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CSE 366 Virtual Reality, Spring 2024, Assignment 3: Augmented Reality

Unity Version: 2022.3.18f1

AR Foundation Version: 5.1.3

Hardware used: N/A

Directory Hierarchy:

- Darth_Artisan – plugin for trees
- Editor – Artifacts from Vuforia
- Images – images used for selecting a tree, building, or cart for augmenting objects
- Low Poly Buildings Full Pack – plugin for buildings and carts
- Materials – materials folder
- Prefabs – prefabs folder
- Resources - Artifacts from Vuforia
- Scenes – scenes
- Scripts – scripts folder
- StreamingAssets - Artifacts from Vuforia
- TextMesh Pro – TextMesh Pro folder
- XR – not sure what this is

Details on implementation:

For my implementations, I opted to. Make my own models. All 4 models of the teleportation, par holes, and starting holes were hand designed by me via unity 3d.

For image tracking and recognition, I used Vuforia to track QR codes that were then placed on top of the plane.

For my general AR application, I used AR Foundation to help me build the mini golf. I used plane managers to detect planes and then I wrote a script that will prompt the user to select a plane. Then the script will hide all renders of additional planes except for the one selected.

Then I wrote scripts that handled placing of real objects and augmented objects. This required raycasting and UI buttons to control different aspects of the interaction.

Finally for my golf ball interactions, I used swiping motions to enable the user to simulate hitting the ball like in real life.

Overall, I tracked these steps by having a statemanager that kept track of what state of the application I was in. In essence, I had a state for selecting planes, placing markers, placing real world objects, placing augmented objects, and playing the game.

Extra credit tasks: N/A

References to resources:

- Vuforia for image tracking
- Buildings - <https://assetstore.unity.com/packages/3d/environments/urban/low-poly-buildings-full-pack-115140>

Submission Link To Google Drive: https://drive.google.com/drive/folders/1PnxMOU7tGNtDyCU-UVfXcVIAgN_eEj7G?usp=share_link