**Unity Scene**

The scene we have set up is an empty airplane hangar, with an obstacle course and some cargo boxes. The user starts on a stage and sees the drone in front. The controller input symbols are directly displayed on the Vive controller model. These symbols are dynamic and will correspond to the user input.

The name of the scene is Main\_Scene.unity. It is under the folder Assets->Scene-> Main\_Scene.unity

To run the scene, open the project folder UAV\_Project as a Unity Project, allow all imports, open the scene and click on play.

**Controls**

* ***Left Controller:*** The left controller trackpad controls throttle and yaw. The user needs to press the left trackpad button for valid input.
  + *Throttle*: Y value on the trackpad controls throttle up or a free fall.
  + *Yaw:* X value on the trackpad controls yaw left or right.
* ***Right Controller:*** The right controller trackpad controls pitch and roll. The user needs to press the right trackpad button for valid input.
  + *Pitch:* Y value on the trackpad controls pitch forward or backward.
  + *Roll:* X value on the trackpad controls roll left or right.
* ***Combined controls***
  + *Reset:* To reset the drone’s position to its original location, press the trigger button on both controllers simultaneously.
  + *Change gamemode:* To change the gamemode to toggle between the welcome state, the tutorial state and the freeroam state press the grip buttons on both the controllers simultaneously. This will cycle through the options.

**Indicators**

* *Arrows on the Drone:* The drone has an arrow on it which indicate the forward direction of the drone.
* *Drone finder:* There is an arrow on the top right corner of the screen at all times pointing to the current location of the drone. This helps the user figure out where the drone is in case it is out of sight.
* *Button Indicators on The Vive Controllers:* There are two sets of indicator on the Vive Controller; The Left controller has Throttle Up, Throttle Down, Yaw Right, Yaw Left indicated on the controller on top of the trackpad. The Right controller has Pitch Forward, Pitch Backward, Roll Left and Roll Right indicated on the controller on top of the trackpad. On the center of the trackpad there is circle indicating the magnitude of the force given in that direction indicated by the indicators.
* *ScoreBoard*:There is a scoreboard indicator that is displayed when the user is on the tutorial state.

**Instructions**

1. The user must remain on the stage during the simulation.
2. The user must follow the instructions in the tutorial state carefully. The path highlighted in the tutorial is green, when the user is within the desired path of the course. On leaving the course path, the path highlight color changes to red and the user is presented with an alert sound indicating that the user is off track.