

“VR for Dummies”

1st Iteration

Clemson University/Boeing Capstone VR Project

Step 1: Sandbox Environment (Getting familiar with VR environments; walk through controls with controllers and hand tracking (overworld text or audio); basic object/asset interactions; *provide positive feedback to operators once they complete a task; window tutorial; present user with features)

- The operator will be loaded into a sandbox-type environment. This will consist of a room with a central control system the user is loaded in front of. The user will be locked in place and cannot interact with anything (they are able to look around the environment).
- The screen in front of them will then provide the user with the option to use one button on the controller after another while giving them visual help on which button to press. Once the operator performs the correct/intended task, positive feedback will be given to the user and the next instruction will be given on the screen.
- The user will then be able to move around the environment (whether it is joystick operated or otherwise) to give the user target locations to move to. Once they complete a little obstacle course (not difficult, pressing buttons at each location to familiarize the user with controlling themselves in VR), they will be given positive feedback.
- The last station they move to, will provide the users with basic objects (blocks, pyramids, spheres, etc.) and instructed to interact with them by pressing/releasing specific buttons to grab and place the objects.
- The operator will be given the option to proceed to Step 2 once they are done interacting with the last station or to exit and continue later.

Step 2: Virtual Environment Tutorial (Have windows with steps to walk through to understand how a virtual environment is constructed; user interacts with window to go forward and back depending on their desires; walks through linear steps on how to create, load, and operate a Virtual Environment)

- From Step 1 or a continued load, the operator is loaded into or moves to a new environment and are presented with another screen. This window will have interactive buttons for the user to interact with to go forward or backward with.
- The user is given a generalized/comical and cartoon-like representation of how a VR program is created and then asked to proceed to a new screen for more detailed instructions.
- On each new screen, the user is presented with information on detailed steps of how to develop a virtual environment on a computer (creating an environment, loading in assets, asset placing and measuring, saving, etc.)

- The user is then given basic instructions to “create their own VR environment” by doing tasks in their VR environment to replicate the steps on how to build their own. Positive feedback is given to the user on creating their own VR environment.
- Moving onto the next step, the user is given an option to either load their program to a computer-based headset or given instructions on how to load their environment/program onto a stand-alone headset.
- (STRETCH GOAL) When they artificially load their program based off the instructions, they can have the option to walk into their created environment (all of this should be basic implementations such as loading in a table with mapped coordinates, placing an interactive ball in the environment, etc.)
- The operator will have the option to move onto Step 3 or to exit the application to continue later.

Step 3: Introduction to Tooling (Either provide a previously blocked off section to user or load the user into a different area to practice simple tools; provide a tool rack that has various tools; give user controls on how to operate the tools with annotations or tutorial (“Pick up the wrench”, etc.); provide stations to use different tools on)

- From Step 2 or a continued load, the operator is transported into a new room with a tool station/rack. There will be a screen that instructs the user to go and pick up a specific tool (this tool will be highlighted yellow or orange on the tool rack to indicate the right tool to pick up) with a button hold or hand motion. The screen will also provide details on the tool and provide generalized instructions on how to use it.
- On a table opposite of the tool rack will be specific stations laid out in numerical order with the correct station highlighted the same color as the tool. On each station is a dedicated piece of hardware or physical entity to interact with using the tool the user picked up.
- *Note, if the user drops the tool or picks up the wrong tool, there should be a Red toast or indicator around the tool on the ground (as well as around the correct station) that instructs the user to pick the tool back up to use it/progress through the tutorial. Provide the user with a progress bar on the station they’re using (using lighting or an audio queue that lets the user know when the job at the station is done, ie the nut is tight enough on the bolt).
- *Note, maybe have a visual indicator to let the user know which direction to look into (triangle or arrow-head to indicate the direction).
- Once the operator is done correctly interacting with each station, the user will be provided positive feedback to return to the screen for the next tool to pick up.
- As the user completes the last station/tool tutorial, they will return to the screen that congratulates them on completing the tutorial and sends out confetti and/or fireworks for a greater dopamine spike in being done with the “VR for Dummies” program.