EE / CprE / SE 491 –sdmay20-03
NOAA GEOS-R Satellite Receiver
Bi-Weekly Status Report 1

1/1/2020 – 1/30/2020
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
- Antenna work- Jonathan Massner
  - Determined details for antenna placement
  - Started working on antenna adjustments
- Example task title - Jordan Tillotson
  - Researched parallel connection between MC and RPi4
  - Began writing Python script for configuring input pins on RPi4
  - Continued research into other data transfer methods (USB, etc.)
- Example task title - Riley Stuart
  - Researched various approaches into using the Nucleo's ADC, including using an external clock trigger.
  - Began configuring tests for ADC.
  - Began research into a new ADC module.
- Started looking through code for Viterbi decoder and Reed Solomon error correction checking - Nick Butts
  - Can now build the decoder and start working on frame synchronization
- Viterbi Decoder and Frame Synchronization code - Rudy Lim
  - Began developing code for Viterbi Decoder
  - Writing pseudocode for Frame Synchronization
- ADRF Eval Design - Ted Mathews IV
  - Finished schematic and board layout for the ADRF6850 evaluation board.
  - Began work on antenna retuning

Pending Issues
- Need to finish LNB schematic and work on layout

Individual Contributions

Team Member	Contribution	Weekly Hrs	Total Hrs
Jonathan Massner	started working on antenna alterations	6	54
Nick Butts	Looked at code for Viterbi decoder and started to think about how to do frame synchronization	3	
Ted Mathews IV	Finished schematic for ADRF eval board, did the layout, started antenna measurements.	12	89
Jordan Tillotson		5	63
Rudy Lim	Begun writing the code for Viterbi Decoder	3	49
Riley Stuart	ADC testing and creating new test plan.	5	54

Plans for Coming Week

- ADC/DSP - Jordan Tillotson
  - Determine if parallel connection will allow necessary speed
  - Begin writing script for USB data transfer
  - Research alternative ADCs for use
- ADC/DSP - Riley Stuart
  - Find ADC candidates to present to our group.
- RF - Jonathan and Ted
  - Finish and verify LNB schematic
  - Measure Antenna with reflector modifications
  - Aim antenna and receive signal using SDR
- Software - Nick and Rudy
  - Finish developing code for Viterbi Decoder
  - Finish writing code for Frame Synchronization