

VR Design - Project Documentation

Introduction

This document describes how I develop a project named Puzzler which consist in a game where the application suggest a sequence for the player (the VR users) to follow and execute. In order for the user to win the game, the correct sequence needs to be executed.

In this document it is also described how the project was created from just the requirements to the sketches, from user test to actual final implementation.

About Puzzler

At the beginning of the project the requirements were that a game based on Simon Says logic needs to be defined where the application will suggest a sequence to complete and will notify the user whether this was successfully completed or not. It will also let the user to play again if he/she chooses to.

As part of this project, a new Unity project was created from scratch, importing only a few elements from templates and scripts.

The following link shows how the project works after the development was completed.

<https://youtu.be/NJ8CFIhz1lw>

A few screenshots about the game:



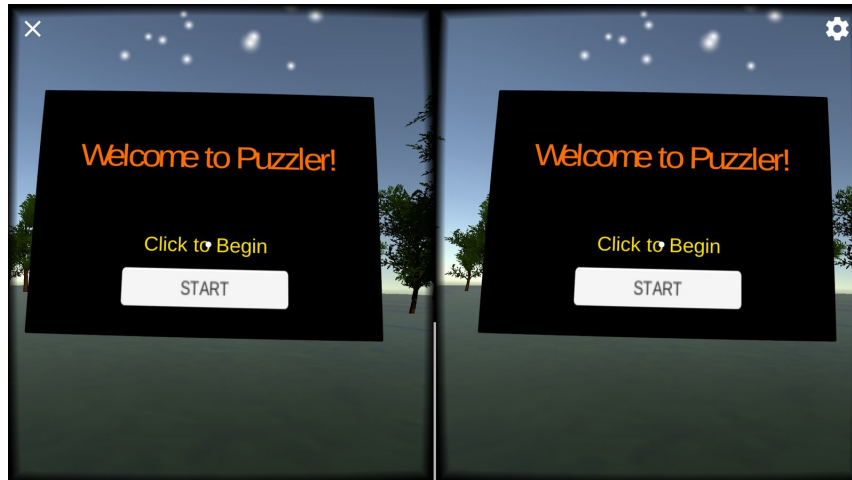
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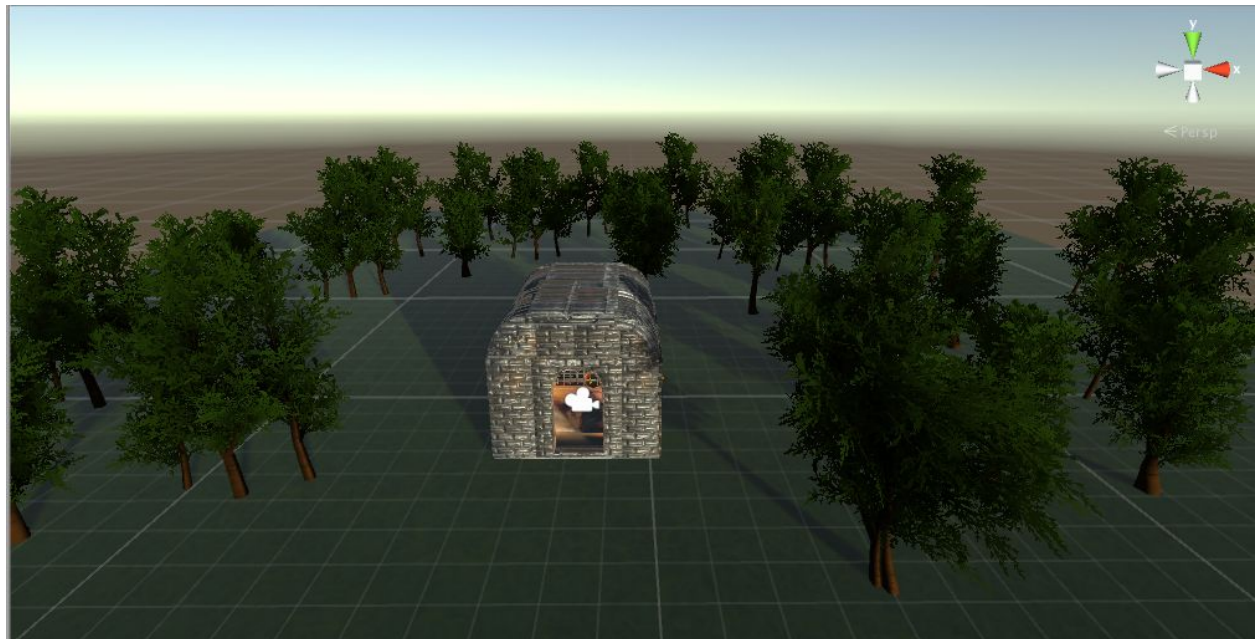
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Initial Screen after the game is started



The warehouse in the middle of a forest





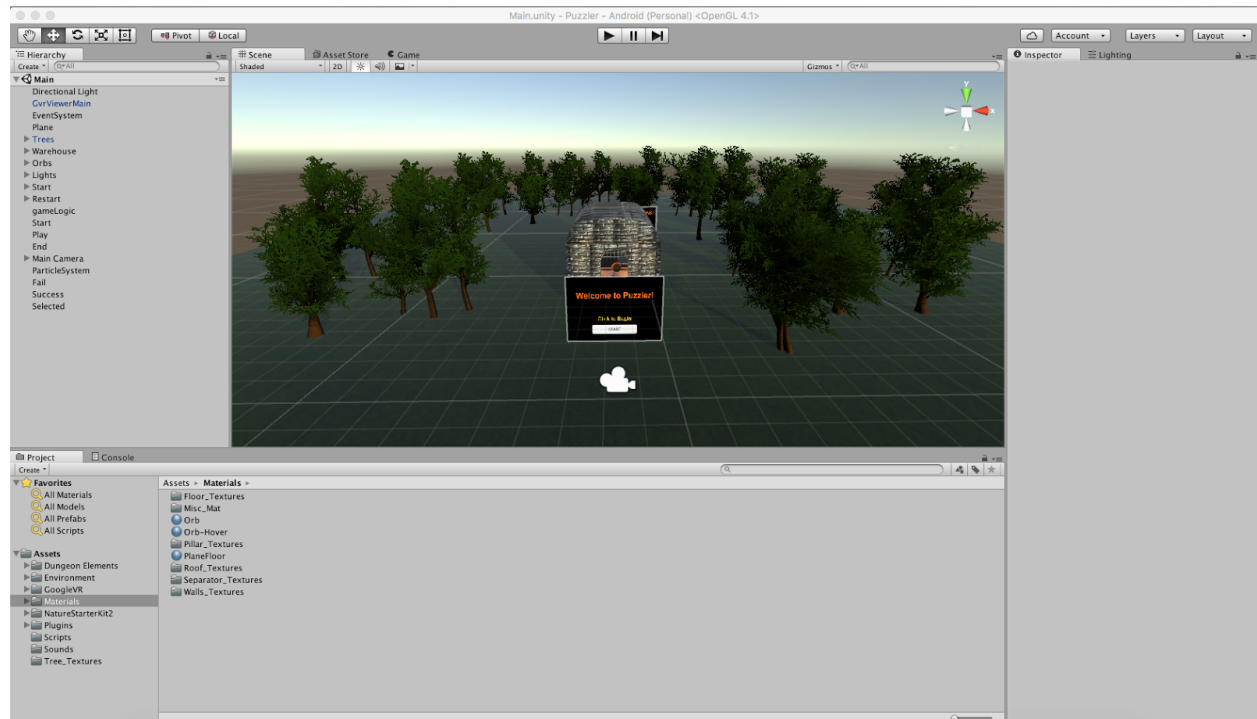
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The project inside the development environment





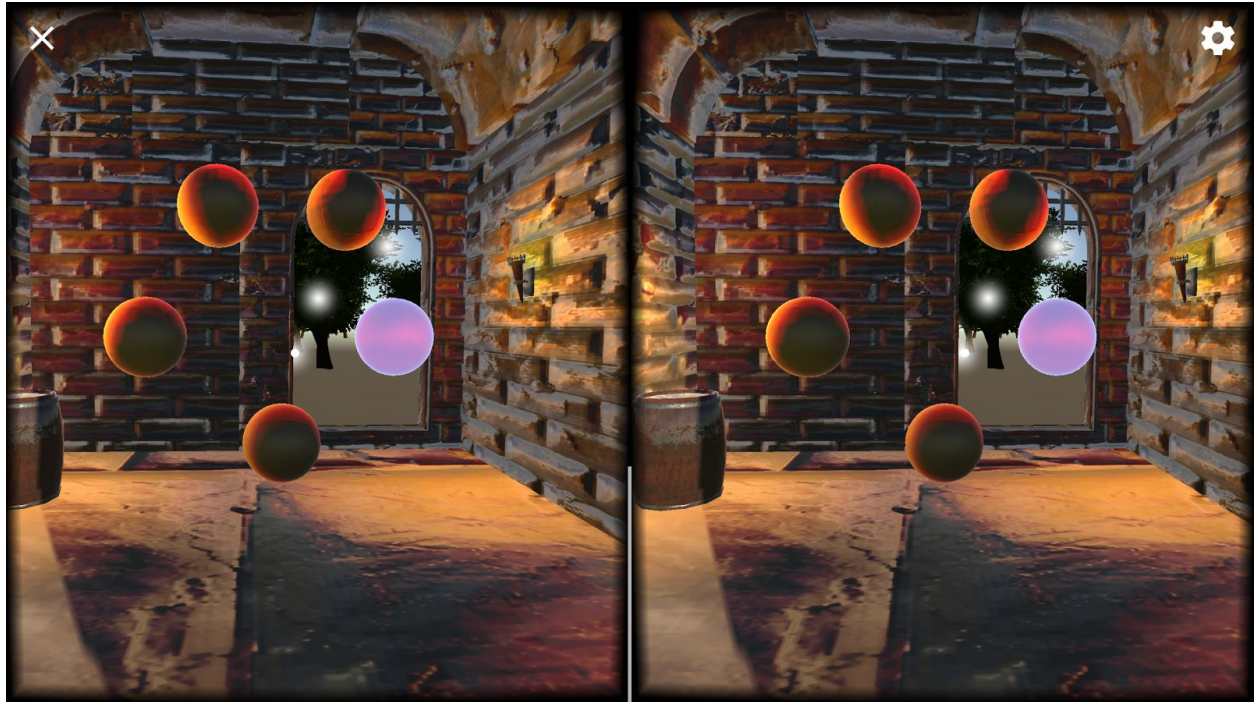
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The interior of the warehouse where the game occurs



The game view for the warehouse interior.





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Story of the Process

To develop this project, a persona was defined, sketches were prepared and each step was validated using user testing.

Persona

Everything started with defining which the target audience of this app. In my case, the audience is children that loves playing video consoles and enjoy technology.

Here is the persona I defined:

Persona



Name: Lucía, 7 - Student.

Lucía is my 7-year-old daughter who just finished her 1st year of scholarship in primary school. During this year she also learned how to read music, play the piano, ride horses and play games simple VR games (collaborative or FP). She spend her days learning new things which includes playing around with the VR gadgets I have and she is eager to learn about the more advanced virtual experiences like the ones available for AR and Mixed Reality.

VR Experience: Games & Educational Apps.

Statement of purpose

Puzzler is a VR Application which is oriented to joggle your memory by letting you repeat the same sequence the game play first. The more you play the game the better it gets.

Sketches

After receiving the initial requirements the following sketches were defined.



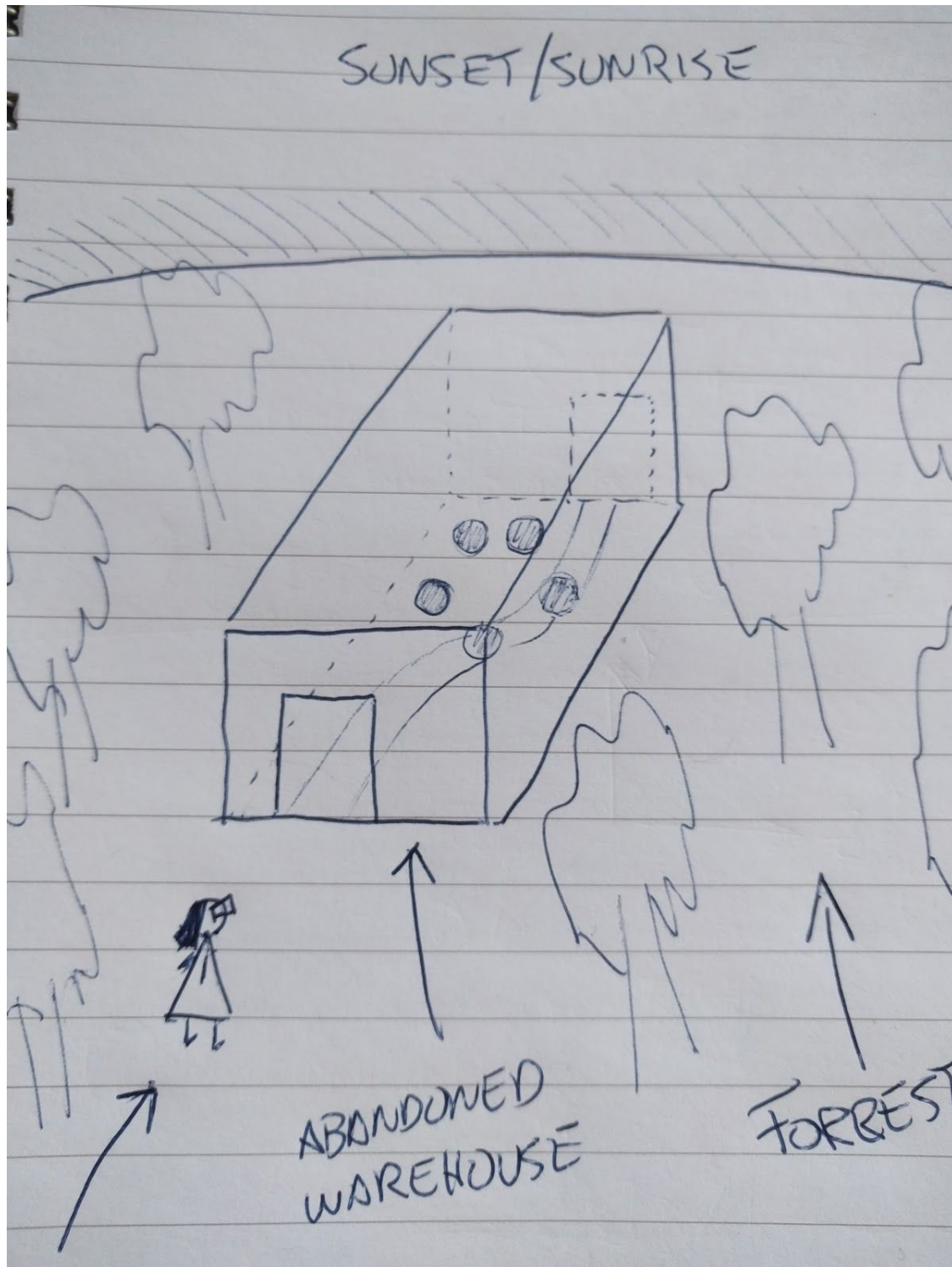
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1) The scene



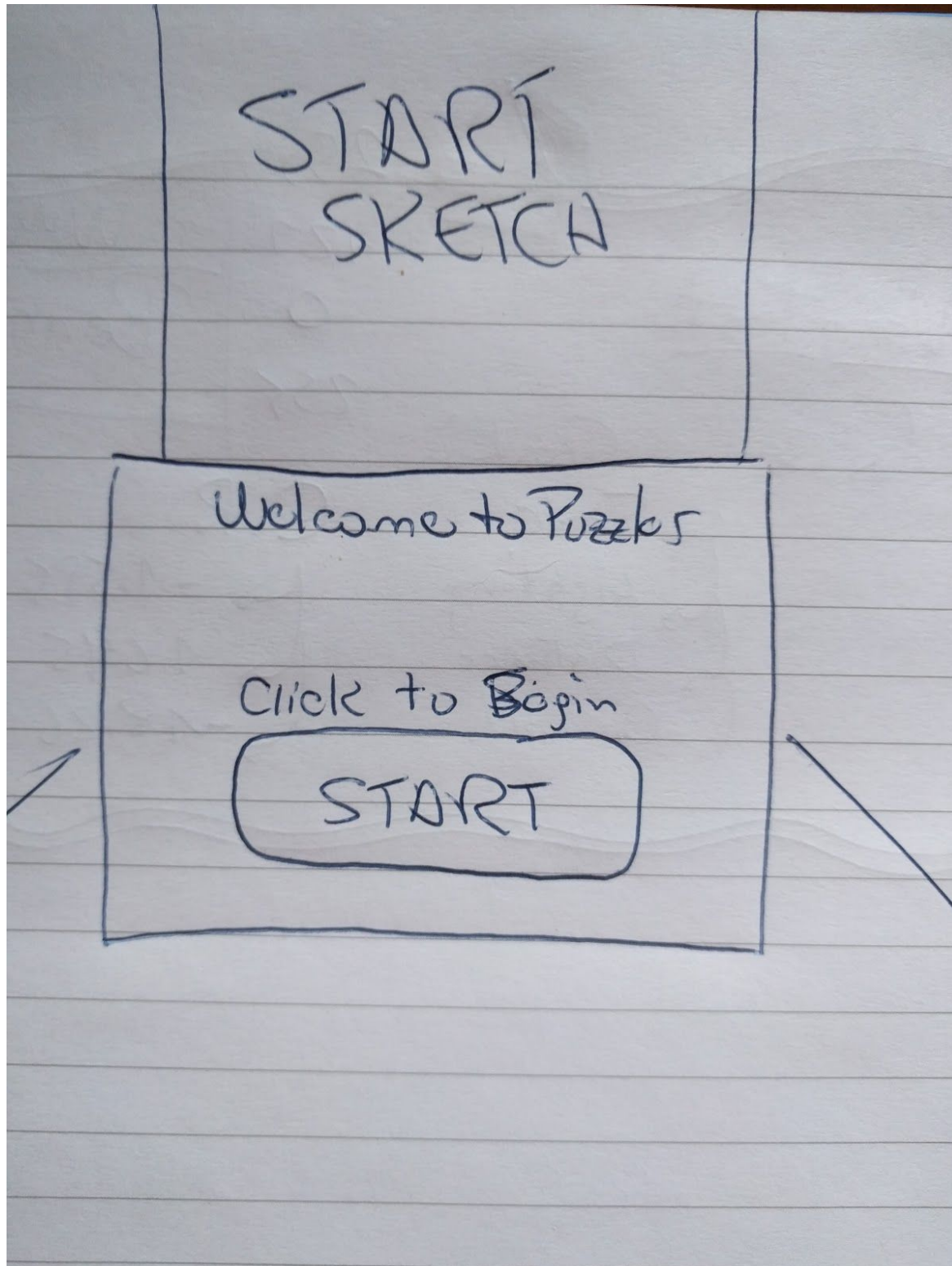


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2) The panel to be displayed at the beginning



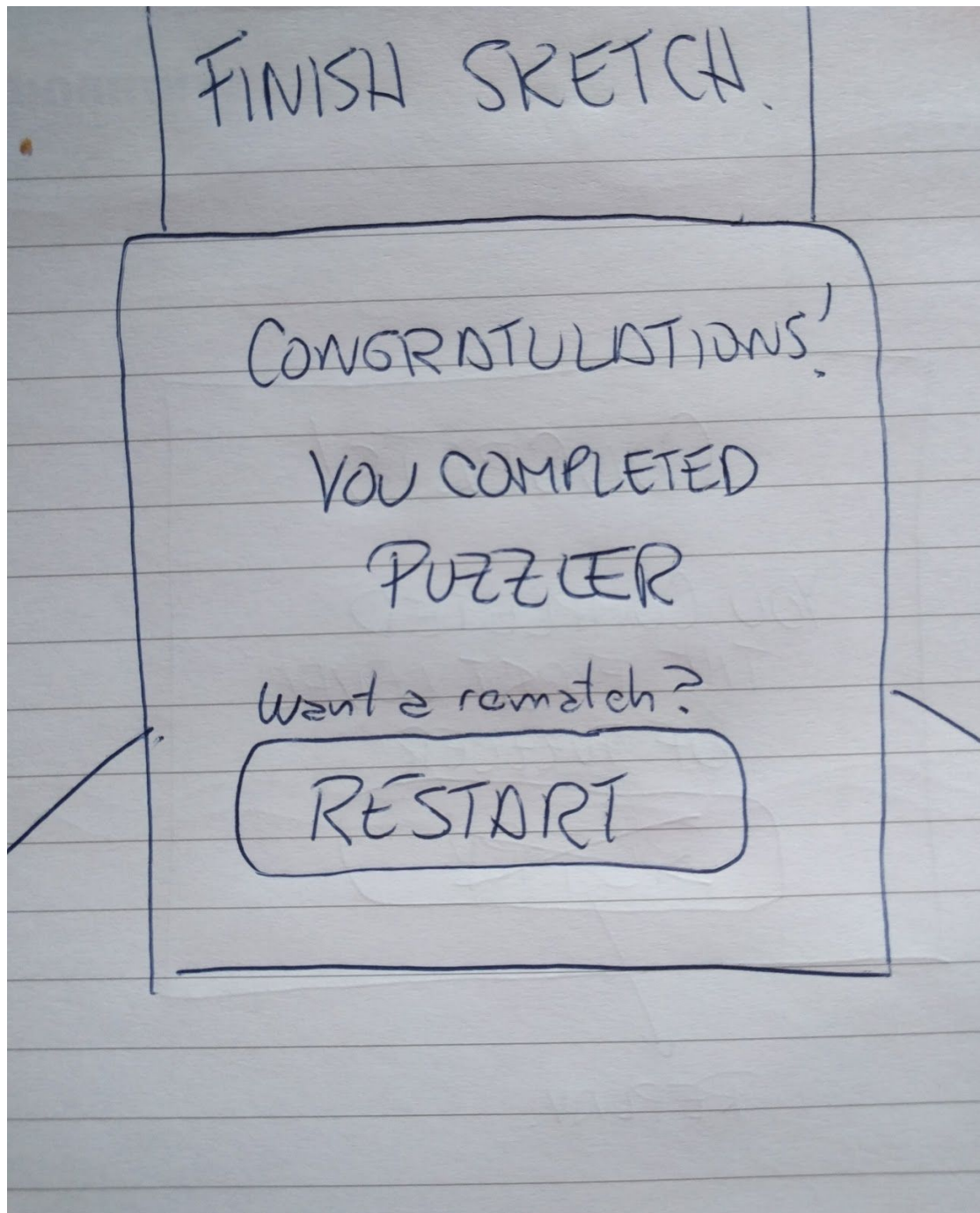


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3) The panel to be displayed at the end





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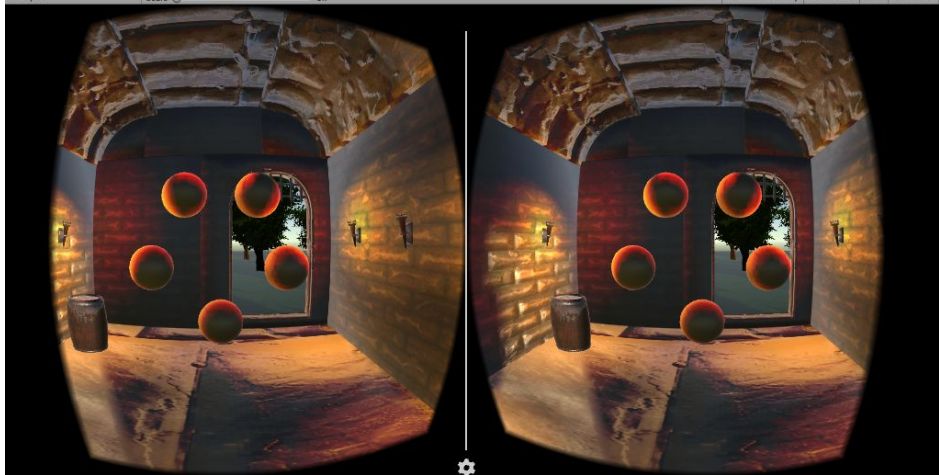
User Testing

This project uses user's validations to capture bugs and obtain early feedback from the experience being built. Each test phase was used to validate a different step of the development process.

At the beginning of the project the following iterations happened.

- **USER TEST 1:** This was conducted after the warehouse & the forest were added to the scene.

The following information was collected as part of this user test.

Screenshots captured from the app used during this test	
Goals	<ul style="list-style-type: none">● Does the scale feel appropriate?● Is out experience comfortable?● Is the mood well established?
Questions	<ul style="list-style-type: none">- Where do you think you are located? (I expect answers like room in a castle, dungeon, old house, warehouse, or similar)- Describe which moment of a day you are (I expect early answers like: in the morning or late during the day. I want to determine whether whether we are creating the experience we intend to.).- Is there something that draw your attention in the scene? (I expect the floating balls answer. Here I want to determine whether the orbs are relevant enough for the user to)



	<ul style="list-style-type: none">- How do you feel inside this scene? (I expect to determine whether the scale was right or not)
Answers	<p>Two users participated in this test.</p> <p>User Notes for Test 1:</p> <ul style="list-style-type: none">- Where do you think you are located? A room in a castle, a place where you can keep a prisoner in.- Describe which moment of a day you are End of the day.- Is there something that draw your attention in the scene? The floating balls- How do you feel inside this scene? It looks well illuminated. <p>User Notes for Test 2:</p> <ul style="list-style-type: none">- Where do you think you are located? Dungeon- Describe which moment of a day you are Sunset- Is there something that draw your attention in the scene? Balls in the air.- How do you feel inside this scene? Like there is something to happen with those balls but I cannot interact with them. There is some blinking on the some of the walls.
Bugs	On SOME devices there were some objects not being rendered properly
Actions	I removed duplicated objects improve the experience.

- **USER TEST 2**



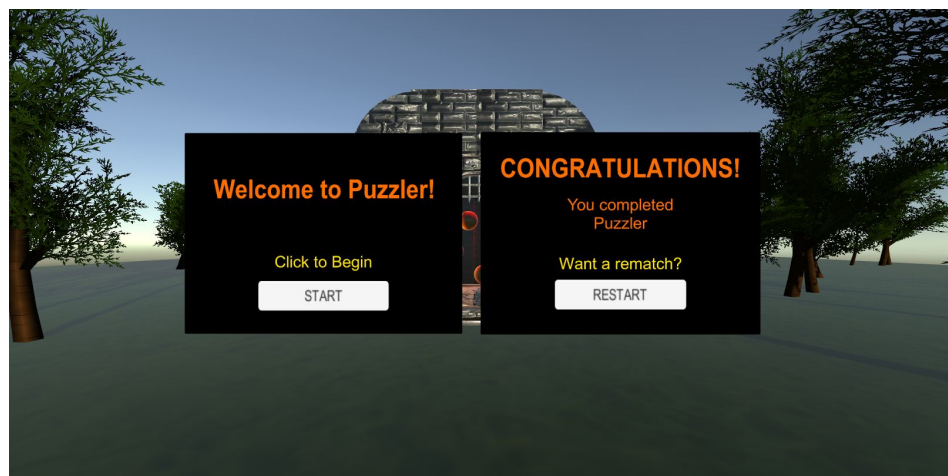
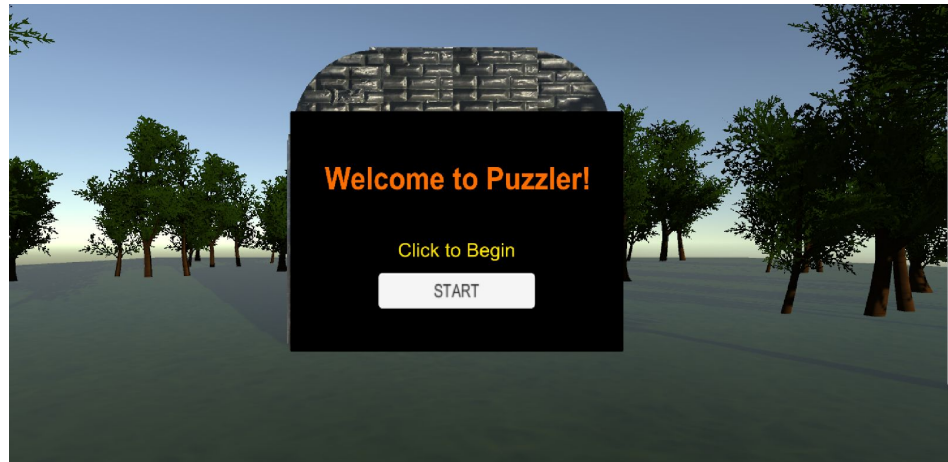
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Screenshots



Questions

- 1) What do you see?
- 2) What do you think the purpose for such panels are?



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	3) Each panel contains 1 button. Can you explain what will happen when you click on it?
Answers	<p>User 1:</p> <ol style="list-style-type: none">1) I see 2 black areas in front of the building.2) The one on the left will be presented when the game starts and the one on the right once the game is completed. This is pretty common in some apps or games.3) The first button will start the game. I assume that the message will disappear. The second button will restart the game. <p>User 2:</p> <ol style="list-style-type: none">1) I observe now 2 panels2) The one on the left will be shown at the beginning of the game and the other one once the game/level is completed.3) The “start” button will begin the game. The “restart” button let me play again.
Bugs	Nothing was identified in this round.
Actions	-

• USER TEST 3

This user test to evaluate if the app produce different level of sickness. this test was conducted after navigation was introduced inside the app.

Screenshots	The app used here https://youtu.be/3IHlcm6cCLU was used for this test.
Questions	<ol style="list-style-type: none">1) Are you feeling any level of sickness when using the application?2) How do you feel about the movement?
Answers	<p>User 1:</p> <ol style="list-style-type: none">1) No2) Nothing in particular. This kind of movements feels expected since there are not the points that usually let you move to different points inside an app. <p>User 2:</p> <ol style="list-style-type: none">1) No.2) Nothing in particular. The experience was the expected one.



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Bugs	No bugs detected.
Actions	N/A

• USER TEST 4

This test was conducted after the application was finished;

Screenshots / Video	The following video shows the app used for this user test's iteration. https://youtu.be/NJ8CFIhz1lw
Questions	How do you feel about the application?
Answers	User 1: It works as described. Ball's color on the instructions are hard to be seen sometimes. User 2: It works. Selection's color is not good enough. Good sounds.
Bugs	The color when a ball is selected is not different enough to note the selection.
Actions	Update selection color on the ball.

After the action was taken, the app was finalized as presented in the video.

Final Result

I believe that the final application successfully completes the different requirements presented through class 4 - VR Design.

Conclusion

So far, this project turn out to be the most challenging and rewarding application of the nanodegree so far.



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The reason for this is because I had to phase & solved by myself the following challenges:

- Setup everything from Scratch. The template project was not ready to be used from the zip file so in order to learn more, I proposed myself to setup everything from 0 to the finalized game in order to learn more.
- Setting up GVR. and GVR Reticle. This was not explained.
- Sort out library dependencies shortage. Some prefabs were used from the Assets Store in order to create the forest.
- Sortout a few problems with GameLogic and intermediate scripts which require a few changes from the explanation shown in the video.

What's Next

Continue with remaining projects from VR Nanodegree.

Additional Material

You can check out my Github profile which I use to track all my VR Nanodegree projects. Here you can find all the documentation captured through the process.

<https://github.com/pperotti/udacity-vr-nanodegree-projects>