

901803 - Carbon Wave Glider Development

Week 51

1. Kent Headley
 - a. Status meeting
 - b. Discussing requirements for RH (relative humidity) sensor
2. Paul McGill
 - a. Held group Google Meet meeting to discuss end-of-year spending and humidity sensor integration.
 - b. Sending Andrea's Collaborator's Agreement up the chain of command for approval.
3. Craig Okuda
 - a. Design test fixture
 - b. Update docs

Week 50

1. Kent Headley
 - a. Minor doc and firmware updates related to machine/machine and GUI
 - b. Looking at system resource requirements for proposed RH sensor
 - c. Refactored Python GUI to use model/view/controller pattern
 - d. Checking GUI windows compatibility
2. Paul McGill
 - a. Inventory of DIC analyzer parts as they're received and coding of CC charges.
 - b. Set up Collaborator's Agreement for Andrea so she'll have access to MBARI network.

Week 49

1. Kent Headley
 - a. Working on Python GUI to simplify some operational tasks and learn a bit about Python
2. Paul McGill
 - a. Ordered the last of the parts for the DIC analyzer build.

Week 48

1. Kent Headley
 - a. Using Python and Tkinter to prototype a file transfer GUI for the controller and learn more about Python,
2. Paul McGill
 - a. Ordering parts for DIC analyzer
3. Craig Okuda
 - a. Purchasing

Week 47

1. Kent Headley
 - a. Developing C client library
 - b. Adding/updating M2M (machine-machine) features
 - c. Status meeting
 - d. Released development snapshot and updated hardware
2. Paul McGill

- a. Ordering lots of parts for Wave Glider instrument build. Team met on Zoom to discuss strategy for rest of this year.
3. Craig Okuda
 - a. Purchasing
 - b. Update docs

Week 46

1. Kent Headley
 - a. Working on reference client design and related machine-machine interface updates.
2. Craig Okuda
 - a. Update dririte box design
 - b. Finalize sheet metal parts and send for quote
 - c. Spec hardware and misc parts

Week 45

1. Kent Headley
 - a. Testing and fixing bugs.
 - b. Currently isolating an elusive bug that intermittently causes a sleep hiccup, delaying a scheduled event by ~10s. Long manifestation times make it slow to track.
2. Craig Okuda
 - a. Redesign dririte box and update docs

Week 44

1. Kent Headley
 - a. Integrated cron-style scheduler for carbon waveglider payload
 - b. Working on doc
 - c. Handed off first hardware release to Jacki, w. Draft documentation
2. Craig Okuda
 - a. Update docs

Week 43

1. Paul McGill
 - a. Talked with Chris Meinig, Director of Engineering at NOAA/PMEL to assure him that MBARI is still committed to building the DIC instrument even with Andrea leaving.
2. Craig Okuda
 - a. Update cycle diagrams
 - b. Post process manifold

Week 42

1. Kent Headley
 - a. coding/testing cron-like scheduler implementation
 - b. Doc edits

Week 41

1. Kent Headley
 - a. Refactored carbon waveglider internals and user interface
 - b. Now using table-driven composition of measurements and IO sequences (uses abundant program memory instead of RAM, and simplifies user interface parsing routines.

- c. Simpler, more intuitive user interface
 - d. Fixing bugs, some old, some new
 - e. Making updates for new manifold (now easier with refactored code)
2. Craig Okuda
 - a. Create cycle diagrams

Week 40

1. Kent Headley
 - a. Refactored macro code using table-based structures that better support manifold versioning and are stored in flash.
 - b. Updated macros to support latest manifold revision
 - c. Got confirmation/validation from Microchip on the issue I found in their bootloader library. They plan to fix it in an upcoming release
 - d. Found and fixed a couple of critical issues in the firmware (remnants of earlier refactoring in March) during testing
 - e. Software testing and updating doc
2. Craig Okuda
 - a. Update sequence spreadsheets
 - b. Update pneumatic diagrams

Week 39

1. Kent Headley
 - a. Am about 5 days deep in chasing a bootloader bug. I may have found the root cause in some component code distributed by Microchip.
2. Craig Okuda
 - a. Update dririte box design
 - b. Update pmel docs

Week 38

1. Paul McGill
 - a. Finished doc on LI-COR calibration and shared with our PMEL collaborators.
2. Craig Okuda
 - a. Modify manifold for better SLA printing

Week 37

1. Kent Headley
 - a. Participated in (part of) a telecon with PMEL to discuss their testing and analysis of different gas analyzers and measurement methods and processing algorithms
 - b. Unfortunate that Andrea is leaving; wish her success and hope to be able to keep the instrument project and collaboration going
2. Craig Okuda
 - a. Prepare docs for PMEL
 - b. Redesign main manifold

Week 36

1. Kent Headley
 - a. Working on hardware serialization scheme
 - b. Team decided to put a small EEPROM part, which will make it easier

- c. Learned of a linker issue that may have been causing unpredictable behavior when accessing variables stored in flash. Updated tool chain may help
 - d. MPLAB (microchip IDE) became increasingly flaky, reinstalled. When their tools works they're good, but when they don't, they're a real time sink.
- 2. Paul McGill
 - a. Making doc to better understand LI-COR calibration in preparation for meeting with NOAA/PMEL on Friday.

Week 35

- 1. Kent Headley
 - a. Working on a reliable scheme for serializing hardware
 - b. Board bringup
- 2. Paul McGill
 - a. Responded to Phase 1 feedback
- 3. Craig Okuda
 - a. Edit and submit drawings to shop

Week 34

- 1. Kent Headley
 - a. Continuing board bringup
 - b. Wrote board bringup doc
 - c. Reformatted controller platform help file (markdown)
 - d. Used pandoc and a google markdown extension to style and generate doc PDF
- 2. Craig Okuda
 - a. Prep docs for PMEL
 - b. System docs
 - c. Lab test system maintenance

Week 33

- 1. Kent Headley
 - a. Bringing up a DIC controller board to share with PMEL
 - b. Shared firmware repo with PMEL collaborators
- 2. Paul McGill
 - a. Reviewed design documents to be shared with NOAA PMEL as part of our CRADA.
- 3. Craig Okuda
 - a. System documentation
 - b. Refurbishing test system

Week 31

- 1. Craig Okuda
 - a. Finalize drawings for shop fab

Week 30

- 1. Craig Okuda
 - a. Begin to bring lab system back up after 4 month shutdown

Week 29

- 1. Kent Headley

- a. Team meeting re status and PMEL
2. Paul McGill
 - a. Had meeting to plan next steps. Working on getting lab system going again.

Week 28

1. Craig Okuda
 - a. Review proposal
 - b. Update docs

Week 26

1. Kent Headley
 - a. Testing/debugging feature for accessing text file regions (incl time search)
 - b. Working on scheme for external logging of ancillary licor data in lab
 - c. Drafting client software design
2. Craig Okuda
 - a. SV3 payload box integration

Week 25

1. Kent Headley
 - a. Completed boot loader last week
 - b. Setting up remote access
 - c. Working on new feature for accessing selected sections from text files
 - d. Working on cwg client functions
2. Craig Okuda
 - a. SV3 payload box integration

Week 24

1. Craig Okuda
 - a. Inlet gas manifold design and packaging.

Week 23

1. Kent Headley
 - a. Working on bootloader firmware
 - b. Slow trickle of data workflow discussions
 - c. Abstract text
2. Craig Okuda
 - a. Payload box integration

Week 22

1. Craig Okuda
 - a. Update manifold design
 - b. Waveglider SV3 packaging

Week 21

1. Craig Okuda
 - a. Redesign intake and SV1 payload packaging

Week 20

1. Kent Headley
 - a. Wrote matlab binary data loader (beta)
2. Paul McGill
 - a. Planning for starting up lab work again to test analyzer.
3. Craig Okuda
 - a. Review previous work, spin back up

Week 17

1. Paul McGill
 - a. Submitted project Coronavirus update.
2. Craig Okuda
 - a. Refresh on previous work

Week 16

1. Paul McGill
 - a. Working with Andrea and Craig to write project coronavirus update for management.

Week 13

1. Kent Headley
 - a. Finished port of file utils to cross platform wrapper API
 - b. Starting studying Matlab log reader

Week 12

1. Kent Headley
 - a. Refactoring some log utility code, splitting out cross-platform code and adding a file IO wrapper API.
This lets me share source code for data log tools between PIC and desktop platforms. Writing desktop versions of the on-board log utils (lcat, linfo, lless) around the refactored code - much simpler.
 - b. If possible, I'll meet w/ Jacki remotely to talk about a Matlab log reader/loader. If not, I'll take a crack at it.

Week 11

1. Paul McGill
 - a. Had kickoff meeting for year and hope to get system running in lab again this month.

Week 10

1. Kent Headley
 - a. Test, debug and documentation for changes to sampling and logging

Week 8

1. Kent Headley
 - a. Working on possible refactor of sampling and logging scheme to improve resource footprint and simplify post-processing

Week 7

1. Kent Headley

- a. Working on data processing plan

Week 6

- 1. Kent Headley
 - a. Starting to work on data handling plan