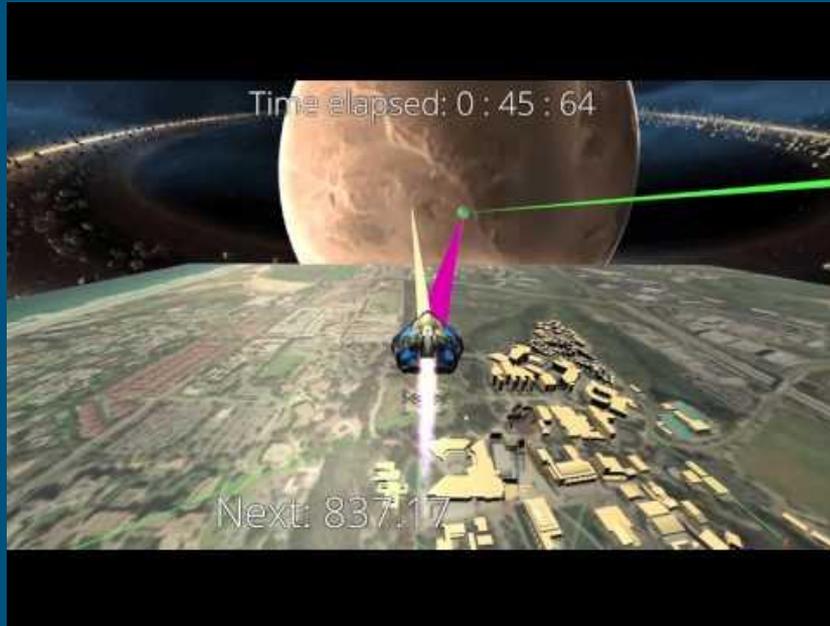




CSE 165 Discussion 3



Videos

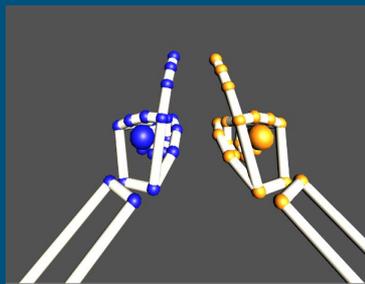
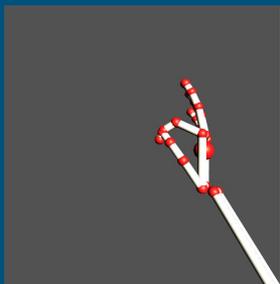


How to set up leap with oculus

- Sign up and install Orion Beta
 - Orion Beta: <https://developer.leapmotion.com/get-started>
 - Unzip **LeapDeveloperKit_3.2.0+45899_win** and run **Leap_Motion_Orion_Setup_win_3.2.0**
- Download the Unity Core Assets
 - Unity Assets for Leap Motion Orion Beta: <https://developer.leapmotion.com/unity#100>
 - Instructions to import the assets: <https://developer.leapmotion.com/unity#100>
 - Notes: Let Unity update the obsolete APIs.

Demo_1: Leap Hands

- Try the Leap_Hands_Demo_VR scene in the LeapMotion/Scenes folder
- Notes:
 - Be sure to enable VR support in Edit/Project Settings/PlayerSettings/OtherSettings/Virtual Reality supported
 - Be sure to enable General: Unknown Sources in Oculus Setting



Demo_1: Leap Hands

- Important prefabs and components:
 - Assets/LeapMotion/Prefabs/LMHeadMountedRig -- prefab contains important script
 - LeapHandController -- the important component that contains script for physical hands
 - RigidRoundHand_L, and RigidRoundHand_R -- prefab for physical hands
- Getting Started with Unity and the Oculus Rift Tutorial:
 - <http://blog.leapmotion.com/getting-started-unity-oculus-rift/>
- Basic Setup:
 - https://developer.leapmotion.com/documentation/unity/devguide/Project_Setup.html
- Hand/gesture detection API:
 - https://developer.leapmotion.com/documentation/unity/unity/Unity_DetectionUtilities.html
- More Unity leap VR examples:
 - <https://developer.leapmotion.com/unity#100>

Code sample

```
using UnityEngine;
using System.Collections.Generic;
using Leap;

public class LeapBehavior : MonoBehaviour {
    LeapProvider provider;

    void Start ()
    {
        provider = FindObjectOfType<LeapProvider>() as LeapProvider;
    }
}
```

```
void Update ()
{
    Frame frame = provider.CurrentFrame;
    foreach (Hand hand in frame.Hands)
    {
        if (hand.IsLeft)
        {
            transform.position = hand.PalmPosition.ToVector3()
+
            hand.PalmNormal.ToVector3() *
            (transform.localScale.y * .5f + .02f);
            transform.rotation = hand.Basis.Rotation();
        }
    }
}
```

Wayfinding Methods - Visual Cues

- Map
- Compass
- Trail
- Others

Wayfinding Methods - Maps

- Provide a map/radar that shows you where you and the next target are
- One way to create a minimap: use two cameras
 - Create one main/OVR camera and one orthogonal camera
 - Make sure you change the depth/width/height of the cameras to make one render before the other
- Tutorials
 - Radar: https://youtu.be/O8is_EikILA
 - Minimap: <https://youtu.be/ZuV9Xlt-l6g>



Wayfinding Methods - Compass

- Show the direction to the next target
 - E.g. an object pointing towards the target



- E.g. visualize the direction of the target like a laser beam

Wayfinding Methods - Trail

- Visualize the path towards the next target
 - E.g. coins along the way
 - E.g. line connecting previous target and next target

References:

- Orion: <https://developer.leapmotion.com/get-started>
- Unity core and cool projects for reference: <https://developer.leapmotion.com/unity#100>
- Script example for leap hand setup: https://developer.leapmotion.com/documentation/unity/devguide/Project_Setup.html
- Script example for detecting gestures: https://developer.leapmotion.com/documentation/unity/unity/Unity_DetectionUtilities.html
- Tutorial from leap side: <http://blog.leapmotion.com/getting-started-unity-oculus-rift/>