Hunter Mast

Dr. Bodenheimer

Augmented Reality

10th April 2024

MVD

Currently, my project is underway and making good progress. The video demonstrates my current progress. I will admit that it looks as if it isn’t working properly, but I can assure you it is just experiencing a small bug that I am having trouble fixing. Right now, I am able to generate walls on all 4 sides, furniture, a doorway, and floor. The walls are supposed to scale according to the distances between targets. As I show in the video, it happens to not be fully correct. This is the bug I am trying to figure out. All of my walls scale along the X-axis and do that using the distance in the X or Z directions, depending where the targets are located. Along with this, I am trying to figure out how to rotate all of the models to be in line with the floor and then display it all together. If I were to do this, then everything would be more uniform than it currently is. For my MVD, I wanted to show I at least have everything appearing and I have a somewhat working demonstration. Once I fix the bugs involving scaling and rotation, then I believe my project would be almost finished.

For the final section, I wanted to show the model being adjustable. I added some user interaction with the screen being tapped to scan all of the targets and then scan the “houseTarget” (Currently, it is just an image of a window). I want to be able to add more corners or objects to the model and show it adjusting to different kinds of blueprints. This is a bit hard though as when I add more corners it leads to more complexity in the system. For right now, I want to focus on 4, 6, and 8. With this, I also want to potentially add interior walls. This may be somewhat complicated also, but I think I can copy most of my code for the other walls and this should work similarly. Finally, I wanted to add color to my project. I want there to be a small UI menu that you can bring up to change colors of furniture, walls, etc.

Another issue I have been experiencing is the targets themselves. Vuforia does not allow for the same target to be used more than once, so currently, I am using lots of random images I originally intended to be other targets all as corners. I plan on trying to fix this and have more mainstream targets. One idea I had for it is using VuMarks and QR codes to differentiate the different corners, but I am not sure exactly.

This project is very complex in my opinion, so I am not sure how much I would be able to finish, but I believe I can at least add these last 3 items (Colors, interior walls, and additional size house) after fixing my scaling and rotation issues. Overall, my project has most of the framework currently done. Fixing a few bugs and adding some additional features is all that I should have to do before finishing the project. I attached my GitHub below with the code if you would like to view what I am currently working on. There is a file in the “Assets/CustomScripts/“ folder called “ModelCreator”. This is where all of my work has mostly been done trying to create the walls and other features. If interested, you can look at this file to see a lot of the work on the creation of the housing unit. Feel free to email me if any questions or if you have any advice on how to improve the current state of my project (Or if you know how I can fix the scaling bug).

GitHub: <https://github.com/HunterCadeMast/ARProject4/>