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User-Centered Prototyping for Single-User Cross-Reality Virtual Object Transitions

Nanjia Wang and Frank Maurer
Department of Computer Science
University of Calgary



Cross-Reality(CR) Definition

Transition between or concurrent usage of multiple systems on the RV continuum.

Transition of the virtual objects along the RVC





Visual Output Devices



[1]

Standard
Monitor
Device



[2]

VR HMD



[3]

AR HMD

HMDs



Optical see-through HMD



Video pass-through HMD



Input Modalities



[4] [5]
[6] [7]

Input Modalities



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[8] [9]
[10] [11]



Research Question

How would user prefer to move virtual objects from 2D standard monitor to 3D VR/AR space and back during a cross-reality (CR) session while standing or sitting.



Elicitation Study Design

The screenshot displays the Unity 3D development environment. The main scene contains several 3D assets: a white sphere, a white cube, a green watering can, a bouquet of red flowers, a white capsule, a green rock, a wooden crate, a stack of logs, a white cylinder, a red tomato, a wooden hut, and a green plant. The Inspector panel on the right shows the following configuration:

Inspector	Value
Element 1	3
Element 2	6

Below the Inspector, the **StudySteps** panel lists the following steps:

- Toggle Off All Gameobjects
- Toggle On All Gameobjects
- Reset Scene for Hololens
- Use case 1_1 Hololens
- Use case 1_2 Hololens
- Use case 1_3 Hololens
- Use case 1_4 Hololens
- Use case 1_5 Hololens
- Use case 2_1 Hololens
- Use case 2_2 Hololens
- Use case 2_3 Hololens
- Use case 2_4 Hololens
- Use case 2_5 Hololens
- Use case 3_1 Hololens
- Use case 3_2 Hololens
- Use case 3_3 Hololens
- Use case 3_4 Hololens
- Use case 3_5 Hololens

An **Add Component** button is located at the bottom of the Inspector panel.



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Thank You!