

# Programming Assignment 2: Simple AR project

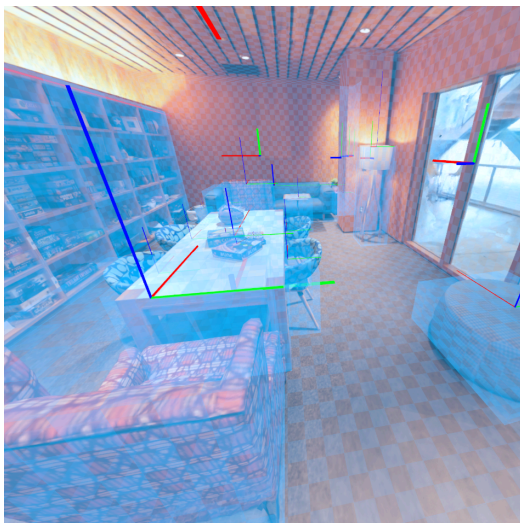
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## **Part 1: Unity Project Setup**

The first step was to set up a Unity project, and make it compatible with the Meta Quest 3. Our group followed the official documentation on the Oculus developer page. As per the instructions, we download the Android Build Support development kits and install them along with the Meta XR SDKs and other Unity packages that were installed automatically by the Project Setup Tool. We also went through the process of enabling Android Debug Bridge debugging so that we could have more control over the build installation process on the headset.

## **Part 2: Adding Passthrough**

To set up Passthrough, the group opted for a simple implementation using the Building Blocks toolset provided by Meta, a collection of self-contained starter assets



that correspond to common XR features. Adding the Passthrough Building Block automatically added its dependencies, namely the Camera Rig. The next step was to actually perform the room scan and space setup. We found that there was yet another premade “Building Block” for this feature that simply fetches the most recent space data collected from the headset’s built-in “Space Setup” process. If this data does not already exist, the app prompts the user to be redirected to the Space Setup process, returning the user to the app upon completion.

## **Part 3: Grab-able Object:**

With passthrough setup and the room scanned, next came the implementation of some actual interaction - the ability for the user to grab and move an object within the scene. Once again, the team made use of the Building Blocks toolset. This also came with the implementation of the “Synthetic Hands” Building Block, as the “Grabbable Object” building block was preconfigured to function with hand tracking and the group decided that it would be to our advantage to lean into the controller-free nature of the preconfigured assets than to test/configure them to function with the controllers. In the

project, the user can manipulate a red cube and reposition it around the scene.

**Future Implementation:**

In the future, our group will involve more in-depth interaction with the AR environment. One feature we intend to implement is to implement physics to the objects generated by the room scan, allowing virtual objects to behave seamlessly with the real world environment.