Simulating Next-Generation Public Safety User Interfaces in Virtual Reality

PSCR 2020: The Digital Experience

UNC-Greensboro Research Demo Instructions

Introduction

Our research demo is an interactive visit to a virtual reality social platform called Mozilla Hubs. Mozilla Hubs works a little like a computer game where multiple users join in a room and can walk around, talk to each other and play videos.

There are several ways that the demo can be experienced: through a computer web browser, through a mobile web browser, or using a VR headset. This guide will give instructions on how to access the research demo from different devices.

Accessing the Research Demo from a Computer Web Browser

To access the demo from a computer web browser, the first step is to access the web address for the demo room, here: https://hubs.mozilla.com/dy8RCas/simulating-next-gen-ui. You should see a screen similar to the one in figure 1.

The web browser Mozilla Firefox is strongly recommended, as it has better support and performance, but other browser also work. You will be prompted to allow access to your microphone. Please allow access, as you will be able to talk to others once in the room.
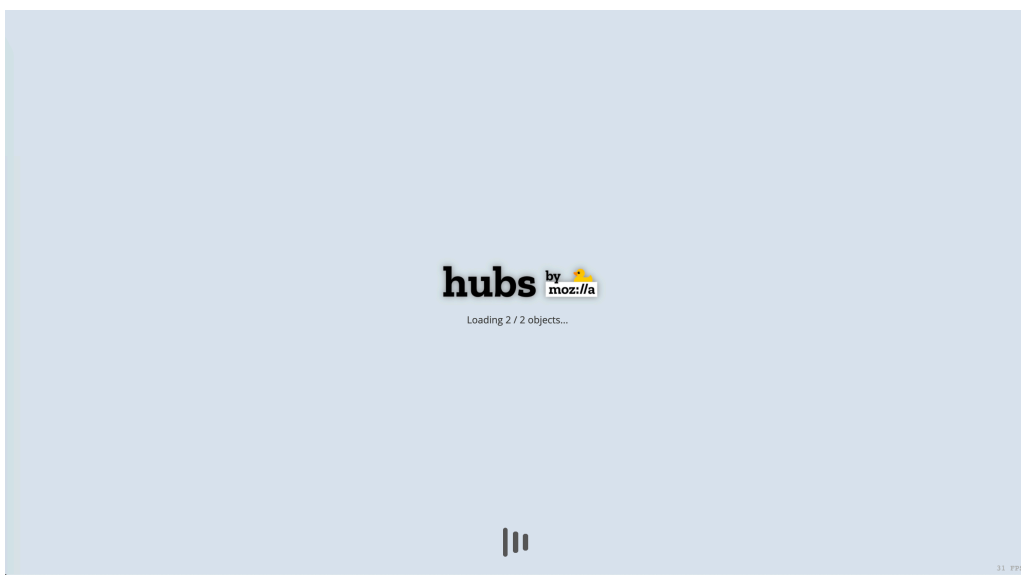

Figure 1: Splash screen loading the research demo room.

The first screen after loading the research demo room is shown in figure 2. Click the "Enter Room" button to enter the room.
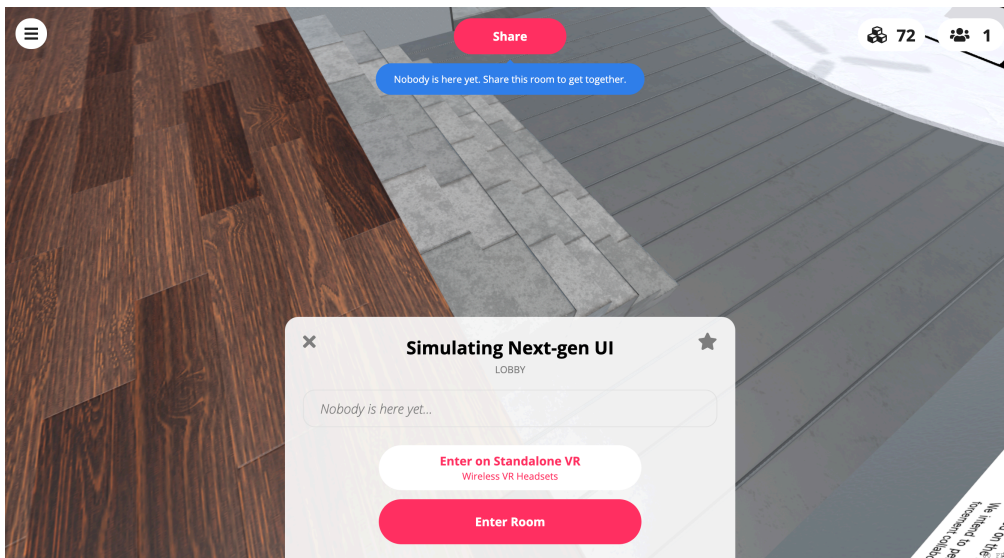

Figure 2: Selecting the type of access.

You may now set your name and Avatar (figure 3). If you want others to be able to identify you, you may enter your real name, or you may choose an alias. You may also select from a set of choices of avatars, which is how you will look in the virtual environment. Make your selection and click the button labeled "Accept."
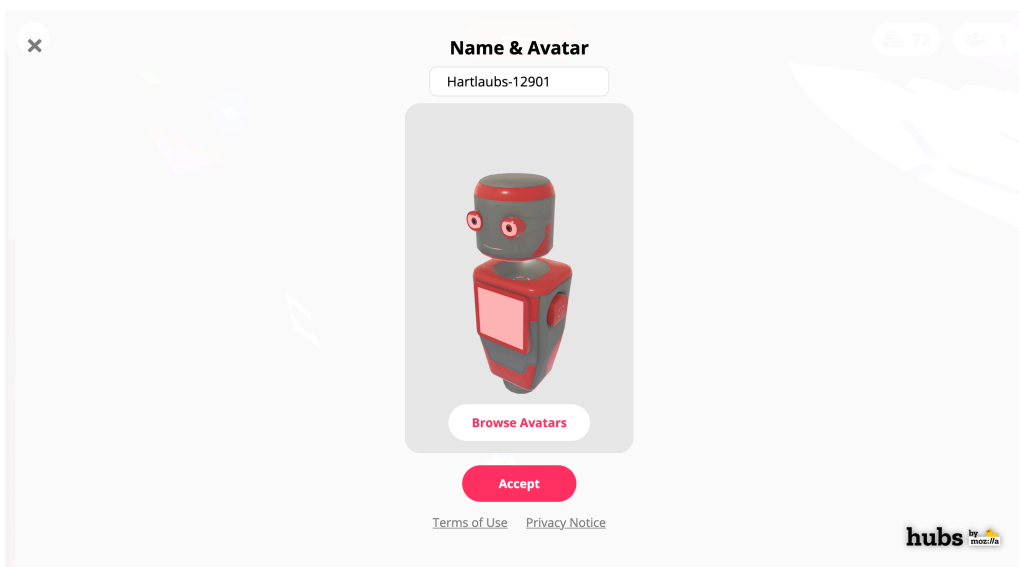

Figure 3: Choosing name and avatar.

In the following screen (figure 4), click the button labeled "Enter on Screen" to specify that you are accessing from your computer web browser.
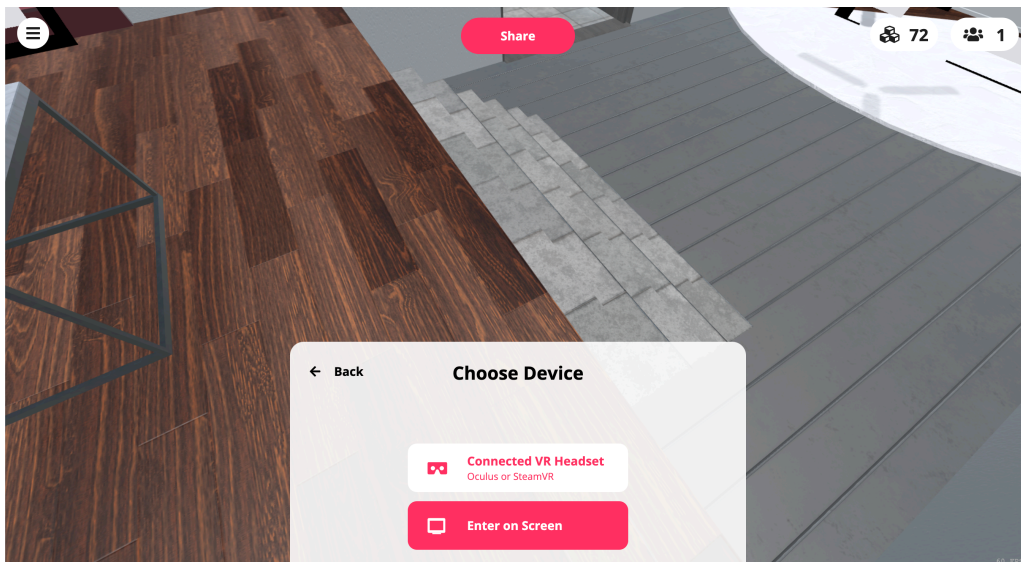

Figure 4: Selecting the device.

The final step before walking into the room is to setup the audio (figure 5). The default options are probably fine but make any selections as necessary. You may also want to mute your microphone upon entering the room. Click the button labeled "Enter Now".
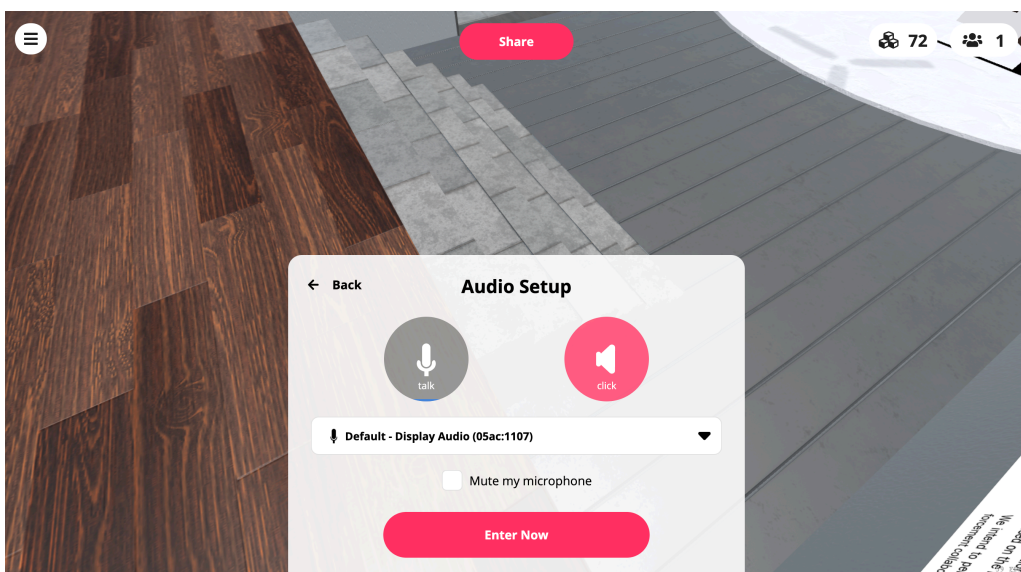

Figure 5: Audio setup.

You are now ready to navigate in our research demo room. To navigate in the environment, you may either use the directional arrows in your keyboard, or the WASD keys, as shown in figure 6. To rotate the view, just click and move the mouse.

Figure 6: To move in the virtual environments, you may use the WASD key or the directional arrows.

Once you arrive at the Research Demo scene, you will see two rooms, as shown in figure 7.

Figure 7: Entrance to the Research Demo. The Law Enforcement scenario is to the right; to the left is the Firefighting scenario.

To the right is a demonstration of our Law Enforcement Traffic Stop scenario (figure 8). There, you can see a complete video run-through of the virtual reality application, the model of our custom armband, and posters in the walls with information about the project.
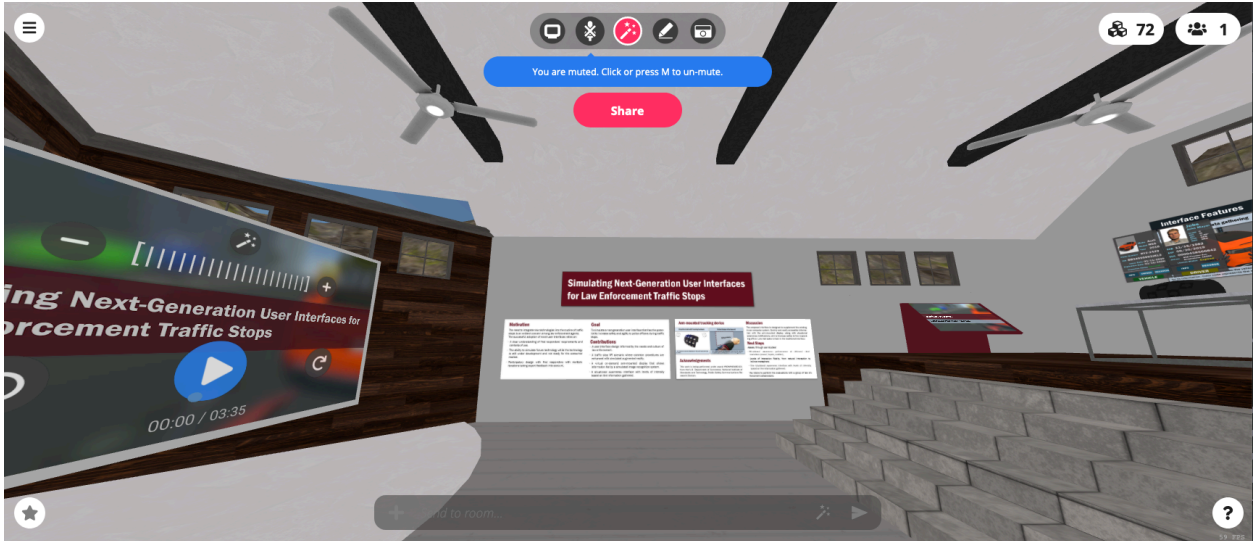
Figure 8: Entrance to the Law Enforcement Demo Room. The video can be played by clicking with the mouse cursor on the Play button on the video screen.

To the left, there is the design of the Burning Building scenario, as seen in figure 9. There, clockwise along the outer walls of the room, you will see a storyboard highlighting the next-generation user interface elements that we have designed. You can hear an audio description of each panel by getting near the panel and hitting the play button with the mouse. Along the inside of the center kiosk, is a visual description of each interface feature that we have designed. Along the outside of the center kiosk, you can see a video narrative of the firefighting scenario.
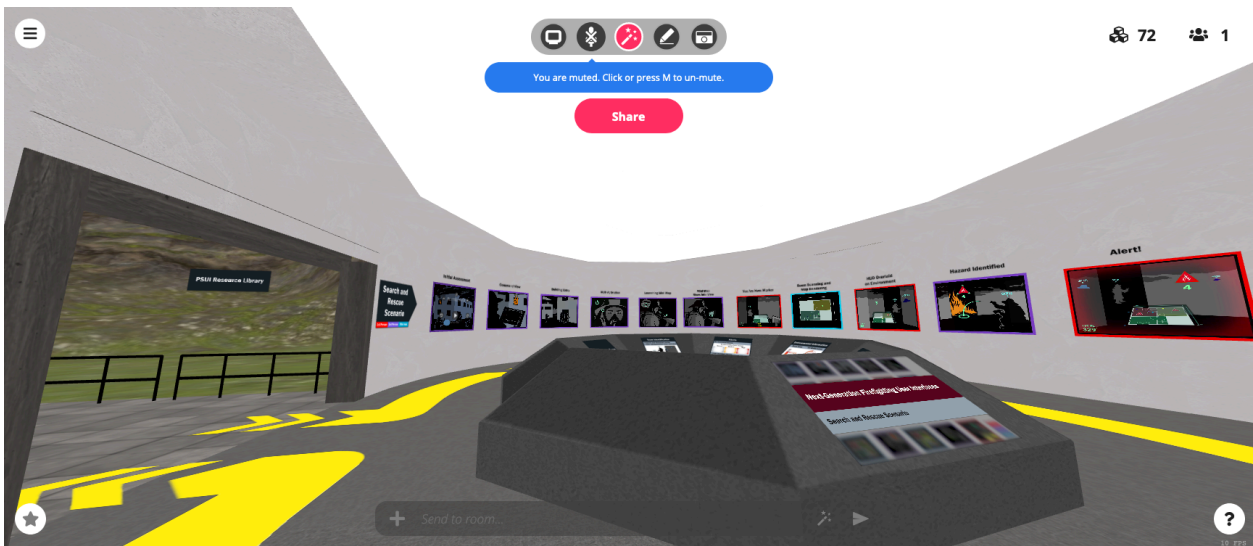

Figure 9: Burning Building scenario design room. Each panel shows the scenario as it progresses. By clicking *play* on each panel, an audio description is provided.

Accessing the Research Demo from a Mobile Web Browser

The research demo is also available on mobile devices, such as cell phones and tablets. The access to the virtual environment is identical to the computer browser. Navigate on the mobile web browser to the link of the research demo room:

https://hubs.mozilla.com/dy8RCas/simulating-next-gen-ui

Follow the same instructions as above for desktops. The navigation within the mobile browser works through touch gestures. Touching and moving the finger on the screen will rotate the view. Movement is achieved by pinch gestures. Pinching out moves the view forward, and pinching in moves the view back (figure 10).
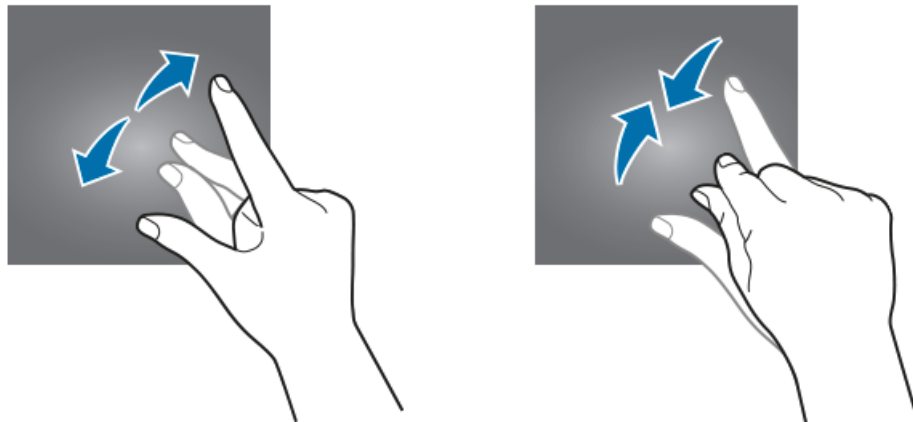

Figure 10: A "pinch out" gesture (left) moves the view forward, and a "pinch in" gesture moves the view back.

Accessing the Research Demo from a Virtual Reality Headset

To access the research demo from a Virtual Reality headset, follow the prompts in the screen, depending on the type of device that you will use (figures 2 and 4). The navigation is done with the virtual reality controller using gaze-base steering, and teleportation.