

902204 - Scalable Robotics

Week 51

1. Kent Headley
 - a. working w/ Tritech re possible logger bug
2. Eric Martin
 - a. Paragon Perception Platform (P3)
 - i. Final test and verification of software.
 - b. End of Year Spending
 - c. Falkor integration documents and meetings
3. Carlos Rueda
 - a. Brief discussion with Danelle regarding images and potential incorporation in Dial.

Week 50

1. Francois Cazenave
 - a. Meeting
 - b. Prepared documents for Falkor ROV engineer
2. Danelle Cline
 - a. 2024 year wrap-up, discussion with a few interested members on cloud tests.
 - b. Working on workflow for stereo data ingest and visualization.
3. Kent Headley
 - a. coding/testing timestamp updates
4. Eric Martin
 - a. End of Year Spending
 - b. Falkor planning
 - c. Paragon Perception Platform (P3) bringup.
5. Paul Roberts
 - a. SOI integration and power system upgrades
6. Carlos Rueda
 - a. End of year review mtg.

Week 49

1. Francois Cazenave
 - a. Helping with transfer of hardware to ROV Subastian
2. Eric Martin
 - a. EOY spending
 - b. ASV help w/ George
 - c. Falkor prep work.
3. Paul Roberts
 - a. SOI integration planning

Week 48

1. Paul Roberts
 - a. Ordering parts for SOI integration

Week 47

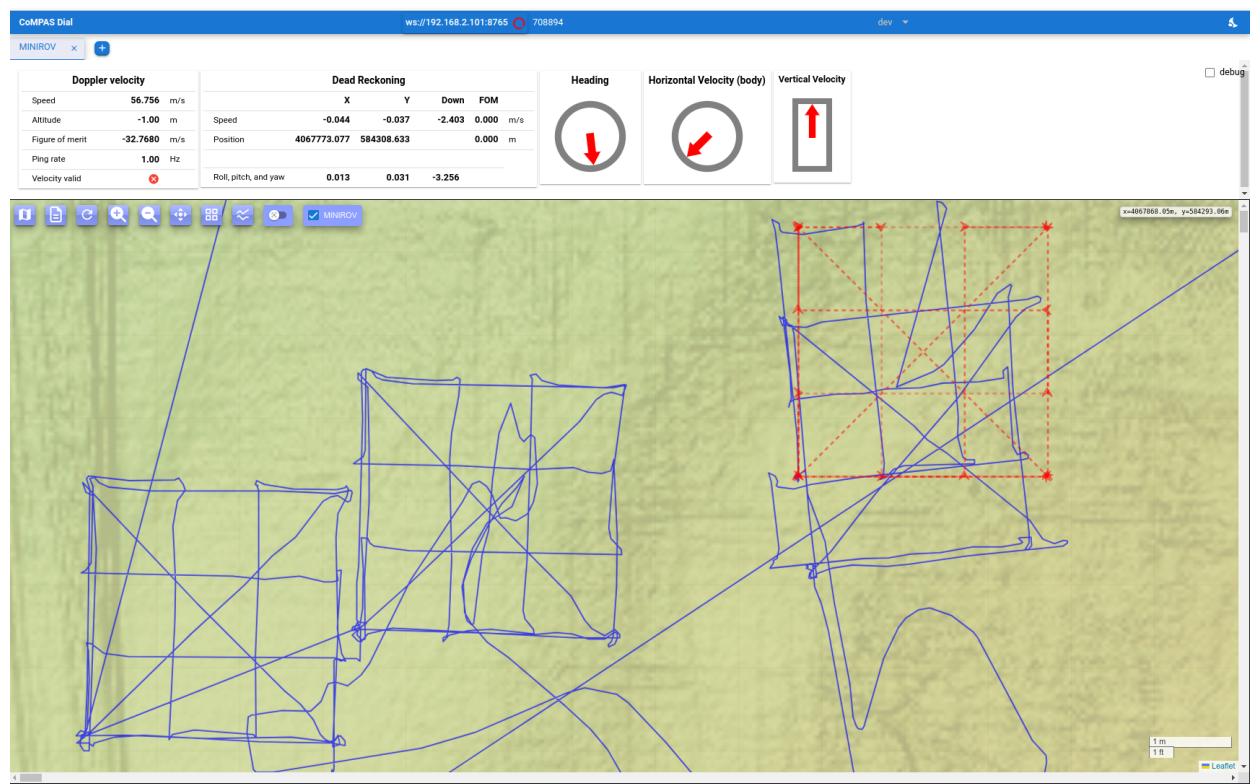
1. Kent Headley
 - a. Committed some changes to address issues with the Gemini Sonar GUI. Specifically, range and gain values were not propagating correctly, and the window would resize unexpectedly. These tests are pending testing (requires tank test).
 - b. Added features : GUI overlays to display a border around the sonar image and image timestamp; add grid and range text display in cartesian mode.
2. Paul Roberts
 - a. Scoping SOI integration

Week 46

1. Kevin Barnard
 - a. Participated in Fulmar cruise
 - b. Wrote ROS2 TF → LCM CoMPAS odometry republisher node
2. Paul Roberts
 - a. HSI lighting improvements
3. Carlos Rueda
 - a. Some [Dial documentation](#) updates.

Week 45

1. Danelle Cline
 - a. Testing Python entry point to quadrotor simulations.
2. Eric Martin
 - a. Out most of this week on the Fulmar, as weather keeps impacting days.
3. Paul Roberts
 - a. Supporting field work on Fulmar
4. Carlos Rueda
 - a. Dial is now [0.5.7](#), with lots of new features, and some documentation (wip). Have a look at [some screenshots](#). Here's one provided by Giancarlo this week:



Week 44

1. Kent Headley
 - a. debugging new range and gain controls on the libgemini driver/app
 - b. debugging new logger feature
 - c. won't be deployed on sponge ridge cruise 11/B, since test and debug requires tank test

Week 43

1. Kent Headley
 - a. Preparing for tank test this week; will be collecting a data set for Bastian to compare the Tritech Genesis data logs with the libgemini Istream application (built on the Tritech SDK).
 - b. Set up a windows laptop with Genesis software
 - c. Set up libgemini on atuncita
2. Paul Roberts
 - a. HSI camera testing and mounting in mapping sled
3. Carlos Rueda
 - a. Dial webapp: Working on keeping a recent history of platform positions so they can be displayed upon a reload of the page. Some significant refactoring is involved, which is needed in general toward other future enhancements, especially in terms of performance.

Week 42

1. Kevin Barnard
 - a. Participated in LASS cruise Oct 10, 2023 – Oct 12, 2023
 - b. Calibrated MiniROV stereo cameras
 - c. Calibrated LASS stereo cameras
 - d. Prepared MiniROV SLAM launch configuration for cruise starting Nov 3, 2023
2. Danelle Cline

- a. Finished docker build and preliminary tests of HelloWorld and quad rotor simulations in RoboMaker. Focused team to discuss next Monday.
- 3. Kent Headley
 - a. Carson LASS cruise at Sponge Ridge 10/10-12:
 - b. Collected Gemini sonar data
 - c. Though available time was too brief to collect a good data set, prepared a computer with libgemini and did get to see it run. Planning a tank test to compare libgemini
- 4. Eric Martin
 - a. Collected a lot of data last week, we were technically successful on SLAM and FLS exercises offshore.
- 5. Mike Risi
 - a. Support for LASS cruise series
 - b. Misc support and control system testing for new MiniROV sled
 - c. Developed application to capture stereo images from GigE cameras on MiniROV sled
 - d. Looking into a work around for lack of Procman support on Ubuntu 22.04 on Atuncita
- 6. Paul Roberts
 - a. Testing HSI can and system
- 7. Carlos Rueda
 - a. [Dial](#) maintenance release (now 0.4.0).

Week 41

- 1. Paul Roberts
 - a. HSI camera assembly
 - b. Wide-angle laser assembly

Week 40

- 1. Kevin Barnard
 - a. Finished and tested implementation of multiple candidate registration for global loop closure in RTAB-Map
 - b. Created launch configuration files for LASS deployment Oct 10, 2023 – Oct 12, 2023
 - c. Collected calibration datasets for MiniROV DSPL stereo cameras
 - d. Resolved several RTAB-Map/LCM to ROS bridge bugs and coordinate frame convention issues
- 2. Kent Headley
 - a. testing multibeam pipeline for cruise next week
- 3. Paul Roberts
 - a. PoE camera software
- 4. Brent Roman
 - a. Struggling a bit setting up lcm-webserver+websockets locally for development/testing purposes. (All good on [atuncita](#) and [compaslabdev](#) though)

Week 39

- 1. Kevin Barnard
 - a. Implemented visual loop closure multi-candidate registration
- 2. Francois Cazenave
 - a. Assembling sled
- 3. Paul Roberts
 - a. Mini PoE integration
- 4. Brent Roman
 - a. Set up CompasWebUi on Atuncita: pretty straightforward: just installed/config'ed apache, and launched the services with the usual docker-compose.

Week 38

1. Kevin Barnard
 - a. Began implementing feature to consider multiple candidates for loop closure in RTAB-Map
 - b. Fixed some bugs in RTAB-Map SLAM pipeline
 - c. Tested loop closure detection in May 2023 LASS dataset
2. Kent Headley
 - a. Installed mb1stream on atuncita, built docker image
 - b. Tested X windows forwarding and fixed a couple of issues for linux build, and a GMT error that affected both linux and macOS
3. Eric Martin
 - a. Working with ETs on chassis build
 - b. Cable design
4. Paul Roberts
 - a. MiniROV interfacing
 - b. HSI camera design

Week 37

1. Kevin Barnard
 - a. Solved issue with invalid TF2 transforms and failing initial guess for RTAB-Map SLAM visual odometry
2. Kent Headley
 - a. planning for October cruise (sonar data for SLAM, imaging sonar)
3. Eric Martin
 - a. MiniROV Sled in build
 - b.
4. Mike Risi
 - a. Working on synchronizing GigE stereo cameras using IEEE 1588 protocol.
5. Paul Roberts
 - a. HSI AI cam design
 - b. PoE can assembly
 - c. FLIR camera driver support

Week 36

1. Kevin Barnard
 - a. Completed investigation of visual loop closure issues
 - b. Straightened out branches in several GIM SLAM-related repositories
2. Francois Cazenave
 - a. Assembling ROV sled
 - b. Checked stereo camera housing design
3. Eric Martin
 - a. ASV payload
 - b. Mini Sled chassis
 - c. OSM Abstract Draft
4. Paul Roberts
 - a. PoE can pressure test
 - b. HSI concept modeling and OSM abstract

Week 35

1. Francois Cazenave
 - a. Finished ROV sled design

- b. Reviewed stereo camera design
- 2. Eric Martin
 - a. Phase 2 needed major effort overhauls
 - b. MiniROV Sled
 - c. Supporting OAKD developments
 - d. New visiting scholar this week, coordinating.
 - e. Getting new IMUs online
- 3. Paul Roberts
 - a. PoE can testing
 - b. HSI camera on the MiniROV concept modeling

Week 34

- 1. Kevin Barnard
 - a. Continued investigating loop closure issues
- 2. Francois Cazenave
 - a. Designing sled and ordering parts.
- 3. Kent Headley
 - a. Generated a compact docker image for the multibeam processing (see notes, seafloor mapping)
- 4. Eric Martin
 - a. Proposal Feedback
 - b. MiniSled Wiring in
 - c. MiniCamera Review
 - d. Topside for Mini planning

Week 33

- 1. Kevin Barnard
 - a. Continuing to investigate loop closure issues on May 2023 LASS SLAM dataset
- 2. Francois Cazenave
 - a. Designing roV sled
- 3. Kent Headley
 - a. Docker images for multibeam SLAM pipeline
- 4. Eric Martin
 - a. Sprint 15 underway. Lots of work getting the sled in production.
 - b. Wiring drawings
 - c. PM work on 2024 budgeting.
- 5. Paul Roberts
 - a. PoE Interface bench testing
 - b. Wider laser line generator
 - c. HSI refactor planning

Week 32

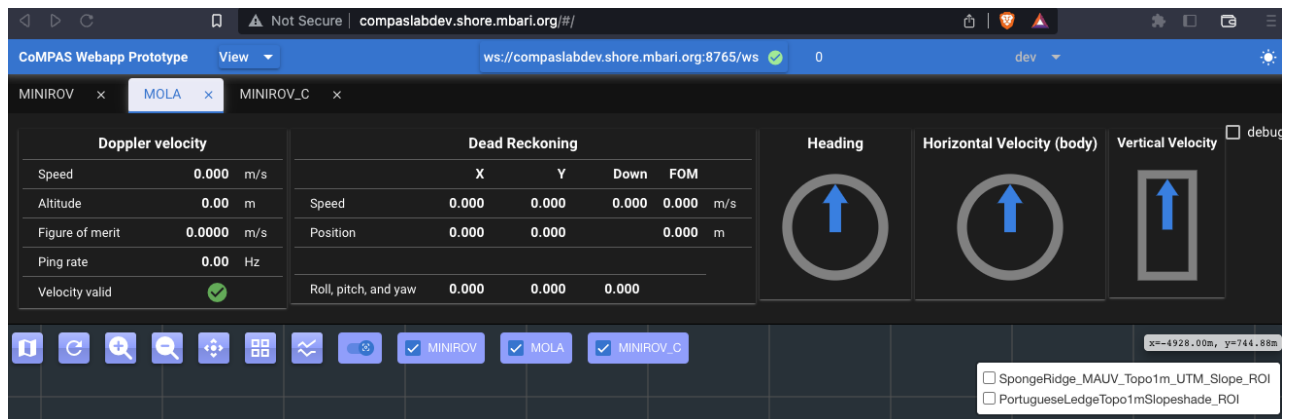
- 1. Francois Cazenave
 - a. Designing mini ROV sled
 - b. Reviewed PAul's design
- 2. Danelle Cline
 - a. Discussions with Giancarlo and Eric about scoping tasks for next sprint starting August 17th.
- 3. Eric Martin
 - a. MiniROV Sled wiring

Week 31

1. Kevin Barnard
 - a. Investigated loop closure issues on May 2023 LASS datasets
2. Francois Cazenave
 - a. Designing ROV sled
3. Kent Headley
 - a. Fixed bug in mb12x: file list arguments counted twice
 - b. Investigating apparent network buffer errors
4. Paul Roberts
 - a. PoE can drawings, thermal simulation, and sourcing parts

Week 30

1. Kevin Barnard
 - a. Identified issues with visual loop closure detection in RTAB-Map
2. Francois Cazenave
 - a. Making hardware for test tank
3. Danelle Cline
 - a. Hoping to join the next sprint in mid-August
4. Kent Headley
 - a. Put together a complete pipeline example for converting sonar data to LCM logs and/or live stream for SLAM. Also wrote some documentation for the example, and put together a makefile for generating an example distribution, and delivered it to Sebastian.
5. Paul Roberts
 - a. PoE Interface Can solid modeling
6. Carlos Rueda
 - a. Adjustments to the GUI prototype, including underlying use of a yaml file for the definition of platforms (in terms of associated LCM channels, attributes, etc.), whose structure is very preliminary.



- b. Discussions about a possible request for additional work hours this year, depending on other projects that may not need initially requested allocation (tbd), and about planning for 2024.

Week 29

1. Kevin Barnard
 - a. Revisiting tasks related to GIM WP-1 for visual SLAM
 - i. Issues with loop closure/feature association
 - ii. Long-survey performance
 - iii. Multi-session capabilities of RTAB-Map
2. Danelle Cline
 - a. Proposal and project discussions with Eric. Hoping to join the next sprint to ramp up on cloud tasks in a few weeks.

3. Kent Headley
 - a. Added socket input to mb12x, enabling real-time streaming of sonar data via mb-system to LCM for SLAM. Refactored mb12x, decomposing some functions for better modularity.
4. Eric Martin
 - a. Sprint kickoff
 - b. minirov sled initial design.
 - c. Paragon ASV part ordering.
5. Paul Roberts
 - a. PoE interface can solid modeling
 - b. Printing April tags

Week 28

1. Kent Headley
 - a. Updated metadata features and fixed timestamp bug in app for converting multibeam data into LCM stream/log for SLAM. Generated some data sets for Sebastian to share with GIM (Finnish SLAM contractor/collaborator). Help Sebastian set up his processing pipeline as needed.

Week 26

1. Kevin Barnard
 - a. Scoped range-based SLAM (with multibeam sonar) in collaboration with GIM Robotics
2. Kent Headley
 - a. Working with Sebastian to develop a tool for using multibeam sonar for SLAM. Adopted an MB1 translation tool to generate LCM output; later, we'll recast MB1 data to another format (TBD)
 - b. Helped a little to look at Gemini sonar settings
3. Eric Martin
 - a. 2024 Proposal writing.
 - b. Maldives scoping meeting
 - c. Camera housing review
 - d. Paragon budget review

Week 25

1. Paul Roberts
 - a. MiniROV sled and camera integration
2. Carlos Rueda
 - a. Group meeting.

Week 24

1. Mike Risi
 - a. Small changes to LCM serial bridge to accommodate message timeouts.
 - b. Meetings to discuss CoMPAS control system development.

Week 23

1. Kevin Barnard
 - a. Prepared DOEST presentation
 - b. Supported fixes to RTAB-Map
2. Kent Headley
 - a. Met w/ Bastian, whose last day at MBARI was Wed

- b. Investigating gemini sonar image issues w/ Bastian: images change dimension in different range regimes. Tritech indicates it's range compression. This may interfere w/ the ability to use the images in the way Bastian intended.
- 3. Eric Martin
 - a. At ICRA with Giancarlo last week
 - b. DOEST Demo was a success.
- 4. Carlos Rueda
 - a. Group meeting.

Week 22

- 1. Kevin Barnard
 - a. RTAB-Map development support
- 2. Kent Headley
 - a. Working on some libgemini data issues with Bastian
- 3. Paul Roberts
 - a. wide angle laser optics
 - b. camera interface concept

Week 21

- 1. Kevin Barnard
 - a. Calibrated MiniROV stereo cameras after remounting to match data from Fulmar cruises
 - b. Support and fixes for RTAB-Map SLAM ahead of DOEST demo
- 2. Kent Headley
 - a. Working with Bastian to review some cruise data and a potential issue (image resolution differences between logged and captured images)
- 3. Paul Roberts
 - a. Planning for Oct deployments and MiniROV sled
- 4. Carlos Rueda
 - a. Discussing some possible next set of elements for the webapp.
- 5. Alana Sherman
 - a. Met to discuss new sled requirements

Week 20

- 1. Kevin Barnard
 - a. Participated in RC cruise; fixed lots of issues with RTAB-Map SLAM
- 2. Kent Headley
 - a. Participated in last Wed Carson cruise to test gemini sonar driver image capture and LCM publishing. That was successful, and determined that hard disk speed is a potential bottleneck at the data rates we were using
- 3. Eric Martin
 - a. Offshore with 901101.
 - b. DOEST Prep
 - c. Mini Tank Calibration
 - d. Knowledge dump from Bastián about how to run the 6DOF for DOEST and after he leaves.

Week 19

- 1. Eric Martin
 - a. See 901101, along with PM responsibilities.
- 2. Carlos Rueda

- a. For base images, now also processing the associated “world file” (.tfw) for auto-positioning on the map. (Direct geotiff ingestion is still proving tricky.)

Week 18

1. Kevin Barnard
 - a. Performed MiniROV deployments on Fulmar
 - b. Ran analysis/validation of MiniROV data
 - c. Preparing for LASS deployments on the Carson
2. Kent Headley
 - a. Worked with Bastian to debug an issue with the Oculus sonar driver, which was skipping/repeating frames. It turned out to be an issue with indexing a ring buffer. Now testing a fix.
3. Eric Martin
 - a. Great success on the Fulmar, we got survey 2 out of 3 days, losing 1 to weather.
 - b. Demob'd the sled this monday.
4. Mike Risi
 - a. Made some small changes to RovControl scripting during tank testing. A bug was discovered in the mission scripting during the April cruise series on the Fulmar that I'm looking into.
 - b. Added a logging directory to the frame grabber program to make it more consistent with flir-mola.
 - c. Modified the Octans publisher on LASS to publish the senlcm::imu_t type.
5. Carlos Rueda
 - a. The web GUI “worked great” during the deployment last week. It now has initial support for base images: user indicates URL, positioning, and opacity for each.
 - b. Started setting up the two components for the GUI, lcm-websocket-server and the webapp itself, on our new ‘compaslabdev’ VM.

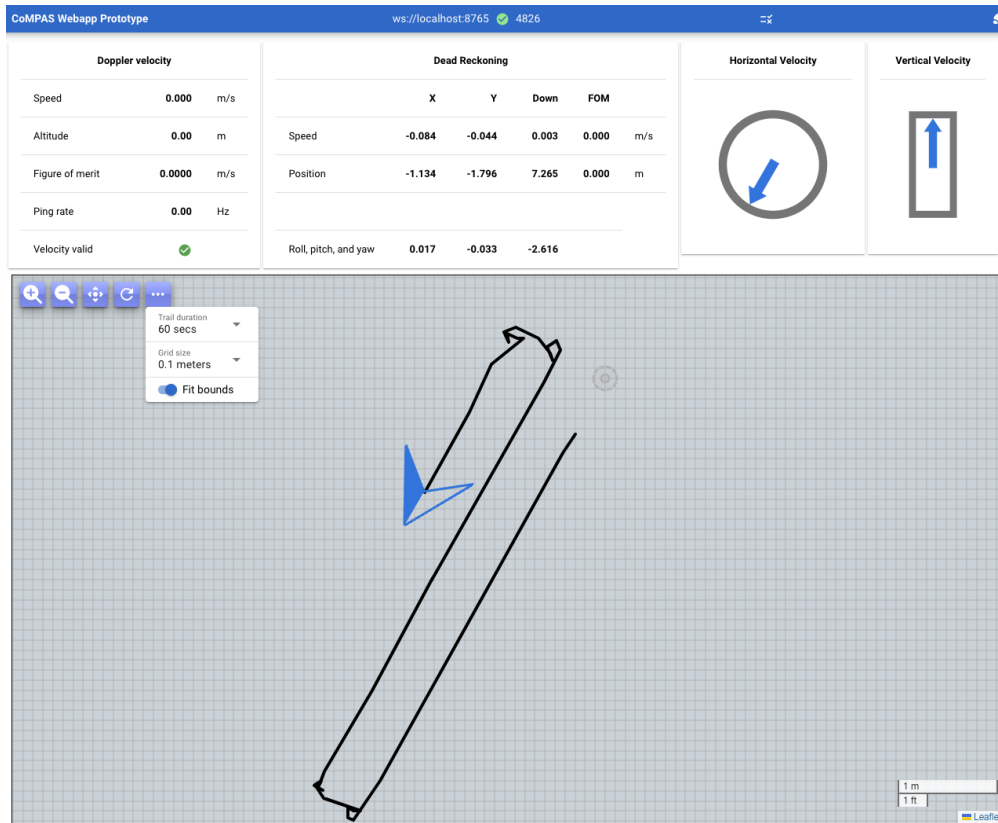
Week 17

1. Kevin Barnard
 - a. Completed Mola and MiniROV stereo camera calibrations
 - b. Writing up documentation and helper scripts for new camera calibration library
 - c. Dockerized lcm-websocket-server, wrote CI pipeline for build & push to Docker Hub
2. Kent Headley
 - a. Sprint 7 planning meeting
 - b. Prep for Sonar driver testing May 10-12 Carson days
 - c. Get sonar data kindly collected by DJ / the Ventana crew
3. Paul Roberts
 - a. Field work on Fulmar

Week 16

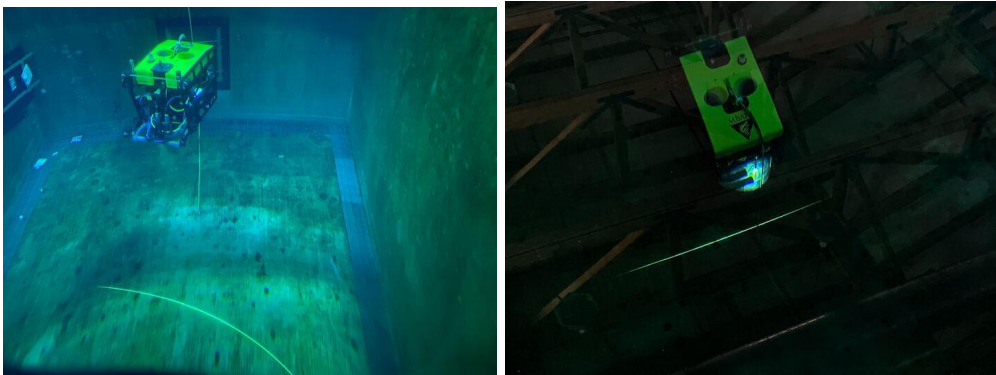
1. Kevin Barnard
 - a. Fixing issues with stereo extrinsic calibration on new MiniROV and Mola stereo cameras
 - b. Provided calibration datasets to Technion Israel Institute of Technology
 - c. Scoped rework of RTAB-Map (+ ROS2 wrapper) to support arbitrary constraint specification to GTSAM factor graph backend
2. Danelle Cline
 - a. Attended Sebastian Thesis
3. Kent Headley
 - a. Updated Blueprint Subsea SDK (imaging sonar) demo to build under Linux and wrote quick emulator for sonar network connections needed to exercise GUI features.
 - b. Reviewed a couple existing drivers for oculus sonar; one written in GT's lab, another from APL, written by Aaron Marburg, Laura Lindzey and Tanner Poling - small world.

4. Paul Roberts
 - a. 950 m laser housing
 - b. dome-port laser housing
5. Carlos Rueda
 - a. Sprint 6 “Webapp GUI MiniROV prototype” almost in place



Week 15

1. Kevin Barnard
 - a. Working on calibrating new stereo cameras
2. Eric Martin
 - a. Final prep for MiniROV expeditions, testing in tank to finalize software stack.



3. Paul Roberts
 - a. Mola Flat port tank testing
 - b. 950 m laser housing
4. Carlos Rueda
 - a. Completed and demoed initial webapp prototype, very well-received. Again, one more successful use of the amazing Quasar framework (and Vue3).
 - b. Delineating and starting 2nd iteration on the webapp prototype (thanks Giancarlo and Sebastián for the productive discussions).

Week 14

1. Kevin Barnard
 - a. Several fixes to lcm-websocket-server
 - b. Dockerizing lcm-websocket-server
 - c. Calibrating new stereo cameras
2. Kent Headley
 - a. DMO made a super effort last week during heavy weather to run the Gemini sonar and and collect some data for Compas Lab. kudos to DJ and Knute.
3. Eric Martin
 - a. MiniROV integration
 - b. Software for raspberry pi zero to control relay board and vn100
 - c. Ordering DVL
 - d. Intern meetings
4. Mike Risi
 - a. Completed testing and modifications to WaterLinked DVL driver during tank testing
 - b. Completed RovControl scripting and tested in tank
 - c. Helped with Sonar logging setup on Ventana
 - d. Tank testing of CoMPAS sled with rov-mini-intfc changes
5. Paul Roberts
 - a. MiniROV integration

Week 13

1. Kevin Barnard
 - a. Wrote LCM WebSocket server for future webapp
 - b. Implemented pose estimation of AprilTags for Mola ground truth pose
 - c. Ran ROS2 RTAB-Map on Pacific Northwest full survey dataset
2. Kent Headley
 - a. a few minor fixes/features for Gemini driver as Bastian continues testing
 - b. Worked with DJ to get new Gemini sonar software installed on the Carson; there may be a window of opportunity to collect some Gemini data during Ventana dives this week.
3. Paul Roberts
 - a. MiniROV sled and frame
 - b. Laser line generator integration
4. Carlos Rueda
 - a. Implementing a [webapp](#) to expose LCM messages. It connects via websocket to Kevin B.'s lcm-websocket-server. Initial testing by replaying LCM log files.

Week 12

1. Kevin Barnard
 - a. Met with potential collaborators for off-center dome port camera calibration
 - b. Working on fixing GIM code for RTAB-Map ROS2 online execution from recorded LCM logs
2. Kent Headley
 - a. Working with Bastian to test Gemini driver features
 - b. Wrote wrapper script to address issues with broken batch processing in Gemini Svs5 API
3. Eric Martin
 - a. Documented hiring process
 - b. Opened SSH hole in cart switch
 - c. Submitted drawing to etechs for mini can upgrades
 - d. Submitting drawings today to machine shop for Mini can upgrades
 - e. Tested new oak drivers on the jetson nano, works, but is hogging CPU

- f. Reviewed Francisco's HSI drawings, helping with odds and ends there.
 - g. Prep for Sprint 4 review
 - h. Met with Elouan, a summer intern from Ifremer
 - i. Met with Daniel, and intern candidate through MBARI internships, he has since declined.
4. Mike Risi
 - a. Developed driver for WaterLinked A125 DVL.
 - b. Performed final interviews for CoMPAS RRE position.
 - c. Refactored lcm-mola, flir-mola and frame-grabber to accommodate LCM type changes as necessary.
 - d. Modified rov-mini-intfc to accommodate VectorNav AHRS and WaterLinked DVL instruments.
 - e. Adding scripting to RovControl for April Fulmar cruises.
 5. Paul Roberts
 - a. Fabrication and testing of frame for cameras, laser, and DVL
 - b. Assembly and testing of laser and mola flat port housing
 6. Carlos Rueda
 - a. Met with Giancarlo to delineate a task related with a webapp to visualize LCM data streams.

Week 11

1. Kevin Barnard
 - a. Ran analysis on camera intrinsic calibration to validate GIM reports on Mola 4K cam
 - b. Dockerized RTAB-Map ROS wrapper, tested
2. Paul Roberts
 - a. CoMPAS MiniROV integration
 - b. Mola flat port stereo pressure testing
 - c. Open HSI dataset support

Week 10

1. Kent Headley
 - a. Fixed a bug in gemini lstream configuration app
 - b. Worked with Bastian to resolve a dependency conflict between the Gemini SDK and FFMPEG package. The issue was that a mutual dependency, libavcodecs, was not API compatible. Wrote a script to install the Gemini SDK to an alternative path, and use ldconfig to adjust the runtime linker search path. Thanks to Brent Roman for the consultation.
2. Eric Martin
 - a. Hiring committee
 - b. Meeting with Mini group to refit sled.
 - c. Reviewing GT's board presentation
3. Paul Roberts
 - a. Flat port housing testing
 - b. MiniROV fitup and testing
4. Carlos Rueda
 - a. Met with Eric M.

Week 9

1. Francois Cazenave
 - a. Obtained 3D model of ROV
2. Kent Headley
 - a. Working on LCM message type definitions w/ team
 - b. Testing Gemini sonar driver
3. Eric Martin
 - a. MiniROV

- b. OakD Software
 - c. GiM Project management
 - d. RRE hiring, last interview was today.
- 4. Mike Risi
 - a. Working with Kent, Giancarlo, Sebastian and Bastian to standardize CoMPAS LCM types and make them more compatible with ROS2.
 - b. Refactored lcm-mola, flir-mola and frame-grabber to accommodate LCM type changes as necessary.
 - c. Meetings and interviews for CoMPAS RRE position.
- 5. Paul Roberts
 - a. Sprint 3 : flat port housing fabrication and testing
 - b. Coordination on MiniROV deployments
- 6. Carlos Rueda
 - a. Meetings.
- 7. Alana Sherman
 - a. Interview

Week 8

- 1. Kent Headley
 - a. Implementation, testing of LCM image publisher for Gemini sonar
 - b. Met with team re message design
- 2. Paul Roberts
 - a. RE interviews
 - b. Mola stereo camera housing fabrication

Week 7

- 1. Kevin Barnard
 - a. Wrote Python library for CoMPAS LCM types; to be published on PyPI
 - b. Wrote AprilTag detection script
 - c. Collected dataset with Mola to test AprilTag detection/pose estimation
- 2. Eric Martin
 - a. RRE Interviewee
 - b. Getting new team members George and Francois tasked.
 - c. Boxfish interface emails
 - d. Stereo Camera software
 - e. Project meetings with intern candidates
- 3. Paul Roberts
 - a. Review of flat port OAK housing design
 - b. Testing DSPL Machine vision cameras
- 4. Alana Sherman
 - a. Interview of RE candidate

Week 6

- 1. Kevin Barnard
 - a. Performed Mola stereo calibration
 - b. Working on camera calibration library
- 2. Francois Cazenave
 - a. Met to talk about the ROV
- 3. Kent Headley
 - a. Implemented gemini sonar GLF log reader/image capture
 - b. Met with GT and Bastian re sonar LCM messages

- c. Working on
- 4. Eric Martin
 - a. RRE Interview Coordination
 - b. Phone Calls with potential interns
 - c. Installed USB hub and loaned IMUs from advanced navigation for evaluation.
 - d. Designed internals for the TRI-AI-Camera
- 5. Paul Roberts
 - a. Bench testing Mola stereo cameras
 - b. Preliminary design of 1500 m PoE camera housing
- 6. Carlos Rueda
 - a. Short meeting with Giancarlo.

Week 5

- 1. Kevin Barnard
 - a. Deployed Mola in test tank to collect SLAM dataset for GIM
 - b. Calibrated Mola FLIR stereo cameras
- 2. Mike Risi
 - a. Updating imaging logging for flir-mola
 - b. Installed mola update for high rate depth measurement and tested on bench
 - c. Porting existing mola applications to use CoMPAS LCM types new_standard_wip
 - d. Working on control interface for lcm-mola using CoMPAS LCM types new_standard_wip
- 3. Paul Roberts
 - a. Sprint 0 review
 - b. 1500 m PoE camera housing design for MiniROV

Week 4

- 1. Kevin Barnard
 - a. Calibrated Mola 4K camera
 - b. Added fisheye calibration to camera calibration library
 - c. Collected calibration dataset from Mola in TT
 - d. Wrote Dash app for visualizing live position data from Mola USBL via LCM
- 2. Kent Headley
 - a. meeting, planning
- 3. Paul Roberts
 - a. Sprint 0 reviewing options for stereo camera on Mola
- 4. Carlos Rueda
 - a. Brief conversation with Giancarlo toward planning.

Week 3

- 1. Kevin Barnard
 - a. Calibrated Mola 4K camera using new calibration library
 - b. Several meetings for 2023 planning
 - c. Set up new repository for LCM-related tooling
- 2. Kent Headley
 - a. kickoff meeting
- 3. Eric Martin
 - a. Setting up project boards in Notion
 - b. RRE Hiring
 - c. Mola Camera Concept
- 4. Mike Risi

- a. lab kickoff meeting
 - b. RRE hiring committee meeting
 - c. started sprints for LCM types, mola control and logging all data
- 5. Paul Roberts
 - a. Sprint 0 : Stereo cameras for Mola and planning for Mini ROV tank tests in March

Week 2

- 1. Kevin Barnard
 - a. Kickoff meeting; established sub-projects, milestones, project organization
 - b. Wrote lcmlog-py library for reading/writing LCM logs
 - c. Spliced images into LCM logs for GIM
- 2. Kent Headley
 - a. attended kickoff meeting
- 3. Eric Martin
 - a. RRE Hiring reviews of submitted materials
 - b. Setup PM boards, managing tasks across projects
- 4. Paul Roberts
 - a. Kickoff meeting and planning for 2023

Week 1

- 1. Eric Martin
 - a. RRE hire work
 - b.