

EE CprE 491 – May 20 - 49

CySat Senior Design Team

Week 24 Report

January 30, 2020 – February 5, 2020

Faculty Advisors: Phillip Jones

Team Members:

Bryan Friestad — *Team Lead / EPS Lead / OBC Lead*

Ryan Hansen — *SDR Lead*

Chase Kirchner — *Ground Station Lead / CI Testing Lead / UHF Secondary*

Kyle Muehlenthaler — *UHF Lead / Ground Station Secondary*

Talon Stromgren — *GitLab Master / Boost Board Lead / SDR Secondary*

Xiangzhu Yan — *ADCS Lead*

Past Week(s) Accomplishments

- OBC: Got the actual OBC back online and prepped for testing the ADCS. Made some adjustments to the code to use the correct I2C and UART handles for the flight hardware [Bryan].
- ADCS: Got the ADCS talks to OBC and successfully tested several Telecommands(TC_2:Set Unix time, TC_10:Set ADCS Enable State), fixed some bug of C code(Endianness, signed & unsigned values).
- SDR: Interfaced with radiometer_app.py code via putty. Successful execution of GNU radio application and file save.[Ryan]
- EPS: Following the telecom with EnduroSat, determined the correct method to hook up the EPS batteries and got the correct readings in the SW [Bryan]. Tested a handful of EPS I2C commands between the OBC and the EPS. This software can run autonomously now [Bryan].
- Ground Station: Continued GUI work, refining communication packet format, and testing
- UHF: Work on plans for transceiver tests.
- Boost: Board redesigned and reordered with stencils.

Pending Issues

- Some telecommand can not be verified by CubeSupport (More details are in my Powerpoint).

Individual Contributions

Team Member	Contribution	Weekly	Total Hours	Attend Gen. Meeting?
Bryan Friestad	Got the OBC running again and prepped for testing the ADCS with Xiangzhu. Held meeting with EnduroSat. Met with Chase about ground station comm protocol. Tested correct EPS battery hook ups. Tack soldered the EPS battery hookups. Tested I2C code with OBC.	14	122	Yes
Ryan Hansen	Mitigated issues with Python versions on SDR. Ported developmental code to Python 2.7. Successful testing of GNU Python script and commanded over UART to start. Experimented with packet formulation for hex bytearray.	10	108	No
Chase Kirchner	Continued GUI work, refining communication packet format, worked on basic command functionality on what to send to OBC	11	86	No
Kyle Muehlenthaler	Had my baby this week. Hours reflect. Wasn't able to test with attenuator as planned.	5	92	No
Talon Stromgren	Fixed Boost board, got it reordered. Tested SDR carrier board connectors to make sure they fit.	11	85	
Xiangzhu Yan	ADCS Telecommand test and bug fix.	15	92	No

Plans for Coming Week

- Bryan Friestad: Keep testing EPS read functionality. Help the team get ready for the Beta version software, which includes UHF, Ground Station, OBC and EPS basic functionality. Make sure radio progress is being made while Kyle is gone.
- Ryan Hansen: Helping out setting up code for python to package packets. Want to get flight code on SDR to parse incoming packets. Work in the file save and transmit portion of SDR duties.
- Chase Kirchner: Finish implementing basic command functionality to send to OBC (echo, ping, battery), testing GUI/making minor changes
- Kyle Muehlenthaler: Settle at home with new baby, but when able come back to the transceiver and various tests.
- Talon Stromgren: Solder Boost Board/carrier board if parts come in, meet with Matthew about radio communication for software beta, work with chase to continue groundstation.
- Xiangzhu Yan: Finish the test for all telecommand and fix all bugs encountered during the test. Start the ADCS Telemetry requests test.