

EE CprE 491 – May 20 - 49

CySat Senior Design Team

Week 8 Report

October 12 – October 18

Faculty Advisors: Phillip Jones

Team Members:

Bryan Friestad — *Team Lead / EPS Lead*

Ryan Hansen — *SDR Lead*

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

Kyle Muehlenthaler — *Radio / Antenna Lead*

Talon Stromgren — *GitLab Master / Boost Board/LNA Lead*

Xiangzhu Yan — *ADCS Lead*

Past Week Accomplishments

- OBC: Determined the cause of the OBC not starting up properly. Found a solution to set the OBC enable pin high using a jumper cable. Got the team laptop set up. Started up the new discovery board and tried to build to it.
- ADCS: Started to read some type of status information from the ADCS module by I2C function calls. Read through *CubeADCS Reference Manual* and *CubeADCS Interface Control Document*.
- SDR: Set up SDR Dev board and browsed through files. Started testing UART communication.
- EPS: Read through the user manual and datasheet for Endurosat EPS. Found I2C is on H1-41 (data) and H1-43 (clock).
- Ground Station: Further Ground Station research and met with Matt Plewa to discuss Ground Station at high-level/dive into Habet code base
- UHF Antenna:
- Boost Board: Have a few schematics options for the circuit.
- LNA Board: Met with Matt and got more information about how the LNA board works and what next steps are. Advised that enough is done at this point and to focus on the boost board.

Pending Issues

- OBC: Issue with building to debug on discovery board where “wrong device”
- Radio: found commands for hello world functionality. Requested help in understanding/clarification. Awaiting response.
- Ground Station: deciding if ground station will use Habet or HRD (Ham Radio Deluxe)

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Bryan Friestad	Set up team computer (#4), picked up discovery boards and began trying to debug, organized the anti-static room a bit. Sat in on LNA board meeting.	6	9
Ryan Hansen	Started interfacing with SDR Dev via UART	3	6
Chase Kirchner	Hrd research, discovery of previous ground station setups, met with Matt Plewa, habet codebase discovery	4	6
Kyle Muehlenthaler	Radio transceiver and connections help requested	3	3
Talon Stromgren	Gen meeting, met with Matt regarding LNA and boost, found boost schematic options	5	8
Xiangzhu Yan		5	8

Plans for Coming Week

- OBC: Get development working on the new discovery board, figure out why it didn't build properly (something about "wrong device")
- ADCS: Use I2C function calls to implement more functions from the ADCS module.
- SDR: Integrate UART commands with simulated radiometer file.
- EPS: Search online and in other peoples' githubs for I2C address for EPS. Figure out what MCU is on the EPS and look for that.
- Ground Station: Meeting with Professor Young and his grad student to discuss ground station, deeper dive into Habet codebase/additional requirements necessary
- UHF Antenna: clarify whether commands list document is inaccurate, if inaccurate find a new way to display hello world functionality. If accurate find how the commands need to be applied. (Through OBC, through "Host PC" or somewhere else)
- Boost Board: Need to consult with Matt to exactly what schematic will work, as well as start to create it via kicad.
- LNA Board: Boost board is priority

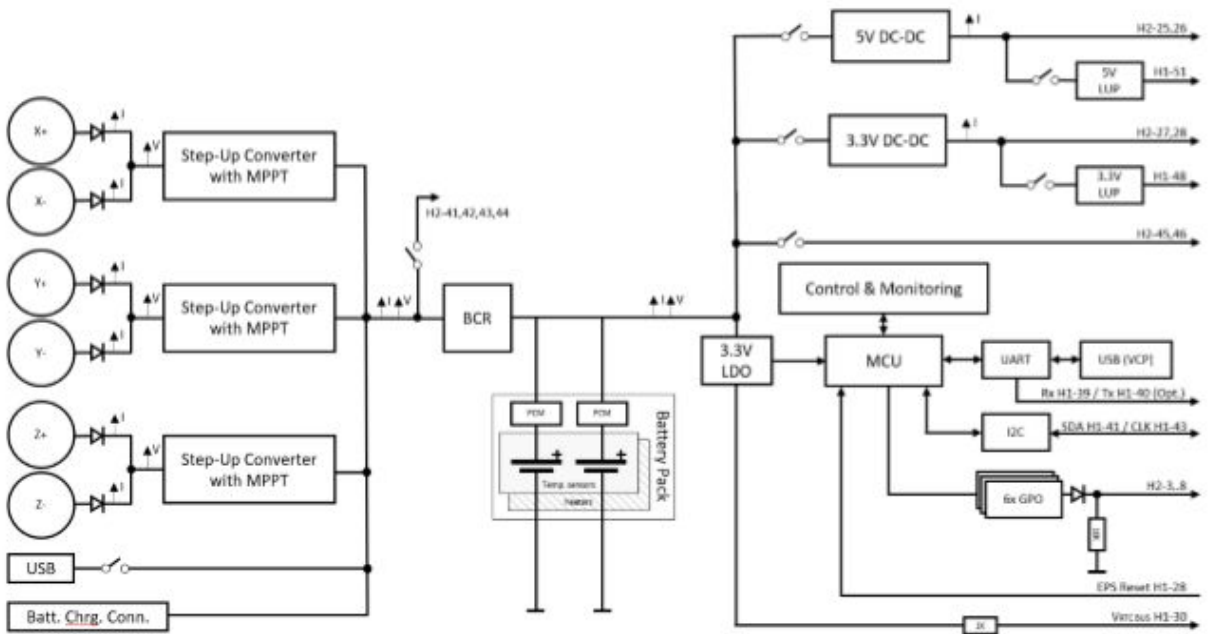
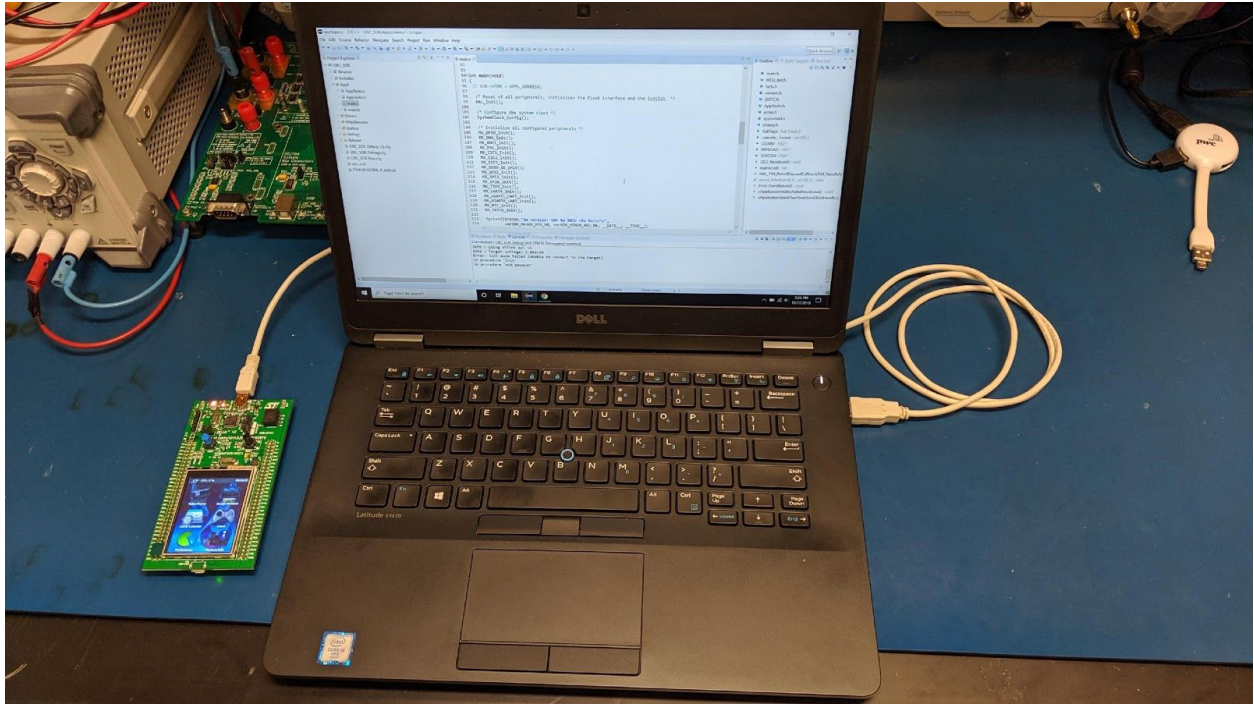


Figure 2: Block diagram of the EPS Module