

EE CprE 491 – May 20 - 49

CySat Senior Design Team

Week 22 Report

January 18, 2020 – January 22, 2020 (less than week)

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*

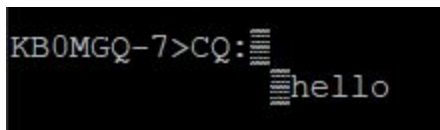
Xiangzhu Yan — *ADCS Lead*

Past Week(s) Accomplishments

- OBC: Made some changes to the dev board code to get the ground station code working [Bryan].
- ADCS: ADCS health check(will be done on Friday), Code for detumbling control flow.
- SDR: Got simulated OBC and SDR in working order. Currently, obc.py can simulate basic OBC operations and procedures and sdr.py can simulate the SDR and perform measurements and data transfer to OBC. Experimental development on feeding OBC data to another device to simulate the Ground Station. Tested simulated SDR code on flight SDR hardware and fixed some bugs. Set flight SDR python code to run at startup so actual sequence can be performed. [Ryan]
- EPS: Was able to get the EPS module to connect with the EnduroSat software by plugging a jumper on the board [Bryan].
- Ground Station: Got a Hello World program working between the Python-based ground station code and the dev board [Talon, Chase, Ryan, Bryan].
- UHF: Borrowed the second radio from Matt Nelson. Testing it with the two through the ground station code.
- Boost: Parts have been ordered, will receive by Friday.

Pending Issues

- Having trouble with the KISS radio protocol meshing with the python ground station code. The following image is the result the satellite radio sees after connecting to putty and sending a KISS protocol “hello”



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Individual Contributions

Team Member	Contribution	Weekly	Total Hours	Attend Gen. Meeting?
Bryan Friestad	Met with leaders group and organized time to communicate with EnduroSat. Helped Talon and Chase debug some issues with their Ground Station code and got dev board to hello world with it. Determined the reason the EPS wasn't connecting to the software and got it to connect.	8	98	Yes
Ryan Hansen	Continued development on obc.py and sdr.py. Have working simulations for OBC and SDR components with measurement and transfer data modes.	15	98	Yes
Chase Kirchner	Worked on ground station connect issues and refined the code. Created simplistic ground station terminal to easily test connection to the OBC.	9	75	NA
Kyle Muehlenthaler	Working with ground station connection to the radio. Troubleshooting issues related to the integration.	9	77	yes
Talon Stromgren	Worked to resolve issues with the ground station connect method as well as fixing GUI issues	8	75	NA
Xiangzhu Yan	ADCS health check; Code for detumbling control flow.	8	67	NA

Plans for Coming Week

- Bryan Friestad: Test the EPS some more and try to connect the battery packs up. Test OBC->EPS I2C code (software version). Make sure demo progress is going well.
- Ryan Hansen: Get obc.py to communicate over UART to Ground Station application so we can simulate a whole stand-in system.
SDR -> OBC -> Radio -> - - - ->Radio -> Ground Station
- Chase Kirchner: Continue working on the ground station GUI issues as well as adding more functionality.
- Kyle Muehlenthaler: fix the issues I have with the radios not communicating properly through the ground station.
- Talon Stromgren: Work with Chase continuing ground station work, also will be soldering the boost board to test it.
- Xiangzhu Yan: Keep working on detumble sequence implementation, using ADCS_High_Level_Task and CubeADCS-Commissioning Manual as main reference and consulting Dr.Lee and Arun for help.