www.tor.com/wp-content/uploads/2016/08/WoK-wallpaper-2560x1600.jpg

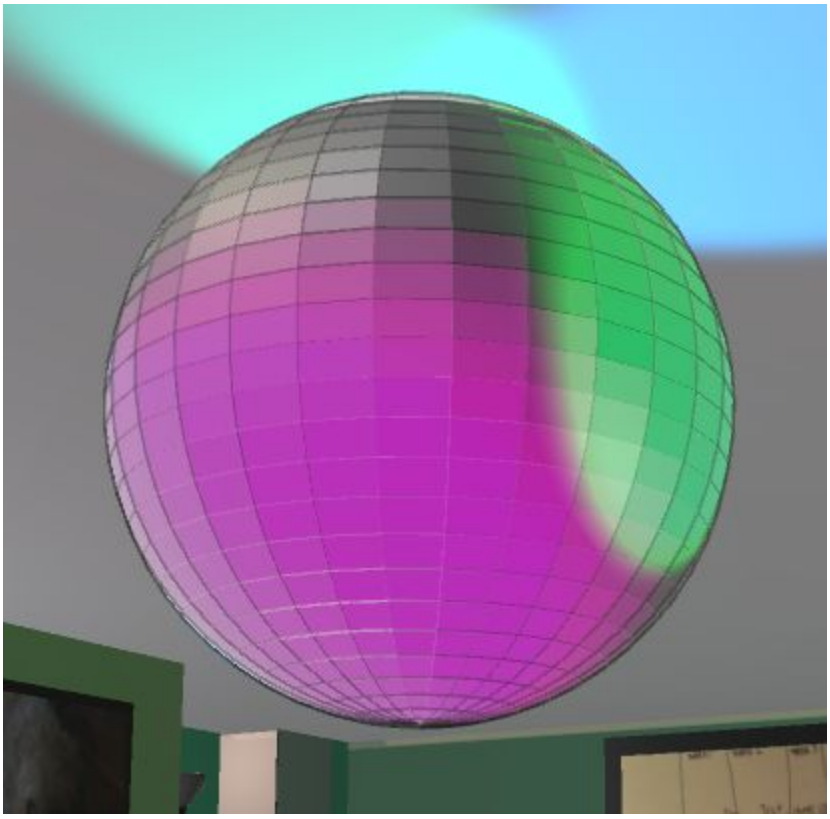
24. Stapler: CUSTOM MADE

25. Play Station 4 Console: https://sketchfab.com/models/7ce6e1c1b4694594a350ca798216ea2c



26. Pencils: ASSET-STORE: http://u3d.as/6h5

27. Disco Ball (https://sketchfab.com/models/e4c3b485680843c7a7a827d04ac28743) by araghon007(https://sketchfab.com/araghon007)



Disco ball with different colored lights reflecting off of it (this is a even that is triggered by the button by the desk)

(NOTE: Custom lighting gives the ball color, the ball is activated by the button with the smiley face on it, which is located under custom objects)

28. Keyboard by anila.shakya - https://sketchfab.com/models/a6e29b63ef5a4d239319c2e0d0ad0da3#

29. Desk Lamp by oscargb - https://sketchfab.com/models/e25b1bba8a9f4d5e9fa6ba7c936171fc#

Note: The lamp hangs over the monitor to give light to keyboard/ anything on the desk

30.Shoes (Vans) - https://free3d.com/3d-model/vans-74559.html

The shoes can be found in a shelf under the coat rack, which is next to the couch/whiteboard

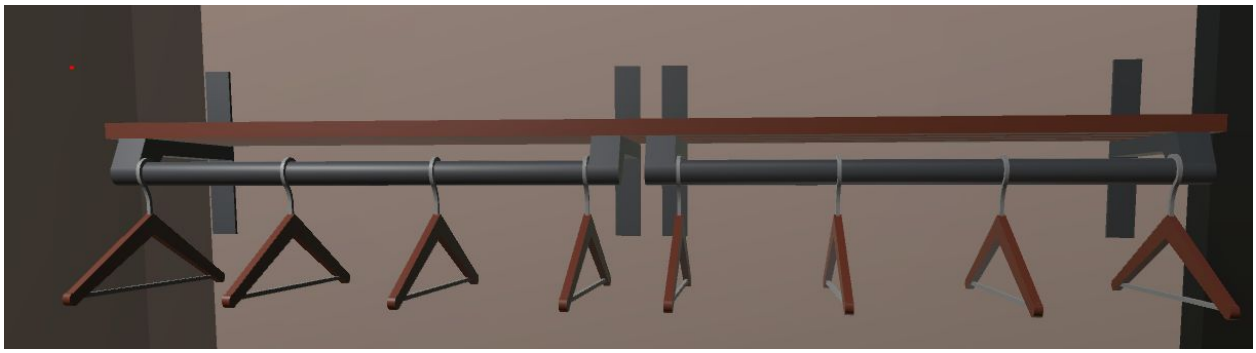
31.Old office props by Jake Sullivan https://www.assetstore.unity3d.com/en/#!/content/53735

32. Greek-style light fixture - http://ru.renderstuff.com/3d-model-svetilnika-nastennogo-grecheskom-stile-184/

33-34. Computer / Monitor - https://archive3d.net/?a=download&id=9422aaf7

The image on the screen is a screenshot taken during the development of the scene

35-36.Rack 3D Model by De Klerk Michel - https://archive3d.net/?a=download&id=28fceba0



The coat racks purpose is for when people come in they can leave their coats, and shoes in the shelf below , when it gets cold outside especially in Chicago.

37. Laptop by Dennis Haupt - https://free3d.com/3d-model/hp-laptop-high-poly--29640.html

The image on the screen is a screenshot taken during the development of the scene

38.Speakers by Tyro Smith - http://tf3dm.com/3d-model/stereo-speakers-v10-13099.html

39.Pizza - https://www.models-resource.com/pc_computer/deadpool/model/13917/

40-41.Small Plants by Kelibaum - https://www.assetstore.unity3d.com/en/#!/content/6930

First plant (left) is located on the desk, while the second plant (right) is located on the shelf that is behind the desk. The shelf in question has an EU flag hanging from it.

42-49.Big Furniture Pack by VertexStudios - https://www.assetstore.unity3d.com/en/#!/content/7717

Both couch and coffee table have been placed near the entrance and next to the kitchen area

The shelves on the left and right are two different shelf types

Big Furniture Pack cont.

Kitchen cupboards to store dishes/cups etc.

More cupboards, for more storage

Big Furniture Pack cont.

White vase for extra décor

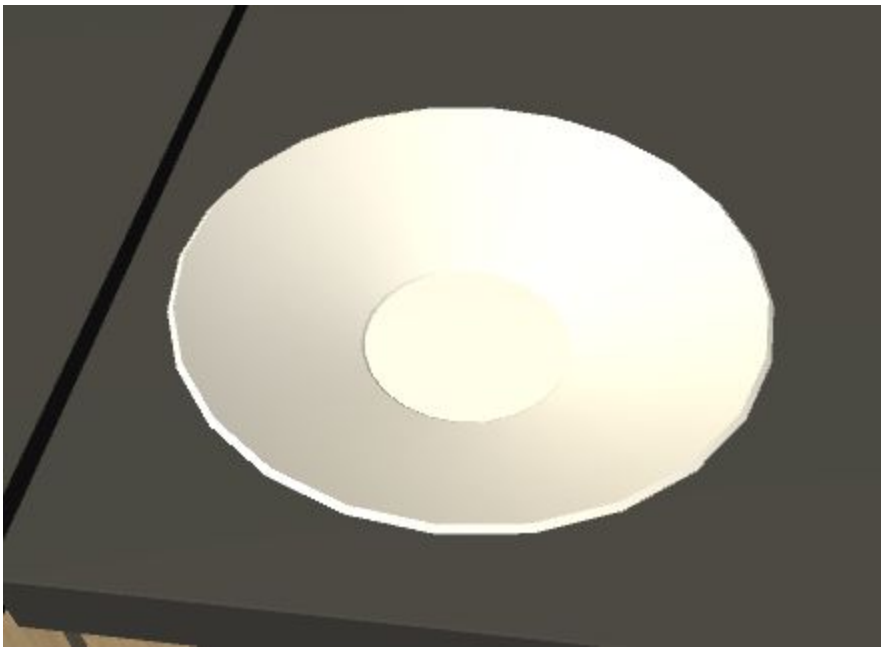
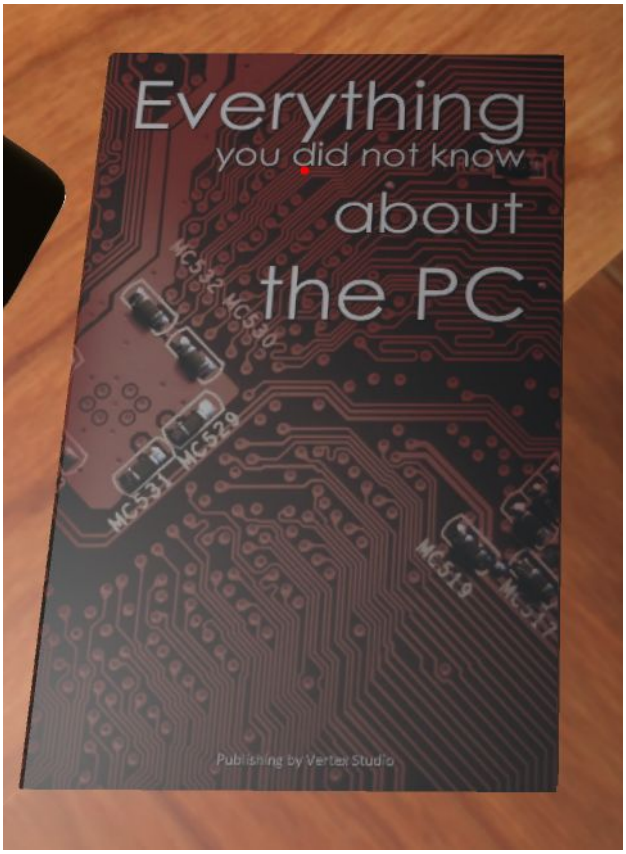


Plate for the pizza that's to the left of it

50. Books pack by by VertexStudios - https://www.assetstore.unity3d.com/en/#!/content/5484



51.Clock Free by Webcadabra - https://www.assetstore.unity3d.com/en/#!/content/44164

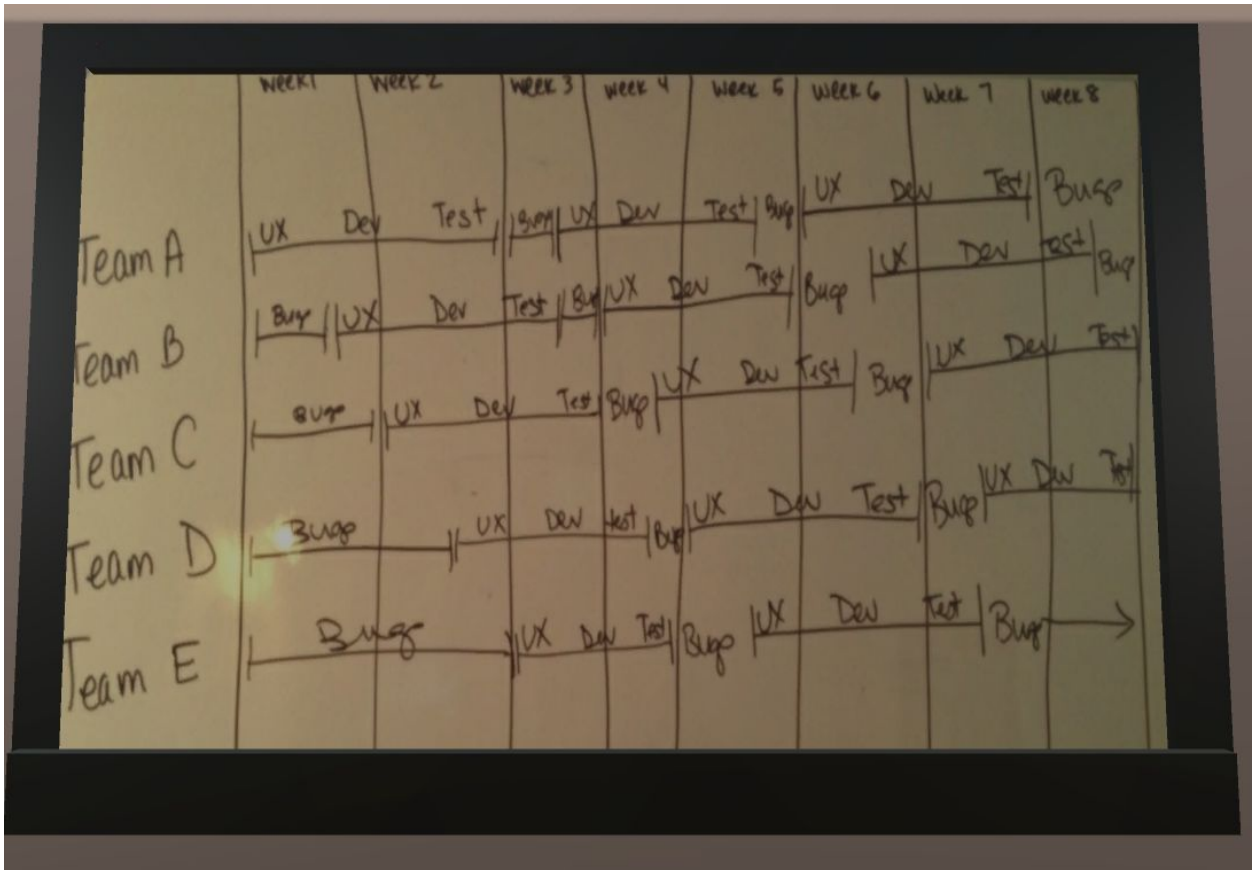
Note: It does appear that this clock gives off the correct time based on what time your computer says

52.EVL Mug

These mugs are a part of the scene that was provided to start with.

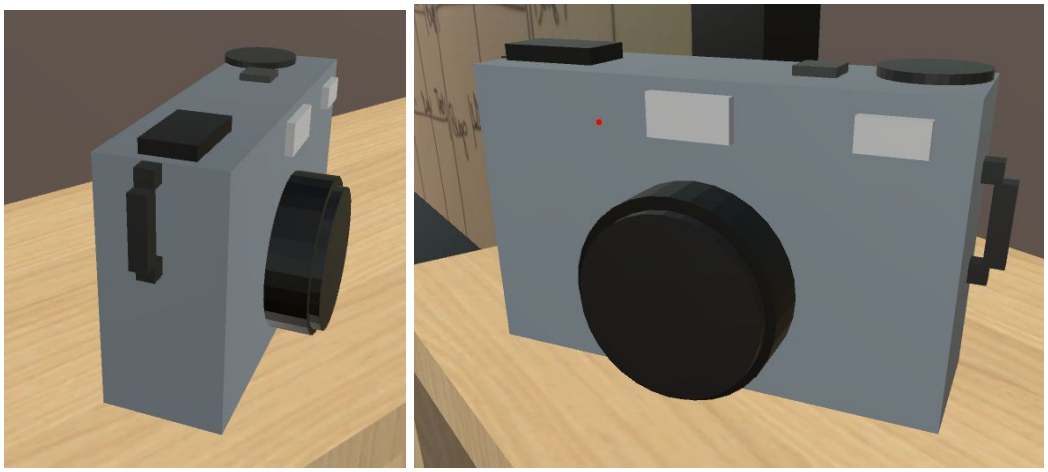
Custom objects by Bart:

53.Whiteboard (Blender) by Bart

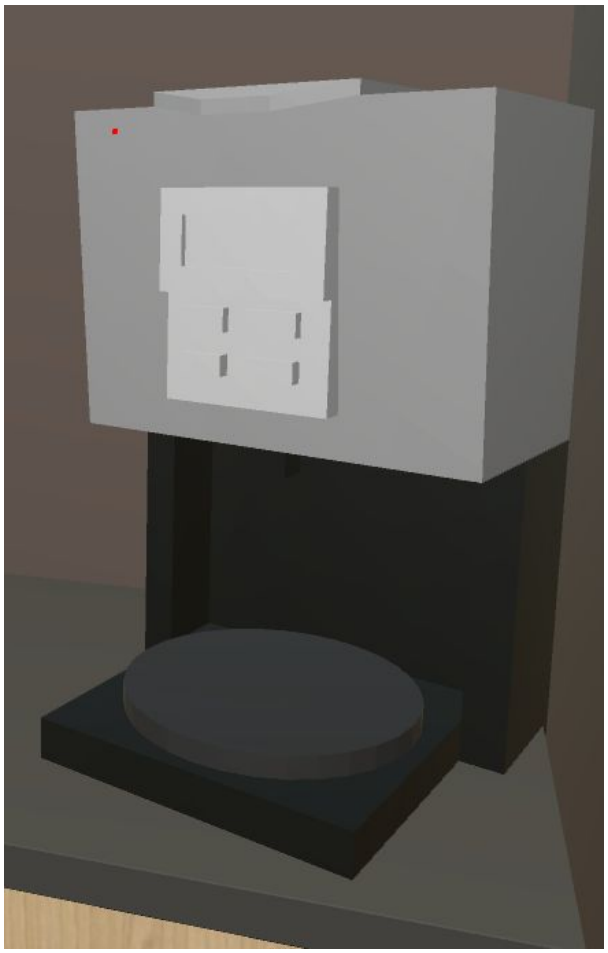


White board image - https://make.wordpress.org/core/2012/01/04/for-todays-dev-chat-a-whiteboard-for-reference/

54.Camera (Blender) by Bart



55.Coffee machine (Blender) by Bart



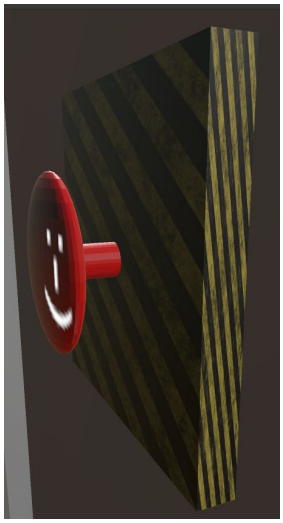
56.Flag + shelf (Unity) by Bart

European Flag - https://europa.eu/european-union/sites/europaeu/files/docs/body/flag_yellow_high.jpg

57.L Shaped Desk (Blender) by Bart

Wood texture - http://www.boiseriesmarengere.ca/upload/userfiles/images/Cerisier.jpg

58.Button (Blender) by Bart

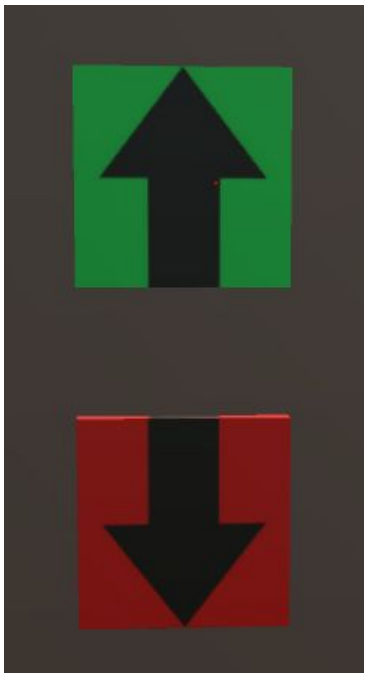


Hazard lines texture - https://thumbs.dreamstime.com/t/black-yellow-warning-stripes-grunge-37649986.jpg

59.Dog framed picture (Unity) –

Credit: Bart's Dog (Oscar)

60.Light switches (up and down)

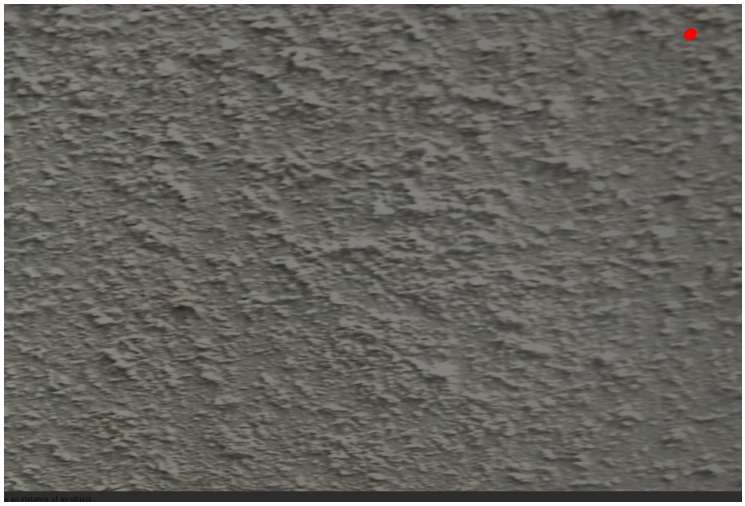


Arrow texture - http://img.freepik.com/free-icon/right-arrow_318-113460.jpg?size=338c&ext=jpg
(colors have been added inside of unity)

Other:

Carpet floors -http://www.sharecg.com/images/original/2525.jpg from http://carpet.vidalondon.net/carpet-texture/

Ceiling - https://fthmb.tqn.com/m_tZq3Z9e_jRFVEQOSxtPTxnyTE=/1836x876/filters:no_upscale()/about/Popcorn-Ceiling-Texture-56a4a16e5f9b58b7d0d7e648.jpg



Comparing navigation using teleportation and wand-based navigation:

In this project, we experimented with the two primary methods of navigation of the HTC VIVE - teleportation and want-based navigation. After getting accustomed to both methods, we felt that each had its positives and negatives.

When you're using wand based navigation, you have much finer controls and it seems much more natural when compared to the teleporting method. This method feels - if done right - as if you're walking around the virtual room like you would normally walk in a regular room. Want-based navigation felt like the more 'scenic' route and it encouraged for exploration around the room. Although this method felt more natural, we did have to do execute it perfectly for it to actually feel that way - the wand navigation allowed flight, so we had to be really careful not to fly off the ground or through the floor. Since we can't look down and see our feet attached to the floor, this feature made it hard for us to tell whether we were actually at normal height or if we were flying.

Unlike the wand based navigation, the teleportation method felt like it was more direct. It felt more like a pick and choose method in the sense that we would look around in our current location and pick a spot to go to which we found interesting - it discouraged exploration. On the other hand, this method did allow for much faster travel which could be extremely useful for certain situations. For example, if we had a big open world and we wanted to go from one location to another which is extremely far, and we were going for efficiency, we would not want to 'walk' via wand navigation - we would use the teleport method.

How the virtual room 'feels' to you compared to the actual room

The overall room feels to scale, as the floor/ceiling/walls are the same as they were when we started out. The objects feel correct in scale, as the size of all the objects seems inline of what they should be when compared to real life. The best objects that we are able to compare ourselves to are pretty much all the objects that we were able to pick up. Such as books, keyboards, mice, cans, video game controllers, etc. When picking up these items, we have a direct reference to the real world since the vive controllers we are holding , in the physical world and virtual world, at the time of interacting with these objects give us that sense of scale.

On the other hand, we had some objects which were hard to recreate and still maintain functionality. One such example is having tiny buttons such as light switches. In the real world, our fingers have a lot of dexterity and precision, while in the virtual room, we are more or less using our entire hand to interact with objects. For this reason, we had to make our buttons big so that we would be able to interact with them and not interfere with neighbouring objects or spend too much time trying to precisely hit a small box. Another example of something that was hard to recreate was text on books which was readable. Since we are only limited to so many pixels and on the quality of the textures we were using, we felt it would be really hard to be able to reproduce any sort of high quality reading material, which led to blurry text on some books when viewed from close up.