

902204 - Scalable Robotics

Week 51

1. Francois Cazenave
 - a. Designing bracket for laser for MOLA
2. Eric Martin
 - a. Sled prep
 - b. Building OAKD1500M sn 2
 - c. Permit app review
 - d.
3. Carlos Rueda
 - a. Reviewing Dial tickets / notion tasks in preparation for meeting with Sebastián.
4. George Stern
 - a. Triage for the failed mola light controller and repair options

Week 50

1. Akshay Hinduja
 - a. Provided lcm broadcast enabled watercolumn and snippet additions to norbit driver
 - b. Check in with Mauro for s7k integration
2. Eric Martin
 - a. Maldiva cleanup
 - b. Permit application
 - c. OAK1500M Camera build
 - d. MiniROV coordination.
3. George Stern
 - a. Reprinted hardware broken on maldives trip

Week 49

1. Akshay Hinduja
 - a. Add LCM broadcasting for water column and snippet raw data for Norbit to beta python driver
 - b. Work on waterfall visualizer with Javiera
2. Eric Martin
 - a. Last 2 weeks were in the Maldives on expedition, lots accomplished. 10 dives with Mola and 4 surveys conducted with the Blueboat, along with lots of testing on both.
3. Johann Voigtlander
 - a. Built up blueboat after Maldives trip

Week 48

1. Akshay Hinduja
 - a. Finished snippet and water column data streaming in alpha driver
 - b. Sync with Mauro for s7k translation

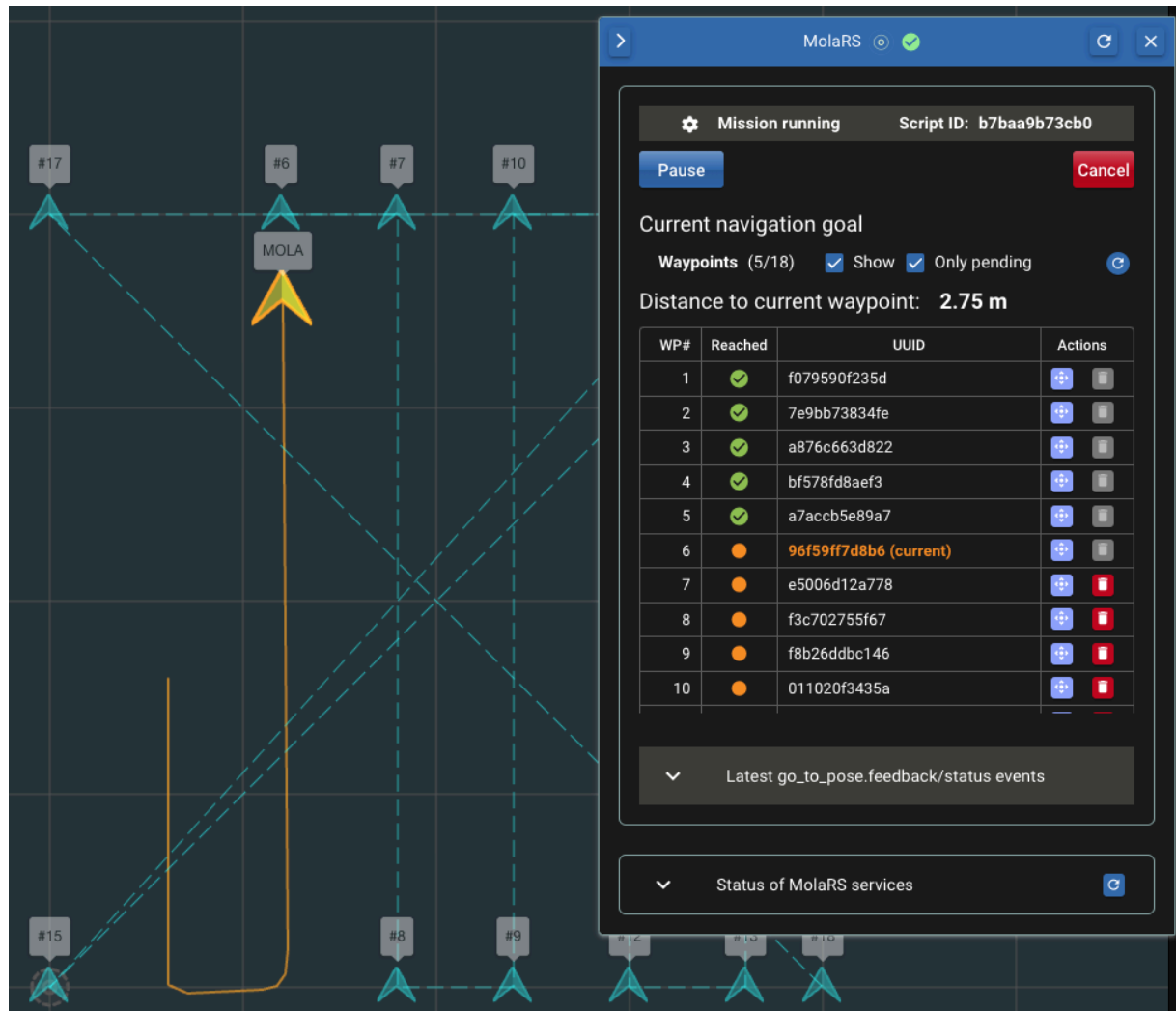
Week 47

1. Kent Headley
 - a. Giancarlo and team are enjoying some success in the Maldives, they posted that they've completed their second MOLA dive, and are collecting some good data in the Magoodhoo heart lagoon.
2. Akshay Hinduja
 - a. Implement water column and snippet data reading for Norbit driver
 - b. Assist Mauro with s7k file generation
 - c. Start beta development for C++ driver

Week 46

1. Kent Headley
 - a. Last week, Giancarlo and I tested the Oculus sonar driver with the M750 model on ROV Mola. It's expected to be used to collect SLAM evaluation data in the upcoming trip to the Maldives.
2. Akshay Hinduja
 - a. Assist Eric and Johann to get blueboat ready for maldives trip
 - b. Look into s7k conversion. Not as straightforward, and may have limitations on norbit side
 - c. Coordinate with Norbit to expand API control for driver
 - d. Prepare C++ beta
3. Carlos Rueda

- a. Dial now [1.4.9](#), with all major features implemented re MolaRS integration, at least for the most immediate needs in preparation for the Maldives.



4. George Stern
 - a. Oak500m chassis build support and integration
 - b. Added saddle to laser mount
 - c. Blue Boat INS/RPi troubleshooting
5. Johann Voigtlander
 - a. Reinstalled VN300 drivers and setup for BlueBoat

Week 45

1. Francois Cazenave
 - a. Drawings for presentation
 - b. Rear bumper for ROV
2. Kent Headley
 - a. Reorg GUI branch, finalize changes, Submit PR
 - b. Testing GUI support for Oculus 750d on Mola (for Maldives)

- c. Potential Oculus software install on new project laptop
- 3. Akshay Hinduja
 - a. Bug fixes for gui-control behaviour
 - b. Integrate s7k logging into alpha driver
 - c. Prepare beta driver system
- 4. Eric Martin
 - a. Offshore last week with the MiniROV, and highly successful technically, as all items functioned well within design.
 - b. Preparing for the Maldives Expedition
- 5. Carlos Rueda
 - a. Dial now [1.4.5](#).
 - b. Continuing Dial-MolaRS integration.
- 6. George Stern
 - a. Oak500M chassis build, fixturing and harnessing designs, parts ordering
 - b. Completed laser mount build and installed on mola
- 7. Johann Voigtlander
 - a. MiniROV Operations all well

Week 44

- 1. Kevin Barnard
 - a. Cruise **Oct 29, 2024** : ran SLAM at Sponge Ridge; collected data with Arctic sled configuration
 - b. Ran stereo rectification for OakD cameras on Arctic MiniROV sled
 - c. Implemented nav goal retrieval, nav pausing in MolaRS
 - d. Created Dial deployment configuration for MolaRS testing on compaslabdev
- 2. Francois Cazenave
 - a. Drawings
- 3. Kent Headley
 - a. Tested Oculus driver/GUI on first leg of Rachel Carson cruise; providing shore support for remaining legs.
 - b. Working with Blueprint Subsea on Oculus sonar configuration issues to try and extend output image resolution
 - c. Software updates and testing for cruise
- 4. Akshay Hinduja
 - a. Cruise, Mon Oct 28 2024, all working
 - b. Write documentation
- 5. Carlos Rueda
 - a. Dial system now at [1.4.0](#) with significant additions related to platform deployment management.
 - b. Dial documentation updated (mainly [here](#) and [here](#)).
 - c. Continuing Dial-MolaRS integration.
- 6. George Stern
 - a. Completed design of the new laser mount

- b. Began assembling OAK500 can
 - c. Docking station concept design
- 7. Johann Voigtlander
 - a. Dismounted Norbit WBMS - going to be installed on MiniROV

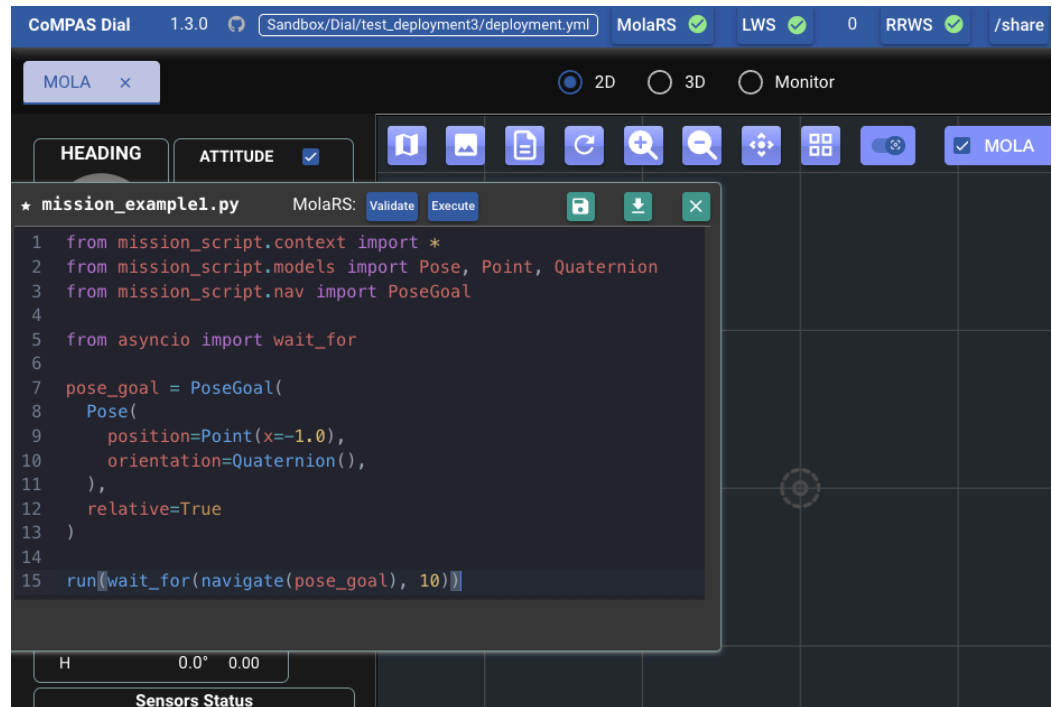
Week 43

- 1. Kevin Barnard
 - a. Implemented several features in Mola Routing System (MolaRS)
- 2. Kent Headley
 - a. Added support for Oculus Simple Fire Message ver 2 (OSFMv2), and use of extended sonar configuration settings that may provide better range resolution, making the images perform better for SLAM.
 - b. Tank testing Oculus sonar using Mola ROV
 - c. Prepping for Rachel Carson/MiniROV cruise (will collect sonar data set for SLAM),
- 3. Akshay Hinduja
 - a. Finish up lcm messages for metadata for Norbit python driver
 - b. Prepare for cruise 10/28
 - c. Update Blue boat driver to latest version
- 4. Eric Martin
 - a. Blueboat final planning
 - b. MiniROV Prep
 - c. New Boxfish Checkout
 - d. Board slides
 - e. Maldives planning
- 5. Paul Roberts
 - a. Prep for field work Oct 28
- 6. George Stern
 - a. Began designing a 2nd laser fixture which would connect to the back end of mola

Week 42

- 1. Akshay Hinduja
 - a. Finished python driver lcm broadcast and viewer
- 2. Eric Martin
 - a. Board Slides
 - b. Blueboat training, dock testing
 - c. 2025 Prespending
- 3. Carlos Rueda
 - a. Dial system now [1.3.0](#). [Deployment documentation](#) now up-to-date.

- b. Successful testing of initial MolaRS / Dial interaction: Dial shows status of MolaRS services and current mission, and allows to validate and issue missions.



4. George Stern
 - a. CTD harness build instructions and planning

Week 41

1. Kent Headley
 - a. Resolved open question about Oculus sonar 16-bit image format appearing darker; turns out that the sonar firmware applies gamma correction to 8-bit images but not 16-bit images (due to memory limitations, according to Blueprint Subsea).
 - b. Added gamma correction option for image export
 - c. Working on feature request to support Oculus v2 protocol, which contains accelerometer info that may be useful for navigation. Support hooks are already in place, but some details and testing are pending.
2. Akshay Hinduja
 - a. Finished python driver lcm broadcast and viewer
3. Carlos Rueda
 - a. Dial system now [1.3.0](#).
 - b. Successful testing of the new integrated system on a separate ("atuncita") machine: all the critical comm channels, APIs, and recent UI enhancements exercised satisfactorily.
 - c. [Deployment documentation](#) updated.
 - d. Various TODOs captured for future discussion.
4. Johann Voigtlander

- a. Tested the BlueBoat in the harbour and ran a small survey
- b. Integrated a time server on the blueboat network
- c. Worked with Akshay to integrate his WBMS logging code and tested it
- d. 3D printed bracketry for WBMS swivel

Week 40

- 1. Kent Headley
 - a. testing oculus tools and GUI, fixing related issues; working with Bastian, who is using the various tools to analyze oculus data (and subsequently finding software issues)
- 2. Akshay Hinduja
 - a. Norbit WBMS driver LCM broadcast
- 3. Eric Martin
 - a. MiniROV tests last week, minor checks on cameras and ice video
 - b. Blueboat eval with Johann, getting ready for dock test
 - c. Need a timing solution for Blueboat
 - d.
- 4. George Stern
 - a. Mola Docking kickoff
- 5. Johann Voigtlander
 - a. Put the BlueBoat in the test tank to collect WBMS data
 - b. Reprinted mount for WBMS with correct hole size

Week 39

- 1. Kevin Barnard
 - a. Implemented prototype REST API for MolaRS mission submission and management
- 2. Akshay Hinduja
 - a. Norbit WBMS driver: Fixed visualization issues, working on LCM message generation and reading GUI config files in headless state
- 3. Carlos Rueda
 - a. Focused on Dial component integration development.

Week 38

- 1. Kevin Barnard
 - a. Ported lcm_action_server library to Python
 - b. Implemented prototype control/navigation/mission servers as part of Mola Routing System (MolaRS)
 - c. Began implementation of REST API for MolaRS
- 2. Francois Cazenave
 - a. Bracketry design and assembly
- 3. Kent Headley

- a. Tested oculus GUI and driver in tank test. Added several new GUI features, and am currently chasing down a distortion in the sonar data visualization.
- 4. Akshay Hinduja
 - a. Continue Norbit WBMS development, working on visualizing bathymetry data
- 5. Carlos Rueda
 - a. Helped set up Dial during recent Mola and MiniROV exercises in the test tank.
 - b. Dial is now at 0.0.91, with several fixes and performance improvements.
- 6. George Stern
 - a. Laser mount design
- 7. Johann Voigtlander
 - a. Reprinted WBMS Blueboat mount with correct mounting hole sizes

Week 37

- 1. Kent Headley
 - a. Oculus GUI functionally complete; added a number of features and adjusted layout. The quickie rendering method used may not be adequate; effort depends on oculus use roadmap.
 - b. Consulting with Akshay on Norbit driver he's developing.
- 2. Akshay Hinduja
 - a. Working on Norbit WBMS and FLS driver
 - b. Able to get raw bathymetry data recorded and decoded
 - c. Current focus on cleaning up architecture to be more modular
 - d. Aim to get translations to lcm/ros2 in the next week set up
- 3. Eric Martin
 - a. Proposal Responses
 - b. MiniROV Arctic Testing
- 4. Carlos Rueda
 - a. Catching up with Dial dev (lots of internal changes); ongoing discussions, where I'm emphasizing the need for more focused coordination for Dial purposes.
- 5. George Stern
 - a. Designed and built a test box so the lights could be run in the test tank without the controller
 - b. Build support and final assembly of the lights on mola in preparation for test tank
 - c. Completed preliminary laser fixturing concept
- 6. Johann Voigtlander
 - a. Completed wiring an testing WBMS

Week 36

- 1. Francois Cazenave
 - a. ROV sled assembly
- 2. Kent Headley
 - a. Tested Oculus Sonar GUI and driver during LASS cruise. Found/fixed a few issues, and continue to add features.

- b. Collected several data sets using both the Oculus ViewPoint and MBARI drivers that will be used to evaluate sonar performance and compare to Triton Gemini
- 3. Akshay Hinduja
 - a. Go through initial process familiarity with Eric
 - b. Get requirements for Norbit driver after discussion with Giancarlo
 - c. Work on initial architecture design for driver
- 4. Eric Martin
 - a. Offshore with LASS last week.
- 5. Carlos Rueda
 - a. Resuming Dial work.
 - b. Discussions with Kevin B. to start integrating notifications from his “control server” into Dial.
- 6. George Stern
 - a. Completed cable and housing wiring schematics
 - b. Light bar assembly and housing/cabling build support
 - c. Began laser fixturing design
- 7. Johann Voigtlander
 - a. Purchased and built up WBMS cable for Norbit -> Bluetrail bulkhead
 - b. Installed 24V power supply
 - c. Installed and configured 24V relay

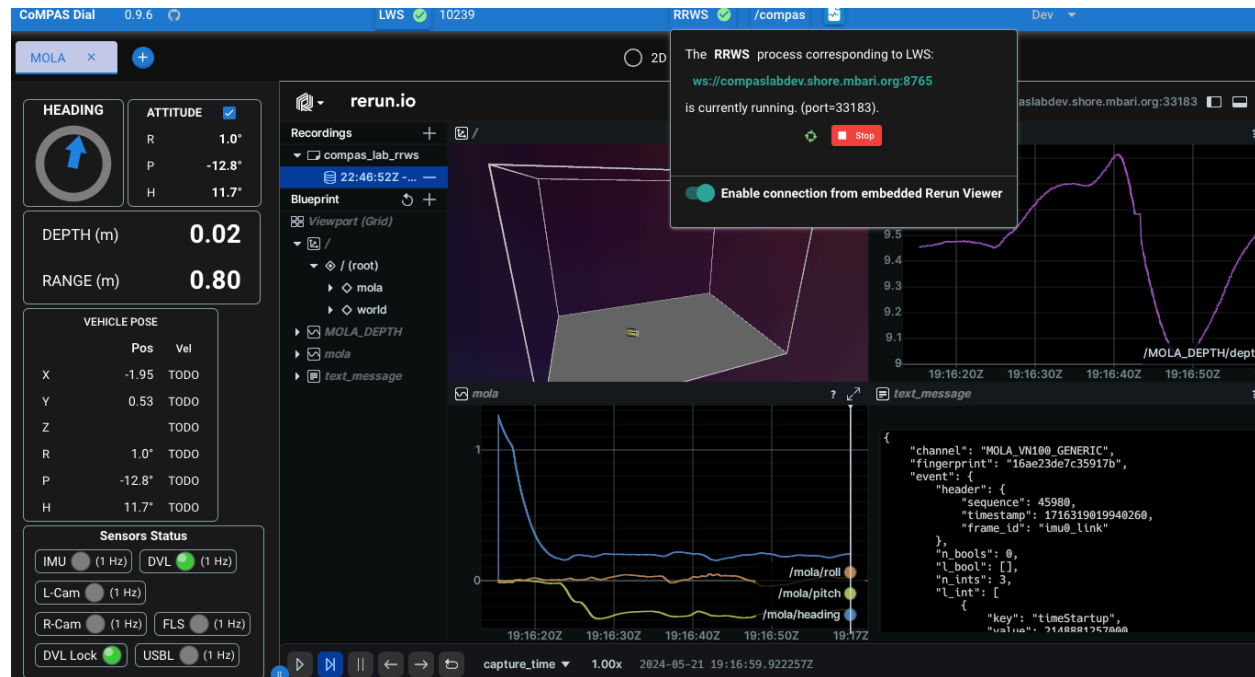
Week 35

- 1. Francois Cazenave
 - a. Designing brackets for benthic sled. Assembly
- 2. George Stern
 - a. Finalized interconnect planning for the lighting system and ordered parts
 - b. Completed power and control hub model
- 3. Johann Voigtlander
 - a. Found cabling solution for Norbit -> BlueBoat

Week 34

- 1. Francois Cazenave
 - a. Designing brackets for Mini ROV
- 2. Kent Headley
 - a. Nearly done with prototype oculus viewer
 - b. preparing for cruise
- 3. Eric Martin
 - a. Offshore last week with new sonar drawer for a direct forward looking sonar experiment comparing Triton, Norbit, and BluePrint sonars.
 - b. Arctic Prep
 - c. Camera submission to shop
 - d. Mola2 ordering
 - e. New student acclimation, intern sendoffs.

- f. Prep for LASS cruise.
- 4. Carlos Rueda
 - a. Consolidating new component orchestration behind the Dial UI.
 - b. Dial is now [0.9.6](#).



- c.
- 5. George Stern
 - a. Updated camera control software to gate exposure time, retested system in the test tank and discovered all the lighting originally planned will likely be needed
 - b. Began solid models for the power and control hub
- 6. Johann Voigtlander
 - a. Replaced Navigator flight controller to connect VN300

Week 33

- 1. Francois Cazenave
 - a. Designing brackets for mini roV
- 2. Kent Headley
 - a. prototyping an oculus sonar visualization/UI in Qt
- 3. Mike Risi
 - a. Helped with August 8th cruise deployment
- 4. Paul Roberts
 - a. Mola central camera optics
- 5. Carlos Rueda
 - a. Working on orchestration of Dial components.
 - b. Assisted Sebastián in having an instance of Dial running on a new machine (including LWS).
- 6. George Stern

- a. Completed initial uC software for laser, led and camera synchronization and control
 - b. Initial tank test of new LED lighting to verify spread and flux; spread looked fine, but there is a potential opportunity to save additional power by decreasing flux, need to update luxonis camera driver to set maximum camera exposure and retest
- 7. Johann Voigtlander
 - a. Debugging VN300 integration issues

Week 32

- 1. Francois Cazenave
 - a. Designing brackets for Mini ROV
- 2. Kent Headley
 - a. preparing for cruise 08/08: testing oculus sonar driver, fixed a few issues, and added test pattern feature to oculus simulator.
- 3. Akshay Hinduja
 - a. Assist in setup for cruise on 8/8
 - b. Go through driver repositories for gemini and oculus sonars
- 4. Paul Roberts
 - a. Deployment support
- 5. Carlos Rueda
 - a. Working on the new Dial UI layout, now with 3 subviews (2D, 3D, Monitor) in the viz panel.
 - b. With Sebastián, defining channels and fields to populate the status panel.
- 6. George Stern
 - a. Light Power and Control board assembled and tested
 - b. Began writing control software
- 7. Johann Voigtlander
 - a. Built Norbit multibeam mount for the BlueBoat.
 - i. Tested the drag in the test tank

Week 31

- 1. Francois Cazenave
 - a. Design of mini rov sled
- 2. Paul Roberts
 - a. PoE can and MiniROV testing
- 3. Carlos Rueda
 - a. Prioritizing/advancing tasks.
- 4. George Stern
 - a. Tested glass transition and adhesion at elevated temperature of two optical potting compounds
 - b. Thermal and initial qualitative optical tests on led light boards in Al channel with varying aspect ratios

- c. Brought up CTD interface boards
 - d. AI channel heatsink design and mola mounting
- 5. Johann Voigtlander
 - a. Debugging VN300 issue with vectornav
 - b. Purchased antenna upgrades, mounted new antenna on boat

Week 30

- 1. Francois Cazenave
 - a. Designing brackets for sonar and camera
- 2. Kent Headley
 - a. Did a burn-in test of the new oculus driver last week, and checked to ensure that it is compatible with the Gemini sonar driver. That is ready for the August 6 deployment.
- 3. Eric Martin
 - a. Norbit to POE Can Adaptor cable
 - b. Ventana coordination/prep
 - c. OAK1500 pressure test was good, moving to build.
- 4. Mike Risi
 - a. Tested August 6th deployment config on Ventana and SPRINT INS serial interface
- 5. Paul Roberts
 - a. Splitter can PTH board
 - b. Mola optics simulation
- 6. George Stern
 - a. Completed detailed design and layout of the light power and control board
 - b. Ordered parts/boards for the 3 completed designs and began initial testing of the light board
 - c. Installed an anode on Mola
- 7. Johann Voigtlander
 - a. Added ethernet switch to blueboat
 - b. Started designing multibeam mount

Week 29

- 1. Kevin Barnard
 - a. Developed ROS2 service and action server semantics for LCM
- 2. Francois Cazenave
 - a. Designing brackets for cameras, laser.
- 3. Kent Headley
 - a. Finished Oculus sonar driver
 - b. Testing Oculus and Gemini sonar drivers
- 4. Paul Roberts
 - a. Mola optics
- 5. Carlos Rueda

- a. Integrating/advancing Dial components.
- 6. George Stern
 - a. Completed detailed design and layout of LED board
 - b. Completed layout of the CTD board
 - c. Began detailed design of light control board
- 7. Johann Voigtlander
 - a. Created a script that syncs the Raspberry Pi's time with GPS GPRMC sentences
 - b. I looked into using the InertialSense IMU for GPS YAW. It unfortunately doesn't send out GPHDT sentences. I am looking for alternatives.
 - c. Familiarizing myself with the new Norbit MBES, looking into integrating into the blueboat and the MiniROV

Week 28

- 1. Mike Risi
 - a. Working on deployment folder for August 6th cruise
- 2. George Stern
 - a. Detailed design of CTD interface and lighting for mola
- 3. Johann Voigtlander
 - a. IMU Datalogger simplified and enhanced

Week 27

- 1. Paul Roberts
 - a. Mola stereo cameras
 - b. PoE interface testing on Ventana
- 2. George Stern
 - a. Fixed broken bulkhead and worked on an anode for the sonar
 - b. Began detailed design for CTD and lights
- 3. Johann Voigtlander
 - a. Created a datalogger to record VN300 data on a raspberry pi and integrated it onto the BlueBoat

Week 26

- 1. Kevin Barnard
 - a. Tested SLAM datasets on MOLA dive May 30, 2024
 - b. Tuned SLAM parameters and deployment configuration for MOLA
- 2. Paul Roberts
 - a. PoE interface rebuild and testing
 - b. Mola camera/lens review
- 3. Carlos Rueda
 - a. Integrating/advancing a server component in Dial.
 - b. Preps to use [rerun blueprints](#).
- 4. George Stern

- a. Identified new higher temp led optical potting compound for lights
 - b. Completed preliminary mechanical and electrical concept diagram for lights
 - c. Scoped the CTD
- 5. Johann Voigtlander
 - a. Wrote a labVIEW program to interface with VN100/VN300 AHRS

Week 25

- 1. Kent Headley
 - a. Reviewing oculus sonar driver code
- 2. Paul Roberts
 - a. PoE can rebuild
- 3. Carlos Rueda
 - a. Significant progress on Dial, and the embedding of the webassembly-based Rerun viewer. Advancing the [RWS](#) tool (to relay messages from LWS to a remote or own Rerun Viewer). Very exciting features on the roadmap.
- 4. George Stern
 - a. Updated the DVL so it could be controlled by mola controllers or Orin NX
 - b. Began scoping addition of CTD to mola
 - c. Began planning for additional mola lighting

Week 24

- 1. Johann Voigtlander
 - a. Working on integrating the VN-300T AHRS into the blueboat

Week 23

- 1. Eric Martin
 - a. Mola Efforts in the test tank, upgrades for lamps/dvl
 - b. Mola Stereo component bench testing
 - c. Planning for Ventana Cruise Day 8/6/24

Week 22

- 1. Paul Roberts
 - a. PoE interface rebuild
- 2. Carlos Rueda
 - a. Dial now [0.8.1](#) with ability to play any LCM log files under the `/compas` share (with controls for getting status and stopping). All of that functionality is supported by the [dialserv API](#).
- 3. George Stern
 - a. Mola network troubleshooting
- 4. Johann Voigtlander
 - a. Investigated various IMU options

- b. Purchased replacement latch for the BlueBoat

Week 21

1. Kevin Barnard
 - a. Performed calibration of MOLA stereo cameras using new ChArUco board target
 - b. Designed trajectory following system for MOLA
 - c. Collected SLAM dataset
 - d. Corrected bugs in OAK-D LCM camera driver
 - e. Set up RTAB-Map SLAM for MOLA deployments
2. Eric Martin
 - a. Tank testing
 - b. Mola mods
 - c. OAK testing on Rpi5
3. Paul Roberts
 - a. PoE interface rebuild
4. Carlos Rueda
 - a. Delineating a [Dial backend](#) counterpart.
 - b. Advancing the rerun based visualization.
 - c. With Giancarlo, enabled our [doc-generation](#) mechanism for CoMPAS lab repos.
5. George Stern
 - a. Some mola updates
6. Johann Voigtlander
 - a. Built up Blue Robotics Blue Boat. Updated firmware, ready for testing.

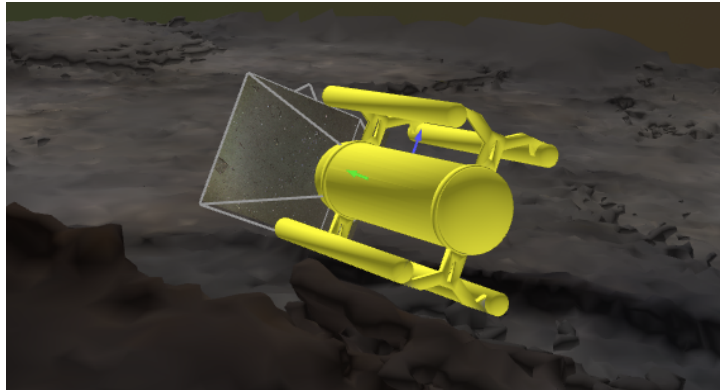
Week 20

1. Eric Martin
 - a. Supporting Mola upgrades and testing
2. Paul Roberts
 - a. PoE can rebuild
3. Carlos Rueda
 - a. Transferred Dial repo to [CoMPASLab/dial](#). Rather surprisingly, the webhook for documentation generation continues to work just fine as long as there's also the mbari-org/dial repo.
 - b. As part of delineating some future development for Dial, put in an IS ticket to mount the [compas](#) Titan share on [compaslabdev](#).

Week 19

1. Danelle Cline
 - a. Sprint kick-off. Preparing for test-tank stereo capture using sightwire
 - b. Loaded sdcat generated output and documented steps for dial integration
2. Paul Roberts
 - a. PoE chassis rebuild

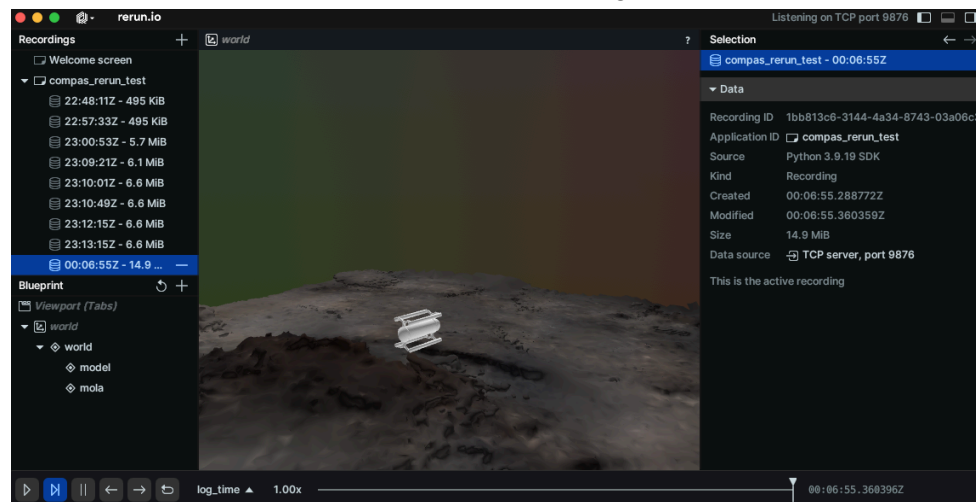
3. Carlos Rueda
 - a. Rerun evaluation/learning continues toward adoption.



4. George Stern
 - a. Completed Orin Nano/NX adapter fixturing design and fabrication
 - b. Updated camera rack design so mola lights could be added and point down
 - c. Identified camera sensor options for Mola 2

Week 18

1. Eric Martin
 - a. Mola maintenance with George
 - b. Meeting with LRAUV for hovering mode
 - c. Looking at Hawaii boats for proposal feasibility and options.
2. Carlos Rueda
 - a. [Rerun](#) evaluation continues. It does look like a great tool for our toolbox.



b.

Week 17

1. Francois Cazenave
 - a. Reviewed camera housing design
2. Kent Headley

- a. Query to Blueprint Subsea re Oculus sonar SDK
- 3. Carlos Rueda
 - a. Exploring/evaluating [Rerun](#) for visualization.
- 4. George Stern
 - a. Swapped Orin modules configured new SSD with jetpack 6
 - b. Mola dual IMU fixturing completed
 - c. Started fixturing for Mola Orin NX/Nano

Week 16

- 1. Kevin Barnard
 - a. Started investigating BehaviorTree state machine library for Mola mission management
- 2. Carlos Rueda
 - a. [Dial](#) is now [0.7.6](#).
- 3. George Stern
 - a. Mola fixturing designs for lights, Orin, and IMUs
 - b. Ordered Orin and peripherals

Week 15

- 1. Kevin Barnard
 - a. Scoped development for Mola field deployment
 - i. Estimation/SLAM
 - ii. State machine/mission execution
 - iii. Path planning/mobility management
 - iv. Logging
 - v. Status monitoring
 - b. Migrated SLAM repositories from GIM GitLab to CoMPASLab GitHub org
 - c. Continued validating GIM WP2
- 2. Eric Martin
 - a. Boxfish spare system purchase
- 3. Paul Roberts
 - a. PoE housing rebuild
- 4. Carlos Rueda
 - a. Meetings/scoping tasks.
 - b. Dial code cleanup.
- 5. George Stern
 - a. Mola fixturing concepts

Week 14

- 1. Francois Cazenave
 - a. Helping with design of new camera housing
- 2. Eric Martin

- a. Boxfish Order Spec
 - b. Power can bulkhead replacement
 - c. Mola development kickoff
 - d. OAK redesign concept review, contractor feedback.
- 3. George Stern
 - a. Mola reverse engineering
 - b. Active buoyancy control research
 - c. ESC control/Ardupilot rehosting research
 - d. Camera sensor research

Week 13

- 1. Kevin Barnard
 - a. Validated GIM point cloud accumulator and point cloud manager
- 2. Kent Headley
 - a. Sprint 31 meeting

Week 12

- 1. Kevin Barnard
 - a. Validating point cloud accumulation/management/matching software from GIM
 - b. Investigated adding GIM collaborators to MBARI Docker Hub and alternative solutions
 - c. Created repositories on mbari-org GitHub to host GIM code
- 2. Kent Headley
 - a. Finished M3 sonar serial stream ingest for MB-System
- 3. Eric Martin
 - a. Stereo camera redesign kickoff
 - b. We had too many leaking failures on the new POE can that are leading to a respect of the bulkheads for POE, we're looking at the Seacon line of ethernet cables.
- 4. Paul Roberts
 - a. Falkor support
- 5. George Stern
 - a. Completed Mola maintenance
 - b. Architecture planning for Mola changes

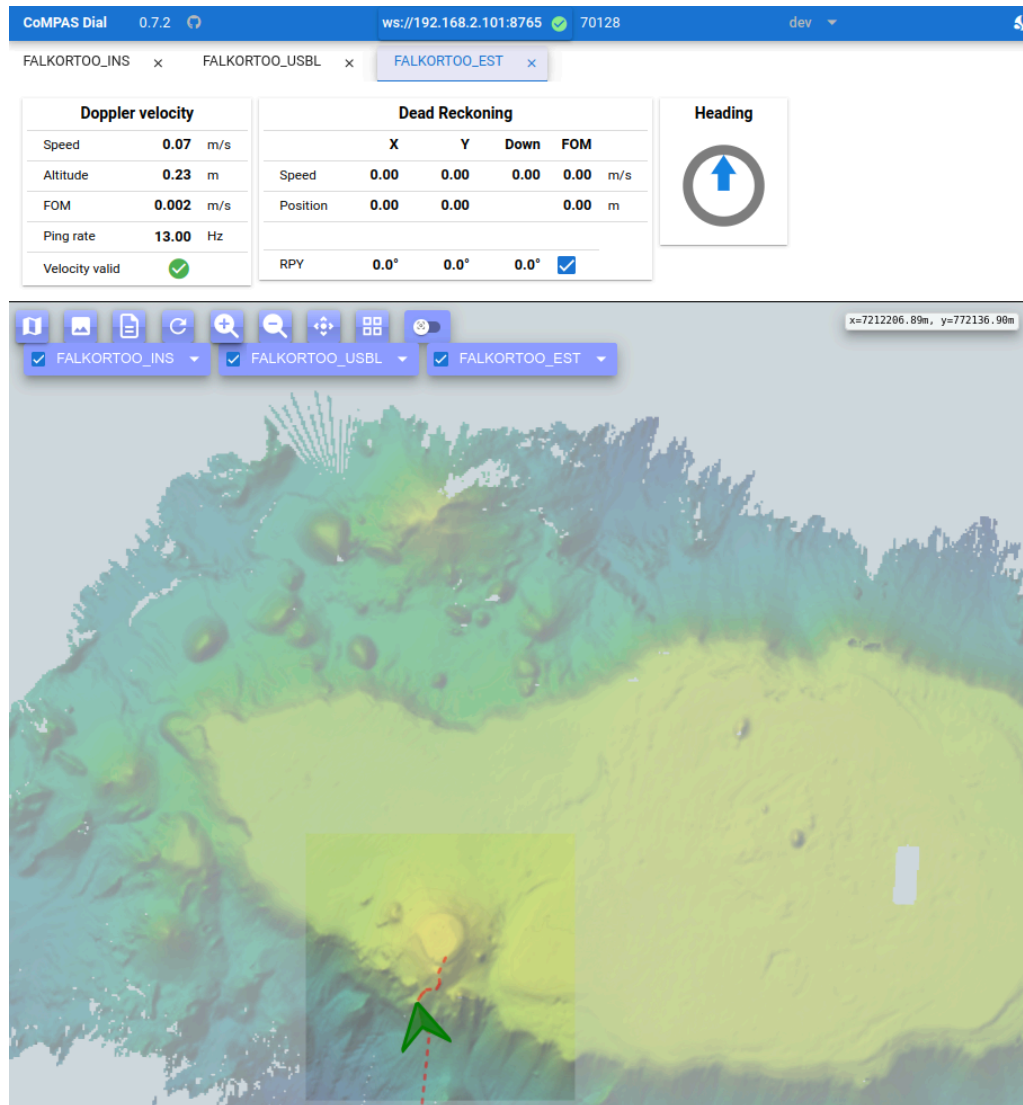
Week 11

- 1. Kevin Barnard
 - a. Supported GIM WP2 validation efforts
 - b. Supported SLAM and camera calibration for Falkor too cruise
- 2. Kent Headley
 - a. worked on serial IO support for M3 sonar
- 3. Paul Roberts

- a. Materials testing for aluminum tubes from Xometry
- 4. George Stern
 - a. Reverse engineering mola ESC interface
 - b. Identifying alternate SBCs and control architecture to reduce motor cmd latency
 - c. Mola upgrades/maintenance

Week 10

- 1. Kevin Barnard
 - a. Debugging RTAB-Map visual SLAM on imaging sled for Falkor too cruise
 - b. Started validation of GIM WP2 sonar SLAM
 - c. Calibrated StereoPi cameras in first HSI camera on Falkor too imaging sled
- 2. Kent Headley
 - a. Extended MB-System Kongsberg M3 sonar support to include real-time UDP data ingest
 - b. This intended to be used by Giancarlo during the ongoing Falkor Too cruise to potentially enable SLAM
 - c. Updating mb1stream/mbsystem docker builds
- 3. Eric Martin
 - a. MBES spec
 - b. Boxfish spec
 - c. Boxfish maintenance
- 4. Carlos Rueda
 - a. Dial: Giancarlo has shared some Dial screenshots taken during the ongoing Falkor cruise.



b.

c. Dial: Ingestion of JPEG image (binary) streams now in place. Thanks Kevin B. for your great work on the lcm-websocket-server side, which makes things very easy for Dial!

5. George Stern

a. Began work on Mola fixturing design

Week 9

1. Kevin Barnard

- a. Presented MiniROV SLAM poster in place of Sebastián
- b. Wrote JPEG proxy process within lcm-websocket-server for Dial

2. Danelle Cline

- a. Finished sightwire watchdog pipeline for stereo data ingest with simulated video stream using REDIS timeseries.

3. Kent Headley

- a. Integrating M3 UDP support into MB-System (though priority is lower as it may not be supported on Falkor due to network topology)
- 4. Eric Martin
 - a. Lots of work at OSM presenting last week.
 - b. Sprint kickoff, closing out Paragon work with GIM and setting up next efforts involving Mola
- 5. Paul Roberts
 - a. Falkor support
- 6. Carlos Rueda
 - a. Dial: Setting up ingestion of image (binary) payloads per new scheme agreed with Kevin B.

Week 8

- 1. Francois Cazenave
 - a. Provided parts and drawings for ROV Subastian
- 2. Kent Headley
 - a. Studying code for real-time M3 sonar data integration via MB-System for SLAM
- 3. Carlos Rueda
 - a. Dial: Adjustments in image stream options. Some updates to the [documentation](#). In coordination with Kevin B. (see this [spec](#)), preparing to consume binary payload as a more efficient mechanism to display the image streams.
 - b. Started looking into the general Tator API documentation and entered [this](#) related with the integration of Sightwire to expose images and metadata in Dial.
- 4. George Stern
 - a. Final P3 dataset gathered on the Paragon
 - b. Lidar to Camera Calibration dataset gathered
 - c. Completed As Built documentation

Week 7

- 1. Michael Anderson
 - a. Consolidated docker images to run with docker compose
 - b. Wrote various helper scripts
 - c. Managed data rates of all sensors to meet bandwidth requirements to run full system
 - d. Enabled recording of full system
 - e. Got all sensor drivers running in ros2
 - i. Enabled raw lidar_packet data output in ros2
 - ii. Enabled output of all scan rings from lidar (including static transform publishers for display)
 - iii. Enabled RTK mode on GPS
 - iv. Enabled RGBStereo mode (output all three cameras of camera system)
 - f. Meeting with GIM (sub-contractor)
- 2. Francois Cazenave

- a. Designed and ordered hardware for ROV Subastian
- 3. Danelle Cline
 - a. Working on sightwire watchdog pipeline for stereo data ingest with simulated video stream. Evaluating redis timeseries.
- 4. Kent Headley
 - a. Attended cruise 2/9 via telepresence
 - b. Updates for cruise were successful in fixing range/gain init issue
 - c. Data set was collected, pending analysis
 - d. Tweaked and checked in change set re status bar for readability
 - e. Ran M3 sonar samples w/ mb1stream to generate MB1 LCM log
 - f. Scoping M3 sonar real-time capability
 - g. Help w/ OSM posters (if needed)
- 5. Carlos Rueda
 - a. Dial: Integrating display of image streams in the main page; re-structuring deployment spec to accommodate the new channels. Exploring options to improve performance, including use of binary payloads in the websocket communication (pending discussion with Kevin B.) as well as use of web workers in the frontend.

Week 6

- 1. Kevin Barnard
 - a. Calibrated stereo cameras for Falkor (too) imaging sled
- 2. Francois Cazenave
 - a. Designing camera mount for Subastian arm
- 3. Kent Headley
 - a. Gemini sonar driver, added status bar feature, installed for cruise 2/9
 - b. Reviewing change image format ID in LCM messages from Gemini sonar driver
- 4. Paul Roberts
 - a. Building second HSI camera system
 - b. OSM poster
- 5. Carlos Rueda
 - a. Fixes in the image display implementation in Dial
- 6. George Stern
 - a. P3 testing on the paragon
 - b. Added heat pipe to reduce roof lidar temperature
 - c. RTK driver debugging, configuration/initialization changes

Week 5

- 1. Kent Headley
 - a. Resolved issue: range/gain initialization not working. A 750 ms delay was needed after connection before the sonar would accept configuration commands
 - b. Prep for cruise 2/9
 - c. Sprint kickoff meeting

- d. Added Istream docker image, and did some experiments with opengl forwarding to macOS.
Seems that OpenGL is deprecated on macOS, so while some bits are supported, some of the 3D features don't work when forwarding X11 apps to mac. It is perhaps related to support for direct vs indirect rendering. While there is glxgears test program available for macOS that works, when glxgears is run on a linux machine and forwarded to macOS, it requires LIBGL_ALWAYS_INDIRECT=1 and runs very slowly..

2. Mike Risi

- a. Tested Sprint INS serial driver on Ventana using GSS port with LNav message
- b. Reviewed logs from January 18th and modified rovr-control to address scripting issues
- c. Met with Sebastian to review rovr-control changes and deployment configuration for February 9th

3. Paul Roberts

- a. Tank testing with updated PoE interface for SOI

4. Carlos Rueda

- a. Preliminary implementation of image display in Dial, including stereo ones (which are just displayed side-by-side).

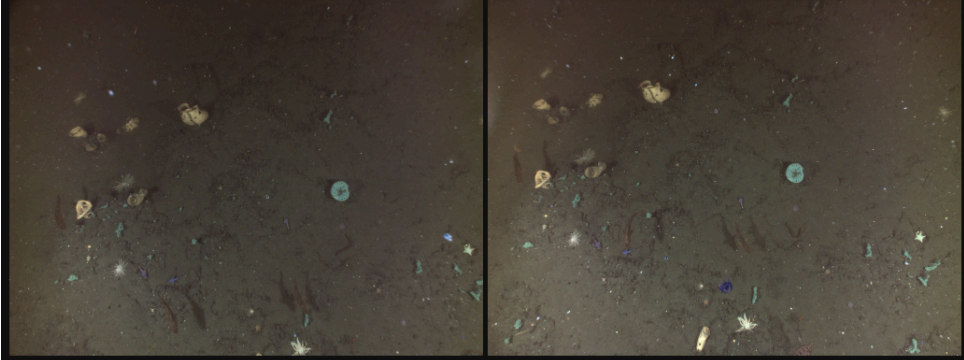
LCM Spy clone (very initial sketch)

Channel	fingerprint	#Msgs	Hz	1/Hz (ms)
PROSILICA_L		140	2.00	500.00
PROSILICA_R		140	0.00	∞

1-2 of 2

☒ Show images

Left: 1970-01-20T15:22:34.151Z 205376 (Δ: 0.006818223s)
Right: 1970-01-20T15:22:34.148Z 930324 (Δ: 0.002272727s)
Left-right Δ: 0.002275052s



Left image channel: PROSILICA_L
Right image channel: PROSILICA_R

- b.
- c. Image generation rate characteristics still unclear but they seem rather demanding in principle: per the included timestamps in the payload they seem of high frequency but only received up to a couple of Hz in Dial, presumably due to latencies in LCM and/or websocket traffic.

5. George Stern

- a. Took camera calibration dataset

- b. Created a few different calibration targets

Week 4

1. Kevin Barnard
 - a. Planned individual tasks and timeline for 2024
2. Francois Cazenave
 - a. Hardware for Subastian
3. Kent Headley
 - a. Troubleshooting issue with gemini sonar: range/gain initialization ignored
 - b. Fixed bug: invalid control references in widget mode cause segfault
4. Mike Risi
 - a. Preparing for February 9th cruise
 - b. Modifying Sprint INS LCM driver for serial interface
5. Paul Roberts
 - a. Wrapping up power upgrades for SOI integration
6. Carlos Rueda
 - a. Meeting to delineate tasks for Dial, thanks Sebastián.
7. George Stern
 - a. Focused P3 cameras

Week 3

1. Kevin Barnard
 - a. Project kickoff: planning development tasks for 2024
2. Francois Cazenave
 - a. Subastian ROV bracketry
3. Kent Headley
 - a. cruise prep : will be running Gemini sonar on 1/18 cruise
4. Eric Martin
 - a. Falkor (too) Prep
 - b. Paragon Perception Trials offshore
 - c. Paragon Perception Data Sharing with GIM Robotics
 - d. Lab Kickoff Meeting Slides
5. Paul Roberts
 - a. SOI integration and power system upgrades to PoE interface
6. Carlos Rueda
 - a. Kickoff mtg / planning

Week 2

1. Mike Risi
 - a. Preparing for January 18th cruise
 - b. Developed Sprint INS LCM driver
2. Carlos Rueda

- a. Brief chats with Sebastián and Danelle.

Week 1

1. Danelle Cline
 - a. Working on sightwire pipeline for stereo data ingest and visualization.
2. Eric Martin
 - a. Start of year prep and planning
 - b. Falkor Integration
 - c. OAK driver updates
3. Paul Roberts
 - a. Assembly and testing new PoE Can