

706008 - READI-Net

Week 50

1. Kevin Gomes
 - a. Prep for and participate in all day meetings with USGS for FIDO demonstration

Week 47

1. Kevin Gomes
 - a. Deployed changes to cloud and new device SD cards for 'dock deployment'

Week 46

1. Kevin Gomes
 - a. Final push to fix bugs and features for end of program
 - b. More features

Week 43

1. Enoch Nicholson
 - a. Calibrated FIDO liquid reagent delivery pumps and nitrogen dispensing tool
 - b. Started PR to merge restock sampler feature into main codebase
 - c. Continued FIDO restock testing and bug fixes
 - d. Purchased FIDO puck bucket mounting rails

Week 42

1. Kevin Gomes
 - a. Lots and lots of troubleshooting. Think I finally have the threading issues sorted between kernel threads, serial port reading loop, Python GIL and greenlets for MQTT synchronization with cloud EC2 server
 - b. Started running FIDO over cell and discovered issue with IPv6 attempts from tailscale which gets rejected after so many tries (cell does not support IPv6). I disabled IPv6 on cell connection.
2. Enoch Nicholson
 - a. Developed restock sampler feature for FIDO
 - b. Completed FIDO user manual review
 - c. Built and tested puck chute design
 - d. Puck Bucket Sliders
 - e. FIDO dock setup
 - f. Testing reagent software

Week 41

1. Kevin Gomes
 - a. Debugged several issues with networking, threading, cloud, VPN, serial, etc. and feel like we are close to being ready for deployment. Delay due to shutdown, but in a good spot.
2. Enoch Nicholson
 - a. Troubleshoot puck orientation detection
 - b. Developed restock sampler code implementation

Week 40

1. Enoch Nicholson
 - a. Performed puck counter drift testing
 - b. Painted FIDO cylinder
 - c. Prepared code for Bozeman deployment

Week 39

1. Kevin Gomes
 - a. Migrating Brent changes to the RockPi to the SD card image build to deploy on sampler
 - b. Troubleshooting the MQTT cloud log gaps
 - c. Troubleshooting the resource spikes during uplink drops
 - d. Changing web application to allow for better filtering of logs for end users to make them more useful
2. Enoch Nicholson
 - a. Completed FIDO puck measurement variability study and analysis on multiple instruments
 - b. Developed automated cylinder ridge mapping and tube profiling systems
 - c. Tested painted white tops versus black tops
 - d. Mapped puck stack detection from 2-12 pucks and identified challenges with 0-1 puck detection
 - e. Developed sensor stability testing scripts for power-up drift analysis

Week 38

1. Enoch Nicholson
 - a. Developed flipped puck detection feature using clamp travel measurement
 - b. Built backup RAM functions for puck tracking
 - c. Dock troubleshooting and vacuum leak repair

Week 37

1. Enoch Nicholson
 - a. Built first new FIDO cylinder assembly

- b. Deployed FIDO on the dock
- c. Installed camera mounting system in bucket for puck trials

Week 36

- 1. Enoch Nicholson
 - a. Completed FIDO flow sensor calibration testing
 - b. Potted FIDO pucks
 - c. Prepared FIDO instrument for dock trial testing
 - d. Modified FIDO arm encoder hardware

Week 35

- 1. Enoch Nicholson
 - a. Designed and fabricated puck bucket rail system with spring clip mounting
 - b. Conducted flow sensor calibration testing
 - c. Silver FIDO assembly

Week 34

- 1. Enoch Nicholson
 - a. Completed puck counter calibration code testing and integration with main FIDO codebase
 - b. Configured WSL build environment and successfully built MicroPython firmware for STM32
 - c. Tested puck counter code functionality and identified calibration bounds issues
 - d. Purchased FIDO cylinders and remaining FDM printed parts

Week 33

- 1. Enoch Nicholson
 - a. Completed basic checkout on all FIDO instruments
 - b. Performed flow sensor calibrations
 - c. Puck counter calibrations, developing improved calibration method using lookup tables
 - d. Finalized mechanical loose ends

Week 32

- 1. Enoch Nicholson
 - a. Continued FIDO instrument assembly - completed zip tie installations and began side panel installation
 - b. Resolved cylinder drive slot manufacturing issue and coordinated machining corrections
 - c. Installed side panels, cutout covers, lids, and connector shells on FIDO units

- d. Built FIDO cylinders, coordinated plate painting, and modified reagent cup holders
- e. FIDO firmware discussions and checkout code testing with Elicia and Scott

Week 30

- 1. Enoch Nicholson
 - a. Fido sampler build
 - b. Assembled turn tables, rams, nitrogen assys

Week 21

- 1. Enoch Nicholson
 - a. Restarted purchasing
 - b. Checking out printed first articles
 - c. Supporting First Production instrument bring up

Week 20

- 1. Enoch Nicholson
 - a. Restarting purchasing for FIDO

Week 13

- 1. Enoch Nicholson
 - a. Writing conference paper

Week 11

- 1. Enoch Nicholson
 - a. On hold awaiting funding decisions

Week 10

- 1. Enoch Nicholson
 - a. Continued finalizing purchasing of printed parts and instrument frames.
 - b. Funding frozen by the government. Work paused

Week 9

- 1. Kevin Gomes
 - a. Documenting changes made during Tasmania deployment
- 2. Enoch Nicholson
 - a. Working on final SCS order configuration & custom quoting.
 - b. Continuing instrument setup & test fit.

Week 7

1. Kevin Gomes
 - a. Built another RockPi to have back for deployment
2. Enoch Nicholson
 - a. Received trial production run of FIDO parts.
 - b. Testing printed components.

Week 6

1. Enoch Nicholson
 - a. Continuing to receive FIDO parts
 - b. Continuing ordering
 - c. Redesigned RAM, created weight calibration setup started first article inspection

Week 5

1. Enoch Nicholson
 - a. Finalizing FIDO production design
 - b. Ordering FIDO production components
 - c. Production planning meeting for FIDO.

Week 4

1. Kevin Gomes
 - a. More updates to web app code
 - b. Pushed web app changes to both production and dev cloud servers
 - c. Still trying to debug why automated SD image build on AWS is failing
2. Enoch Nicholson
 - a. Finalizing FIDO design
 - b. Supporting Ice breaker prep

Week 3

1. Enoch Nicholson
 - a. Finalizing Production CAD model for FIDO
 - b. Continuing ordering for production build components.

Week 2

1. Kevin Gomes
 - a. Making changes to the web app to support new features implemented in the sampler controller.
 - b. The issue of the wireless access point not appearing on reboot has resurfaced and is also repeating on multiple RockPis. Brent R has been awesome helping

me try to resolve this issue, but likely we will need to use a hardwired ethernet connection work-around for the Australia deployment as time is too short.