Developing an Augmented Reality Interface for Satellite Servicing Telerobotics Operators

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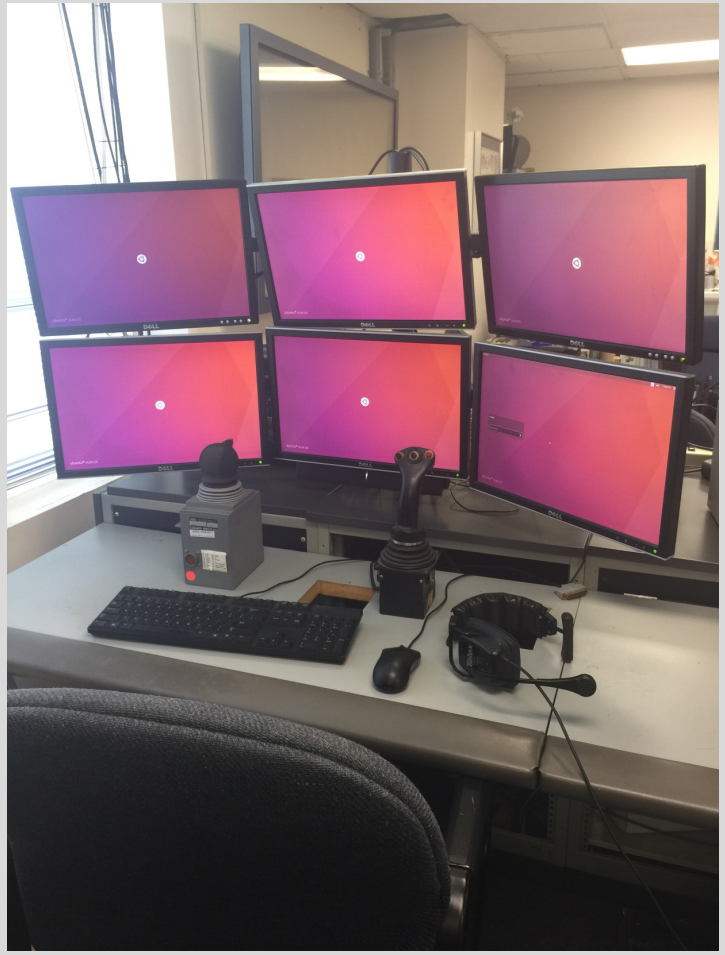
The Current State of Robot Operation

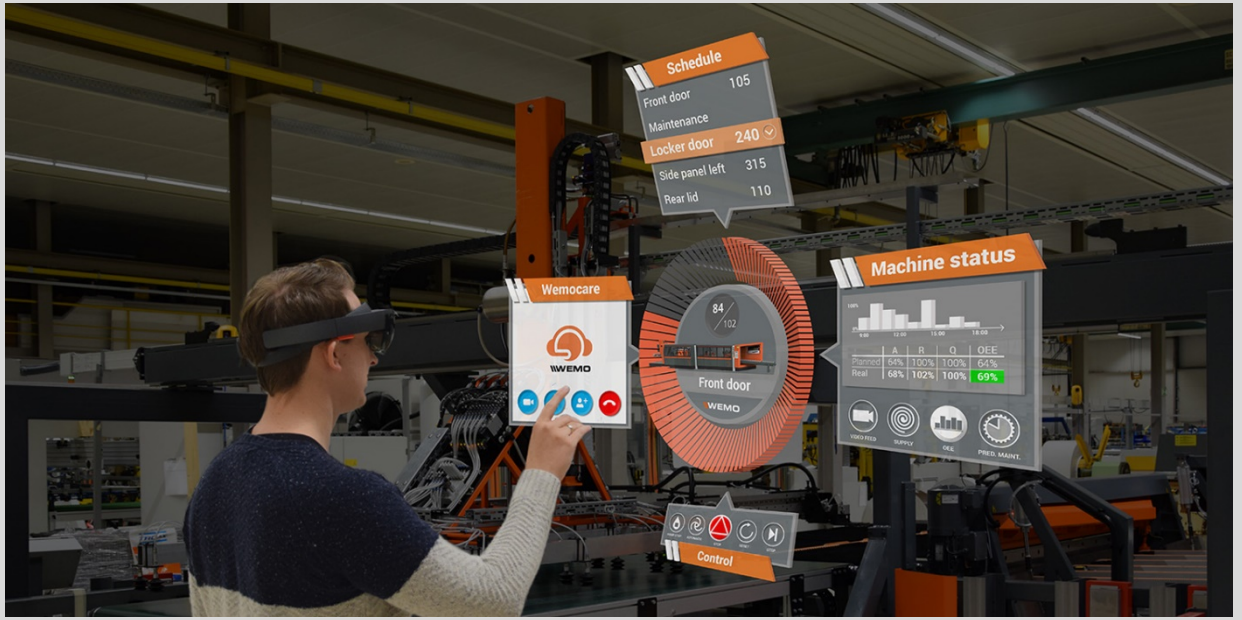
Telerobotics Operator

Icon made by Freepik from www.flaticon.com

Setup to Control a Satellite Servicing Robot



Augmented Reality



Microsoft Hololens 1

Project Overview

Create an interface that allows a user to manipulate as well as visualize a robot in real time.

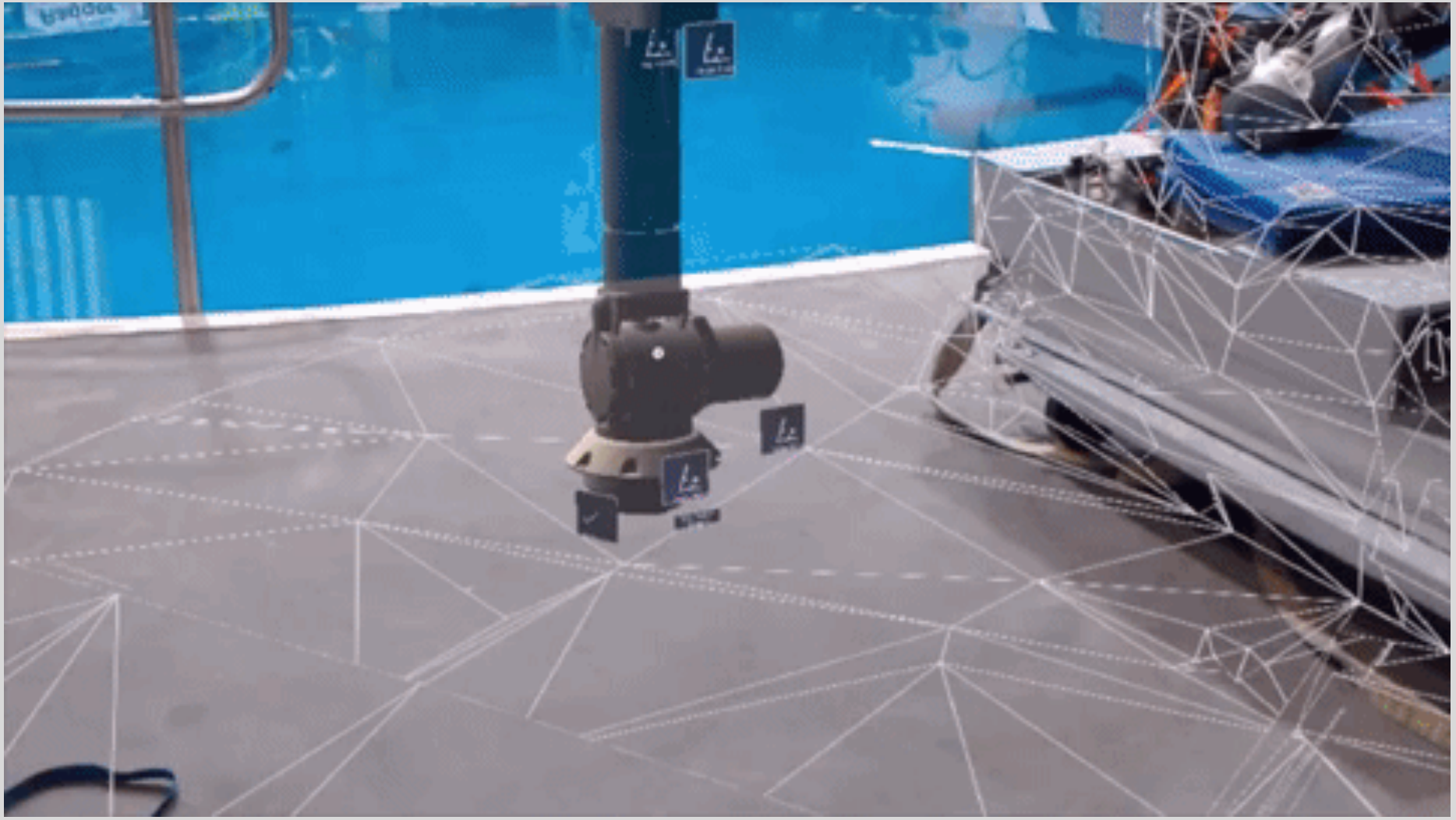
Goals:

- Save time and resources
- Reduce future error through mission planning
- Improving the way operators visualize their environment

Developed in unity

Key Features

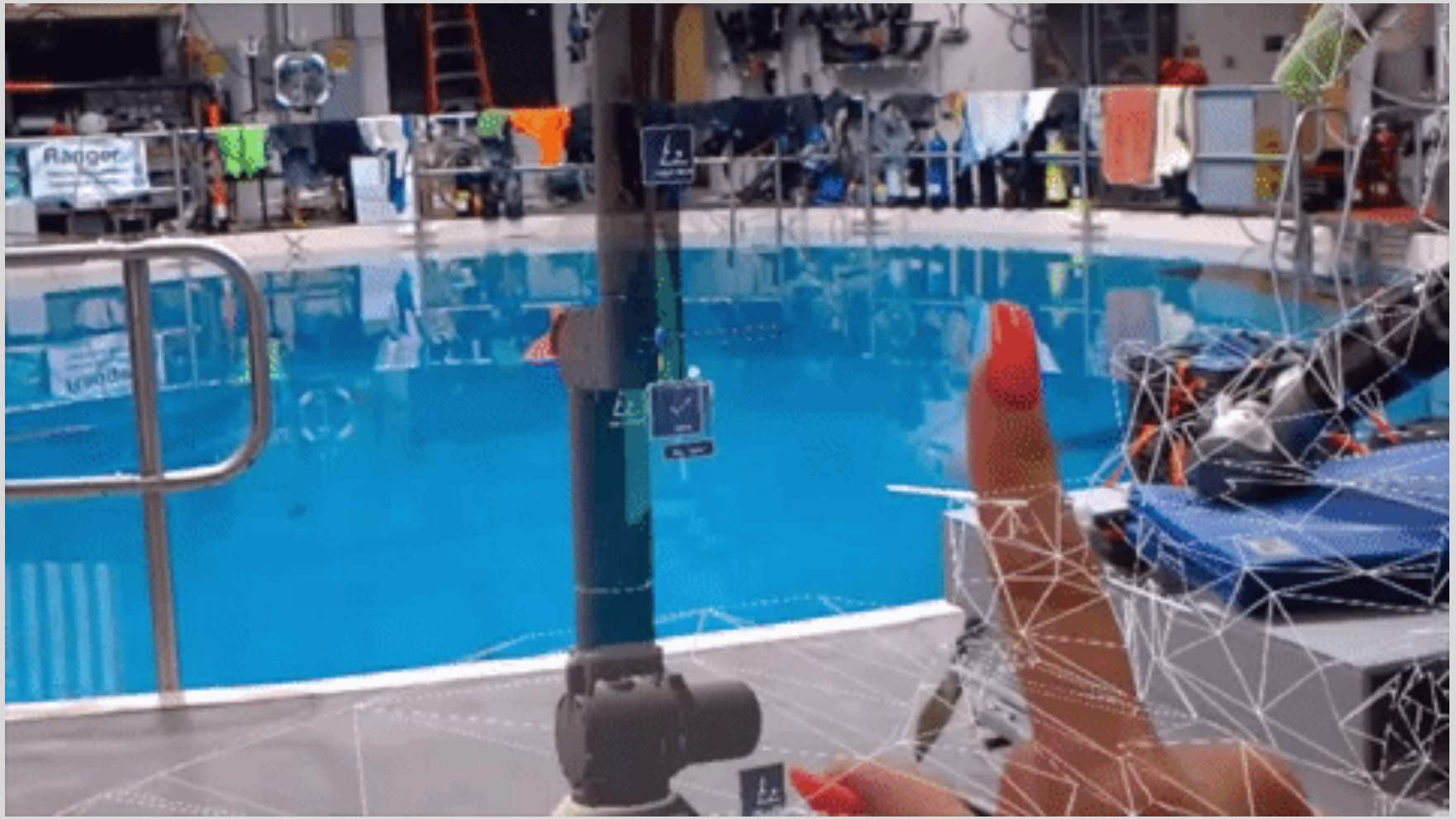
Dragging and Dropping a Robot into the Scene



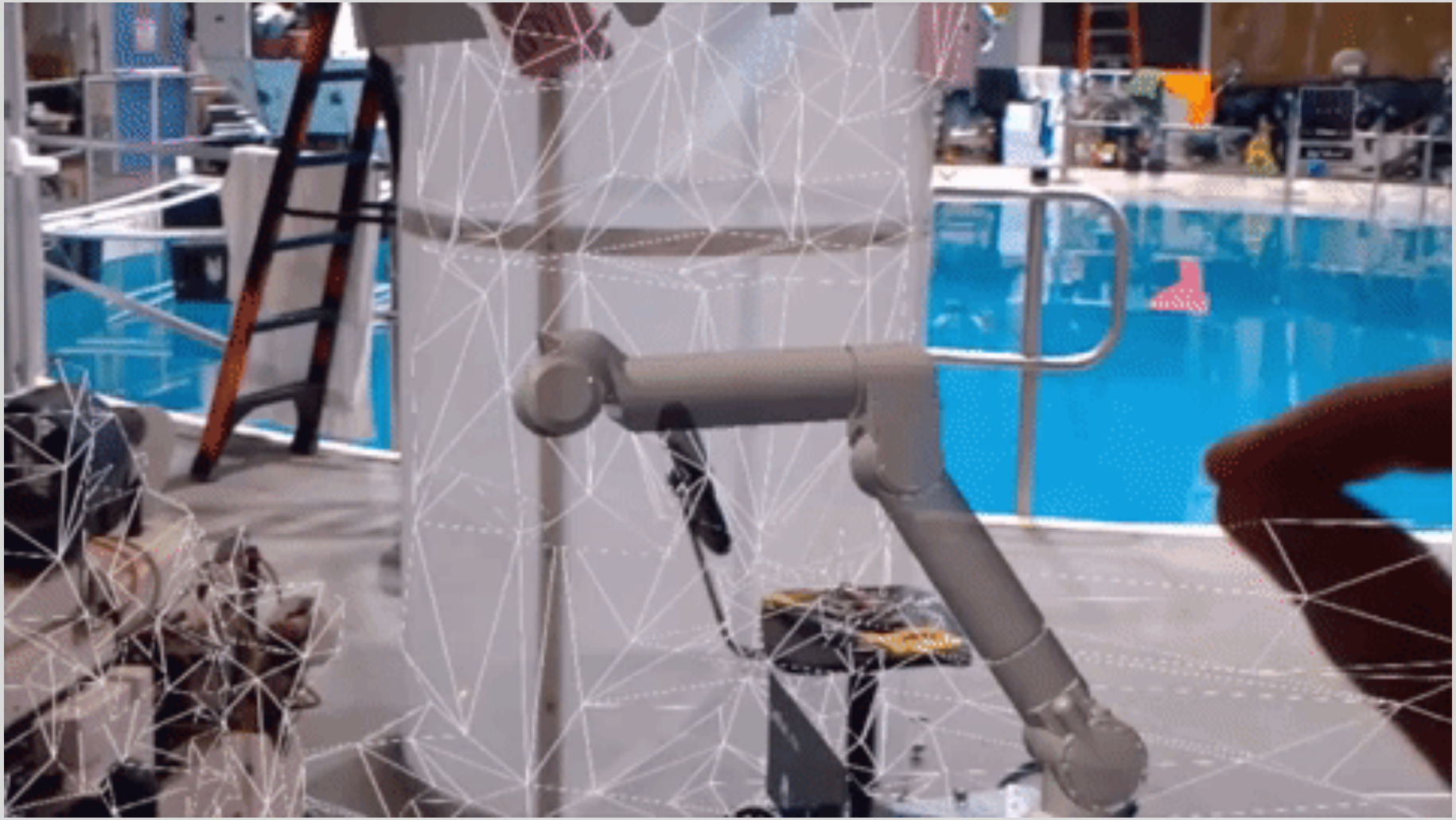
Communication over ROS

Inverse kinematics

Singular joint movement using slider



Simulating satellite repair missions



Future Work

-Add fine tuning to slider functionality

-Stream data from Qualysis to the Hololens

-Explore its usage for mission planning

-Conduct experiments to compare the effectiveness of the Hololens compared to conventional methods

-Upgrade to the Hololens 2 to expand our capabilities

Challenged Faced and Lessons Learned

-Learning Unity from the ground up (how to use C#)

-Ensuring that the things I made were versatile

-The limited field of view of the Hololens made design difficult

-The limited input options made design difficult

Special Thanks

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Questions?