Raycast & Anchor: Placing AR Foundation Holograms

CE/CZ 4001

Virtual and Augmented Reality

AY2021/2022 Semester 2

Reference

- Raycast & Anchor: Placing AR Foundation Holograms (Part 3)
  - Raycast & Anchor: Placing AR Foundation Holograms (Part 3) – andreasjakl.com

Introduction

- Now, we're finally ready to place virtual objects in the real world.
- For this, we perform a raycast and then create an anchor at the target position.
- How to perform this with AR Foundation?
- How to attach an anchor to the world or to a plane?

AR Raycast Manager

- To let the user place a virtual object in relation to a physical structure in the real world, we need to perform a raycast.
- We “shoot” a ray from the position of the finger tap into the perceived AR world.
- The raycast then tells us if and where this ray intersects with a trackable like a plane or a point cloud.
- A traditional raycast only considers objects present in its physics system, which is not the case for AR Foundation trackables.
- Therefore, AR foundation has its own variant of raycasts.

AR Raycasting & Object Placement

- When raycasting to perform object placement, we can both place an object on a plane, as well as on a feature point or any other trackable.
- Note that just placing the object in the Unity scene at the intersection point does not anchor the object to the real world (yet!).
- This means that over time, its perceived position might slightly change, as it is not attached to the physical object but instead placed in a virtual static coordinate system.

AR Anchors

- Placing objects in the Unity coordinate system is not enough.
- We also need to keep the real and virtual world in sync.
- This is where anchors come into the game.
- Objects should be anchored to real world objects, instead of Unity's "virtual world" coordinates.
- This corresponds to a pose in the physical environment.
- This pose is tracked by the XR device (e.g., ARCore or ARKit).
- The position is then updated in Unity through AR Session Origin.
- Therefore, our object should be a child of that.

End