EE / CprE / SE 491 –sdmay20-03
NOAA GEOS-R Satellite Receiver
Bi-Weekly Status Report 5

03/13/2020 – 04/02/2020
Client: N/A
Faculty Advisor: Nathan Neihart

Team Members:
Nick Butts — *Software Group*
Rudy Lim — *Software Group*
Jonathan Massner — *Systems and RF Group*
Ted Mathews IV — *RF Group*
Riley Stuart — *ADC Group*
Jordan Tillotson — *ADC Group*

Past Week Accomplishments
- Online transition prep - Jonathan Massner
  - Researched software portion of project so I can contribute
  - Set up software development environment for future software contributions
- ADC board design and layout - Jordan Tillotson
  - Developed Sallen-Key filter and circuit design for ADC
  - 3 Revisions of ADC board
- Data transfer ADC to Pi- Riley Stuart
  - Tested code for max GPIO benchmarks on RPi4.
  - Began research and testing on potential multi-core approach for GPIO read/write.
  - After re-evaluation, began research into software side of project (file header information).
- Re-evaluated team member contributions and set plan for rest of semester - Nick Butts
  - Discussed with the team what will need to be done to finish our new deliverables
- Looked into virtual channel demuxer - Rudy Lim
  - Researched on the virtual channel demuxer
  - Writing pseudocode for the virtual channel demuxer
- Documentation and RPI website gen - Ted Mathews IV
  - Finish documentation for LNB board and begin updating design document
  - Work on setting up the antenna at my apartment

Pending Issues
- COVID-19 Project Scope Change
  - The hardware portions of the project may be significantly reduced in scope due to classes moving online
  - The entire scope of the project will push more focus on software
  - Responsibilities of team members may be shifted to account for online work

Individual Contributions

Team Member	Contribution	Weekly Hrs	Total Hrs
Jonathan Massner	Software research and prep	8	85
Nick Butts	Team member contribution evaluation	10	105
Ted Mathews IV	Began documenting (in detail) the design of the LNB, worked on setting up web page for the RPI	19	168
Jordan Tillotson	ADC board design and layout	20	113
Rudy Lim	Virtual Channel Demuxer Research and code	12	80
Riley Stuart	RPi work and software research	4	94

Plans for Coming Week
- ADC/DSP - Jordan Tillotson
  - Complete board layout for ADC and document all efforts
  - Begin Software development for LRITRice Compression
- ADC/DSP - Riley Stuart
  - Begin software development and testing of File Header Processing.
  - Document past efforts up to this point.
- RF - Ted
  - Continue working on LNB documentation
  - Finish RPI web page
  - Get antenna and SDR system setup and receiving data
- Software - Jonathan
  - Write python code for saving the raw packet data for the software
- Software - Nick and Rudy
  - Work on code for Virtual channel demuxer
  - Test out reed solomon error correction code