COMP-6371 Immersive Technologies
Assignment-2

Student ID: 40160971
Name: Pulkit Kakkar

Introduction

The project is created in Unity 3D with *ARFoundation* framework. AR Foundation allows to create a multi-platform augmented reality unity application by providing bindings to ARKit and ARCore. The current project is created just for iOS.

Steps to Launch

Note: You will need signing keys to launch application from XCode

1. Open the directory in *Unity3D 2020.3.18f1*
2. Go to Build Settings and set the build target to iOS.
3. Click on Build & Run, Select an output directory.
4. Now, Open the directory created in Step-3 in XCode.
5. Go to Signing Capabilities, and Select Signing Profile.
6. Click on Run.

Features and Interactions

There are two basic modes in AR app. The first is *Place Objects Mode* and the second is *Manipulate Object Mode.* The application opens in *Placement Mode* initially.
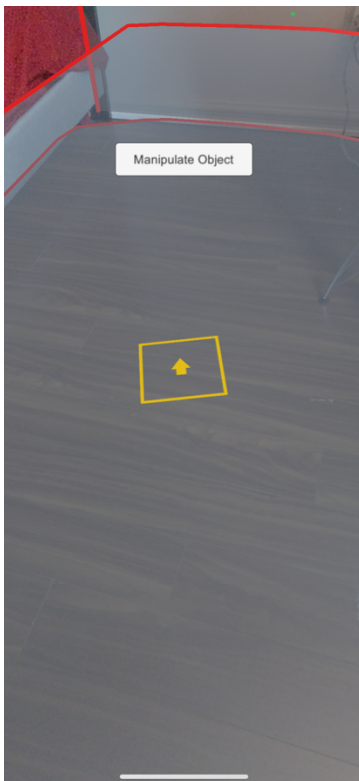
Placement Mode: Placement mode allows user to move around and detect planes in real world. The application is designed to detect horizontal and vertical planes. Once the planes are detected, an indicator marker will appear on screen, you can position the marker and tap on screen to place an AR plant object. If you wish to manipulate objects, click on Manipulate Object mode button.

Manipulate Object Mode: In this mode, you will see controls to manipulate objects. You can click on left or right arrows to select the object you wish to modify. The Label on top will reference to object index that is currently modified. The object numbers are assigned in order of object creation.

The rotation and scale slider can be used to transform the selected objects. If you wish to translate the selected object, Click on Move button. You will see placement indicator will re appear, point the new position and tap on screen, The object will be placed at new place.

Physics and Dynamics

The plane created in placement mode, is created with custom prefab *ARPlane,* which has a mesh collider on it. Each new Plant Object has box collider and is placed as a Rigid Body with kinematic checked to true. If two plants collide the will push each other.