Hello!

The application works by utilizing following plugins:

* AR Foundation
* ARKit XR Plugin
* ARCore XR Plugin

Which are necessary to create an iOs/Android App with Unity.

Furthermore, the Version 3.5.5 of the AR + GPS Plugin by Daniel Fortes is used to which there is following documentation: <https://docs.unity-ar-gps-location.com/>

By using the plugin, the placement of AR objects became a lot easier, and the implementation of AR objects could be tested rather quickly. While it was necessary to change a few aspects to make the placement better and to adapt the tool to the needs of the project, it provides a good basis for, I’d say, every AR application.

There are three modes:

1. ARPlacement
2. ARLocation
3. ARFuture

AR Placement mode:

In the AR Placement mode, you can insert objects into the real world by simply pressing them on the app and touching the screen wherever you want to place the object.

To do so, you need to direct into the folder Assets -> Modes -> ARPlacement -> Resources -> Items and create a new Item by pressing right click, Create Item. An Item needs to have a prefab and an image. The image is the one the one which users can see in the menu of the app, while the prefab is the model which gets displayed in the real/augmented world.

Free models can be downloaded for example on following homepage: <https://sketchfab.com/feed>

I then placed the prefabs in the Prefab folder of the ARPlacement mode. When inserting the image, it is important to set the Texture Type to Sprite (2D and UI) to make the image visible for the Items.

The UI of the mode, such as for example the bar on the bottom where the images can be seen, is programmed in a way that it automatically resizes itself when new objects get added. Therefore, it is possible to add 20 objects and more without having to think about UI aspects in that regard. The hovering and focusing of the objects works automatically as well.

Something which needs to be adjusted from model to model is the scale at their transform – otherwise the lantern would be 10m high, while the tree would only rise to a height of 1m.

AR Future Mode:

The AR future mode sadly doesn’t have too much information available yet since there was no time left to model how the Seestadt/Urban Lakeside city, will look like in the future in comparison to now. Due to that reason, I implemented the button toggle with which it is possible to switch between the two modes, although this mode of course would still need to be programmed and modelled more.