IMMERSIVE TRAINING ENVIRONMENT

ITE Software Overview

Armick ITE is a shared multi-user immersive VR simulation and training environment where training can take place in diverse virtual environments in a shared virtual sandbox determined by a trainer/participant.

Using Armick ITE, a trainer can create, adapt, and execute diverse, high fidelity, customizable, ad hoc training exercises and quickly assess all participants' performances in real-time easily and cost effectively.

Participants begin by initiating the experience using a computer and a Windows Mixed Reality headset (for immersive use) and scanning into a shared virtual environment. Once participants have entered the virtual environment, they may spawn in equipment to interact within the shared environment. A designated trainer can customize and facilitate training exercises in this shared virtual environment and track relevant metrics to assess the participants.

Experience Flow

Participant Equipment:

Each participant has a computer and a mixed reality headset with room-scale tracking and a 6 DoF localizable controller.

Joining the Virtual Environment:

In virtual reality, each participant begins in their own virtual environment.

To create and join the shared virtual environment, the trainer creates a network room on their laptop and all participants join from their laptops. Joining the shared virtual environment creates virtual bodies for each participant in the virtual environment that correspond to the participants' physical bodies using a virtual to physical sync step.

Virtual to Physical Sync:

Once all participants have joined, the virtual environment needs to be aligned with the physical environment. This is done using the physical virtual reality controller. Participants align the end of their virtual reality controller (one at a time) with the end of the trainer's virtual reality controller. This virtual "handshake" aligns the virtual environment that the participant sees throught their headset with the virtual environment that the trainer sees. Furthermore, the "handshake" aligns the virtual environment with the physical environment that all participants share. This allows each participant that syncs into the virtual environment to see each other's virtual body in the same location as they would see each other's physical body in the physical environment.

Virtual representations of physical objects (e.g., chairs) can be added to the virtual environment by scanning a card on the laptop. This provides virtual representations of equipment and objects in a room that can be interacted with both physically and virtually (e.g., participants can sit down in a physical chair that they see in the virtual environment).

Spawn Virtual Environment Scenes:

Armick ITE supports multiple virtual environment scenes (e.g., desert, ocean, etc). To load a virtual environment scene, the trainer scans a Scene Card and the virtual environment scene loads in for all the participants to see.

Spawn Virtual Equipment:

Armick ITE supports interactive virtual equipment (such as vehicles, weapons, furniture, tools, etc.). To spawn specific virtual equipment objects, participants scan Virtual Equipment Cards. Participants in the virtual environment will then see a Virtual Spawner that contains the equipment in the virtual environment. If a participant picks up the Virtual Spawner and activates it by placing it on the ground, the virtual equipment object appears in the virtual environment.

Additionally, participants can store Virtual Spawners in their inventory. This allows participants to spawn in virtual equipment and carry it around with them for later use.

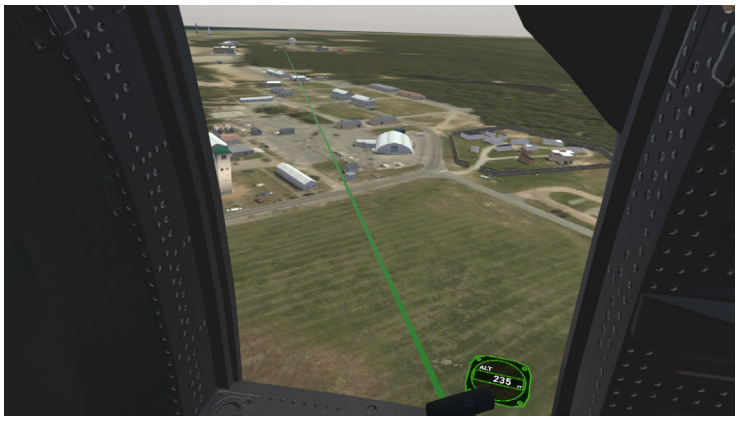
Example Participate Narrative:

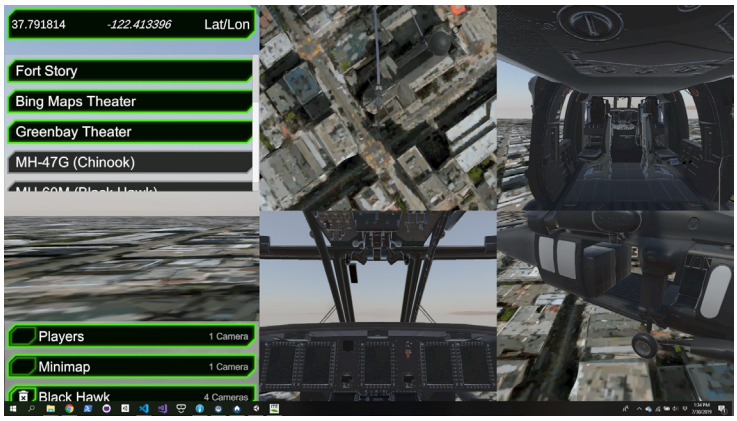
Participant A (with an immersive headset) runs a training session around callouts for landing a Chinook helicopter on an LHA vessel for Participant B (with an immersive headset) and Participant C (with an immersive headset). Participant A creates the shared room and then instructs Participant B and Participant C to join the the shared virtual environment entering the appropriate shared room on their laptops. Now that both users are in the shared virtual environment along with the trainer, the immersive participants (B and C) initiate a "handshake" with their controllers to orient themselves to each other in the virtual space according to their actual physical locations.

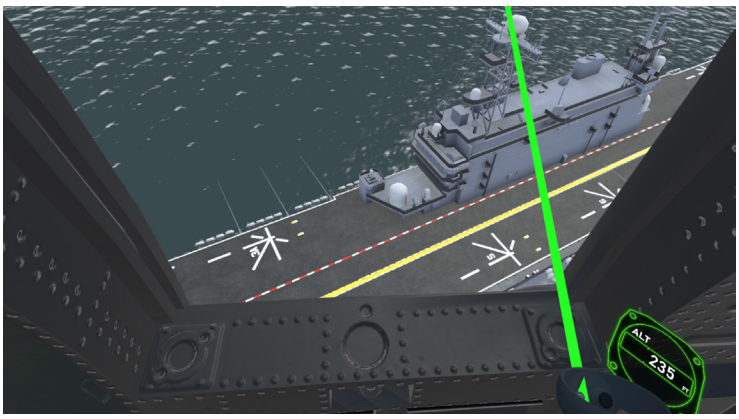
Now that the basic setup is complete, Participant A scans in a Chinook Helicopter Chairs asset and instructs Participant B and Participant C to align the virtual chairs to the physical environment (either an actual helicopter, a training set, or simply a pair of chairs appropriately set up). Once the chairs are aligned properly in the virtual room, any participant can spawn the Chinook helicopter around the Chinook Helicopter Chairs by pointing their controller at the virtual button between the chairs and pulling the trigger on the controller. After doing so, all users will be able to see the newly spawned Chinook. Participant B and Participant C then sit down in the physical chairs that correlate to the virtual chairs in the Chinook. There are Altimeter Mods between the chairs that each participant can pick up and place in their inventory, which will put the distance of the helicopter from the landing surface (in feet) on their wrist. Then Participant A scans in an Ocean Theater, which includes an LHA asset, putting the virtual helicopter on the deck of a ship in an ocean setting.

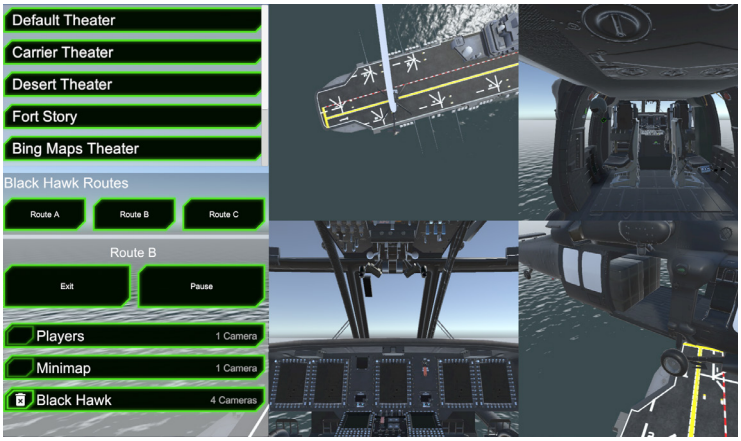
Participant A may now pick up the Chinook Helicopter Controls, which spawns between the Chinook Helicopter Chairs once the helicopter is spawned. Picking up the Chinook Helicopter Controls starts the rotor and allows Participant A to pilot the Chinook, using it to train as they see fit. The session is captured on the database and may be rewatched later to review the performance of each Participant or simply to remind them of feedback they received in real time.

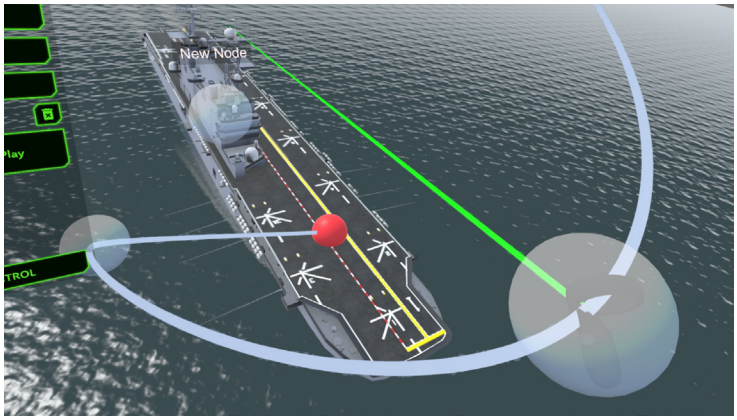
Armick ITE Screenshots:











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