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GNG1103 – A.R.C.

Deliverable F Prototype 1 and Customer Feedback

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By: Caine Myrah 5722319,
Mike Sheppard 300166172
Melanie Pinto 300117030
Aunonto Bhuiya 300115942

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1. Introduction

In order to ensure the full functionality of the end product, a series of prototypes have been outlined and the first prototypes developed. Prototype 1 consists of generating a 3D display environment, displaying building files, developing movement controls, implementing a menu interface and a file management system. Although some of these features may not be totally fulfilled during this phase, they will be well underway for the next prototype phase. A testing regimen for each feature has also been developed to ensure the functionality of each feature, within acceptable margins. Once a functional version of the ARC 3D app can be released, product testers will be sought out for input regarding app performance.

2. Prototype 1 Features

2.1 3D Display

The first step in the journey towards the development of the ARC project, as it provides the foundation for future iterations. To accomplish this, first a terrain element was added to provide a sense of depth and scaled to accommodate the user's movement. Then some castle wall segments were added in lieu of the building model as it had not yet been released.

Prototype 0.3



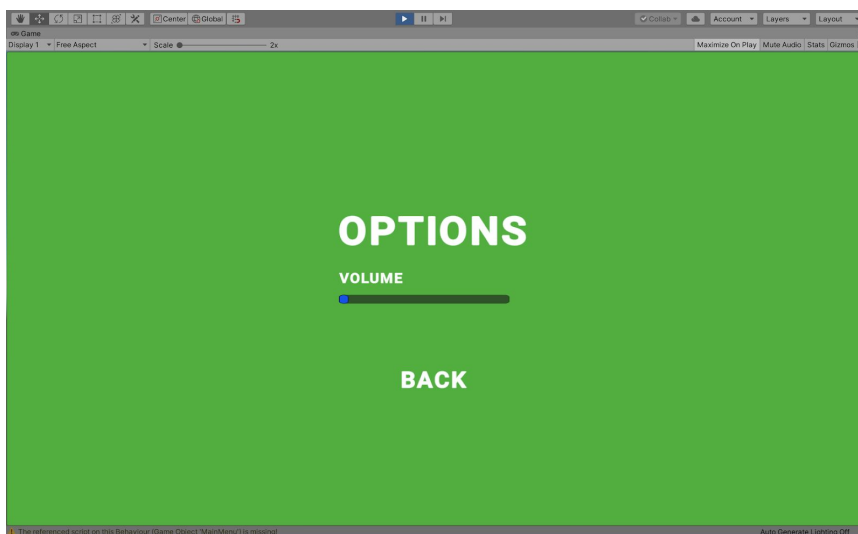
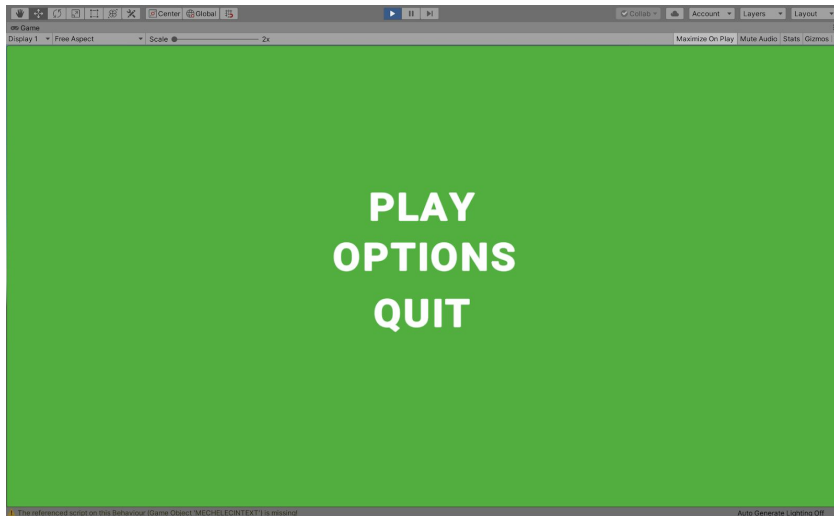
2.2 Directional Controls

In this feature, we have the controls that allow the user to explore and change camera angles. This was implemented by attaching the main camera to an empty 1stPersonPlayer game object that was created. A character controller was then attached as well, along with a script that takes inputs from the touchscreen. This script, “First Person Controller”, takes the inputs detected on the left-hand side of the screen to direct player horizontal movement. The right-hand side of the screen allows the user to look around.

2.3 Intuitive Interface

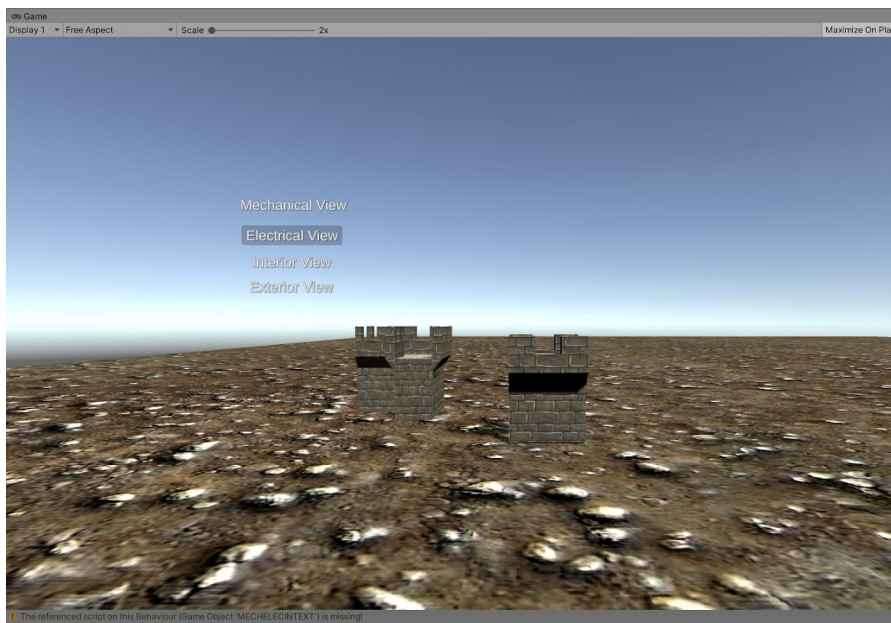
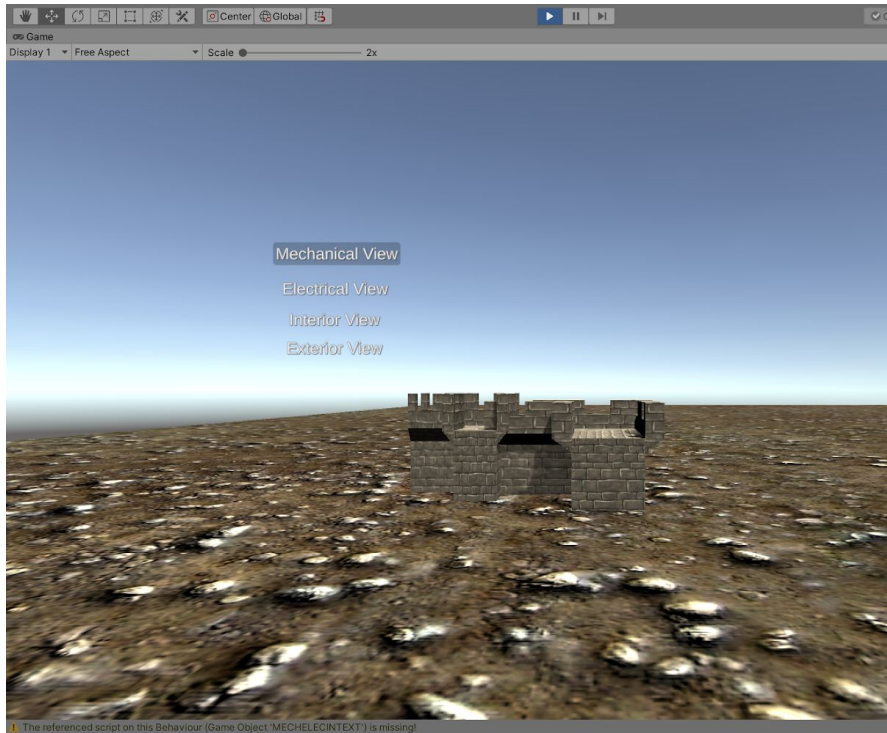
The idea of the main menu feature was to implement a clean user interface that worked well but also was efficient. The three main functions of the main menu were to play, the options menu and then finally a quit button. The play button is used to link the main

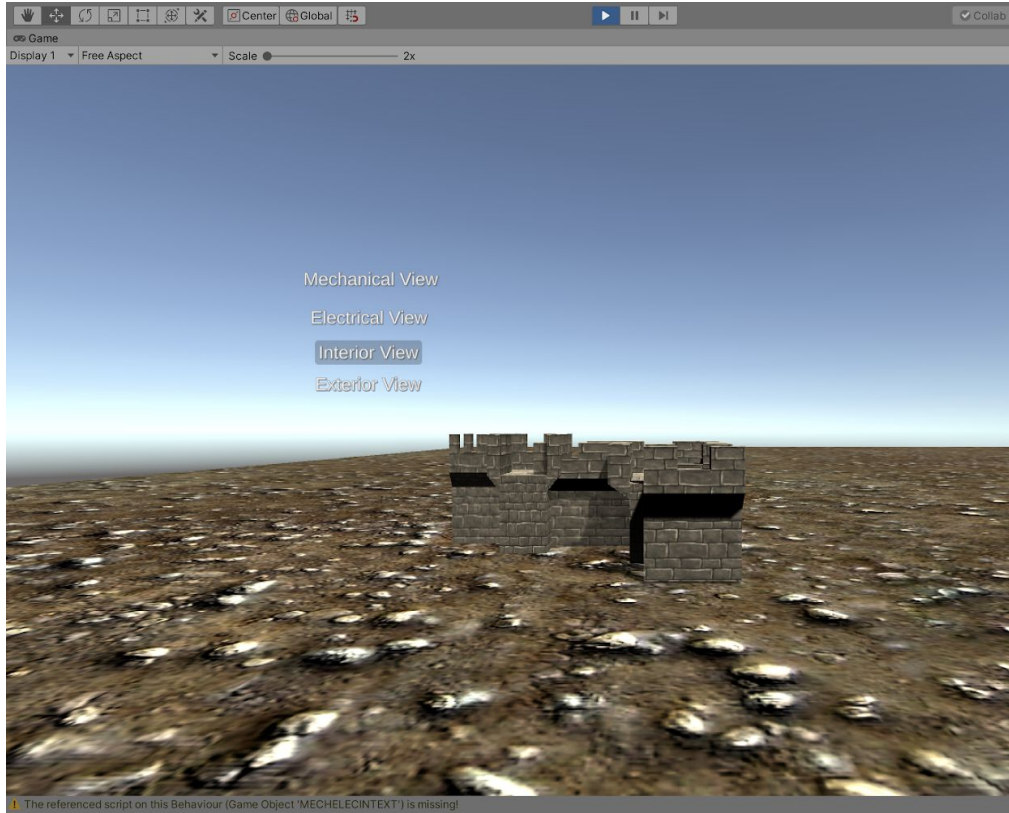
menu scene to the next available screen so that the user can resume working on their project. The options menu was made to change any options available with the back button on that screen making it able to return to the main menu. The last button was the quit button, this made it so the user could exit the app and close it when they were done.



2.4 Switch Layers

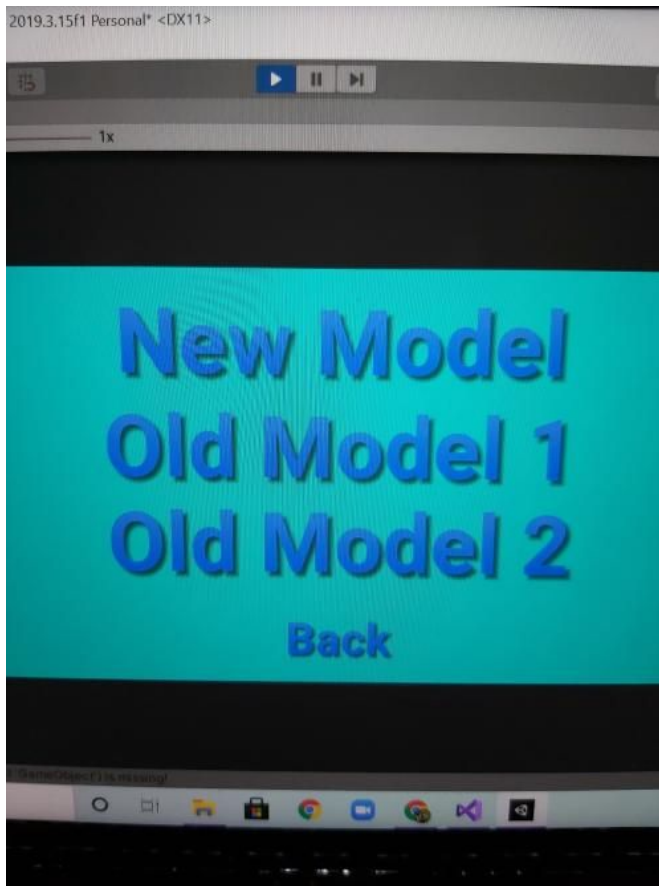
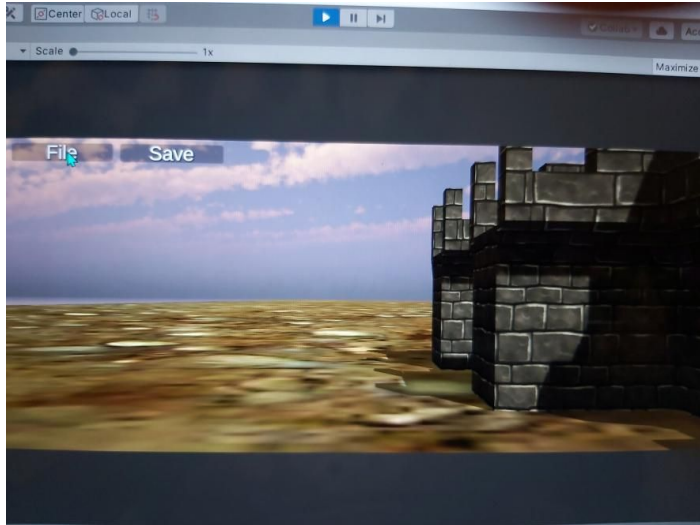
The goal of this prototype feature is to allow the user to switch the layers in which they see the building. This was accomplished by creating 4 buttons, the mechanical button, electrical button, interior button, and exterior button. Each button allows the user to see different parts of the building. They can even choose to see multiple layers at a time. Each time the user presses on a certain view, the program opens up said view and closes the one that it was previously on. For example, if the view was on mechanical and the user no longer wants to see the mechanical view, they would simply press on the mechanical button and the program would go to a view without the mechanical component by closing it.





2.5 Update/Save Models

The main function of this prototype feature is to allow the user to save any edits made to the building model, as well as access updated files. This was accomplished by creating two buttons, one to save any edits made to a model and one to open up a file explorer to access the updated models. This script, “SaveSystem” takes data given by the building model, such as changes in color or position, and stores it so that it may be accessed later. The file button is then scripted to take this stored data and load the selected scenes once provided with the user input through the buttons below. However, due to the fact there was a delay receiving the BIM model, there was a shortage of time to complete and test the save function, so it will have to be refined during the next prototype phase.



3. Prototype 1 Test Results

<u>Task</u>	<u>Pass/Fail Condition</u>	<u>Result</u>
Display 3D models:	Displays 3D models in a rendered environment on the target device.	Pass
Intuitive Interface:	Has a main menu with some core functional buttons	Pass
• Directional controls:	User is able to adjust the camera position and orientation to explore the environment	Pass
Switch Layers:	User can change the layers between Electrical Mechanical and structural from the main screen	Pass
Access/Update 3D models:	User is able to access model files in distribution folder	Menu Created*

4. Reviews/Feedback

Prototype 0.1

Anonymous Tester #1: "The models seem kinda dark"

Anonymous Tester #2: "Controls are easy to understand, but a bit sensitive"

Patrick Lalonde: "You guys seem to be heading in the right direction."

5. Conclusion

Prototype 1 has now been developed and tested according to the criteria above, and has been deemed a success according to these metrics. Although not all features have been implemented to their fullest, their development is well on the way.