Project Deliverable G

Prototype 2 and Customer Feedback

Group 4

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Introduction

In this deliverable we are creating the second prototype of our organic chemistry VR game. This prototype will be complete when our test objectives are completed and our team has a new version of the game that the user can play. This deliverable will outline the creation of the prototype and the process of testing it. To develop this prototype will be using the results that were gained from our last prototype, from that we gained a solid base for most aspects of the final game that has the core functions needed to meet the clients needs. Testing the prototype reduces the risks of having technical issues with the VR in the future and ensures that the clients expectations are met before delivering the final outcome.

Test Objectives Description

1. What are the specific test objectives?

   In the second prototype of our VR game, our specific test objectives are to improve the molecules' movement, add introduction scene and transition (this is how we will be describing the learning outcomes throughout the game to the user), improve the teleporting functionality throughout the levels of the game, improve the appearances of the levels in the game, add the microscopic level into the game, ad develop specific quiz questions that the user will be asked to advance throughout the game.

2. What exactly is being learned or communicated with the prototype?

   In this second prototype our team is learning how to improve the base of our game that was created in the first prototype in order to achieve specific test objectives. In the last prototype we had a user test the game and provide feedback on what needs to be improved, from this information we learnt that we need to improve user functionality more than anything. That is the reason that user mobility in the game and appearance are the priority for this prototype. In this prototype, we are going to ask a user to test the game and evaluate it again to verify the changes made and to help us predict what the final prototype of the game will entail in order to make the final product a success.

3. What are the possible types of results?

   The purpose of evaluating our prototype is to help the team make more informed decisions in the future that will improve the quality of future prototypes and the final design. Therefore the possible types of results that the team is expecting are qualitative opinions made from members of our team as well as test users.

4. How will these results be used to make decisions or select concepts?

   The results of testing our second prototype will guide our team into creating a better final prototype now that we have completed and refined the environment. From working on the first prototype and gathering information of what worked well and what didn't work well, we can make decisions better in this prototype and have better ideas for timing for the team gantt chart in the third prototype. After we gather user opinionated results we will implement their needs into the game as well.

5. What are the criteria for test success or failure?

   The testing of this prototype is very qualitative and is submissive to each user testing the VR. Success for this prototype is to have a refined environment and start building the microscopic level molecules, as well as their movement..

What is Going on and How is it Being Done?

1. Describe the prototype type and the reason for the selection of this type.
   The prototype two that our team has created is a comprehensive and physical prototype of our final project. It is comprehensive because we are improving the basis of each element of the project (ie. the environment, game levels, molecular molecules, ect.) that was created in the last prototype, so that we can improve existing elements in future prototypes. The prototype is a physical prototype because it is a tangible approximation of the final project.

2. What information is being measured?
   Qualitative data is being measured subjective to the user testing the prototype. Aspects of this prototype that are being tested are the ease of use, overall appearance of the environment, ease of mobility, and the transitions between levels.

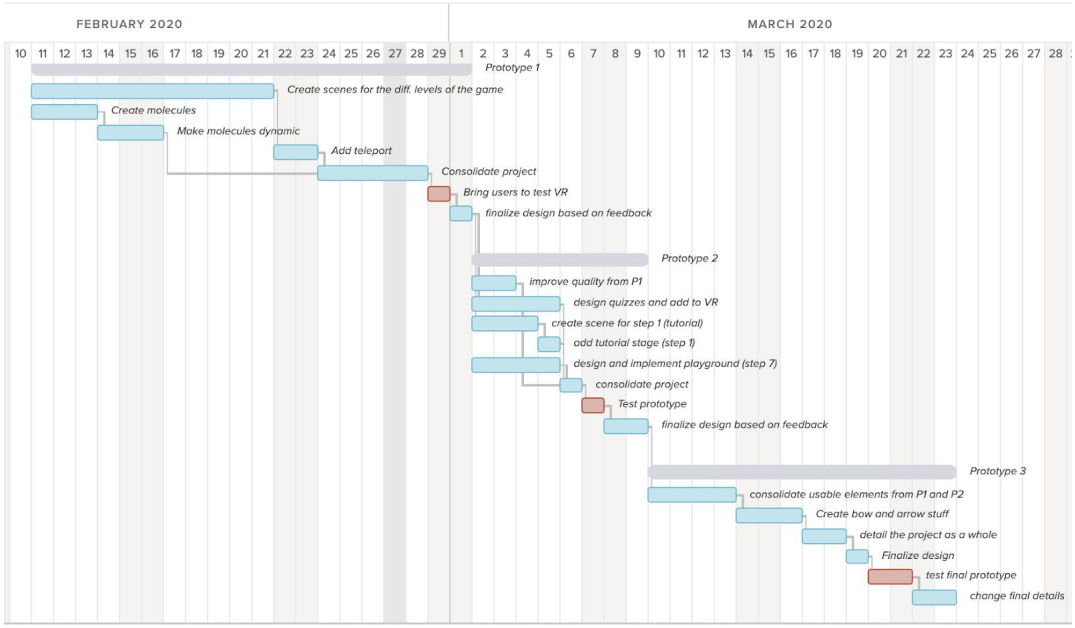
3. What is being observed and recorded?
   The user testing the prototype will rate each aspect of the VR and verbal provide insight to our team on what needs to be improved in future prototypes.

4. What materials are required and what is the approximate estimated cost?
   In this second prototype, the team did not spend anymore of our budget. We are still only working with free assets as well as the one purchased assets, the map designer, that was twenty dollars in cost.

5. What work needs to be done?
   In the next prototype our team needs to add the phenolphthalein to the microscopic levels of the game, implement the quizzes and figure out how to “block off” doors, and create a map that allows the user to teleport between the different levels. For prototype 3 we also need to finalize small details in the game to perfect it.

When is it Happening?

1. How long will the test take and what are the dependencies?
   The user testing will take as long as it takes to finish the game, meaning the user will have to complete each level and successfully understand the learning outcomes. This will depend on how well the user understands the learning outcomes and how much time they take to simply explore the environment. In order to perform the test, the VR equipment must be set up, calibrated and have the boundaries of the room determined, and then run the prototype.
2. A separate test planning Ganntt chart can be created to help making sure that the testing fits with the overall project schedule

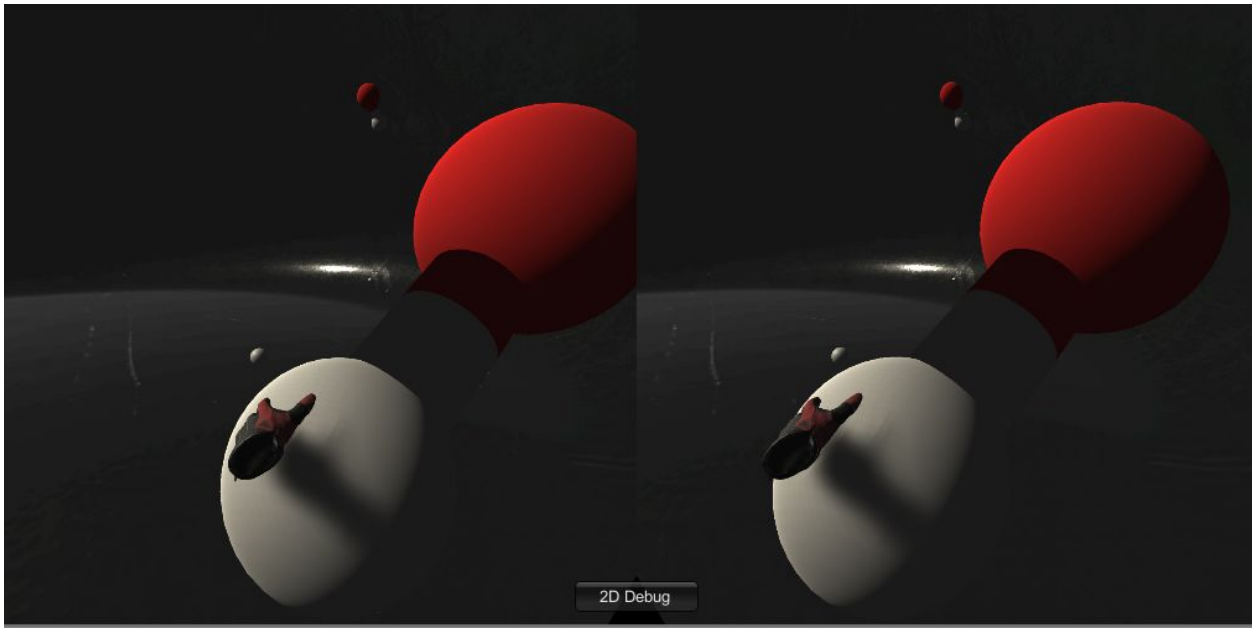


3. When are the results required? And what depends on the results of this test in the project plan

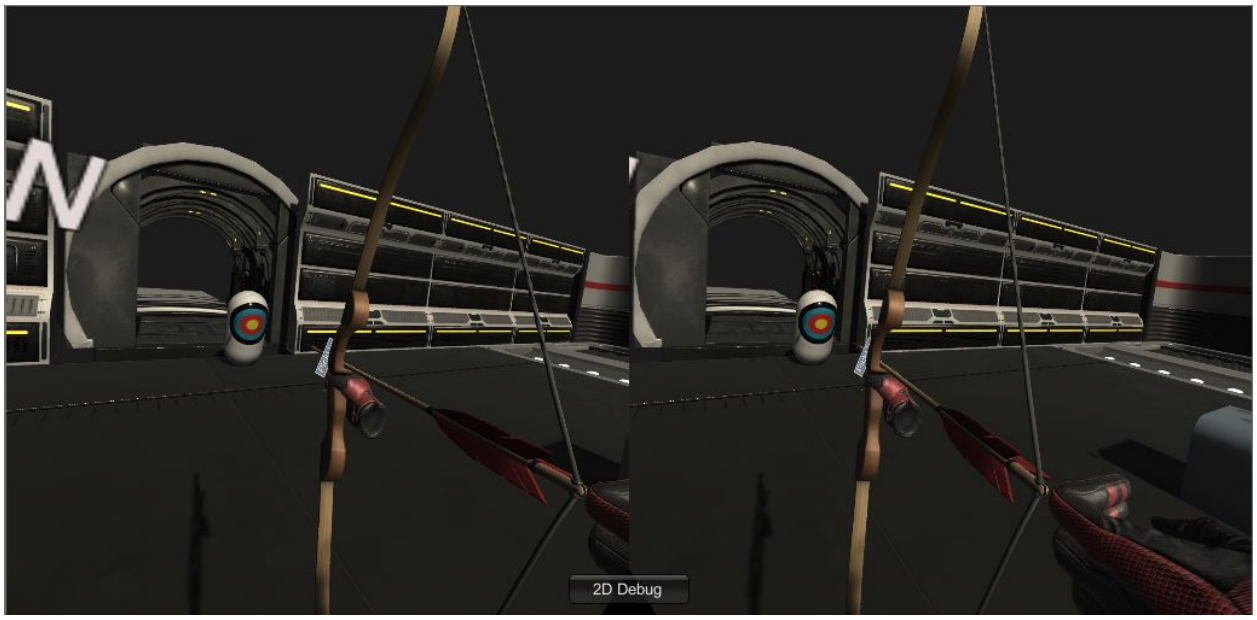
The results of the user testing of our game are obtained immediately after they complete giving the feedback. Modifications of the project will be made according to the feedback received so that the quality of the game can be improved for the second prototype.

Our Prototype

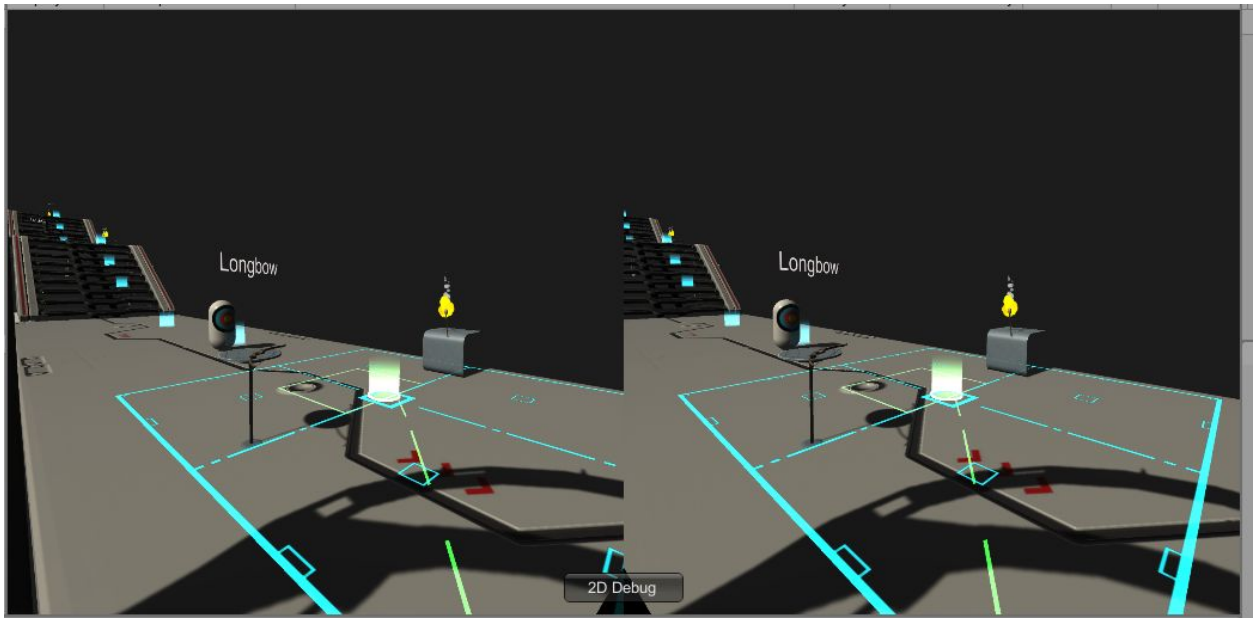
The following image shows the users ability to grab a moving hydroxide and rotate it in the microscopic level.



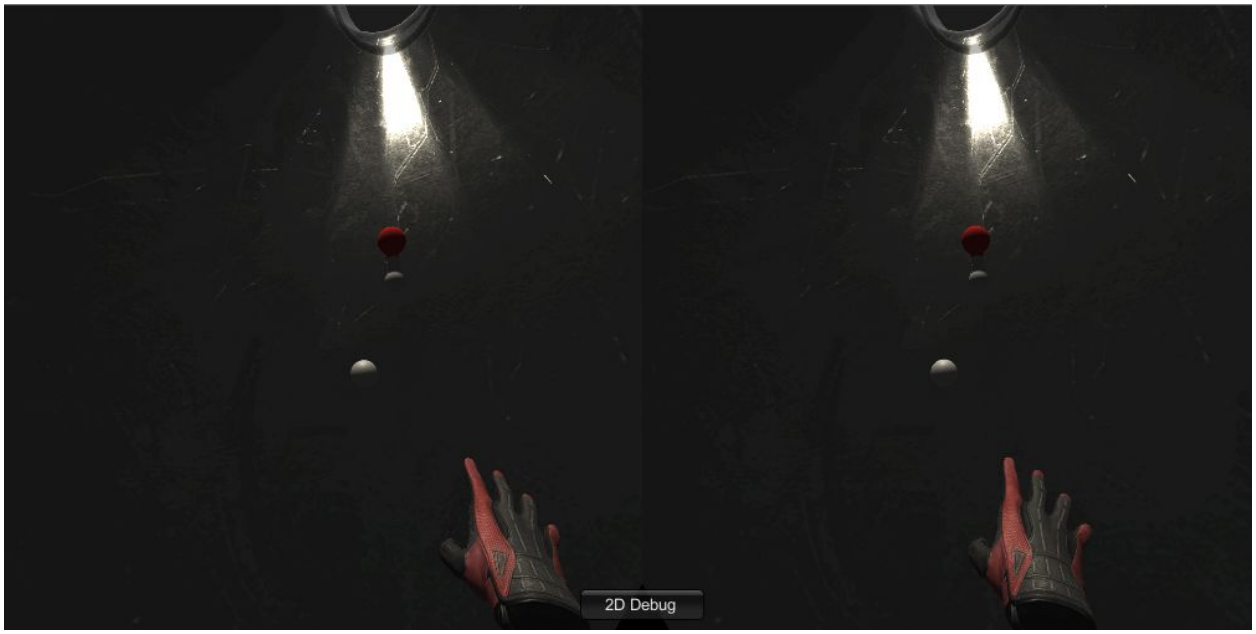
The following image shows the user's ability to grab a bow and arrow and shoot a target. In the third prototype the user will shoot at a quiz answer they think is correct in order to move onto the next level of the game.



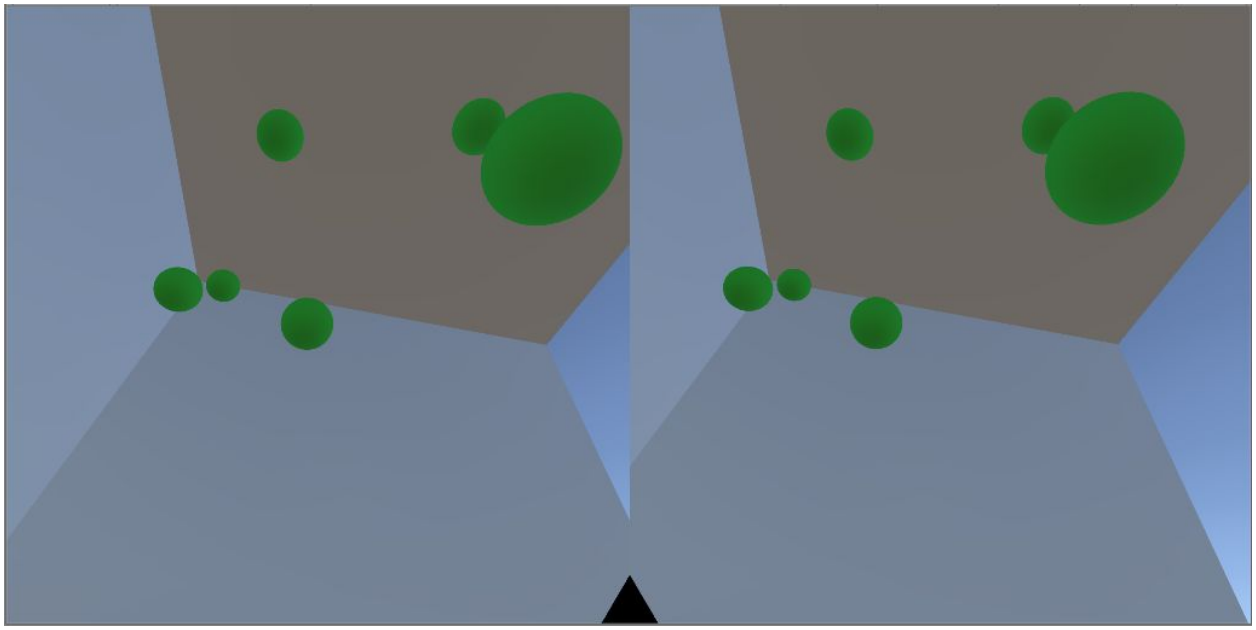
The following image shows how the user teleporting works. A user can move and teleport in the same plane however they would like. The blue circles are teleport points that the user can use to climb the stairs on different planes.



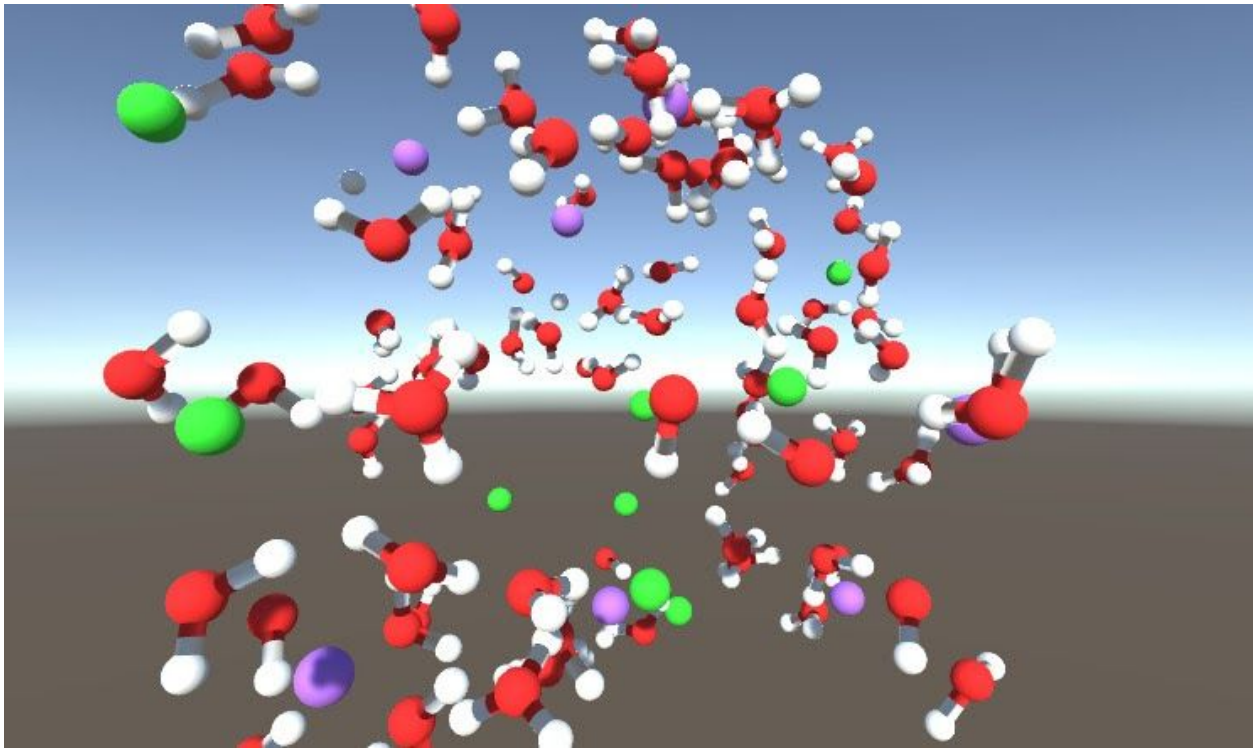
The following demo shows the user in the microscopic level (in the beaker) throwing molecules. This is another demonstration of how the user can interact with their surroundings on the microscopic level.



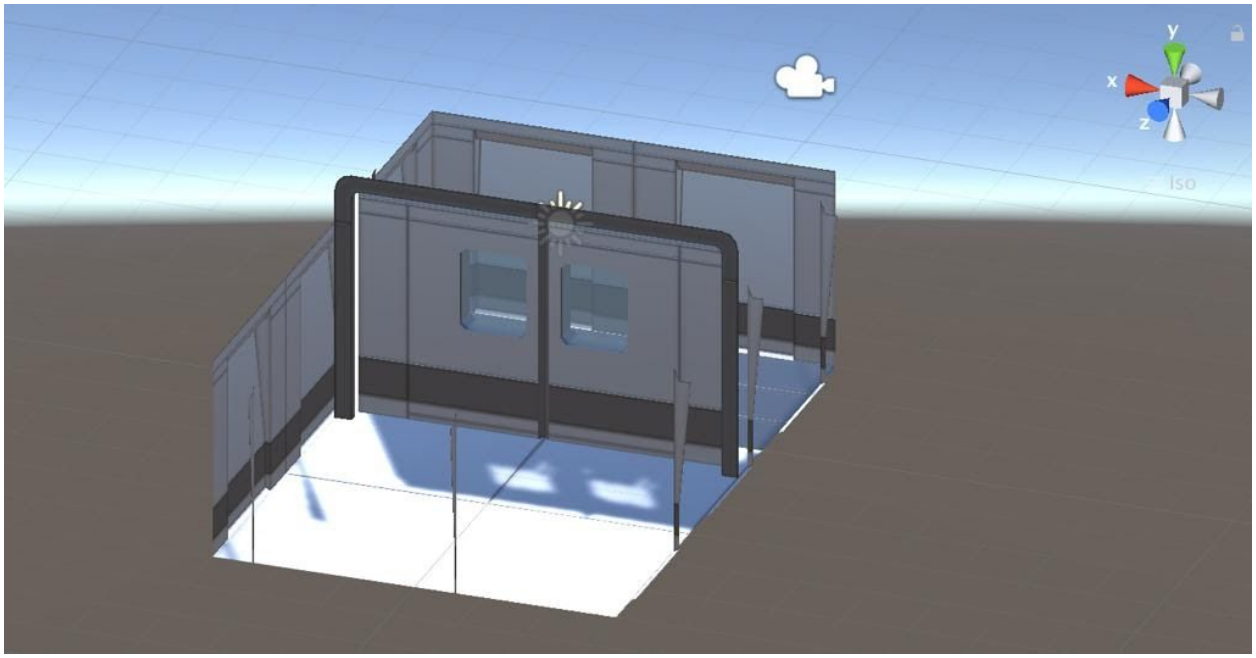
The following image shows a demo of how we will make the molecules in the microscopic level move around and vibrate randomly.



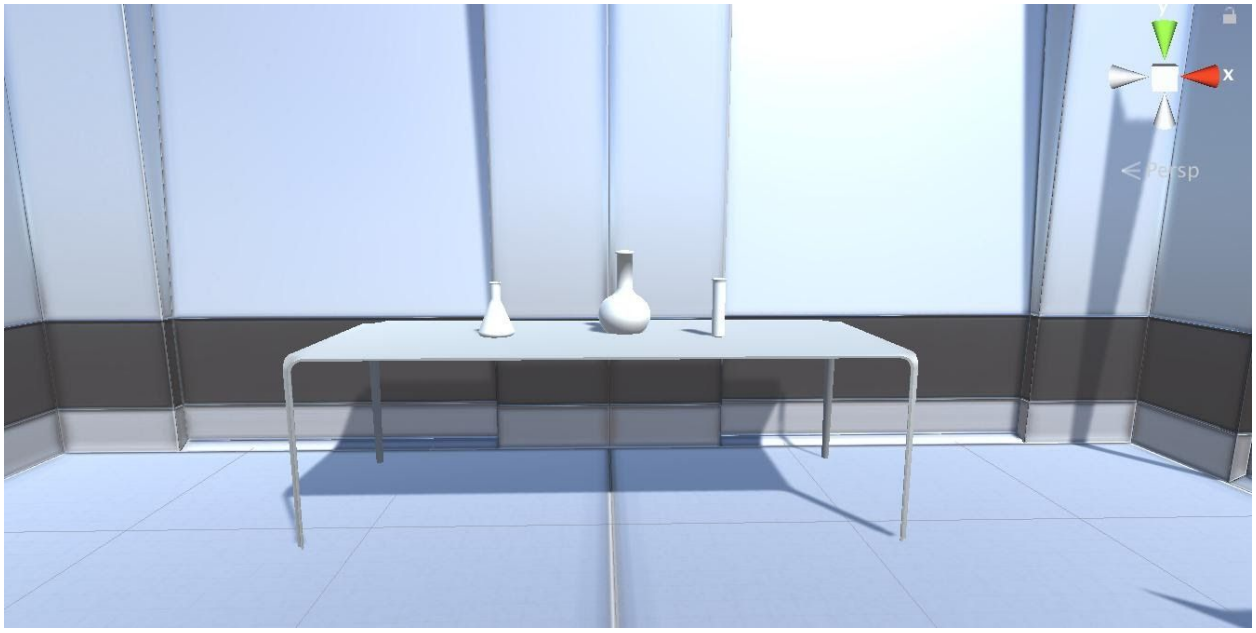
The following image shows a cluster of molecules found in the microscopic level that can move around and rotate randomly. This is a demo and will be implemented into the game in prototype three



In the following image is the demo of the introductory room of the game that will go through the instructions on how to play the game.



The following image is taken from inside of the introductory room and allows the user to get familiar with how to pick up and use apparatus/objects in the game.



Conclusion

After developing and testing the second prototype of our VR game, we were able to determine what had to be modified to improve the overall quality and user experience, as well as ensure that the learning outcome was understood. The significance of testing the prototype is that it reduces the risks of having technical issues with the VR as well as ensuring that the client's expectations are met before delivering the final outcome. From creating the second prototype, we have a solid and mostly refind base of the final product that has the core functions needed to meet the client's needs. It provides a foundation of the microscopic level of the game that will be greatly improved and refined in prototype three.