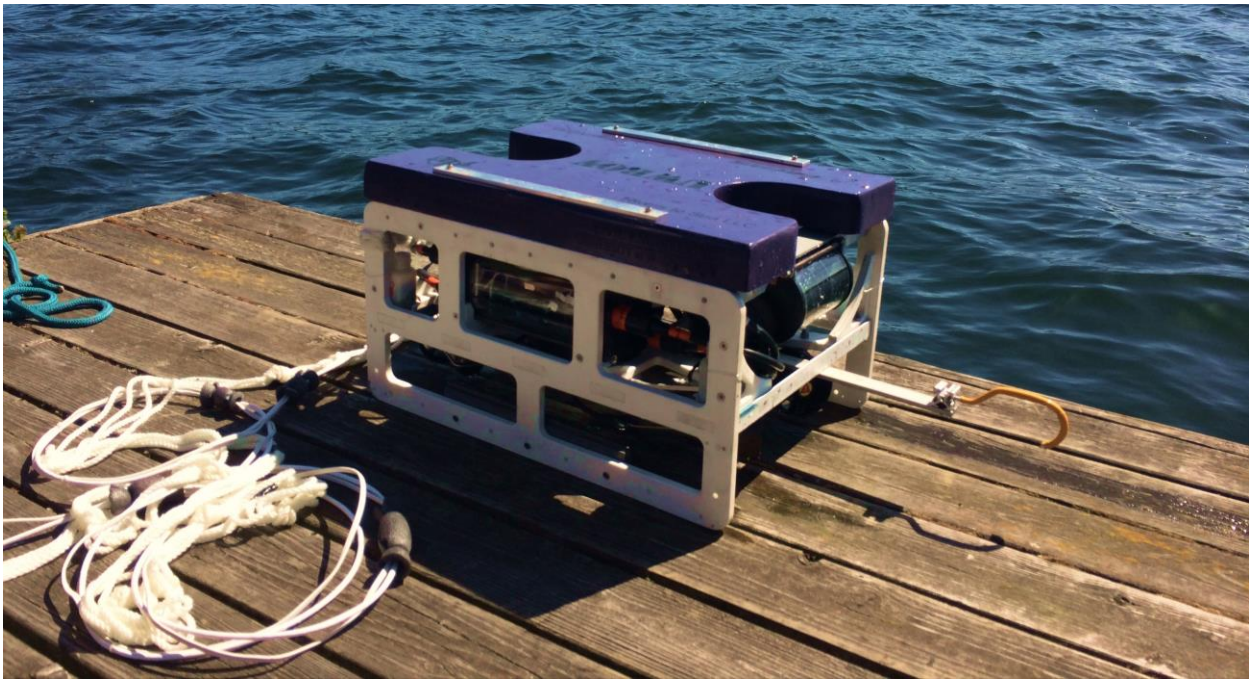

ORCUS

Surveyor of Sunken Ships

The ORCUS ROV is capable of surveying to a depth of thirty meters and collecting both debris and biological samples. It is easy to maneuver underwater using six SeaBotixs thrusters and a user-friendly Xbox controller. It can lift up to twelve kilograms and can fit into small spaces (43 x 36cm). The ROV utilizes two cameras, one facing forward and one facing down, each with LEDs, allowing for good visualization of the surrounding area, even in low light. It also comes with a 30-meter tether with a slip-ring management system allowing for organized coiling and uncoiling of the tether while the ROV is in use.

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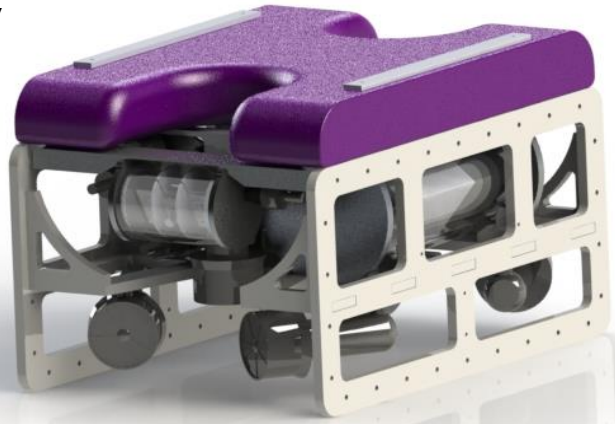
ORCUS

University of Washington ROV
Seattle, Washington



Value: $10,800
Dimensions: 60 x 43 x 36 cm
Weight: 27.2kg

Noteworthy Materials:

- High-density Polyurethane Frame
- Acrylic Cylindrical Pressure Housings
- SeaBotix BTD150 Motors
- Syntactic Foam

Safety Features:

- Fuses - 2x30amp, 1x10amp
- Shrouded Motors
- Emergency Stop

Capabilities:

- Dual-feed camera system for efficient scanning and identifying
- High maneuverability, allows for easy navigation
- Multifunctional manipulator that allows for collection of both debris and biomaterial
- 30m tether with slip-ring for easy management and length allows for a large work area
- Easily deployable, capable of being deployed off a ship

CEO: Ryan Cox
Vice President: Erica Sampaga
Mechanical Technicians: Adrian Junus, Joe Downs
Electrical Technician: Juliana Pesavento
Software Lead: Tyler Yeats

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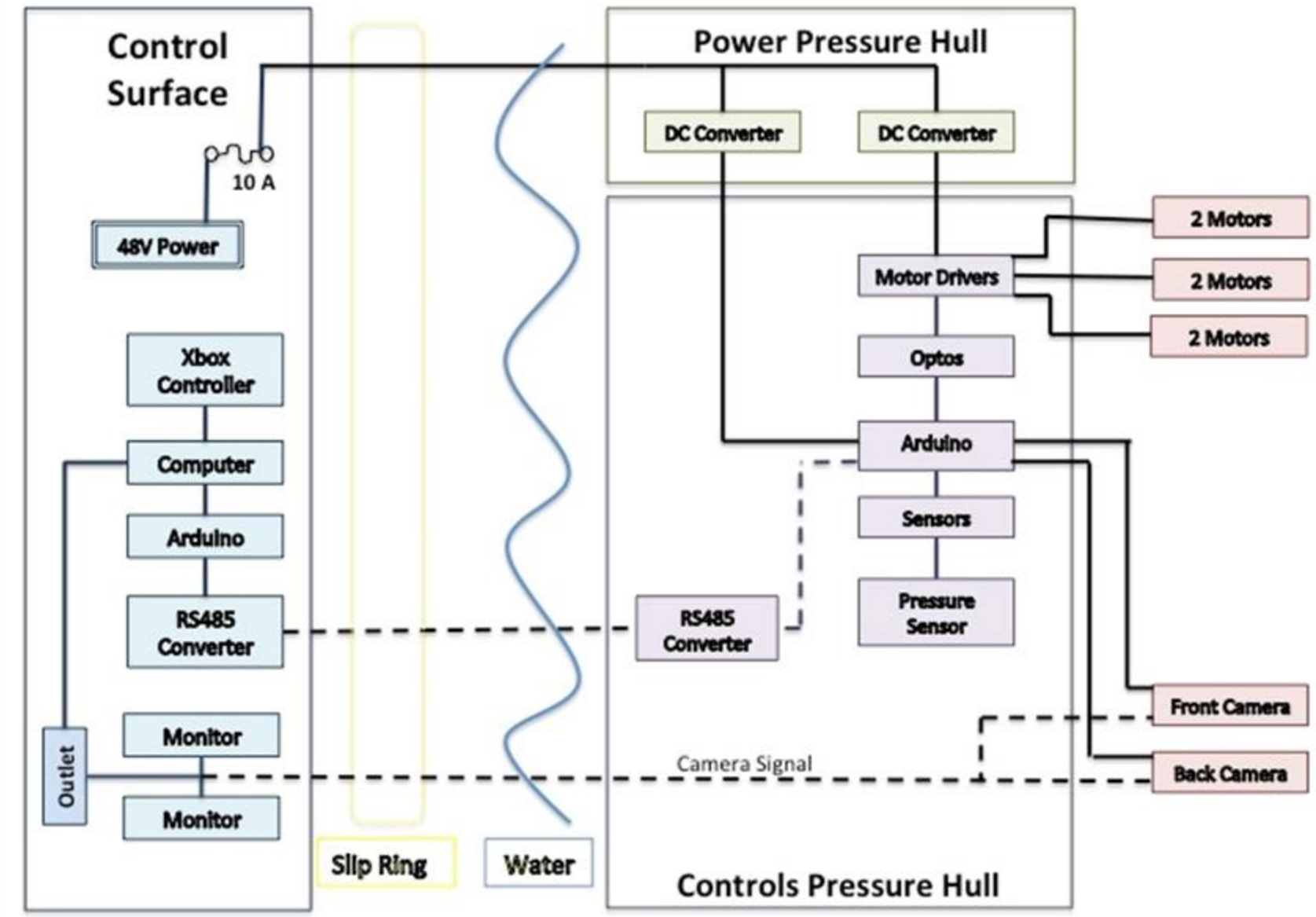
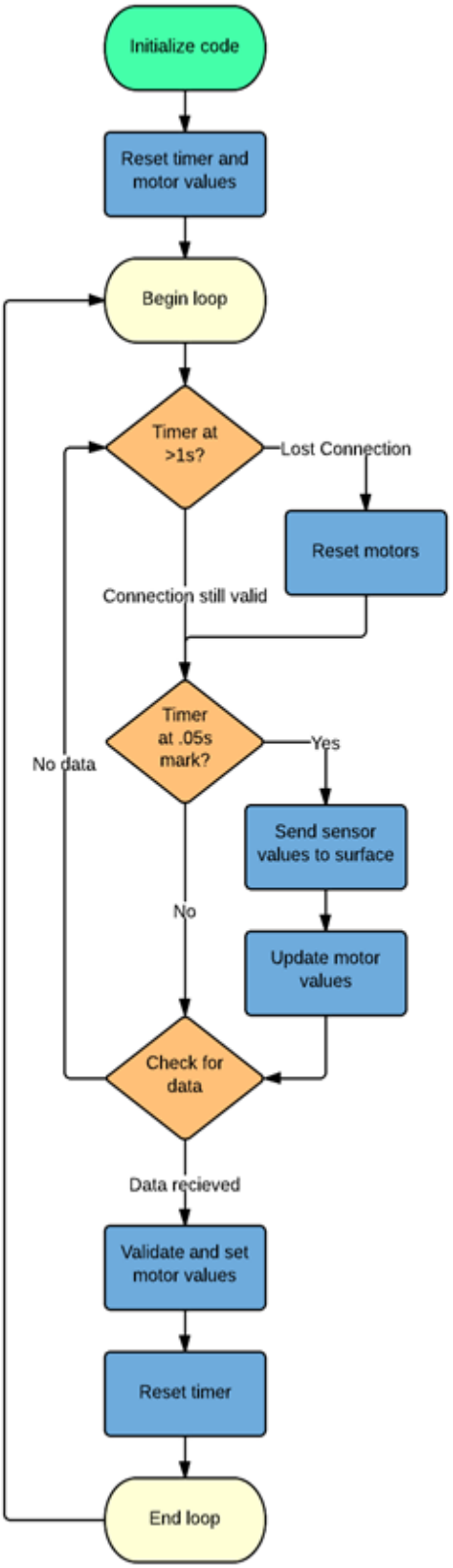
Systems Integration Diagram

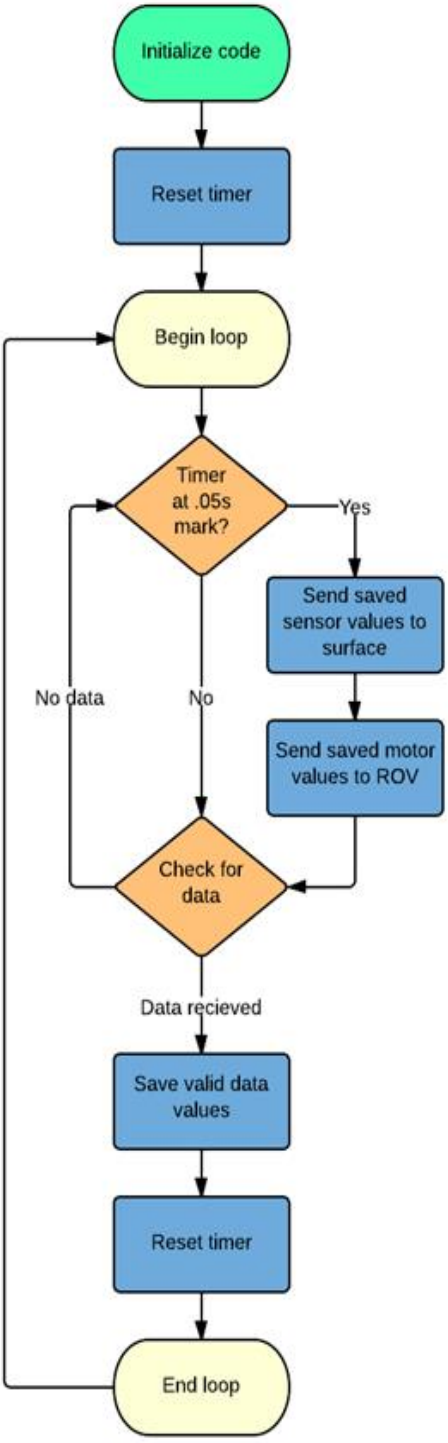


Software Block Diagrams

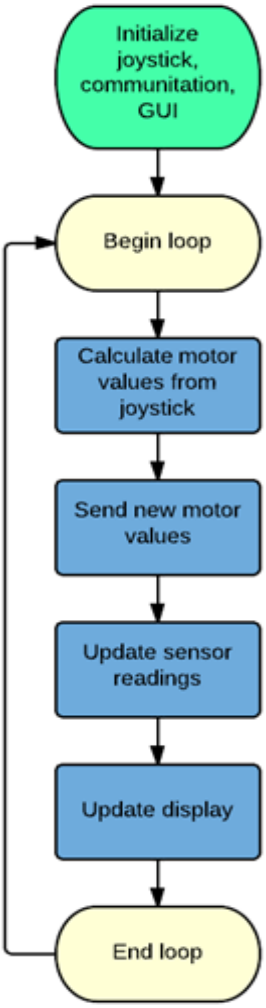
ROV Code



Intermediate Arduino Code



Surface GUI Code



Safety Checklist

1. Plug in the computer and both monitors into the dry 120AC Voltage power supply.
2. Check the 40A fuse on the battery power supply; to make sure that it is not blown.
3. Connect 48V, 40A power supply to the power wire.
4. Check the 10A fuse in the computer dry-box; to make sure that it is not blown.
5. Connect the power wire to the computer.
6. Secure the power wire with a zip-tie to the dry-box for strain relief.
7. Connect the external monitors to the dry-box.
8. Check that the Xbox controller has fresh batteries.
9. Bring up the control system for the ROV and connect the Xbox controller to the system.
10. Check the tether dispenser and make sure that it rotates without any problems.
11. Connect the tether to the ROV.
12. Check all of the ROV wet mate connectors to make sure fully secured – use a wrench.
13. Connect the dry tether to the computer dry-box.
14. Secure the dry tether to the computer dry-box with a zip-tie for strain relief.
15. Checks to make sure the LEDs have turned on for the cameras and that the two monitors are getting live feed from the cameras.
16. Run all six motors separately to make sure that they are responding correctly to commands.
17. Recheck all connections one more time, just to make sure.
18. Ready for launch!

Acknowledgements

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