

902106 - Niobicon-Based AUV Docking Development

Week 51

1. Francois Cazenave
 - a. Assembled battery tower
 - b. Project management
2. Scott Jensen
 - a. Monitoring of the build

Week 50

1. Francois Cazenave
 - a. Buoy and dock recovery and clean up.
2. Scott Jensen
 - a. Supported design of the Dock version 2 buoy electronics
3. Brian Kieft
 - a. Wrapped up docking deployment and added 8 new issues to JIRA that were discovered during testing. Docking success improved significantly this fall.

Week 49

1. Francois Cazenave
 - a. Fabrication of 2023 buoy and mooring
 - b. Preparations for dock recovery
2. Brian Kieft
 - a. My work focused mostly on docking. Completed 109 docking runs to test various configurations that we previously simulated.
 - b. Additionally work to improve the vertical control during docking or straight and level flight was accomplished.

Week 48

1. Brian Kieft
 - a. Lots of docking work with Tethys

Week 46

1. Scott Jensen
 - a. Small amounts of time spent support the electrical design.
2. Brian Kieft
 - a. Lots of work with Michael and Rob to adjust docking algorithms in sim the past two weeks. Both now have source code access and have been contributing to the current release.
 - b. More interaction with AllMotion on their stepper.
 - c. Integrated the new docking arm stepper controller
 - d. Deployed Tethys from the beach for docking tests today.

Week 45

1. Francois Cazenave
 - a. Detailing design of housing

Week 44

1. Francois Cazenave
 - a. Designing buoy/housings
 - b. Assembled new dock latch on AUV
2. Brian Kieft
 - a. Working with Rob on data analysis for docking
 - b. Also component/behavior questions
 - c. Integrating docking arm actuator. Base class changes have been completed. Now working on component integration
 - d. Met with Francois on Tue to dial in physical limits

Week 43

1. Francois Cazenave
 - a. Designing and ordering materials for new buoy and housing.

Week 42

1. Francois Cazenave
 - a. Designing housing, buoy, battery tower.
2. Scott Jensen
 - a. Preparations for build
3. Brian Kieft
 - a. Working on integrating new stepper controller with new actuator

Week 41

1. Francois Cazenave
 - a. Designing buoy

Week 40

1. Francois Cazenave
 - a. Designing buoy housing and battery tower
 - b. Did a critical design review of electrical and mechanical design

Week 39

1. Francois Cazenave
 - a. Designing battery pack and buoy housing.
2. Scott Jensen
 - a. Worked with battery cabling and leveling
 - b. Reviewed drawings before submission

Week 38

1. Francois Cazenave
 - a. Designing buoy housing

Week 37

1. Scott Jensen
 - a. Design and Drawings for Dock 2022

Week 35

1. Scott Jensen
 - a. Drawings for bigger battery pack

Week 34

1. Francois Cazenave
 - a. Designing new mooring
2. Brian Kieft
 - a. Integrating stepper motor actuator for docking arm

Week 33

1. Scott Jensen
 - a. New buoy electronics housing design
 - b. Monitor deployed buoy for energy harvest
2. Brian Kieft
 - a. Integrating new docking actuator and stepper controller. Awaiting cable.

Week 32

1. Francois Cazenave
 - a. Designing new mooring
2. Scott Jensen
 - a. Efforts to get a nocturnal load running so that daytime energy collection can be ascertained

Week 31

1. Scott Jensen
 - a. Meeting about next steps

Week 28

1. Francois Cazenave
 - a. Worked on proposal

Week 26

1. Francois Cazenave
 - a. Working on proposal for 2023
 - b. Ordering new actuator

Week 25

1. Francois Cazenave
 - a. Worked on proposal for 2023
 - b. Meet with WHOI group and made plans for new mooring
2. Brian Kieft
 - a. Fixed compass serial port issue on dock

Week 24

1. Brian Kieft
 - a. Deployment last week to test new docking arm

Week 23

1. Francois Cazenave
 - a. Participated in DOEST presentation
 - b. Designing new buoy

Week 22

1. Francois Cazenave
 - a. Recovered mooring, fixed flooded termination, and redeployed.
 - b. Preparing presentation for DOEST
2. Scott Jensen
 - a. Power Line modems seems like a good candidate and will move toward integrated testing

Week 21

1. Scott Jensen
 - a. Faraday Cages built for the modems to try to limit unwanted “talking”. Seems to have helped but now they are having trouble talking even without the cages.
 - b. Checked out insulation monitoring system in preparation for redeployment.

Week 20

1. Francois Cazenave
 - a. Learning how to use mooring simulation software
 - b. Organizing collaboration with WHOI
 - c. Recovered AUV dock mooring, found a flooded termination and worked on repairing
 - d. Help with abstracts of 2 new projects

Week 19

1. Scott Jensen
 - a. Test of Blue robotics tether comms was inconclusive when applied to dock mock up. Communications were very capable but it was not clear that the actual communications were happening across the dock. EMI shields are being fabricated to see if the actual path can be controlled.

Week 17

1. Francois Cazenave
 - a. Meeting with NG attorneys about patent.
 - b. Working with Jerry on parts for new power transfer device
 - c. Planning recovery of mooring

Week 16

1. Francois Cazenave
 - a. Working on improved capture device
 - b. Preparing recovery of buoy
 - c. Managing project
2. Scott Jensen
 - a. Troubleshooting of Docking buoy
3. Brian Kieft
 - a. Serviced topside dock equipment yesterday
 - b. Added short final lockout to line capture behavior.

- c. Queried Benthos on the short final azimuth noise issue when elevation angle steepens.

Week 15

1. Brian Kieft
 - a. Supported Tethys deployment for further docking tests and some dock troubleshooting.
 - b. Investigating DAT configuration with Benthos.

Week 14

1. Francois Cazenave
 - a. Getting parts for upgraded power transfer device
 - b. Troubleshooting buoy
2. Brian Kieft
 - a. Deploying again today for further docking tests and ROV footage on Thursday.

Week 13

1. Rich Henthorn
 - a. Dock buoy controller design
2. Scott Jensen
 - a. A little bit of support to add a feature
3. Brian Kieft
 - a. Supporting docking deployment (see images at top)
 - b. Added remote discrete set/clear capabilities through the acoustic interface to automatically power lights/camera on dock when approaching

Week 12

1. Francois Cazenave
 - a. Finished preparations and loaded the boat
2. Brian Kieft
 - a. Lots of preparation underway for the full mooring deployment tomorrow!

Week 11

1. Francois Cazenave
 - a. Preparing mooring for deployment.

Week 10

1. Scott Jensen
 - a. Working on dock communications with power line modems
2. Brian Kieft
 - a. Continued docking tests with Tethys. Replaced dropweight Monday following
 - b. Updated LNM
 - c. Testing simulated oil spill for Buzzard's Bay demo later this month
 - d. Testing polygon geofencing for EcoHAB
 - e. Testing low power Hawaii transit mode

Week 9

1. Francois Cazenave
 - a. Design improve capture device

- b. WHOI collaboration details
- 2. Brian Kieft
 - a. Fixed dockingServo mode change issue that was ignoring initial commanded value

Week 8

- 1. Brian Kieft
 - a. Worked on the Tethys docking deployment.

Week 7

- 1. Francois Cazenave
 - a. Tested the entire system in the tank
 - b. Prepared collaboration with WHOI
 - c. Prepared deployment of tst buoy
- 2. Brian Kieft
 - a. Met with team to discuss deployment

Week 6

- 1. Brian Kieft
 - a. Ran docking and charge tests in the tank
 - b. Preparing for deployment next week. Had to open vehicle due to a leaking connector.

Week 5

- 1. Francois Cazenave
 - a. Preparing collaboration with WHOI
 - b. Deployed current meter
 - c. Making plans for future tests
 - d. Continued testing in the tank
- 2. Scott Jensen
 - a. Supported a bit of Dock testing
- 3. Brian Kieft
 - a. Tank tested with actual dock in preparation for deployment

Week 4

- 1. Francois Cazenave
 - a. Testing dock in the tank
 - b. Preparing deployment of current meter
- 2. Scott Jensen
 - a. Supporting integration and testing. Located a couple troubles and helped with solutions
- 3. Brian Kieft
 - a. Wrote a tank test mission for use with the real dock in the tank

Week 3

- 1. Francois Cazenave
 - a. Spec'd current meter for site survey
 - b. Assembled AUV dock and starting testing in the tank

Week 2

1. Francois Cazenave
 - a. Spec'd and ordered tilt sensor
 - b. Weekly meeting
 - c. Preparations for upcoming deployment
2. Scott Jensen
 - a. A little support in getting rid of the low voltage warning