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SDR Subsystem – Next Steps

Pivotal Tasks

- Upload files on the SDR to GIT (specifically the “startup_radiometer_app.py” script)
    - The one on the SDR is the most recent
- Capture mode needs to be completed and tested
    - Finish up the end of the sequence as listed in the documentation
- Transfer mode needs to be completed and tested
    - Will need worked on from the very early stages
- startup_radiometer_app.py needs to be set to run at startup time for the Linux subsystem
    - Different ways of doing this all with ups and downs consult some help if you need some
- I2C needs integrated into the “startup_radiometer_app.py” script
    - There is an “i2c_test.py” file on GIT from previous team
- UART/I2C Communication via the SDR Carrier board needs to be tested
- I2C Communication to the LNA board needs to be tested
- UART Communication to the OBC needs tested
- Code needs to be written on the OBC to command the SDR over UART
- Code needs to be written on the OBC to pass the transfer mode data through to the UHF antenna.

These are all the tasks that my team was trying to make it towards getting done but we ran out of time. These will give you a place to start and go from. Tasks are listed in order of progression so start at the top and work downwards. Some may not be able to be tested until some of the custom PCBs are finalized and exist physically.

Stretch Goals

One of the original stretch goals set by those in charge of the project was to ditch the embedded Linux on the FPGA and run a barebones C architecture. While I don’t think this is entirely out of the question it does render all the work that I did and what you may do pointless. If you would like to do that or think it might interest you, I highly recommend getting into contact with Dr. Jones an discuss what can be done to make this happen as soon as possible as there is a lot of ground work that would need to be laid out. It would be a lot of work but its possible that it could be done. Beyond that there really was not any other goals on the SDR end of things. At the end of the day this will be ISUs first cube satellite and they would feel successful if they could just talk to it as many cube satellites never work period once they are up in space.