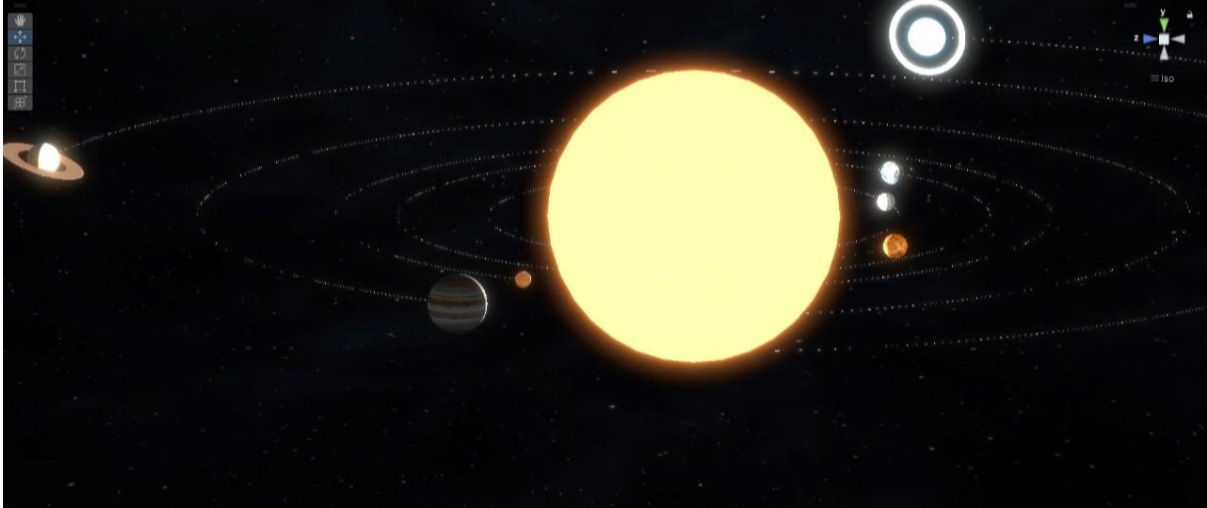# DES643 Project Documentation

Solar system VR app

App Features:

The project features a realistic Virtual Reality Interactable model of the solar system. The project aims to explore the scope AR/VR applications providing both immersive entertainment and educational ease.

In this project, you can:

1.) Explore the solar system.
2.) Move and teleport to view planets from different orientations.
3.) Interactivity options for game UI and plants to learn more and explore the planets of the solar system.
4.) Control the application with XR Ray Interaction providing hyper-realistic real time experience.

Launching the app:

Set up Meta Headset:

- Download and install the Oculus mobile app from Google Play or the App Store.
- Follow the in-app instructions to sign in with your developer account credentials.
- Pair your headset.
- Wear your headset and follow the instructions in the headset to finish the setup.

Installing MQDH:

- Download the installer from:
  Mac: https://developer.oculus.com/downloads/package/oculus-developerhub-mac
  Windows: https://developer.oculus.com/downloads/package/oculusdeveloper-hub-win
- Install the application.
- Open the application and log in using your developer credentials, which must be the same as you've used for logging in the headset.

Connect the Headset to MQDH:

- Put on the Meta Quest headset and sign into the developer account you want to use for development.
- On the headset, go to Settings > System > Developer, and then turn on the USB Connection Dialog option. (Alternatively, you can open the Meta Quest Mobile App, select the headset from the list, and then turn on the Developer Mode option)
- Connect the headset to the computer using a USB-C cable and put on the headset again.
- Click Allow when prompted to allow access to data.
- Connect your headset to the computer using a USB-C cable and wear the headset.
- Accept Allow USB Debugging and Always allow from this computer when prompted on the headset.
- Open MQDH.
- On the MQDH navigation pane, choose Device Manager. All the devices you have set up are displayed in the main pane. Each device is shown with its status, which includes the device ID and connection status. The active device shows the green Active designator.
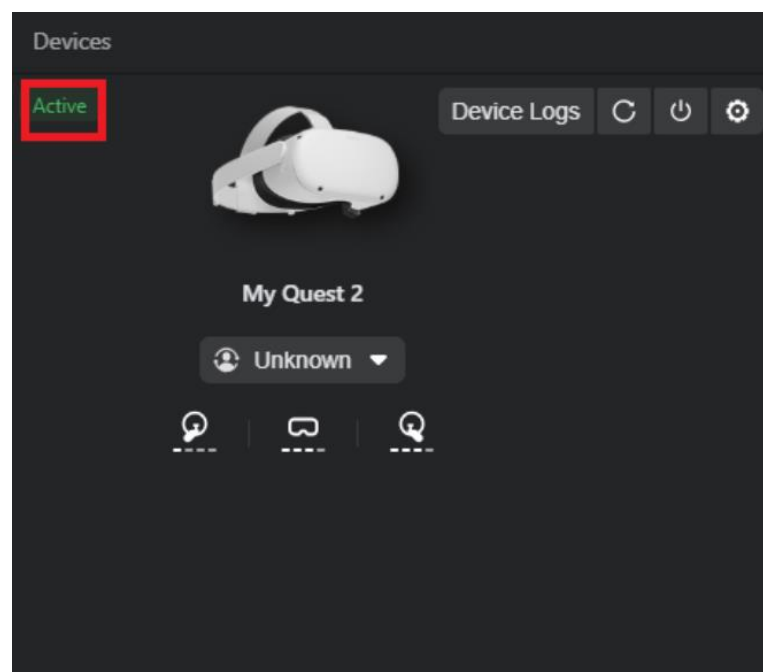
**Finally, launch the solar system VR app.**

Controls and Movement:

The VR environment features a wide variety of interaction and movement options:

1.) **Navigation**: The joystick on left controller can be used to navigate the 3-Dimentional environment throughout the solar system.

2.) **UI Interaction**: The Trigger button of either controller can be used to interact with the UI which includes buttons of the main game and scenes.

3.) **Planet Interaction**: The Grip button of either controller can be used to interact with the game objects such as planets and sun. The rays turn blue upon being pointed at a game object indicating an interactable object. Once selected a planet using grip button, a canvas will appear showing interesting facts about the planet, you can click on back button using trigger button to close the canvas.

4.) **Earth Interaction**: Use the grip button to select earth, it will open a canvas showing interesting facts about earth, there is an explore button on the canvas, you can click on it using the trigger button. It shows two buttons, solar eclipse and seasons. You can click on those buttons using trigger button upon which a video will appear explaining the phenomenon.
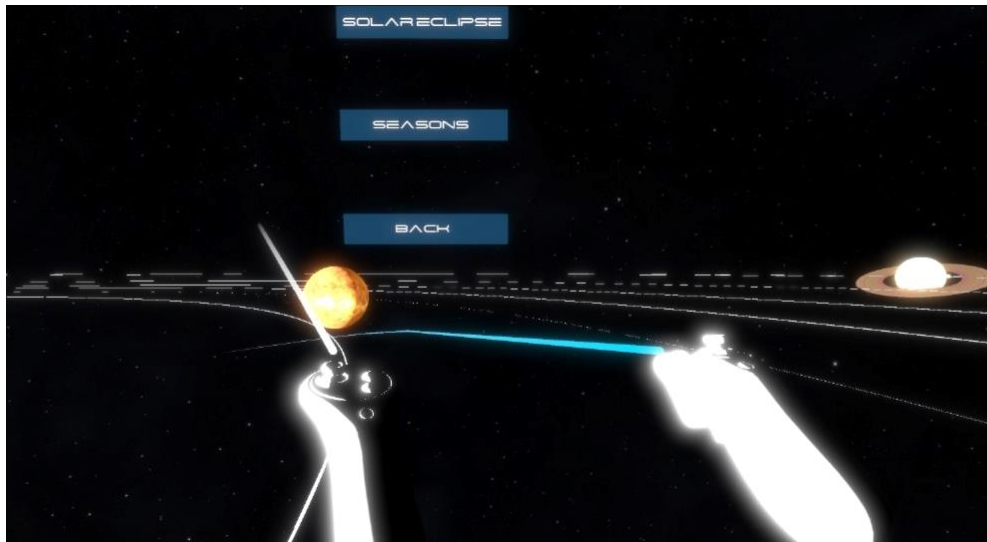
5.) **Teleportation**: The user can also teleport throughout the space using the Right joystick. Hold the joystick forward and point your right controller to where you want to teleport, then release the joystick. The ray turns green when using teleportation. This helps in quicker and more accessible navigation throughout
the environment.