

EE CprE 491 – May 20 - 49

CySat Senior Design Team

Week 13 Report

November 16 – November 22

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 / SDR Secondary*

Xiangzhu Yan — *ADCS Lead*

Past Week Accomplishments

- OBC: Requested/Retrieved data from the IMU and processed it on the dev board [Bryan/Xiangzhu].
- ADCS: Began to write functions to implement telecommands and telemetry requests(telecommands and telemetry requests needed are listed in ADCS_High_Level_Task_List.pdf). [Xiangzhu]
- SDR: Continued development of mock OBC representation for SDR communication. Commands have been sent from mock OBC and interpreted by the SDR. Set goal of generic file transfer from SDR to mock OBC. [Ryan]
- EPS: Asked Matthew Nelson to retrieve UART/ VCP documentation to send diagnostic requests from laptop via microUSB [Bryan].
- Ground Station:
- UHF: Started C code for UART transmission over OBC for testing purposes, will translate to I2C when applicable. looked for information regarding i2c on uhf. [Kyle]
- Boost Board:
- Carrier Board: Decided at the board design meeting that the next carrier board revision will have an I2C SDA and SCL port to connect to the PC104 stack.
- LNA Board:

Pending Issues

- Secondary method of retrieving data from the EPS/ADCS (other than I2C)
- Boost board: need to find Design Rule file from advanced circuits.
- Ryan may need help with diagnosing read issues using the Python PySerial library from one computer to another.

Individual Contributions

| Team Member | Contribution | Weekly Hours | Total Hours | Attend Gen. Meeting? |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------|----------------------|
| Bryan Friestad | Used discovery board to communicate with IMU chip. Met with team members to discuss work and future goals. Provided Matthew with rough timeline for software team. Led board design meeting and finalized design of LNA, Boost and Carrier board. | 14 | 55 | yes |
| Ryan Hansen | Attended Board meeting Wednesday. Continued development of mock OBC representation for SDR communication. Commands have been sent from mock OBC and interpreted by the SDR. | 12 | 40 | No |
| Chase Kirchner | Brushed up on python. Plan to write code over break related to serial input | 3 | 32 | No |
| Kyle Muehlenthaler | Better understanding of uhf and ground station connections. Started work on C code for uhf systems | 9 | 37 | Yes |
| Talon Stromgren | | | 38 | |
| Xiangzhu Yan | Wrote functions to implement telecommands and telemetry requests. Used discovery board to communicate with IMU chip. | 8 | 40 | No |

Plans for Coming Week

- Bryan Friestad: port the i2c testing branch code over to a project which will build for the STM32f427 chipset/actual OBC.
- Ryan Hansen: Get working communication from SDR python to mock OBC python and experiment with file byte transfer.
- Chase Kirchner: Write application to establish serial connection and expand upon that
- Kyle Muehlenthaler: C code for functions I think will be most relevant. Change the frequency, Beacon command, etc.
- Talon Stromgren:
- Xiangzhu Yan: Keep working on telecommand and telemetry request implementation. (There are 15 telecommands and 16 telemetry requests need to be implemented).