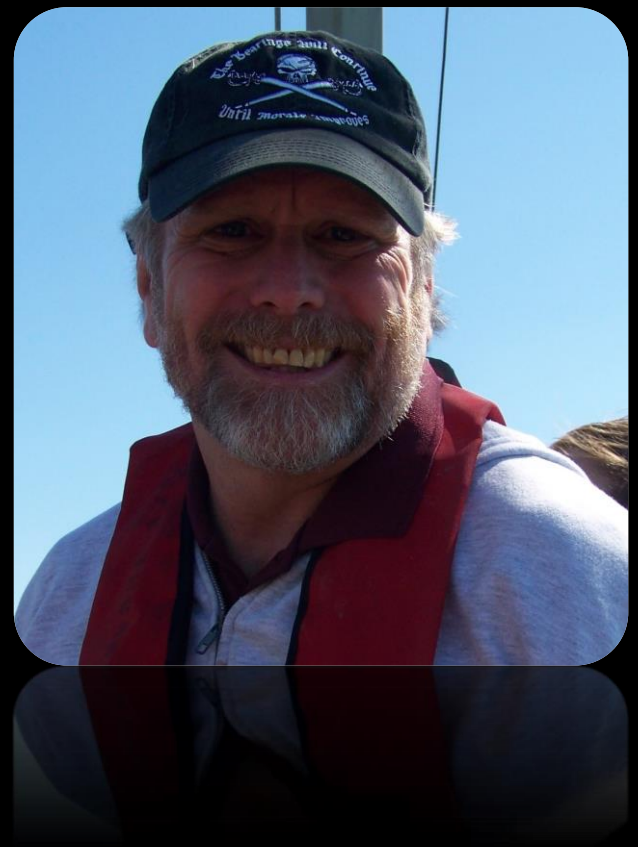
TEC-V

MILESTONE 5

By: Michael Dowling & Zealand Brennan

CLIENT

- DR. Wood
  - **Professor** | Ocean Engineering and Marine Sciences
  - **Program Chair for Ocean Engineering**



MILESTONE 5:

Tasks	Completion%	Michael	Zealand	To Do
Multi Fild Upload	60%	60%	0%	Testing
Styling	90%	90%	0%	Gain user Feedback
Forward Facing Sonar	30%	30%	0%	Review File Types and API
Autonomy	80%		80%	

TOOLS

ROV

- Python
  - Data Retrieval

Webpage

- Html + JavaScript
  - Environmental creation and control

Autonomy

- Gazebo
  - Sensor recognition
  - Obstacle avoidance

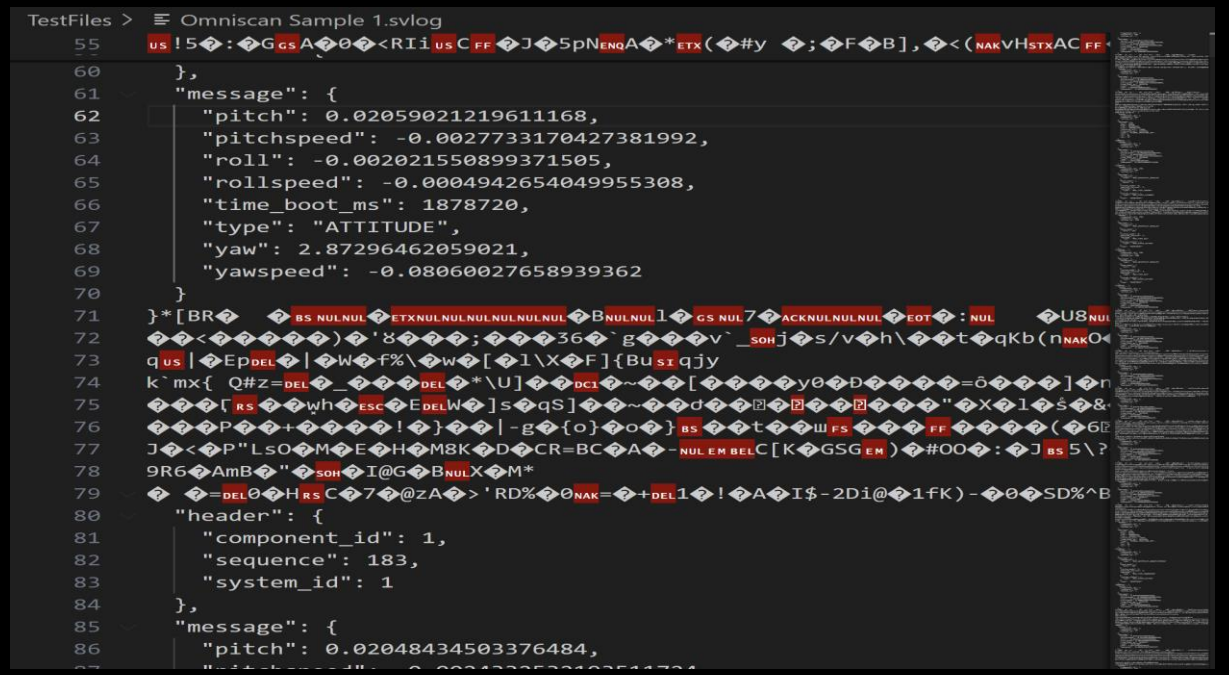
MILESTONE TASKS

MULTI FILE UPLOAD

INITIAL FUNCTIONS

Load Coordinates

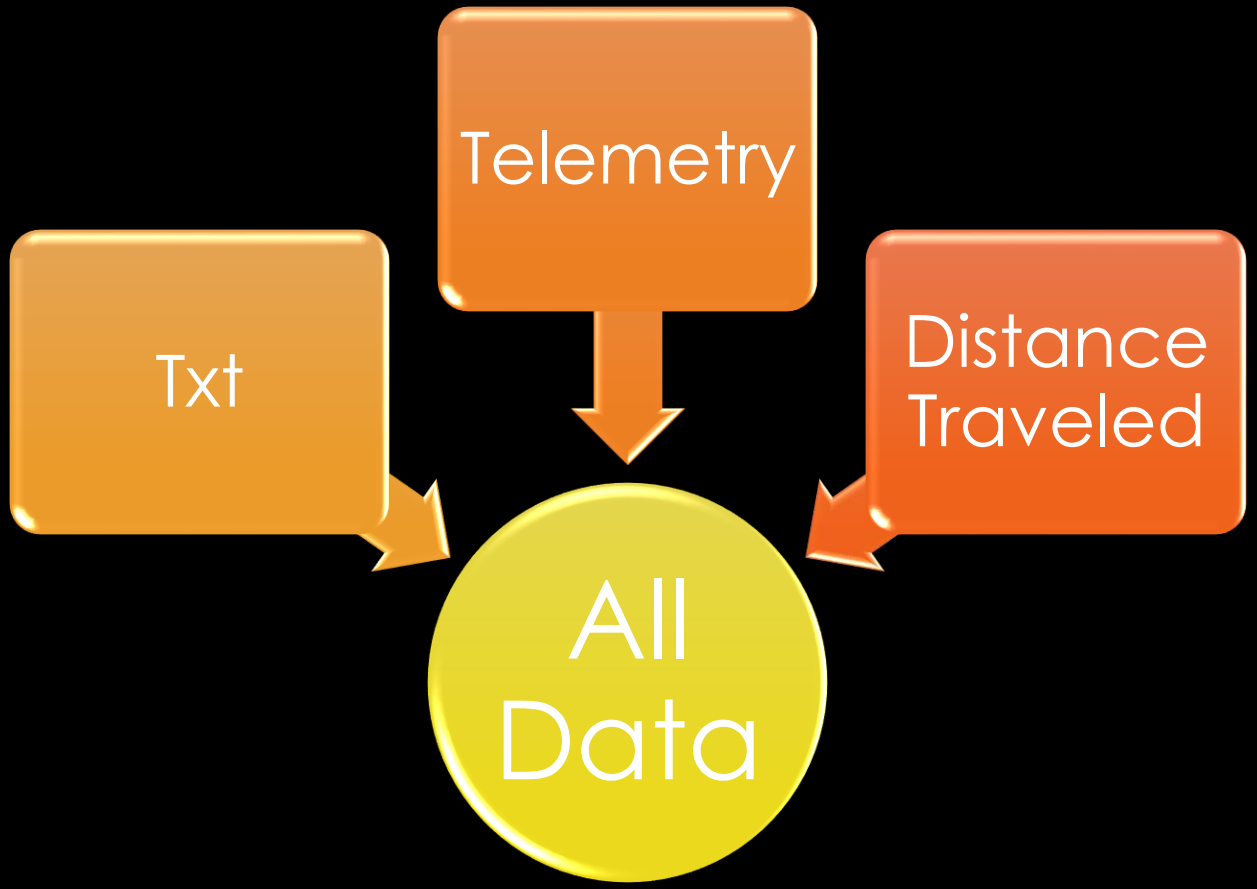
- Opens file explore
  - Allows only .txt extensions to be selected



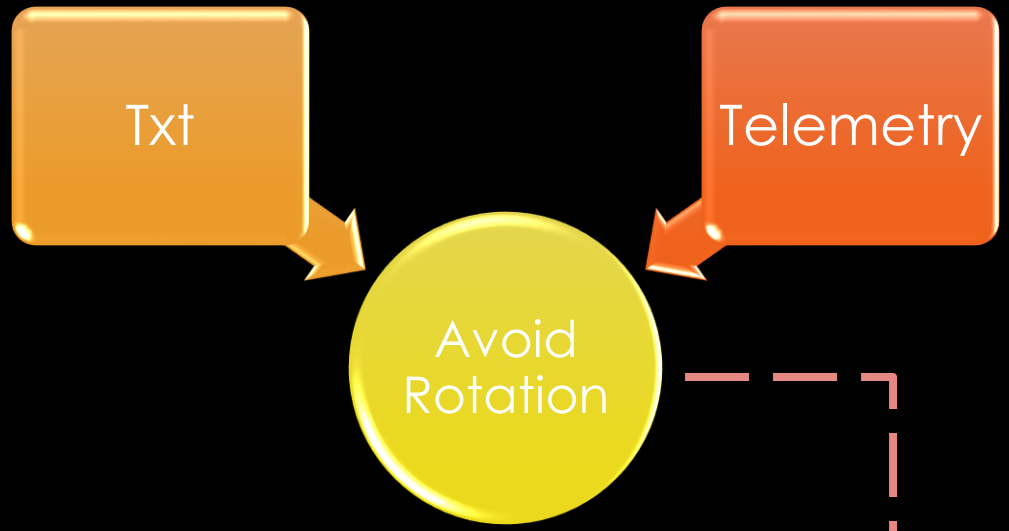
UPDATED FUNCTIONS

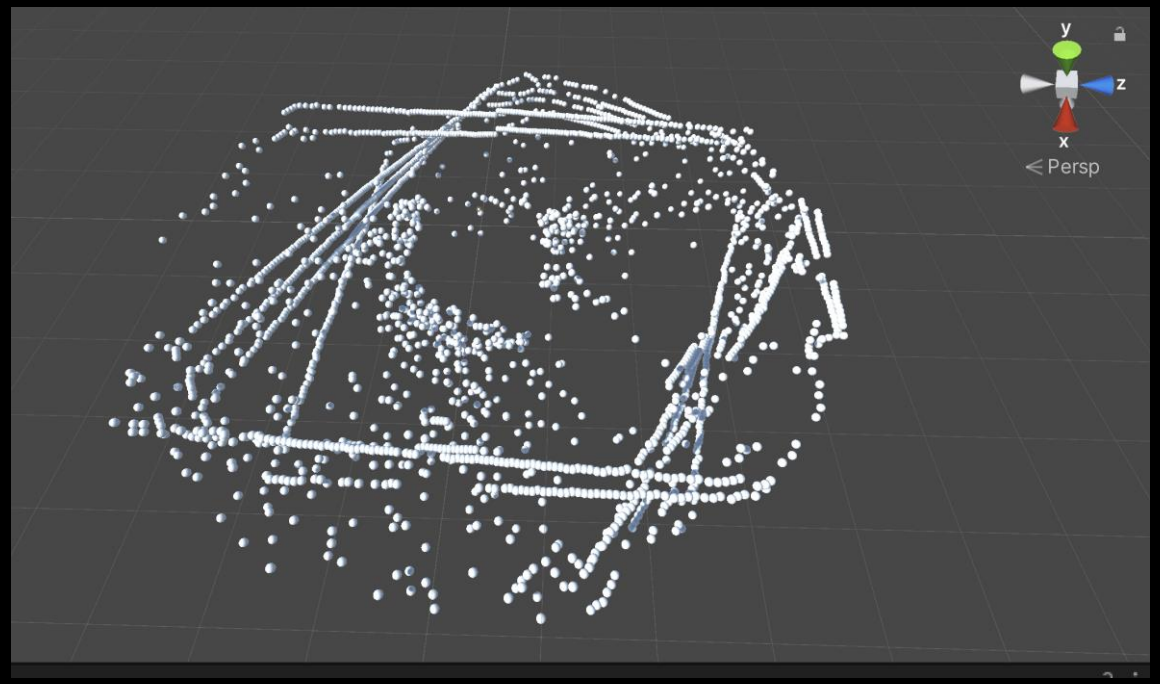
Load Coordinates

- Three different possible files:
  - Txt – Holds collected data from sonar
  - Telemetry- outputted by Q-Ground
  - Distance traveled – onboard IMU



WHY?



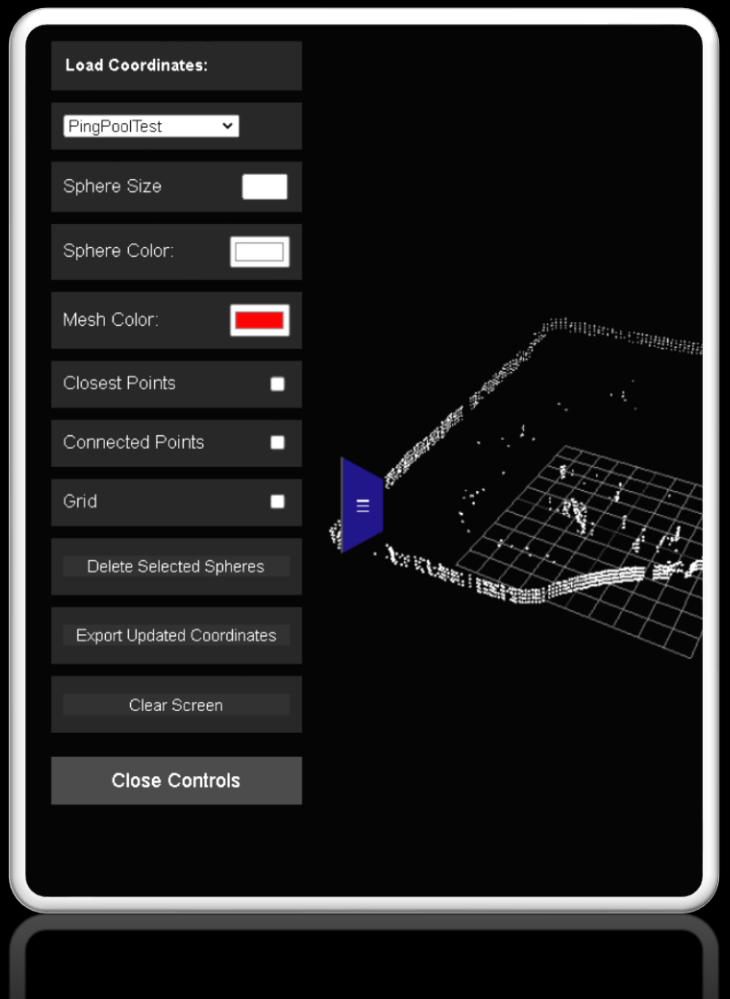


STYLING

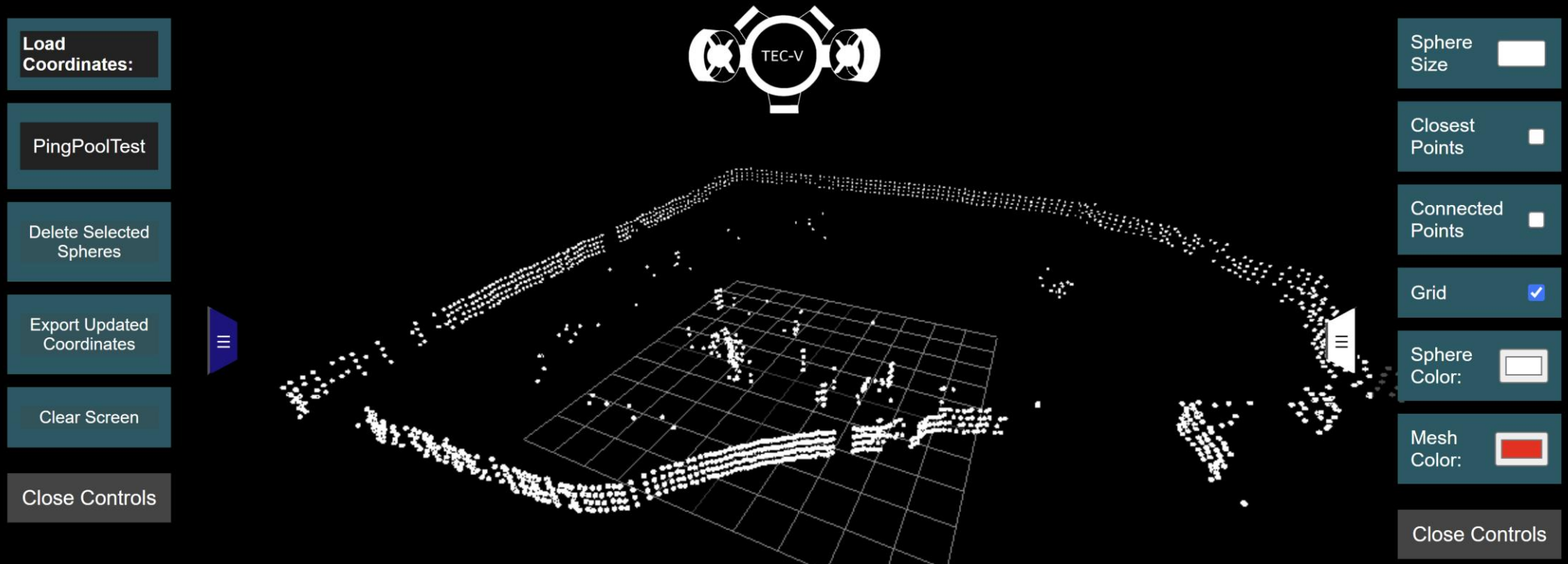
CLIENT FEEDBACK

Edit Layout

- Make it more user-friendly
- Reactive page



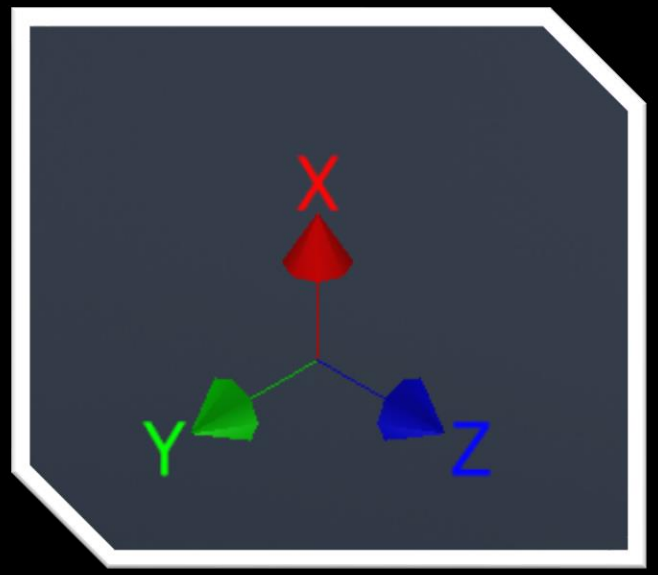
UPDATED UI


Load Coordinates:
PingPoolTest
Delete Selected Spheres
Export Updated Coordinates
Clear Screen
Close Controls
TEC-V
Sphere Size
Closest Points
Connected Points
Grid
Sphere Color:
Mesh Color:
Close Controls

PLANNED FEATURES

Coordinate Layout

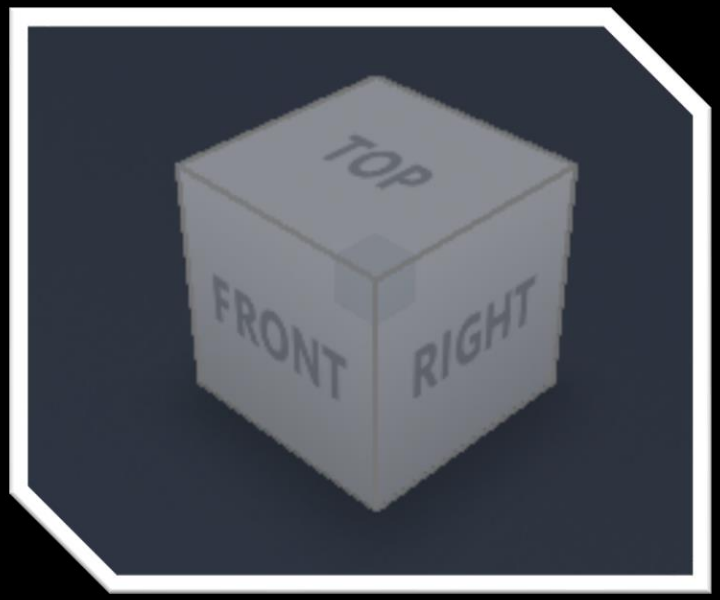
- Allow users to understand orientation of the object



PLANNED FEATURES

View Model

- Allow users to quickly focus on the model and choose a viewing location.



NEW SONAR

MAIN ISSUES

File Format

- Three different types:
  - .sl2
    - Could not identify
  - .svlog
    - “Sonar View” Proprietary format
  - .xtf
    - Standard side scan sonar filetype

SOLUTION 1

File Format

- Read Files using API documentation
  - .svlog
    - "Sonar View" Proprietary format
    - API did not work.
    - Declared structure
    - Partial Read

MAIN ISSUES

Direct SSH

- Directly connect to sonar
  - Retrieve only the required Data
  - Does not work

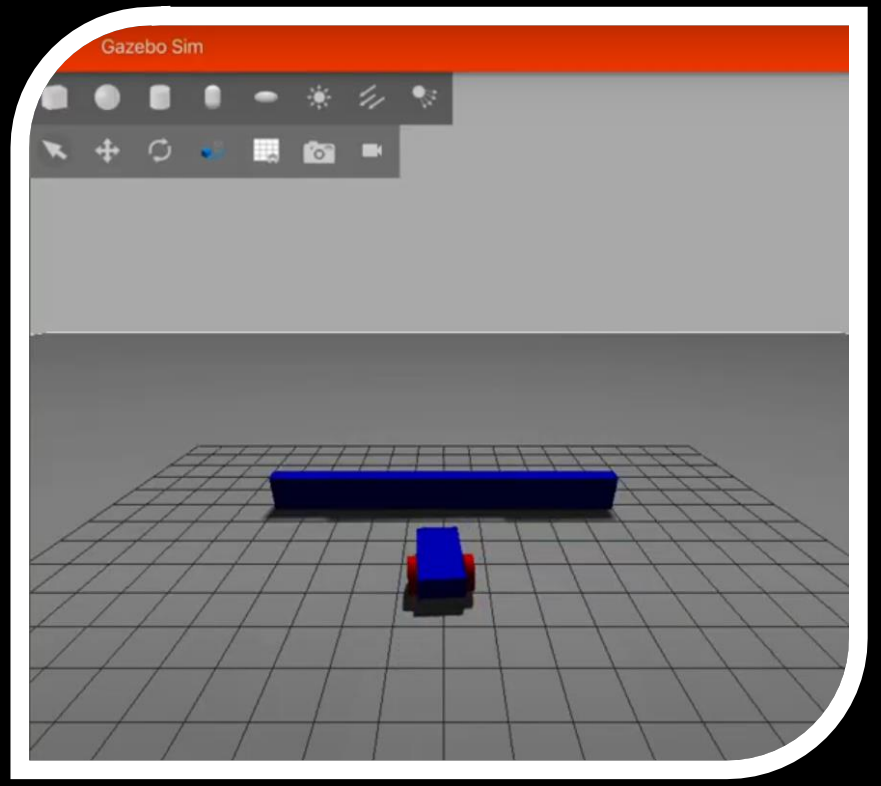
Test.py > send_command

```python
import socket
import json

IP_ADDRESS = '192.168.2.92'  # Replace with your sonar's IP address
PORT = 51200  # Replace with your sonar's port

def send_command(command):
    with socket.socket(socket.AF_INET, socket.SOCK_STREAM) as sock:
        try:
            sock.connect((IP_ADDRESS, PORT))
            print("Connected to OmniScan 450.")
            sock.sendall(command.encode('utf-8'))
            print("Command sent.")
        except Exception as e:
            print(f"An error occurred: {e}")

if __name__ == "__main__":
    # Example command to set start_mm to 0, adjust pulse_len_percent a
    command = json.dumps({
        "id": 2197,
        "params": {
            "start_mm": 0,
            "pulse_len_percent": 10,  # Adjust as needed
            "filter_duration_percent": 10  # Adjust as needed
        }
    })
```

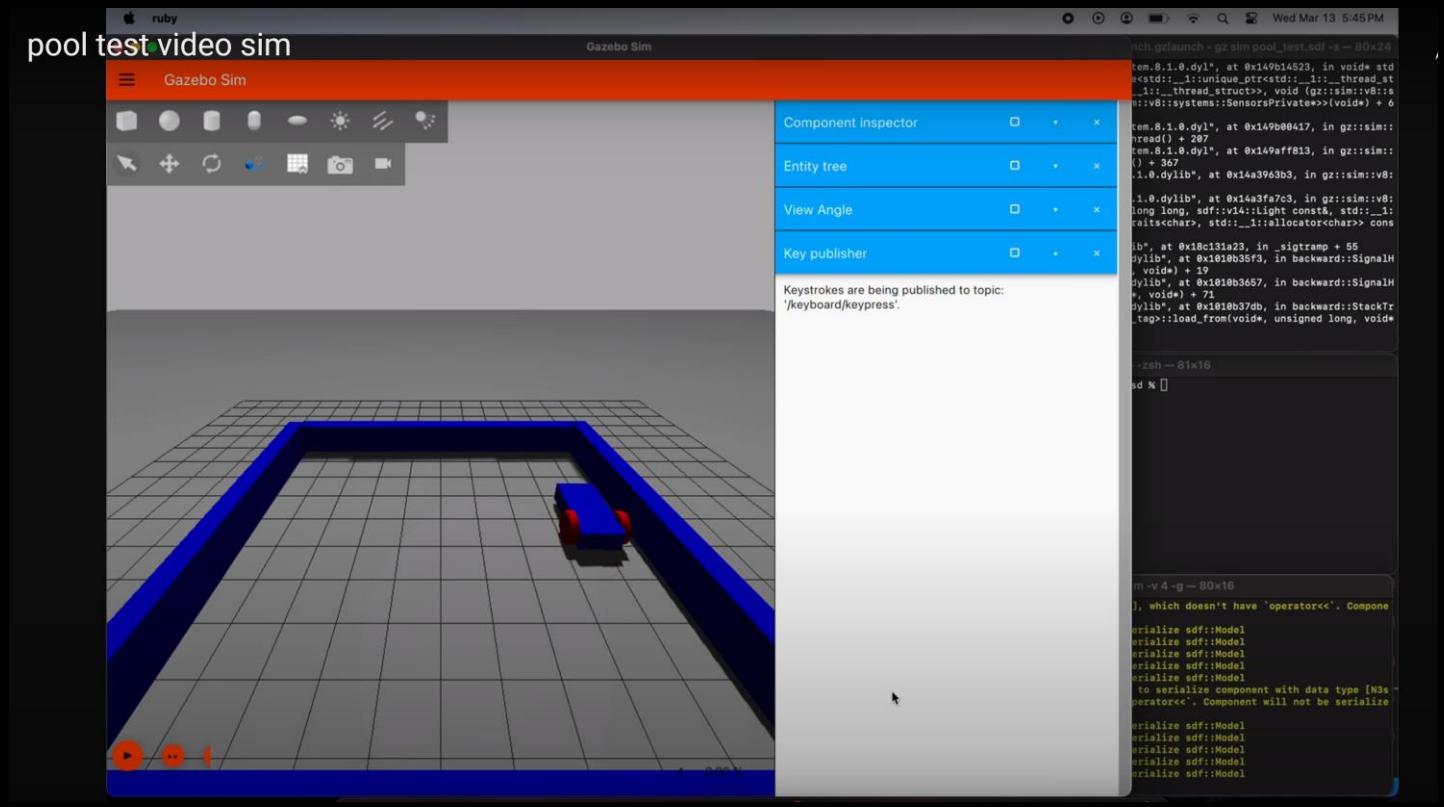
AUTONOMY

GAZEBO - SENSORS

- IMU
- Contact Sensor
- Lidar



GAZEBO



https://youtu.be/LZ0vSPYP_a4

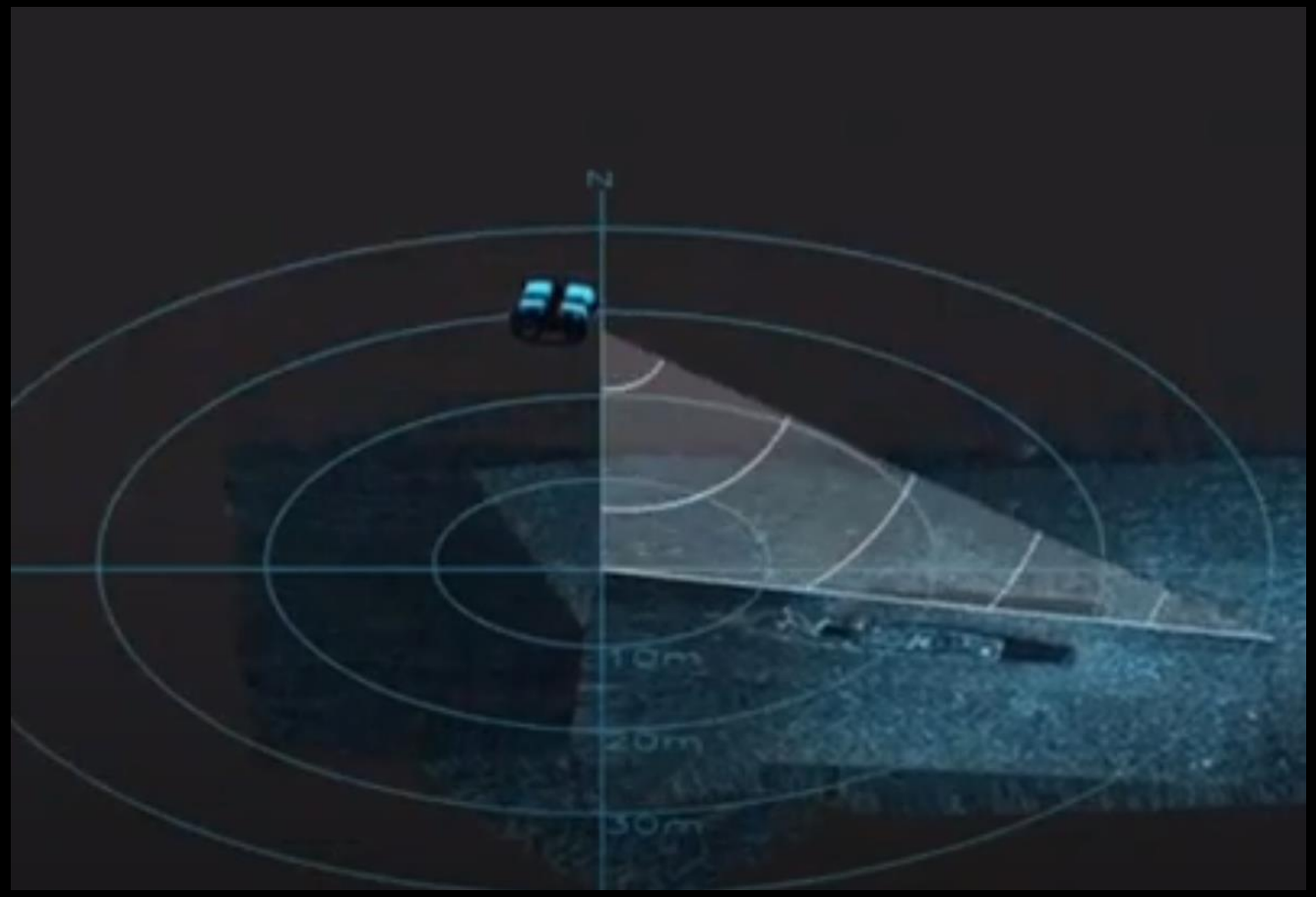
MILESTONE 6

MILESTONE 6:

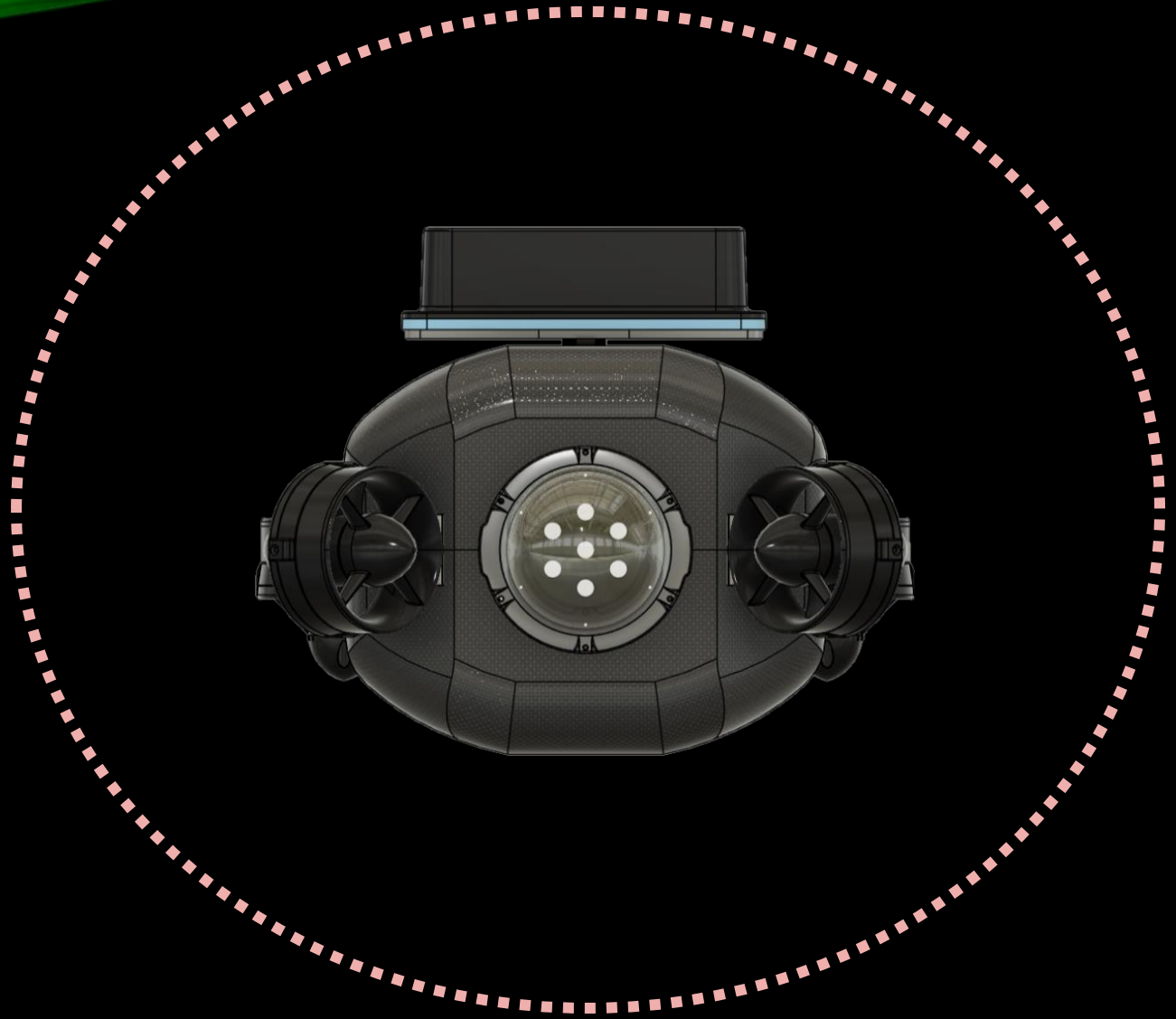
Task	Michael	Zealand
Testing	Gain valuable data from an actual cave system and see how well we can rebuild it.	
Homepage Website Redesign	Simplicity and usability must be altered.	
Cloud Plot Webpage	Determine possible risks and solutions to vast datasets.	
Autonomy		Implement decision making

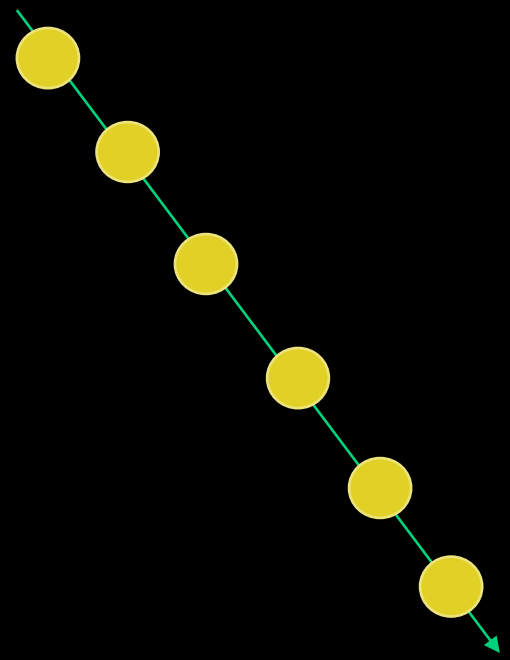
OMNISCAN 450 FS

OMNISCAN 450 FS



PING 360





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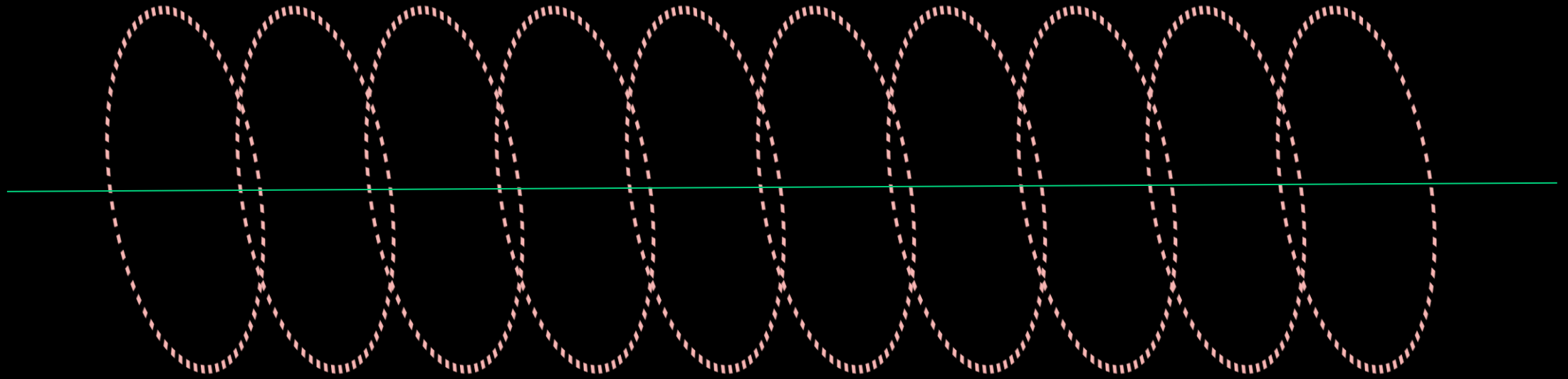

LIVE DEMO

TEC-V- Cloud Plot

https://bluecodehydra.github.io/3DCloudPlot_Webpage/

WEBPAGE LINK

TEC-V

https://bluecodehydra.github.io/FIT_Project-TEC_V/data.html

QUESTIONS?