

Collaborative Interior Design Workspace in Virtual Reality

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MOTIVATION

The main objective of the project is to explore the possibilities the Unity framework allows in terms of developing multiple-party VR software. In that optic, we developed a collaborative interior design workspace in virtual reality.

Interior design students benefit from this experience since it introduces elements that we can't have in the real world. For instance, moving furniture with a controller, or painting walls instantly with no extra cost.

METHODS

Using the Mirror module for the networking between multiple users, the Oculus Integration module that allows easier development in VR, and Unity's XR module to detect the VR headset input we were able to develop the software with some quality of life features.

This includes the editing toolkit for the designers, along with the possibility to remove/add furniture and change the textures of the scene. On the other hand, we also have the option to change the scene lighting and add comments for both designers and clients. Finally we can have multiple users in the same session thanks to the multiplayer feature.

RESULTS

We have successfully demonstrated that creating VR software to teach students interior design using unity in a multiple-party setting is possible.

One can envision future additions to the project to make it more "complete". A first extension can be making the room import more modular. For instance, we can embed a 3D reconstruction system into the software; recreating the desired room with just a few pictures.

Additionally, to deploy this project into the real world we would have to first do a usability study with real students and determine the key features the student liked and would like to see in the software.

