PROBLEM STATEMENT

Design a 3D printed mechanical arm with three degrees of movement that can perform manual tasks to a navy ship's hull, while only being operated by one person.

LIST OF INTERPRETED NEEDS

- Halifax class ships
    - Nearing the end of their lifespans
    - 150 m, 200 people crew
- Steel
- Bulkheads and intricate piping
    - Lots of rust (needs to be removed/Painted over)
- Water Gun / sandblaster
- Pen
    - Switchable heads
- Camera
- Light
- $100 budget
- Jacobians and R-matrix

- Confined space inspection
- Water resistance recommended doesn’t need to be watertight for depth
- Narrow end effector
- Needs to be portable
    - Could be on barges or over the side of the ship
- Operated by one person
- Durability should last between a couple of weeks to a month.
- Should be built in a way that is easy to learn and understand
- The language used for the development of this product must be one used by most programmers such as C++ and Python