SteamVR Assistant (SVRA) The SteamVR Assistant is a Unity toolkit for assisting developers creating VR applications using Unity and SteamVR. It aims to help streamline the development process and make VR development more accessible to new developers.

Note: No Vive connected - openapi errors (due to lack of Vive)

Installation

Preliminary Unity Assets: SteamVR Plugin

Assuming the Unity SteamVR Plugin asset is installed in the current project simply download the SVRA project and drag and drop it into the project. This

Example Scenes

svra_default_setup

A simple default setup of the controllers and SteamVR required prefabs on an empty plane.

svra_object_playground

A random (somewhat chaotic) collection of all the potential interactions SVRA is capable of.

svra_projectile_range_example

An example featuring 3 floating targets of varying speeds in which the user is tasked to hit with cubes. * Showcases SVRA_ObjectSnapZone and SVRA_ObjectSnapZoneLocation scripts

Training Scenes

svra_01_grabble_objects

An example to introduce the controller configuration (the ControllerSetup prefab) and making objects grabbable * Showcases the SVRA_GrabbableObject script and ControllerSetup prefab

svra_02_interaction_objects

An example to introduce the interactive objects and the event bridge * Showcases the SVRA_InteractiveObject, SVRA_InteractButton, SVRA_ChangeMaterial and SVRA_EventBridge scripts

svra_03_interaction_objects_2

An example to show off the ability to disable the interactive and grabbable components of objects and to show off the player resizing script * Showcases the SVRA_InteractToggle, SVRA_GrabToggle

and SVRA_PlayerResize scripts

svra_04_grabbable_object_events

An example to show of the event bridge with different types of event triggers (grab and highlight) * Showcases alternative use of the SVRA_EventBridge script

svra_05_interaction_objects_3

An example to show off the ability to clone objects and the projectile shooter system * Showcases the SVRA_CopyObject and SVRA_ProjectileShooter scripts

svra_06_target_range

An example to show how to build the target range example scene using the snap zone hover scripts * Showcases the SVRA_HoverSnapZone and SVRA_HoverSnapZonePosition scripts

svra_07_scene_transition

An example to show off how to transition between scenes using the scene transition script * Showcases the SVRA_SceneTransition script

svra_08_debugging

An example to introduce the play area modifier script and the frame rate display prefab * Showcases the FrameRateCounterPrefab prefab and the SVRA_SVRA_PlayAreaModifier script

Scene Ideas

The following are a list of potential scene ideas in case you need some ideas to get started: * Carnival games * Target range * Basketball hoop * 10 pin bowling * 100 pin bowling * 10 pin bowling hard mode - the pins move around or hover * Big red button simulator

Script Overview

Key Scripts

- SVRA_GrabbableObject: Makes an object grabbable.
  - Attach to objects you wish to pick up and interact with
  - Attributes:
  - Highlight Effect: Select the highlight script (or none) to be applied to the object.
  - Snap Point: By default snaps the controller position to the centre of the object on pickup. Local Position can be used to change the snap position.
  - Rotation: Enable or disable rotation for the joint which connects the controller to the grabbed

object. Apply Grip And Orientation will orientate the object to the specified Local Orientation.
- SVRA_InteractiveObject: Makes an object interactive and open to interaction scripts.
- SVRA_EventBridge: On a specified event (interaction start, grab start, etc.) trigger some attached function(s).

Other Scripts

- SVRA_ChangeColor: Used to toggle the color of an object
  - Attach to the object to change the color of
  - Setup the number of and colors to cycle through
  - Setup the fuction in the event bridge to trigger the color change on the specified event
- SVRA_ChangeMaterial: Used to toggle the material of an object
  - Setup the same as SVRA_ChangeColor
- SVRA_CopyObject: Allows the creation of a copy of a specified object
  - Add to an object
  - Add the object to be copied to the "Copy Object" parameter in the Inspector window
  - Add the transform (empty gameobject) of the position for the object to be spawned to the "Spawn Point" parameter in the Inspector window
  - Setup the fuction in the event bridge to trigger the scene change on the specified event
- SVRA_GrabToggle: Used to toggle if an can be grabbed or not
  - Attach to the object to toggle grabbable or not
  - Setup the fuction in the event bridge to trigger the grabbable toggle on the specified event
- SVRA_HoverSnapZone : Used with SVRA_HoverSnapZonePosition
  - Setup object to setup snap zone on
  - Create a copy of the object to represent the snap zone location (see SVRA_HoverSnapZonePosition for setting up the copy object)
  - Attach the SVRA_HoverSnapZone script to the original object
  - HoverCharacteristics: Can be used to make the object oscillate for a set distance, speed and direction
- SVRA_HoverSnapZonePosition: Used with SVRA_HoverSnapZone
  - On the object copy (mentioned above) remove any rigid bodies and additional scripts attached to the object
  - Disable the Mesh Renderer of the object
  - Enable the "Is Trigger" checkbox of the collider of the object
  - Position the object where you want the object to snap to
  - Attach the SVRA_HoverSnapZonePosition script
  - Drag and drop the SVRA_HoverSnapZone object into the "Snap Zone Transform" setting
- SVRA_InteractButton: Used to attach an animation motion to an interact button
  - Attach to the part of the object to animate
  - Setup animation properties in the Inspector window
- SVRA_InteractSwitch: Used to setup a light switch style toggle for a button
  - Attach to the part of the object to animate
  - SVRA_InteractToggle: Used to toggle if an object can be interacted with or not

    - Setup the same as SVRA_GrabToggle
- SVRA_PlayAreaModifier: Used to modify the play area dynamically while the game is running via the keyboard
    - Attach to the SteamVR CameraRig prefab
    - Features include rotate, scaling and movement of the play area
- SVRA_PlayerResize: Resizes the play area and player to specfied parameter
    - Attach to the object to trigger the size change on interacting with
    - Setup the fuction in the event bridge to trigger the resize on the specified event
- SVRA_ProjectileShooter: A simple projectile shooter system
    - Attach to the object to fire the projectile from
    - Drag a prefab or gameobject into the "Projectile" option in the Inspector window
    - The projectile characteristics determine the direction, angle, frequency, speed and size of the projectile that is fired
    - The "Vibration" toggle is used to determine whether or not to trigger a small vibration burst on firing the projectile
- SVRA_SceneTransition: Used to transition between 2 Unity scenes via the event bridge
    - Ensure the scene to transition to is include in the project build settings
    - Attach to the object to transition scenes when interacted with
    - Add the name of the scene to the "Level Name" attribute in the Inspector window
    - Setup the fuction in the event bridge to trigger the scene change on the specified event
- SVRA_SliderVibration: Used to trigger a vibration on sliding or grabbing an object
    - Attach to the object to trigger the vibration on grabbing
- SVRA_TriggerAudio: Used to trigger audio on triggering an interaction
    - Attach to the object and setup the audio to be triggered
    - Setup the fuction in the event bridge to trigger the audio on the specified interaction event

Prefab Guide

ControllerSetup

Used to setup the controllers, setup the grip and interaction button and object collision parameters

Setup:

- Drag and drop a ControllerManger onto both of the controller components of the SteamVR [CameraRig]
- Set the "Tracked Controller Object" to track the particular controller.
- For Controller (left) set it to Controller (left) and for Controller (right) set it to Controller (right)

Button Configuration:

- Grip Button: Setup the action to be triggered upon pressing the grip button on the Vive controller
- Trigger Button: Setup the action to be triggered upon pressing the trigger button on the Vive controller

- Touchpad Button: Setup the action to be triggered upon pressing the touchpad button on the Vive controller
- Application Menu Button: Setup the action to be triggered upon pressing the application menu button on the Vive controller
- Virtual Buttons: Creates a virtual d-pad on the Vive controller's touchpad. This allows actions to be mapped to the equivalent of an "up", "down", "left", "right" or "centre" button on the touchpad

Addtional Details:

- Touch Radius: Set the radius of the collision sphere collider
- Hold Radius: Set the distance you remain holding onto objects blocked by other objects / colliders before breaking the joint connection
- Visible Collider: Make the collision zone for object interaction visible
- Toggle Grab Mode: Switch between holding the grab button down to grab onto objects or press it once to grab and once again to release

FrameRateCounterPrefab

Used to display the current frame rate of the scene

Setup:

- Drag and drop into scene
- Toggle on and off with f key on keyboard