

901405 - Wave-Energy Conversion for Oceanographic Applications

Week 51

1. Francois Cazenave
 - a. Discussed replacement tether with vendor
2. Eric Martin
 - a. Completed writeup of failed cable. System back operational.
 - b. Brief meeting with Mark at South Bay to discuss options both for the long and short term.

Week 50

1. Francois Cazenave
 - a. Working on EM tether.
2. Rich Henthorn
 - a. Reviewing tasks for updates post-deployment
3. Eric Martin
 - a. Extensive fault analysis has nearly been completed on the failures seen in the EM tether.
 - b. Reworking the controller board
 - c. Specifying some upgrades to the controller system.

Week 49

1. Francois Cazenave
 - a. Took apart tether guide and inspected cable
2. Rich Henthorn
 - a. Plan updates for next go-around
3. Eric Martin
 - a. Troubleshooting system wide damage to the vehicle's CANbus
 - b. Seems to be an issue with the tether assembly.

Week 48

1. Francois Cazenave
 - a. Sent oil sample for analysis

Week 46

1. Francois Cazenave
 - a. I supervised and participated in the recovery of the wave energy buoy.
2. Rich Henthorn
 - a. Buoy recovered, working on To-Do lists

Week 45

1. Rich Henthorn
 - a. Monitoring buoy activity
 - b. Attempted to restart the CANbus network interface
2. Scott Jensen

- a. Battery Management System conceptual development

Week 44

1. Eric Martin
 - a. Short trip out to the buoy fixed a communication issue on the modem. Seems like the modem got into a strange edge case with AT&T and was wedged, needing a reboot.

Week 43

1. Rich Henthorn
 - a. WEC software refactoring
2. Eric Martin
 - a. Modem got into an irrecoverable state, went out on the Paragon to reset via the backdoor wifi.
3. Rob McEwen
 - a. Umesh's code is tested and archived on Project Library (see last week)

Week 42

1. Francois Cazenave
 - a. Monitoring buoy and analyzing data
2. Rich Henthorn
 - a. WEC ROS2 software development
3. Scott Jensen
 - a. Preparing for back system build
4. Rob McEwen
 - a. Completed porting Umesh's code to C/C++. It communicates with Matlab through .csv files.
 - b. The C version closely matches the Matlab version.
 - c. Placed all the relevant files in ProjectLibrary/707976_EPBuoyPrototypeAndTesting/RadarPrediction

Week 41

1. Francois Cazenave
 - a. Monitoring buoy
2. Scott Jensen
 - a. Design work for BMS

Week 40

1. Francois Cazenave
 - a. Monitoring buoy

Week 39

1. Francois Cazenave
 - a. Monitoring buoy. Cleaning lab.

Week 38

1. Francois Cazenave
 - a. Monitoring deployed buoy
 - b. Did an inspection dive on buoy
2. Eric Martin
 - a. Reviewing radar control

3. Rob McEwen
 - a. Working on converting Umesh's code to C. I changed my approach due to serious difficulty with the Matlab API. I am converting the code to stand-alone C that communicates with Matlab by reading and writing simple .csv files.

Week 37

1. Eric Martin
 - a. Reviewing UW proposal.

Week 36

1. Francois Cazenave
 - a. I went out to deploy the spotter buoy
2. Rich Henthorn
 - a. Testing and monitoring buoy deployment
 - b. So far all is well

Week 35

1. Francois Cazenave
 - a. Monitoring buoy
 - b. Cleaned up equipment

Week 34

1. Francois Cazenave
 - a. Prepared the buoy and deployed it on Friday.
2. Rich Henthorn
 - a. Deployment shore-support
 - b. Monitoring instrumentation
3. Scott Jensen
 - a. Helped ready for deployment!
4. Rob McEwen
 - a. Looking at WEC-Sim

Week 33

1. Rich Henthorn
 - a. Preparing for Friday deployment
 - b. Getting spare main controller going after installed unit failed
2. Rob McEwen
 - a. Received code from Umesh. Will convert to C.

Week 32

1. Francois Cazenave
 - a. Preparations for upcoming deployment
2. Rich Henthorn
 - a. Preparing for deployment this month
 - b. IFCB review
3. Scott Jensen
 - a. Looking at ways to implement active battery balancing
4. Eric Martin

- a. Troubleshooting cell data issues
- b. Checking on Spot tracker install
- c. Provided drawing for tether hookup

Week 30

- 1. Rob McEwen
 - a. Starting to reformulate JHU Matlab code.

Week 29

- 1. Eric Martin
 - a. Spot tested
 - b. Went over final controller changes with Jose and Andy

Week 28

- 1. Rich Henthorn
 - a. Connectivity monitoring app
- 2. Eric Martin
 - a. Spot prep and controller final wiring

Week 27

- 1. Scott Jensen
 - a. Identified noise source of piston position sensor; outdated power supply. Updated version laid out and sent for fabrication.
- 2. Eric Martin
 - a. Spot tracker wired, now testing.

Week 26

- 1. Rich Henthorn
 - a. Addressing logging issues
 - b. Building towards August deployment
- 2. Eric Martin
 - a. Spot Tracker enclosure wiring diagrammed, in to techs.

Week 25

- 1. Rich Henthorn
 - a. Integrated CANBus timestamps into logging
 - b. Adding Spring Controller data checks into current command application
- 2. Scott Jensen
 - a. Battery testing
- 3. Eric Martin
 - a. Assessing data budget, integrating the IFCB

Week 24

- 1. Francois Cazenave
 - a. Integrating IFCB to buoy
- 2. Rich Henthorn
 - a. Weekly meeting

- b. Prep controller with setup in Bldg D
- 3. Eric Martin
 - a. Getting wifi and spot parts together.

Week 23

- 1. Francois Cazenave
 - a. I am helping test the PTO
 - b. Adding to dorn fittings to controller box
 - c. Designing hardware to mount IFCB on buoy
- 2. Rich Henthorn
 - a. ROS 2
 - b. Controller Logger work
- 3. Scott Jensen
 - a. Worked on new Battery BMS communication schemes

Week 22

- 1. Francois Cazenave
 - a. Working to integrate Cytobot to buoy. We cut a hole in the foam.
 - b. Making various preparation for deployment
- 2. Andy Hamilton
 - a. Testing the new power converter in Bldg D with the PTO in preparation for upcoming deployment
- 3. Rich Henthorn
 - a. Weekly meeting
 - b. CANbus data logging
- 4. Scott Jensen
 - a. Prepared Battery pack for upcoming deployment

Week 21

- 1. Francois Cazenave
 - a. Assembled generator on PTO and started testing.
- 2. Rich Henthorn
 - a. Command and logging updates
 - b. Testing updates on hardware
- 3. Scott Jensen
 - a. Build up of battery pack with new batteries
 - b. Conned power converter for integration onto ram
- 4. Eric Martin
 - a. IFCB software test planning

Week 20

- 1. Rich Henthorn
 - a. Modifications and cleaning of command suite and logging
- 2. Scott Jensen
 - a. Finished rebuild of power converter
 - b. Tested rebuild for functionality
 - c. Worked on BMS communication system
- 3. Eric Martin
 - a. Looking at remaining tasks for deployment.

Week 19

1. Rob McEwen
 - a. Working with Umesh to improve our joint wave prediction code.

Week 18

1. Francois Cazenave
 - a. possible deployment of Cytobot
2. Scott Jensen
 - a. Placed order for rebuild parts
3. Rob McEwen
 - a. Reading papers in order to understand wave prediction algorithms.

Week 17

1. Rich Henthorn
 - a. Added checking for RPMs before executing the CurrCmd schedule
 - b. Created more utility commands for sampling controller data
2. Scott Jensen
 - a. Final system testing with a big step backwards.
3. Rob McEwen
 - a. Completed first pass at merging crest-detection and sea-surface prediction codes in Matlab.
 - b. Tested on recorded data. Results are not yet adequate.
 - c. Will work with team members to improve the algorithm.

Week 16

1. Rich Henthorn
 - a. Updating CANbus packet structures
2. Scott Jensen
 - a. Doing final generator checkout
3. Eric Martin
 - a. Bi-weekly meeting

Week 15

1. Francois Cazenave
 - a. I reassembled the hydraulic motor with the PTO and filled with oil

Week 14

1. Scott Jensen
 - a. Submitted grant
2. Rob McEwen
 - a. Cleaning up Matlab code in preparation for port to real-time C code.

Week 12

1. Rich Henthorn
 - a. Met with Andy and Ryan Coe to review the Current-Command app

Week 11

1. Rich Henthorn

- a. Installed MBC software on spare TS-7970 stack

Week 10

1. Rich Henthorn
 - a. Installed PowerBuoy software on spare sbc
 - b. Semi-weekly meeting

Week 9

1. Francois Cazenave
 - a. Helped with PTO test
 - b. Build soundproofing for HPU
2. Eric Martin
 - a. Reviving the Spot tracker

Week 8

1. Rich Henthorn
 - a. Converting Power Controller data source to ROS
 - b. Created mbari_wec_ros repo with instructions on how to build
2. Scott Jensen
 - a. Cell voltage limiter prototype testing, looks promising as a solution.
3. Eric Martin
 - a. Group meeting Thursday

Week 7

1. Francois Cazenave
 - a. Helping with PTO test
2. Rich Henthorn
 - a. ROS 2 research
 - b. Designs for ROS versions of existing software
 - c. Experimental implementation
3. Scott Jensen
 - a. Supplied the remaining data to Microchip, now waiting for a response
 - b. Tested Cell voltage limiter for new battery pack

Week 6

1. Rich Henthorn
 - a. Automated winding current command utility ready for use (minus the motor RPM monitoring)
2. Scott Jensen
 - a. Cell Voltage limiter prototype PCB has been submitted for fabrication
3. Eric Martin
 - a. Built up spare TS7970, installing ROS2 on it.

Week 5

1. Francois Cazenave
 - a. Helping with PTO testing
2. Rich Henthorn
 - a. Completed 1st iteration of the Current Command application
 - b. Making modifications as required

- c. Testing 2nd iteration of Current Command
 - d. ROS 2 research
- 3. Scott Jensen
 - a. Design of prototype PCB for Battery Management System
 - b. Looked into ADC error by soliciting support from the manufacturer. Upon request from the manufacturer an older version PCB was modified to allow a precision source to feed the ADC. Code was developed to automate this setup and collect the requested information. Preliminary data seems to suggest the ADC is not as fast as the manufacturer specifies. Waiting for response.

Week 4

- 1. Francois Cazenave
 - a. I am helping with testinG the PTO
- 2. Rich Henthorn
 - a. Winding current scheduler app ready to review and test
 - b. ROS 2 research
- 3. Scott Jensen
 - a. Stated Cell limiter PCB layout

Week 3

- 1. Rich Henthorn
 - a. ROS research
 - b. Current profile scheduler
 - c. Meeting with Hamilton and Sandia folks
- 2. Scott Jensen
 - a. Investigating why there is a flat spot in the ADC
- 3. Eric Martin
 - a. Advising Brett Hobson on our current cellular modem implementation of 4G LTE on the buoy for a similar project he is tackling.

Week 2

- 1. Rich Henthorn
 - a. ROS research
 - b. CurrCom current commanding application
- 2. Scott Jensen
 - a. Cell Voltage limiter PCB, working on schematic entry

Week 1

- 1. Rich Henthorn
 - a. ROS research