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Honors Advanced Topics

Mr. Detrick - Block C

Warren Hills 3D World Final Writeup

Entering this learning module, we had a clearly defined list of our goals for our project. These goals included building a 3D model of the school using Fusion, creating a world in Unity where a player could navigate the school, have our 3D school closely resemble our school map, and making our model accessible in VR with movement capabilities. Using the school map and our knowledge of the school layout we were able to create a 3D model of the school on Fusion which was developed to have doorways and even ramps throughout certain hallways. This 3D object was then imported into Unity, where we were able to create a first person player that could navigate the school grounds. After watching various youtube videos that showed creators doing similar projects on Unity, we were able to code our player to move throughout the scene in C#. Since this was not a language we were all familiar with it was challenging to pick up on certain syntax errors within the code. Luckily, C# was very similar to Java so after multiple attempts successfully running code was achieved.

After coding character movement, we noticed that our world lacked a very important component. This component was solid walls. Although our character could move throughout the world, they could also pass through the walls of the building leading to a less realistic experience. It was then discovered that due to the 3D model of the school being such a large

object containing multiple rooms instead of having a single room or wall be an object was causing our troubleshooted code not to work. After more research we decided it would be best to continue to research more into the VR and 3D imagery aspects of the project since it played such a large role. Using CS@WH's theta 3D camera we were able to learn more about 3D imagery.

We were able to use these 3d images and import them into unity by utilizing a program called Walkabout Worlds that we had found. The program helped to edit a panoramic picture into a 3d model that we could then import into unity. The goal with this was to have this modeled panoramic room, inside the actual mapped room, using the 3d map just as a floor. Eventually if the project is continued we would try to have pictures of every room working so we can have them all together. The theta camera itself had some problems like the lens being smudged through the middle, and pictures coming out crooked which would ruin the whole 3d model, but these issues were easy to work around. We did manage to import the pano-model into unity, but this was right before we decided to restart the unity portion from scratch because of early errors we thought would fix themselves, so we could not really do anything with it.

You could extend this learning module to do many things in future. It could be used for virtual tours of the school, or VR mini-games and scavenger hunts for incoming freshmen to make the transition into highschool easier. It could also be turned into an app that tells lost freshmen where they are and what class they have to get to. This basic idea of taking a 3d map and textures to create a whole virtual model of a building could be used extensively with many other applications. For those who wish to do something similar however, we would not suggest trying to do the whole school at once. While it is cool to have the whole school modelled out, it messed up our code so we might have to go back and change it. Start small with one room at a

time so you can constantly be testing out the unity world and not have to change so much in the fusion world. Before starting this project it also would be a good idea to be familiar with unity itself, that way you can save a few days of having to teach yourself beginner's problems and issues.