

MRRSS

Marine Robotics Research Summer School

AUV Missions



MRRSS - 2016

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AUV Missions

- ❑ Find the Parts
- ❑ Assembly
- ❑ Pre-Deployment: In Lab
- ❑ Pre-Deployment: In The Field
- ❑ Exercises



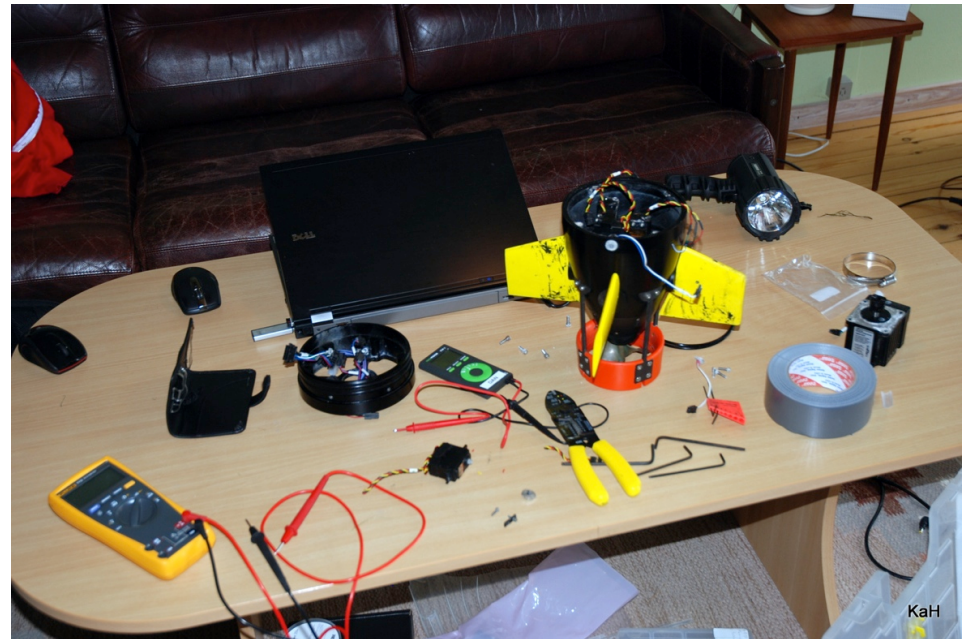
Find the Parts

- ❑ **Power:** Batteries, Loop backs, power regulation boards
- ❑ **Sensors:** DVL, compass, GPS, Wifi, pressure sensor
- ❑ **Actuators:** Drive motor, servo motors
- ❑ **Seals:** Inner seals, port seals, vacuum release wire plugs
- ❑ **CPUs:** Front seat, Back seat, modem board



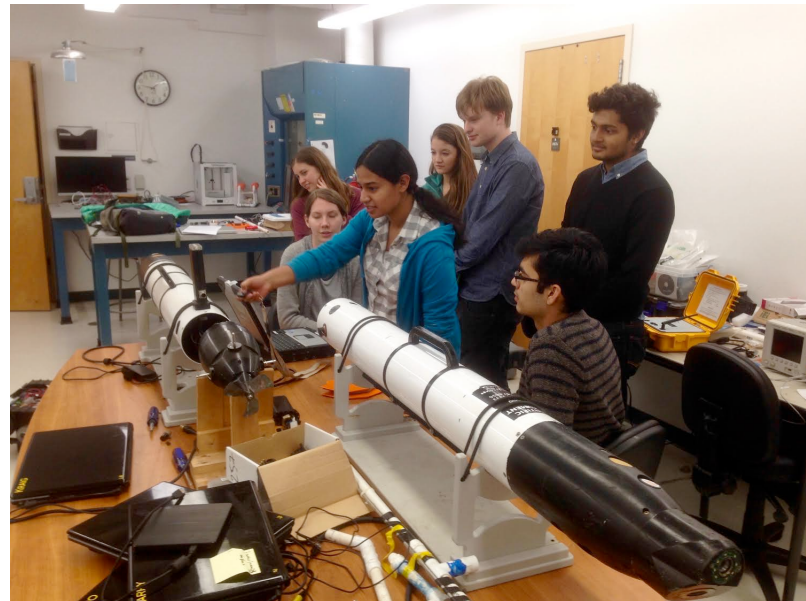
Assembly

1. Tools, Screw box
2. Batteries
3. Grease
4. Nose
5. Tube
6. Antenna
7. Port holes
8. Wire Connections: Tail adapters, external sensors, loop-backs
9. Tail
10. Vacuum release
11. Fins



Pre-Deployment: In Lab

- ❑ Internal Ballasting?
- ❑ LED Check
- ❑ Remote Connections
- ❑ Alarm Check
- ❑ Power (AUV and Wifi) Check
- ❑ Sensors Check
- ❑ Actuators Check
- ❑ Peripherals Test
- ❑ Load Missions



Pre-Deployment: In the Field

- ❑ Compass Calibration
- ❑ External Ballasting?
- ❑ LED Check
- ❑ Remote Connections
- ❑ Alarm Check
- ❑ Power Check
- ❑ Sensors Check
- ❑ Actuators Check
- ❑ GPS sanity check
- ❑ Peripherals Test
- ❑ All plugs/screws in?



Exercise C – Dry Test

- With a partner, you will use your computer to log in to the iver2 to test actuators
 - First make sure you have some version of remote desktop.
 - Connect to WiFi Box
 - Check all instruments
 - Dry Test



Exercise D – Packing CheckList

- With a partner, write out your packing checklist for a field deployment
 - AUV components
 - Tools



Exercise E – Deployment Checklist

- With a partner, write out your deployment checklist for a field deployment
 - Steps for a safe/successful mission

Pre-Deployment

1. Get WiFi Box
2. Check that WiFi box has battery
3. Check battery status of Toughbook
4. Bring spare charged Toughbook battery along
5. Check that GoPro memory card is empty
6. Check that all GoPros are charged
7. Check AUV battery and charge if necessary

Deployment

1. Check possible water-entry points
 - a. Check O-Ring inside
 - b. Cover portholes
 - c. Charger cap
2. Check fin screws
3. Check sonar is securely attached
4. Turn on with remote
 - a. Hold to port forward side
5. Remote desktop
6. Open underwater vehicle control
7. Test roll, pitch, yaw of fins
 - a. Test propeller
8. Remote desktop to second machine
 - a. connect to 900 on sonar program
9. Test sonar
10. Turn on gopro
11. Unclasp from stand
12. Guide into water
 - a. One to watch nose
 - b. One to watch fin
 - c. One to hold middle
13. Test drive by wire
14. Load mission
15. Uncheck box about aborting mission too close to bottom
16. Start mission
17. Try to reconnect to iver immediately

Exercise F – Make Your Mission

- With a partner, create two missions:

1) A mission that will allow construction of bathymetry map of pHake lake.

2) A mission that will allow the AUV to dive to construct a temperature/depth profile of pHake lake.

