

# A Summer At NERVE

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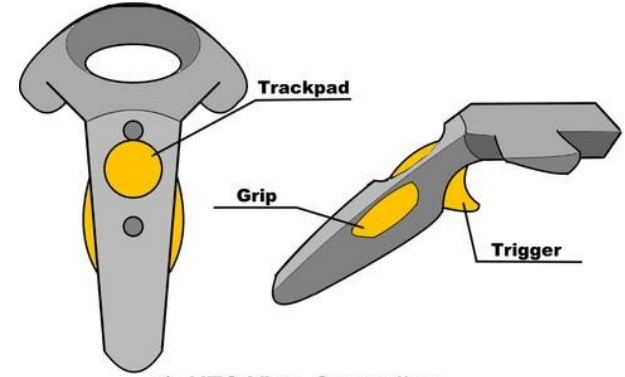
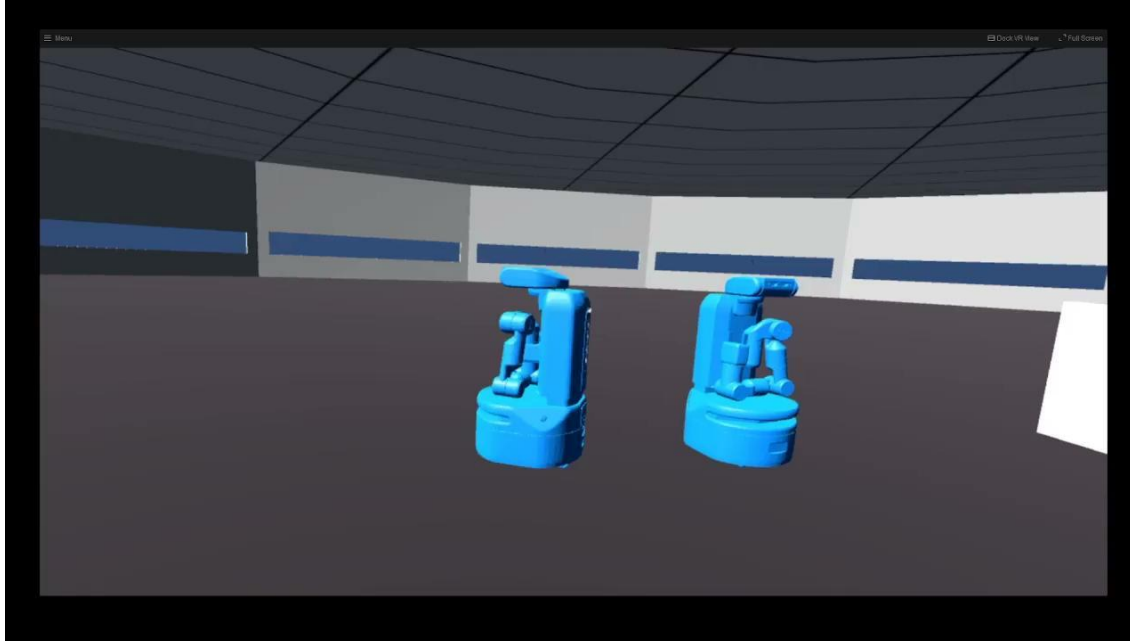
# The Overarching Project

- Create a virtual reality operating system for the Fetch robot
  - Manipulation planning
  - Navigation planning
- Implementation details
  - Use the Unity Game Engine for front end development
  - Use ROS.NET for connecting between unity and the actual robot



What I did this summer...

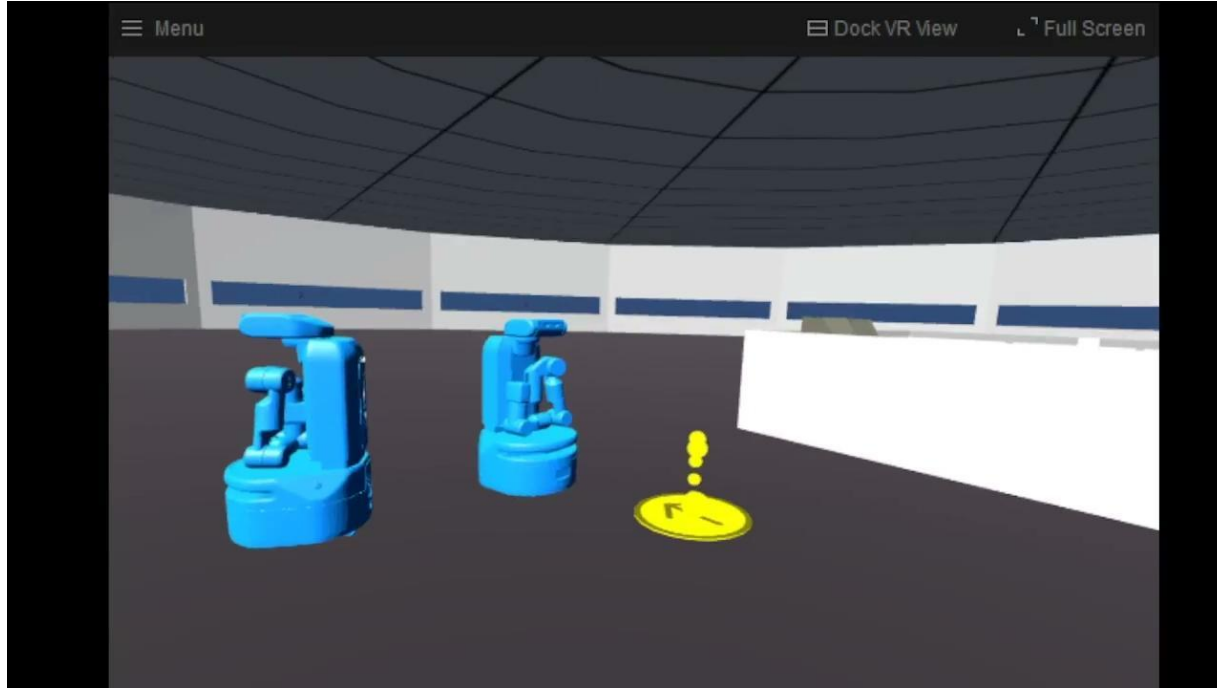
# Controlling the Orientation of Navigation Goals



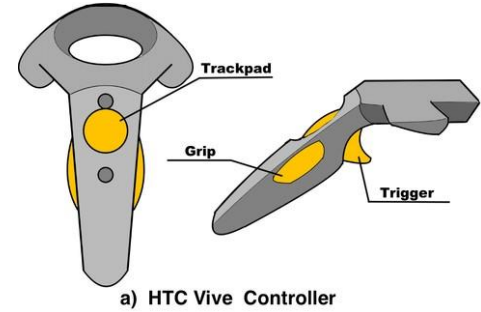
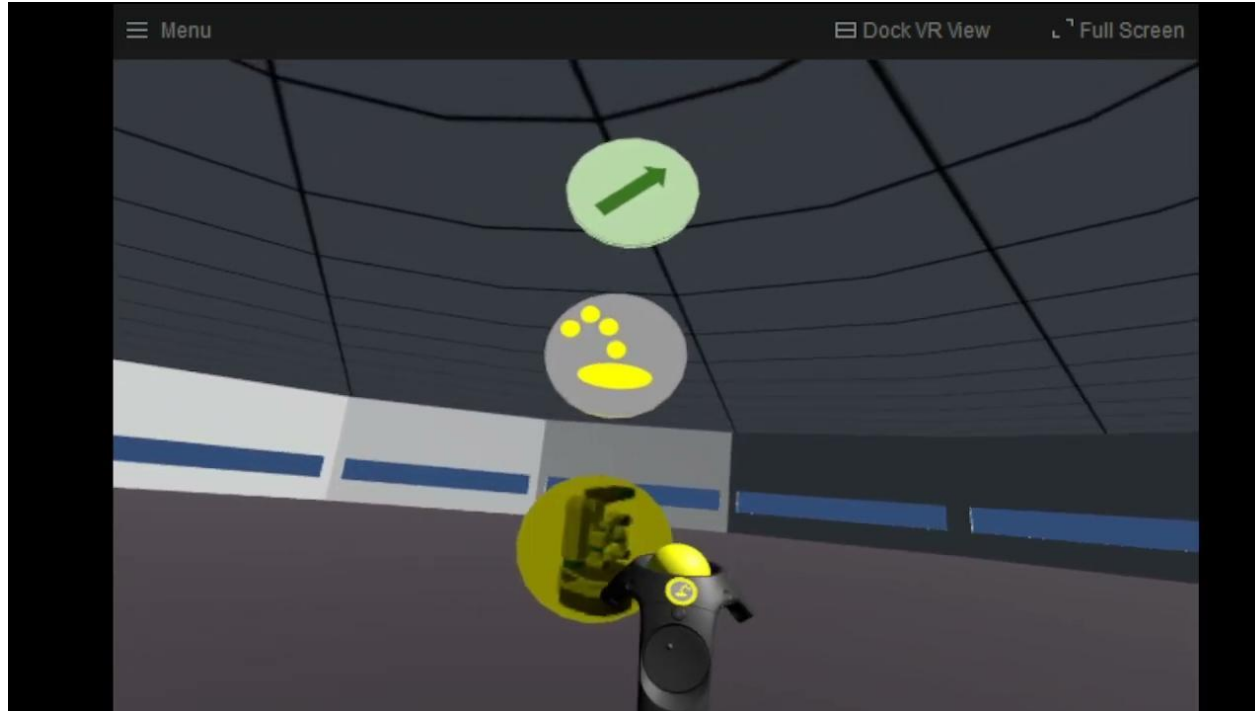
a) HTC Vive Controller

Theme of the summer: allow for precise control despite constraints of the hardware.

# Adding Orientation to the Player Teleport Mechanic

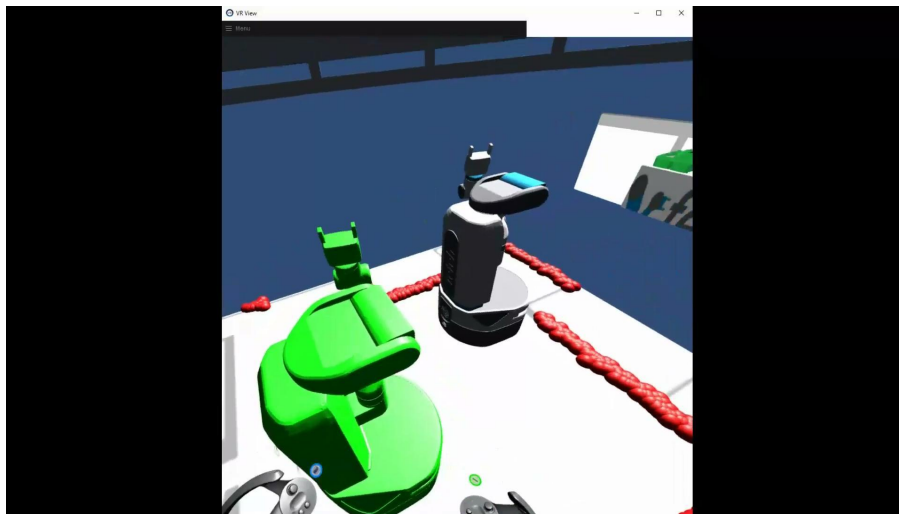


# Switching Controllers



# Pose Estimation

- Recreate the rviz pose estimation user interface in Virtual Reality
  - Select a position and an orientation, and the robot will set its pose to this
  - Good for manually localizing a robot
  - Add the lidar scans from the robot in order to align the pose estimate with walls or other obstacles, use a functional waypoint for more precise control



Thank you for a fantastic summer!