

901205 - ESP SURF Center

Week 50

1. Brent Roman
 - a. Completed configuration of T2-chip equipped MacBook Pro
 - i. Built bootable USB SSD to facilitate recovery and cloning
 - b. Found and fixed problem where FIDO WiFi AP was being assigned random MAC
 - c. Scripted custom APN rewriting logic needed for connecting SIM7672G cell modem
 - i. Took weeks to work this out!
 - ii. Sent script to SIMCom with plea to fix module firmware bug necessitating this

Week 49

1. Scott Jensen
 - a. Preparing for FIDO training meeting
2. Brent Roman
 - a. Helped Nadia diagnosed Forearm problems at NWFSC (with ESPeddie at Steph's lab)
 - b. Rewrote and debugged udev rules to configure cell modems on FIDO and ESP

Week 47

1. Brent Roman
 - a. Continuing testing of Cellular modem and GPS for FIDO sampler

Week 46

1. Brent Roman
 - a. Finished repairing ESPecoscope and discovered an Arm drive belt needs replacement.
 - b. Presented results of LTE cell modem evaluation to the ESP team
 - c. Installed the chosen modem dongle on the FIDO sample being deployed on dock next week.

Week 45

1. Brent Roman
 - a. Better error reporting for tripped overload breakers
 - b. Helping to diagnosis I2C bus failure on ESPkoa

- c. Evaluating various USB modem LTE Cat1.bis modules from uBlox, SimCOM, and Quectel
 - i. Discovering lots of poor quality firmware especially in uBlox modems

Week 43

- 1. Brent Roman
 - a. Installing Debian T2 chip equipped MacBook pros is “interesting”
 - i. Got most everything working except suspend/hibernate
 - b. Worked with Adrianna to alter policy on DP-Guest
 - i. To allow ESPs to create WiFi APs with DP-Guest as uplink
 - c. Helped Scott debug I2C Bus electrical issues on 3G’s Cartridge bus

Week 42

- 1. Brent Roman
 - a. Worked with Scott Jensen to help debug electrical issues that arose when loading 3G ESP
 - b. With the full complement of 60 smart cartridges
 - i. I2C bus and electrical overloads resulted
 - ii. Modified ESP software and firmware to better report when overloads occur

Week 41

- 1. Brent Roman
 - a. Enhanced ESP Elf motor controller firmware to support continuous reseeking of carousel position when it slips. Was needed due to added friction in newest builds. Seems to work great.
 - b. Helped FIDO group get RockPI-S WiFi working reliably again.
 - c. Working with APL to prepare a deckbox for comparing different cell modems for use off La Push.

Week 39

- 1. Scott Jensen
 - a. Support of other projects
- 2. Brent Roman
 - a. Determined that, when using WiFi chip’s simultaneous AP/STA mode, the STA must be started before the AP.
 - b. Got cell modems working with FIDO sampler
 - c. Reconfigured FIDO to use a separate USB WiFi dongle for STA(client) mode
 - d. Ordered low power USB cell modem with GPS for testing
 - e. Added “reseek” option to ESP 3G stepper motor controllers
 - i. To restore position of bumped carousel.

Week 37

1. Brent Roman
 - a. Configured ESP on David Parkard to allow both local and remote access
 - i. Only to discover that IS blocked all remote connections and VPN offshore
 - ii. Worked with Andrianna to restore necessary connectivity.
 - iii. Again.
 - b. Trouble with WiFi concurrent mode on RockPI-S
 - i. Seems OK in typical scenarios, but reconnects repeatedly on campus networks
 1. Suspect some problem with roaming – more work needed
 - ii. Installed RockPI-S with Raspberry PI on Dock to gain more data on connection stability

Week 35

1. Scott Jensen
 - a. Support continued diagnostic work of bulkhead valve
2. Enoch Nicholson
 - a. ONR ESP Middleware project kickoff meeting
3. Brent Roman
 - a. Unorganized gripper object hierarchy to ease implementation of asymmetric ExternalValve error recovery
 - i. To better cope with overly stiff valves discharging supercaps
 - b. Found and fixed firmware bug in gripper/valve actuator driver

Week 33

1. Brent Roman
 - a. Working with Preston to diagnose PCR instrument failures in Iceland
 - i. The PCR temperature sensor seems to be reading 35C high

Week 32

1. Scott Jensen
 - a. Bulkhead valves are being a real problem
 - b. Electronic Component failures
 - c. Mechanical assembly failures
2. Enoch Nicholson
 - a. ESP Group Meeting and HK Scientific SBIR presentation on marine eDNA detection

Week 31

1. Scott Jensen
 - a. Support of field deployments

2. Brent Roman
 - a. Helped Nadia bring up and debug portable 3G ESPs
 - b. Helped Preston configure and debug ESPkoa
 - c. Reconfigured ESPkoa during deployment to work around cartridge bus I2C failure

Week 28

1. Brent Roman
 - a. Augmented the ESP's existing "daily" mission framework to support missions with multiple assays
 - i. Which assay to run is determined by the number of remained pucks
 1. Rather than by the phase's programmed start time.

Week 27

1. Scott Jensen
 - a. Supporting upcoming deployments

Week 26

1. Scott Jensen
 - a. Supporting build up to CANON
2. Brent Roman
 - a. Helped Preston and Nadia rediscover old LRAUV bug preventing vehicle from starting its pppd

Week 25

1. Scott Jensen
 - a. Support of upcoming 3g deployment and issues with the instrument

Week 23

1. Scott Jensen
 - a. Supporting lab operations
 - b. Finding solutions to hunting valves

Week 22

1. Brent Roman
 - a. Diagnosed hardware problems on a few of the failed ESP 3G heater boards

Week 21

1. Scott Jensen

- a. Preparing for Iceland deployment by fabricating needed parts and collecting equipment

Week 20

- 1. Enoch Nicholson
 - a. McCloud Deployment last week
- 2. Brent Roman
 - a. Helped Nadia understand why 3G PV actuators' calibrations are drifting
 - i. After she discovered printed parts are flexing and cracking
 - b. Revamped sampler vacuum calibration to more easily handle flow resistance varying between machines.

Week 16

- 1. Scott Jensen
 - a. Support development of puck reader
 - b. Development and design of creekside power station
- 2. Brent Roman
 - a. Calibrated first set of new 3G Heaters boards with Chloe's help
 - b. Enoch is iterating on holder to make it less finicky
 - c. Added capability the ESP to remotely plot time series with gnuplot
 - i. To help improve performance of puck/cartridge heating PID controllers

Week 15

- 1. Scott Jensen
 - a. Testing of SURF center assets to make sure they are still functional

Week 14

- 1. Brent Roman
 - a. Got almost everything ready for calibrating 100 ESP 3G heater boards starting next week.
 - i. Working with Enoch on creating two water baths with the board switching between them
 - 1. To form a 2-point linear calibration

Week 13

- 1. Brent Roman
 - a. Investigating use of refrigerated bath for "cold" temp. Calibration point

Week 12

- 1. Brent Roman

- a. Enoch and I seem to have cobbled together a viable, quick calibration fixture
 - i. utilizing a plastic bag in a suvee bath!

Week 11

- 1. Enoch Nicholson
 - a. Finished prototyping board mount
- 2. Brent Roman
 - a. Working with Enoch on water bath based 3G heater board calibration fixture

Week 10

- 1. Enoch Nicholson
 - a. Mocked up board holder for calibration fixture.
 - b. Mounted bag in the water bath

Week 9

- 1. Enoch Nicholson
 - a. Ordered water bath for heater board calibration.
 - b. Tested water bath.
- 2. Brent Roman
 - a. Prototyping water bath based temperature control for 3G cartridge sensor calibration

Week 7

- 1. Enoch Nicholson
 - a. Supporting SURF Center Team in Australia
- 2. Brent Roman
 - a. Supporting the Tasmanian Away Team
 - b. EE Techs providing good support bringing up SPR boards
 - i. Identified und the software issue that was causing serial comms to fail
 - ii. Still have a number of boards with unidentified hardware problems.

Week 6

- 1. Scott Jensen
 - a. With the equipment shipped it now has been a chance to clean up a few details for this deployment and make sure there an not any forgotten details
- 2. Enoch Nicholson
 - a. Working to source a heater calibration tool with brent.
- 3. Brent Roman
 - a. Located used thermal forcing system for \$8k (who will pay for it?)
 - i. Working with Enoch to build a quicking acceptance test fixture.
 - b. Configured ESPaway3 to act as router for the team in Tasmania

Week 5

1. Scott Jensen
 - a. Finally the sampler is packed and has shipped to Australia

Week 4

1. Enoch Nicholson
 - a. SURF Center future meeting
2. Brent Roman
 - a. Helping Team ready for their trip to Tasmania

Week 3

1. Scott Jensen
 - a. Preparing for Australian deployment
2. Brent Roman
 - a. Helping bring up the new TTL
 - b. Working with Nadia to tame the increased friction of the 3-bearing Carousel