

Irene Hu Sorted By Project

300078 - DMO Support - AUV

- Met with Erik and Alana to discuss project; initial googling (Week 6)
- Met with Jenny Paduan and Dave Caress for more project background (Week 7)
- Sat in on meeting re: updated electronics (Week 10)
- Erik's Dorado meeting (Week 27)

901217 - Chemical Sensors

- Minor assistance for Thom in setting up MSC3 (Week 27)
- Troubleshooting MSC3 baseboard - faulty connections on load switches (Week 28)
- Troubleshooting MSC3 Tiva module. Previous connector was mirrored. Inability to load code traced to watchdog, fixed with some jumpers (Week 29)
- Soldered FRAM boards for Thom and worked out connections, but board is having I2C issues (Week 29)
- Taking over TIVA module from Thom while he's gone. Thom fixed I2C problem in code. Next hangup in init traced to bad grounding of oscillator (schematic copy-paste error). Next to tackle is hangup during hibernation (Week 30)
- Troubleshooting on MSC3. Issue with comms while plugged into baseboard traced to strange behavior of reset, disappeared after various troubleshooting measures (Week 31)
- Testing pH comms with MSC3. Hardware is built, need to update code (Week 31)
- pH measurements with MSC3 are working after various code fixes (Week 32)
- Coin cell and main battery power consumption tests (Week 32)
- Various circuit fixes and modifications to MSC3 Tiva module and baseboard (Week 33)
- Kicked off 40 mcaps and 2 baseboards (Week 33)
- Timing measurements on MSC3 startup and shutdown (Week 34)
- Convo w/ Dana Swift at UW, subsequent circuit mods (Week 34)
- Modifications to MSC3 Tiva module and baseboard; new regulator circuit (Week 35)
- MSC3 design review prep (Week 35)
- Inrush current testing - somewhat concerning (Week 35)
- Aadu's visit from UW (Week 36)
- MSC3 design review and ensuing changes to baseboard and Tiva module - now in layout (Week 36)
- Tiva module and baseboard are almost done with layout (Week 37)
- Working on Tiva module version using TM4C129 alternative, as code for ISUS driver is running into RAM issues (Week 37)
- Tiva module sent out, baseboard in final stages (Week 38)
- Started pinmapping for TM4C1290 replacement (Week 38)
- Tiva TM4C1290 module- pinout done, finalizing some things (Week 41)

- Jim is building Baseboard revB. Tiva modules revB built in house were delivered to Thom and work; Indtec is making 20 more (Week 41)
- MSC3 Tiva 1290 module draft, sent to Thom for checking, negotiating details (Week 42)
- Troubleshooting 12V convertor on MSC3 Baseboard revB. Fails with combo of low Vin (eg 8V) and higher load (~750 mA is where problems appear) (Week 42)
- Tiva1290 module: finished schematic, working with Jose on layout (Week 43)
- Mini ISUS baseboard: mostly done with schematic (Week 43)
- MSC3 baseboard: Troubleshooting 12V regulator continues with help of E2E (Week 43)
- MSC3 baseboard: current measurements for testing ideal diodes for hib power were influenced by noise of nearby PSU... need to redo (Week 43)
- Tiva129 module sent off for fab (Week 44)
- 12V regulator on MSC3 baseboard received feedback from E2E of "very poor layout". Working on rC of baseboard that cleans up vestigial upstream components. Removing ferrite bead from rB board seemed to get regulator working, but it broke again during probing before could verify (Week 44)
- Concluded tests of ideal diodes / hib power supplies, wrote a writeup, changes made for rC (Week 44)
- Discussed mcap inventory procedure with Jess (Week 44)
- Got Xeltek programmer to work again for MMS digital boards AT17 and PIC programming; working on a writeup for Ben (Week 44)
- MSC3 Baseboard rC is in layout (Week 45)
- Parts inventory for MMS Digital Boards next build (Week 45)
- Working w/ Ben on preprogramming chips before sending to Indtec (Week 45)
- Checked out and set up all MSC3 Tiva123 modules received from Indtec (Week 46)
- Tiva129 modules received, configured code and uploaded; mostly works. Had to troubleshoot one board (broken oscillator) (Week 46)
- MSC3 revC layout (Jose) almost finished (Week 46)
- Helping set up and troubleshoot the first MSC3 QC box (Week 46)
- Troubleshooting Tiva129 failure to hibernate (Week 47)
- Bug testing for MSC3; look through code (Week 47)
- MSC3 rC baseboard sent out (Week 47)
- Working w/ Jess to set up mcap checkout process for Johnson lab (Week 47)
- Testing and troubleshooting Tiva129 module; fixed some assembly errors, working on TM4C129 failure to hibernate (Week 49)
- Troubleshooting mcaps with Jess (some 0ohm capacitors) (Week 49)
- Troubleshooting and testing MSC3 baseboard revC. 12V regulator seems to work well, some assembly errors (Week 49)

901805 - Coastal Biogeochemical Sensing Program

- Retested Nanofet B002008 and high bias current draw problem has mysteriously disappeared (Week 2)
- Making n-channel isfet boards: small changes to Lioncap and sent off for fab; created NC-Nanofet and made changes. Explored diode idea (Week 4)
- Discussions w/ Yui re: next gen Nanofet and next steps (Week 4)

- Evaluating mphox integrations (Week 5)
- Made changes to schematic for mpHox revB, just waiting on some connectors for testing (Week 6)
- Reviewed Jose's layout for NC-Nanofet, which is now ready to be sent out (Week 6)
- Discussions with Yui, Jose, and Yui/Thom re: mpHox revB; making a few changes and then should be ready for layout (Week 7)
- Working with Jose on layout for mpHox revB (Week 8)
- Evaluation of status of MSC boards (Week 8)
- mpHox revB sent out for fab, Jose ordering parts (Week 9)
- Discussions and information gathering re: MSC (Week 9)
- Continued forensics, including visit to Indtec, especially focusing on different versions of digital and analog boards within spectrometer for ISUS (Week 10)
- Various planning meetings (Week 10)
- Various meetings (Week 11)
- Help Thom with FPGA programming - cable mapping (Week 11)
- mpHox - MSC cable mapping (Week 11)
- List of parts to stock up on and their costs (Week 11)
- Chasing down MMS digital Cronin board files, set up for production (Week 12)
- mpHox - MSC2 prototype wiring harness specified; made by EEtechs (Week 13)
- Troubleshoot mpHox rB setup (watchdog caused problems with JTAG); set up and delivered to Thom (Week 13)
- Helping Thom investigate methods to program FPGA configurator EEPROM on MMS digital board (Week 13)
- Set up NC-nanofet and Lioncap, prelim checks and delivered to Johnson lab to test (Week 13)
- Picked up some boards at Indtec; probing and troubleshooting Analog MMS board (Week 14)
- Started reorganizing MSC2 into MSC3 (Week 14)
- Bias battery measurements for lioncap, and update schematics for lioncap and NC-nanofet for new I_DS (Week 14)
- Finished Thom's work figuring out programming for MBARI digital boards (for ISUS spectrometer) and confirmed working (Week 15)
- Troubleshooting on MBARI analog boards (for ISUS spectrometer), various scoping / circuit analysis and traced issue to potentiometer tweaking (Week 15)
- Interface with Bill Keeler (contractor) for PSOC boards (Week 15)
- Continue troubleshooting analog and digital boards for ISUS (Week 16)
- Working with Jose for production of various boards (MBARI MMS digital, NC-nanofet, Lionfet, Nanofet, etc) (Week 16)
- Troubleshooting on "bad" MBARI digital board: based on logic analyzer, data coming from analog board is correct, scrambled somewhere on digital board. Code seems to be correct. Second board tested by Ben/Mari and works fine (Week 17)
- Worked with Jose to coordinate assembly of new MBARI digital boards (Week 17)
- Reviewed Chad's updates to the MUXer board (Week 17)

- Ongoing work on MSC3 baseboard and Tiva module schematics, coordinating with Thom (Week 18)
- Power measurements on Fiberlight (Week 18)
- Lioncaps and NC Nanofets sent out for assembly (plus more Nanofet circuit boards) (Week 18)
- Ongoing modifications and updates to MSC3 baseboard and TIVA modules (Week 21)
- Circuit analysis for Dura board checkout procedure in Chem Sensor lab (Week 21)
- Working on presentation / documentation of all sensor boards, for lab meeting next week (Week 22)
- Setup and wiring harnesses for mini ISUS FPGA board programming and comms (Week 22)
- Troubleshooting new mini ISUS stacks, got them working (Week 23)
- Started mini ISUS baseboard (Week 23)
- Started planning for Nanofet v2 (Week 23)
- Discussions and planning re: Nanofet v2 (Week 24)
- Solidworks model of Nanofet2 layout previously discussed with Yui - does not work (Week 25)
- Discussions of circuit ideas w/ Thom (Week 25)
- Power measurements on entire suite of sensors using Yokogawa (Week 33)
- Continued testing of current draws (Week 34)
- Continued testing of current draws (Week 35)
- Working on non-isolated version of Nanofet (Week 45)
- Finished first draft at non-iso Nano and caught some errors in other boards based on nanofet (Week 46)
- Worked through circuit for alkalinity sensor from Scripps, generated list of questions (Week 46)

901904 - Deep-Sea Coral-Sponge Community Observatory

- Experimenting with Maduino (Week 1)
- Small edits to clean up jbox board (Week 1)
- Basic ethernet comms working between Maduino (Arduino) and computer (Python) (Week 2)
- Progress on controller board - adapting from SINKER controller (Week 2)
- More minor fixes to jbox (Week 2)
- Working on controller board and fixing jbox board (Week 3)
- Finished fixing jbox board, back to controller board (Week 4)
- Making model of controller board mockup to help with internal chassis design (Week 4)
- Finished controller board, prepping materials for design review (Week 5)
- Discussed w/ Aaron and need to split controller board into two (Week 5)
- Divided control board into two boards. Solidworks mockup incorporated/approved by Aaron. Split nets on schematic, added connectors, reorganized schematic (Week 6)
- Materials sent out for design review (Week 6)
- Building circuit and writing code to test pucks (Week 7)
- Wrote code for stacked tiffs for multispec, tested on optical target (Week 7)

- Testing and troubleshooting of pucks. Got transistor pinout wrong (fixed), half the LEDs are not turning on (Week 8)
- Finished troubleshooting pucks (half the LEDs have flipped pinout) (Week 9)
- Started setting up and organizing software environment (Week 9)
- Electronics design review (Week 9)
- Making some changes to schematic based on design review (Week 10)
- Had Kevin set up DISCO project in bitbucket (Week 10)
- Continue fixing up schematic (Week 11)
- Continuing to update boards and make mods (Week 12)
- Strobe puck rB sent for assembly (Week 12)
- Finished updating boards, sent out for layout (Week 13)
- Ported previous code to bitbucket (Week 13)
- Starting to write ROV firmware (Week 13)
- ROV firmware moved to bitbucket; board json (Week 14)
- Read camera documentation and updated controller schematic to add extra lines for camera output and iso ground (Week 14)
- Checked two new LED pucks delivered by Jim; some soldering issues, resolved and passed on to Aaron (Week 14)
- Discussion with Paul re: how to set up board files in code (Week 15)
- Code for controlling jbox (Week 16)
- Edits to jbox schematic to address issues identified while writing code (Week 16)
- Work w/ Jose on board layouts (Week 16)
- Cable/harness diagram for strobe pucks (Week 16)
- Fixes and edits to board schematics following layout (Week 17)
- Continue implementing code (Week 17)
- Jbox and Controller PCBs sent out to PCBway for fab (Week 18)
- Various small tasks (generate PCB model, code discussion, send Steve some data processing stuff) (Week 18)
- Circuit boards sent out for fab, back and forth re: various issues (Week 21)
- Reviewing some existing code (Week 21)
- Code for serial command interface communications with new boards (Week 22)
- Discussions and ordering of targets for imaging (Week 22)
- Cleaned up bitbucket repos and readme files (Week 23)
- Boards are here, given to Jose for soldering (Week 23)
- Picked colors for target (Week 24)
- Circuit and code to test jbox board (Week 24)
- Made color target and ran tests with benchtop system (Spectralon vs Teflon, and color targets) (Week 25)
- Set up electronics for puck pressure test, ran test w/ Aaron (Week 25)
- Testing of jbox board - various circuit issues (Week 25)
- Spectrometer tests with color target (Week 26)
- Jbox board troubleshooting - mux behavior is unexpected but ok, troubleshooting continues (Week 26)
- Board turns on (not sure what has changed) but puck behavior erratic (Week 27)

- Tests with new optopolymer target; made new color filter, quantified intensities from lab multispec, spectrometer tests, compiled into graphs (Week 27)
- Characterized spectral shift in pressure treated 370nm LED (Week 27)
- Continued troubleshooting of puck board using logic analyzer, several possibly related issues identified. Some issues seem related to quirks of the demultiplexer (Week 28)
- Troubleshooting power on second jbox board; after some back and forth, it now also works, though unclear why (same as first board) (Week 29)
- Test of jbox with 10 pucks connected. One puck had LEDs always on, traced to a bad solder joint (Week 29)
- Working out mods on controller board to allow stacking (Week 29)
- Hacked a connector for JTAG. With help from Paul and Rich, uploaded a bootloader and was able to upload code (Week 30)
- Two controller boards have different issues related to power control of camera (Week 30)
- Code tested and functional for controlling jbox and other basic controller functions (Week 31)
- UDP working for ethernet comms with controller; code updated to pass through commands over UDP. Working on final troubleshooting (Week 31)
- UV tester LED puck assembled, spectra measured (Week 31)
- Code updated to incorporate camera, camera connector ordered (Week 32)
- Pressured tested UV tester puck- did not turn yellow even with current under pressure. Swapping UV LEDs on 12 pucks. (Week 33)
- Camera to controller connection set up, tested, and troubleshot (using camera software). Now works with a few small issues (Week 33)
- Set up desktop computer with necessary software (Week 33)
- Wiring diagrams (Week 33)
- Further testing and enhancements of code; implemented LED flash sequence (Week 34)
- Got images off of camera software, preliminary data processing in MATLAB (Week 34)
- Wrote instructions sheet for running system on desktop (Week 34)
- Spent awhile trying to get second controller to work, but it is broken. (Week 34)
- Testing LED pucks as they are made (Week 34)
- Tested some LED pucks, 2 out of 6 had issues (Week 35)
- System testing as it gets built (Week 36)
- Everyone else worked hard and we are ready for tank tests (Week 37)
- Set up MATLAB on SPECTRAL to process images (Week 37)
- Tank testing on 9/11 went well, no issues (Week 38)
- Deployment on 9/16 went well, lots of images (Week 38)
- Preliminary analysis of images (Week 38)
- Planning for MIW poster (Week 40)
- Reviewed video from 9/23 cruise and made metadata (Week 41)
- Mob for cruise 10/4, Carson cruise on 10/7 (Week 41)
- MIW poster (Week 41)
- Picked out images from 10/7 dive, preliminary processing to make RGB images (Week 42)

- Start white balance analysis (Week 42)
- White balance analysis (Week 43)
- Starting to try correcting images for white balance (Week 43)
- Went through second half of images from 10/7 dive to pick out in-focus views (Week 44)
- Exploring image correction for white balance, some strange results (Week 44)
- Updated camera firmware which broke some things; trying to get eCapturePro to work (Week 45)
- Looked into image registration (Week 45)
- Call w/ John from EVT re: lens control issues after firmware update for camera; new firmware received and tested, works wonderfully and allows readout signal to be used (Week 46)
- Meeting to discuss future of project (Week 49)

902305 - Event Detection Using the Sedimentation Event Sensor

- Weekly meeting (Week 11)
- Started fixing up SES with Paul and Rich; video documenting process (Week 17)
- Documenting and helping Paul's efforts to install updated controller, debubble chamber, swap battery from MARS config to standalone config (Week 18)
- Weekly meeting (Week 21)
- Helping with prep for June 20 deployment (Week 25)
- Deployed last Thursday (Week 26)
- Collected SES and trigger trap on 9/18 (Week 38)
- Weekly meeting (Week 41)
- Weekly meeting (Week 43)
- Fixing up checklist for upcoming deployment (Week 47)
- Changing batteries and other prep for deployment Dec 4 (Week 49)

DQ2305 - Glider OAE

Out of Office

- May 3-15: Taiwan
- March 4-5: out of office
- March 13-22: regularly out of office in mornings
- March 15, 19-20: out of office
- June 20: at sea w/ SES
- July 10 - Aug 5: regularly out of office
- Sept 16: planned Carson day
- Sept 23-Oct 2: potential OCEANS
- Sept 4-?: out sick
- Sept 16, 18: planned Carson day
- Sept 4-10: sick
- Sept 23-Oct 2: IEEE OCEANS / trip to Boston
- Oct 7: Carson day

- Oct 8-11: Marine Imaging Workshop
- Oct 10: medical procedure
- 11/25-11/29: Thanksgiving holiday
- 11/25-11/29: vacation
- Dec 6: Carson day
- Dec 4: Carson day
- 12/23-12/27: vacation

Overhead

- Helped spot for UAV project (Week 4)
- Rec comm: helped with chili cookoff, hosted Lunar New Year cookie break, and set up ledger for 2024 (Week 7)
- Pie Day (Week 12)
- Setting up speaker meetings (Week 12)
- Host speaker 3/27 (Week 13)
- Hosted speaker on Wed/Thurs last week (Week 14)
- Discussion re: eddy covariance on LRAUV (Week 15)
- Abstract and presentation (Week 21)
- Bike to work day (organize/lead) (Week 23)
- Read a paper re: ADVs on gliders, in prep for proposal (Week 23)
- Working on proposal (Week 24)
- Work on proposals (Week 27)
- Proposals (Week 28)
- MEtech interviews (Week 30)
- Rec com cookie break (midautumn) (Week 38)
- Hosted speaker 10/2/24 (Week 40)
- 10/11 tour for MIW (Week 42)
- 10/16 rec com BBQ (Week 42)
- Rec com BBQ 10/9/24 (Week 43)
- Rec com meeting; planning Bike to Work (Week 44)
- Bike to work 11/6/24, 11/19/24 (Week 45)
- Bike to work 11/6/24, 11/19/24 (Week 46)
- Chad design review (Week 47)
- Organized Bike to Work 11/19/24 (Week 47)