

901405 - PowerBuoy Development

Week 53

1. Francois Cazenave
 - a. I have been testing sensors for the LRAUV dock
 - b. I designed a housing for a photosensor
 - c. I am modifying the design of the capture device and making drawings.

Week 51

1. Francois Cazenave
 - a. I assembled the dock capture device on the LRAUV and tested it in the test tank, with Brett and Brian's help. The device performs well.
2. Scott Jensen
 - a. Deployment power unit is mounted on the lab MG setup. System characterization is taking place for modeling purposes.

Week 50

1. Francois Cazenave
 - a. I have been assembling the docking capture device.
2. Scott Jensen
 - a. Deployment power unit is mounted on the lab MG setup. System characterization is taking place for modeling purposes.

Week 49

1. Francois Cazenave
 - a. Working on docking prototype

Week 48

1. Francois Cazenave
 - a. I have completed the design of the line capture device prototype for the LRAUV. I've ordered all components from the machine shop
 - b. I complete the design of the 'LRAUV launcher' and have ordered fabrication

Week 47

1. Rich Henthorn
 - a. Tested and updated packet rate commands

Week 46

1. Francois Cazenave
 - a. I have been working on the capture mechanism for the LRAUV dock
2. Eric Martin
 - a. Looking at radar data a little

Week 45

1. Scott Jensen
 - a. Replacement batteries have been installed and now the entire bank is being charged and leveled.

Week 44

1. Francois Cazenave
 - a. I modified the power transfer device to include ball bearing and tested in the tank
 - b. I am working on two cable capture mechanisms in SolidWorks

Week 43

1. Francois Cazenave
 - a. I tested the AUV dock prototype in the test tank, wrote a report and made improvements to the design. I ordered new components from the machine shop.
 - b. I am working on latching mechanisms for the AUV dock

Week 42

1. Francois Cazenave
 - a. I assembled the power transfer prototype and tested it successfully.
 - b. I am working on several designs of cable capture mechanisms
2. Andy Hamilton
 - a. Testing Power converter in lab in preparation to moving to Bldg D.
3. Scott Jensen
 - a. Investigations and prototyping of LRAUV dock concept

Week 41

1. Francois Cazenave
 - a. I assembled the AUV dock prototype and tested it in the lab

Week 40

1. Francois Cazenave
 - a. Preparing for niobium dock test
2. Scott Jensen
 - a. Uncovered an undocumented "feature" of the DSPic. Really it was a missed reality of the circuit but had a catastrophic effect. That has been cleared and the clunk is gone.
 - b. Circuit changes have been made to deployment hardware.

Week 39

1. Francois Cazenave
 - a. Preparations for upcoming deployment
 - b. Preparations for cable dock test
2. Scott Jensen
 - a. Cleaned up the bus voltage and current signals with a change in opamp performance. Which has reduced system noise by an order of magnitude.

Week 37

1. Scott Jensen
 - a. An unstable operating point has been discovered, need to figure out the source.

Week 36

1. Rich Henthorn
 - a. Install updates on target and test

Week 35

1. Francois Cazenave
 - a. Preparing PTO for deployment
 - b. Installed new switches on battery box
 - c. Ordering components for AUV dock test
 - d. Supervising fabrication of cable dock
2. Rich Henthorn
 - a. Broadcasting logged controller data on LCM channels
 - b. Implementing some new commands
3. Scott Jensen
 - a. Checked out the new set of deployment boards and then set them aside. Some more detailed work needed to be done on a few instabilities in the system and this kind of work should not be done on the deployment hardware. Settling time and some time constraints were the leading causes. With those cleared other items on the to do list are being addressed.
4. Eric Martin
 - a. Fixed hardware/software issues on tophat controller, all functions are working now.
 - b. Closed tophat
 - c. Radar fix is next.

Week 34

1. Rich Henthorn
 - a. Adding to the command suite
 - b. Broadcast data from the various controllers over LCM
2. Scott Jensen
 - a. Finished check out of new development PCB set
 - b. Finished layout of new Load Dump Switch PCB

Week 33

1. Scott Jensen
 - a. New set of power electronics are in and have been calibrated and tested.
 - b. Working on the first revision of the Load Dump Switch that will deal with the inductance in the power delivery.

Week 31

1. Francois Cazenave
 - a. Preparation for deployment
2. Eric Martin
 - a. NSF project meeting
 - b. Aiding in data reduction for radar data, some has gone missing.

Week 30

1. Francois Cazenave
 - a. Preparing PTO for upcoming deployment
2. Eric Martin

- a. Getting radar data into analysis
- b. Pushing through cable wiring

Week 29

1. Francois Cazenave
 - a. Preparing PTO for deployment
 - b. Designing cable contact device
2. Rich Henthorn
 - a. Addressed CANBus id configuration
 - b. Team meeting

Week 28

1. Francois Cazenave
 - a. Working of PTO assembly and test
 - b. Working on cable latch design
2. Scott Jensen
 - a. Took one step forward and two back with deployment hardware. It all mounts up nicely and ran well. Load dump needs to be tested and electrical adjustments made, if necessary.

Week 26

1. Rich Henthorn
 - a. Enable processing on CANBus
 - b. Improve CANBus options
2. Scott Jensen
 - a. Generator electronics have been proven out and will be able to exceed the needs of the system. The system quite happily generated 12kW.
3. Eric Martin
 - a. Testing top hat electronics, working so far, small adjustments necessary.

Week 25

1. Francois Cazenave
 - a. Continued assembling the PTO, changed valves, refilled oil.
 - b. Work on wiring with Jose
2. Eric Martin
 - a. Backed up TS7970.

Week 24

1. Francois Cazenave
 - a. Assembled oil lines on PTO
 - b. Ordered new check valves
 - c. Helping with electronics assembly
2. Rich Henthorn
 - a. Meeting with Open Robotics and Software/Controls team about FOA proposal
 - b. ROS tutorials
3. Eric Martin
 - a. Prep for radar deck and potential Paragon tests
 - b. Helping with tophat rewiring

Week 23

1. Francois Cazenave
 - a. Evaluating status of PTO and buoy assembly
2. Rich Henthorn
 - a. ROS tutorials
3. Scott Jensen
 - a. Battery Contactor Controller prototype has gone through the first round of testing successfully.
4. Eric Martin
 - a. Picking up the trefoil rewiring, met with Jose to see where it got left.
 - b. Got tophat endcap and parts together for rewiring.

Week 22

1. Rich Henthorn
 - a. Some ROS research, install

Week 21

1. Rich Henthorn
 - a. Minor workspace reorg
2. Eric Martin
 - a. Supporting the radar work, we've got some traction with our collaborator and I'm making sure he's got what he needs.
 - b. Wrote a nifty snippet for parsing LCM traffic from pcap files collected via wireshark.

Week 20

1. Eric Martin
 - a. Reviewed funding proposal.

Week 19

1. Eric Martin
 - a. Reviewing proposal materials

Week 18

1. Rich Henthorn
 - a. Reviewed proposal ideas
2. Scott Jensen
 - a. Investigate Battery options
3. Eric Martin
 - a. Reviewing DOE proposal RFP

Week 16

1. Rich Henthorn
 - a. Minor MBC repository restructuring to accommodate project-wide LCM types
2. Eric Martin
 - a. LCM tool upgrades complete

Week 15

1. Rich Henthorn

- a. General modifications for future comms

Week 14

1. Rich Henthorn
 - a. Minor updates to Main Buoy Controller software

Week 13

1. Rich Henthorn
 - a. Slack telecon on Tues
 - b. Progress on the AHRS server
 - i. Root code 'nav440' - reusable vanilla C interface to the Crossbow Nav440 AHRS
 - ii. Server nav440_server uses the nav440 interface to read packets
 - iii. Server then uses LCM to broadcast ahrs_data structures to interested listener
 - iv. Code tested on target and now resides in bitbucket (MainBuoyController)
 - v. Working on integrating nav440_server into existing logging application
 - c. Working on the MBC systemd services
2. Eric Martin
 - a. Software meeting on Monday
 - b. Seems like testing can continue with the radar for now.

Week 12

1. Rich Henthorn
 - a. Working on AHRS server app
2. Scott Jensen
 - a. Tried to get HV Bus and Bridge controller sent out, Jose was able to this week
3. Eric Martin
 - a. Buoy controller wiring checkout
 - b. Worked with IS for a stable VLAN configuration

Week 11

1. Francois Cazenave
 - a. Still testing laser sensor
 - b. Assembling PTO
2. Jon Erickson
 - a. Scott's changes seem to fit with one exception.
3. Scott Jensen
 - a. Worked on code for the battery Contact controller.
4. Eric Martin
 - a. Controller box is working, new network configured
 - b. Spring controllers are checked out, getting wired into the spring

Week 10

1. Francois Cazenave
 - a. Testing laser distance sensor
 - b. Helping with PTO wiring
 - c. Assembled and tested compensator
 - d. Tested niobium
2. Rich Henthorn

- a. Creating a data server for the Crossbow AHRS
3. Scott Jensen
 - a. Battery Contactor Control needed a design change to make it more robust and reliable. State diagram for the operation has been developed.
 - b. Required parts were identified, and ordered.
4. Eric Martin
 - a. Helping finish the spring controller software checkout
 - b. Top hat wiring underway
 - c. Buoy controller rewire complete, testing
 - d. Laser range finder drawings

Week 9

1. Francois Cazenave
 - a. I helped stage the equipment for the external review
 - b. I am working on various tasks related to the upcoming deployment
 - c. I prepared a brainstorming session on the AUV cable dock.
2. Jon Erickson
 - a. Gen parts are out for painting.
3. Scott Jensen
 - a. Finalizing plans to control capacitive inrush during transitions, hopefully
4. Eric Martin
 - a. Buoy controller rewiring is almost complete, I will need to check it out next week.
 - b. I'm working with Jose to route a board for breakout of the load cell amplifier.
 - c. First draft of the spring wiring in for review to Andy. I'll need to rework the spring controller for a few missed items in my BOM.

Week 8

1. Francois Cazenave
 - a. I am assembling the PTO
 - b. I tested the compensator and found a leak. I ordered replacement component.
 - c. I am working with Eric on the wiring
2. Rich Henthorn
 - a. Installed software on the new buoy control computer
 - b. Implementing new micro controller commands
 - c. Implementing changes to CANBUS packet structure
3. Eric Martin
 - a. Wiring spec for buoy controller

Week 7

1. Jon Erickson
 - a. Waiting on the platers.
2. Rich Henthorn
 - a. Fitting-out the new controller CPU with build tools, languages, and software installs.
3. Eric Martin
 - a. New SBC brought up
 - b. Redrew the Buoy Controller Housing, prepping for re-wiring
 - c. Finalizing drawing for the Spring Assembly
 - d.

Week 6

1. Francois Cazenave
 - a. Working on assembly of PTO
 - b. Designing housing for laser distance sensor
 - c. Making modifications to the buoy
2. Jon Erickson
 - a. Load Dump case it assembled - ready for paint or wiring.
 - b. Waiting for the anodizers to deliver the Gen_V7 parts.
3. Scott Jensen
 - a. Waiting for parts to try and solve an over-current condition during bring up
4. Eric Martin
 - a. PTO wiring edits
 - b. Finalized the fix on the PTH sensor and reflected changes in schematic for the bridge controller board.
Need to decide if we'll modify the new spring controller next.
 - c. Bringing up the new Technologic SBC.

Week 5

1. Francois Cazenave
 - a. Testing laser range finder
 - b. Assembling PTO
2. Jon Erickson
 - a. Waiting on The generator parts at the anodizers
 - b. Will try to assemble the load dump case this week?
3. Scott Jensen
 - a. Diagnosed transistor failure to capacitive inrush
4. Eric Martin
 - a. Checking trefoil battery pack
 - b. Trying to divine pressure sensitivity in the new laser range finder.
 - c. Selected new SBC to replace the beleaguered Beaglebone.
 - d. Bringing up new controller board.