Ablix Task App

Testing Device
Android App

Object Used for tracking :
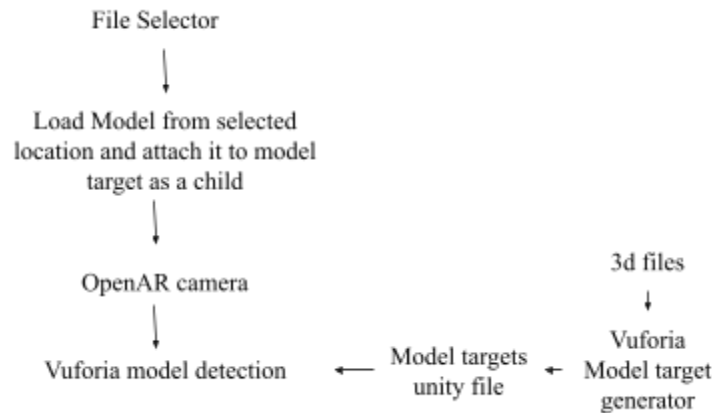Rubix cube - 5.2x5.2x5.2m

Apk Testing:
1. Click the " Load" button to pick files from your application.
2. Once the model is loaded from the folders the AR background will be shown with 2d UI of the cube at the center of the screen.
3. Align the ARcamera-2d ui to the real time rubix cube (test with 5.2 meter rubix cube for precise object placement)and the 3d rubix cube will augment on the physical rubix cube.
4. The augmented cube can be rotated/scaled by two fingers like the attached image.
5. Reset button to reset cube to its original scale/rotation
6. Close button will quit the app.

Rotation	Scaling
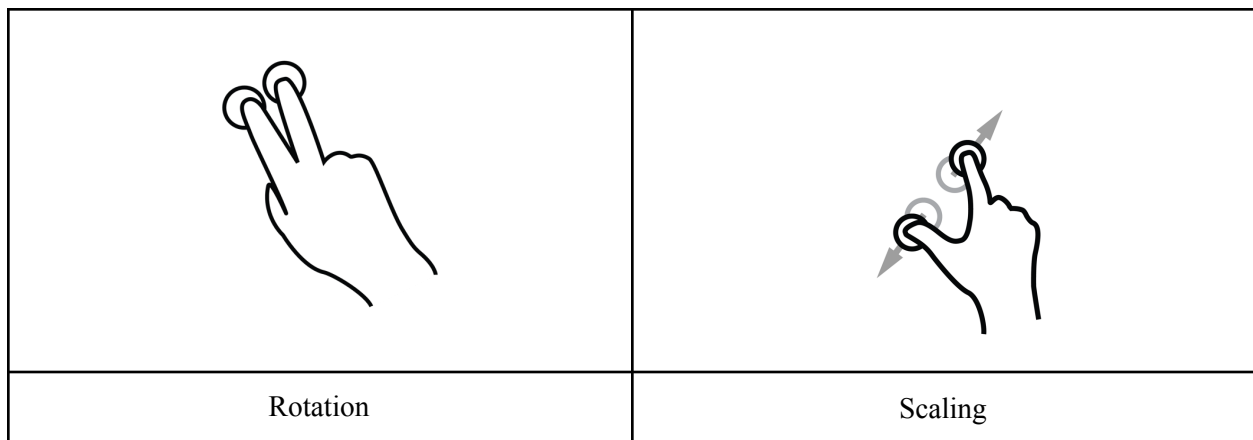
Project settings:
It is designed for Android so please setup unity build settings to Android and make sure in player setting scripting background to il2cpp & Target Architecture arm64 is selected

Architecture:

```
                    File Selector
                         |
                         ↓
              Load Model from selected
             location and attach it to model
                    target as a child
                         |
                         ↓
                                              3d files
              OpenAR camera                       ↓
                    |                           Vuforia
                    ↓            Model targets  Model target
          Vuforia model detection  ←  unity file  ←  generator
```

In-Project Components:

ARCamera: Vuforia Camera Arbackground and model detection

Canvas:

- Load button: File selector and shows progress of model downloaded.
- Close button: To close the app
- Reset button: To reset tracked object scale/rotation

Load Model: Empty gameobject for script reference has the following script components

- Touch script: Handle touch on the screen to scale/Rotate
- Load Model: All button functions and load 3d files.

Model Target: Vuforia model detector and parent object to attach a 3d file which needs to be augmented. From the "model detector behaviour" component, change the physical Length/width/height of the testing rubix cube for better detection.

Challenges faced:

Selection of sdk for object tracking in the Android platform was the challenge I faced in this task.Since I need to give precise input to get precise output and good tracking which can be little easily achieved by ios

I chose vuforia sdk where there is an option to upload 3d files and can change its properties to some extent and can get good tracking of the physical object which I can use at hand.

Additional Features:

I didn't add panning properties for the augmented object since the app is based on object detection,when it is panned it won't be good according to my opinion.

Added model download progress text,reset button and close button for better results.