

9523 - 1st Meeting

Wednesday, September 16, 2020 3:23 PM

Agenda for this meeting:

- Finish budget draft (Due Thursday)
- Brainstorm questions for client interview
- Determine meeting times and locations (online/in-person) for future meetings
- Determine best way to communicate meeting organization and project progression.

Attendance:

- Cosette
- Harrison Thomsen
- Joe Dennison
- Robert
- Taegan
- Drew Pilchard

Meeting Minutes:

[3:29 PM] - Call to Order

[3:30 PM] - Analysis of Fire and SCUBBEE GITHUB

- There is no comments in the code for SCUBBEE's work on the 9523 will take more time to analyze

[3:31 PM] - Confirmation on completion of NASA FORMS

- All complete, troubles with filling out form in its PDF state

[3:33 PM] - Drafting budget

- Items Needed
 - Adafruit breakout board
 - Jettisons Tx-2 module 1, maybe 2
 - Intel nano network stick
- We will reach out to Avery about doing a client interview **THIS FRIDAY 9/18**.
 - Drew will reach out to Finan, our client contact, Finan will ask Avery
 - Drew will contact other groups for needed items

[3:39 PM] - Client Interview With Avery

- Split into disciplines chat to come up with questions regarding our parts of the project
- We will make a one drive document for client questions
 - Software side, where do we start working?
 - We plan on documenting the previous code better with a style guide

[3:45 PM] - Determine the meeting times and locations

- We can determine after our meeting with Avery
- General idea, the library, Bell, or Gaus buildings

[3:48 PM] - Communication and meeting organization and project progression

- Emails will be sent for more active response in oppose to our discord communication

[3:52 PM] - Meeting Adjourned

Action Points:

- Client Questions creations for Friday
- Finishing the budget (writing the document) - Drew
- Organizing with Avery for the client interview Friday

9523 - 2nd Meeting

Wednesday, September 23, 2020 3:29 PM

Agenda for this meeting:

- Discuss Product Requirement Document (Due Thursday)
- Buy Breakout board (Budget Draft Due Thursday)
- Discuss future meetings with Avery (From now to Snapshot #1)
- Prep for Client Interview (On Friday at 3:30pm)

Attendance:

- Cosette
- Harrison Thomsen
- Joe Dennison
- Robert
- Taegan
- Drew Pilchard

Meeting Minutes:

- **[3:29 PM] - Call to Order**
- **[3:30 PM] - Product Requirement Document**
 - We will have a CS and an EE apply some time into the Product Requirement Document
 - Robert and Taegan will help write some of the PRD
 - Atmel Studio for 9523
- **[3:33 PM] - Discuss future meetings with Avery (From now to Snapshot #1)**
 - No future group meetings with Avery in the near future
 - We will try and meet with Avery on Thursdays via zoom with Avery
 -
- **[3:43 PM] - Additional parts for breakout board**
- **[3:50 PM] - Write up questions on the document for Client Interview**
 - Every Person should put at least 1 question into the document.
- **[4:03 PM] - Meeting Adjourned**

Action Points:

- Work on product requirements document
- Drew is buying the board and jumpers
- Utilize Tuesday 3:30 - 4:20 for workshop or meeting
- 5 questions per discipline on the 9523 Client Questions

9523 - 3rd Meeting

Wednesday, September 30, 2020 3:28 PM

Agenda for this meeting:

- Discuss Product Requirement Document (Due Thursday)
- Buy Breakout board (Budget Draft Due Thursday)
- Discuss future meetings with Avery (From now to Snapshot #1)
- Prep for Client Interview (On Friday at 3:30pm)

Attendance:

- Cosette King
- Harrison Thomsen
- Joe Dennison
- Robert
- Taegan
- Drew Pilchard
- Avery Brock- Our Client
- Alejandro Salas - CS lead for NASA

Meeting Minutes:

- **[3:29 PM] - Call to Order**
- **[3:30 PM] - Introductions to members on the call**
 - Alejandro Salas can answer our CS questions and will be around for us as a resource
- **[3:34 PM] - Iridium 9523 schematic breakdown**
 - LT3959 Boost Circuit will need to be redesigned
 - Starts to hiccup when it pulls 1 amp
 - Shouldn't need to touch the board with a soldering iron
 - [Images.shoutwiki.com/mindworks/e/ea/Iridium_Carrier_Schematic.pdf](https://images.shoutwiki.com/mindworks/e/ea/Iridium_Carrier_Schematic.pdf)
 - Avery will throw together a zip file to make sure we have everything
 - NAL Research is where we get the Iridium modem from
- [4:00 PM] - Questions
 - Difference between internal and external mosbet?
 - Webench.ti.com/power-designer/.com
- 4:03 PM] - Gantt Chart
 - Gantt Chart is created, we need to plug in our high level tasks, determine time length, and determine if tasks are parallel or not.
 -

Action Points:

- Read sections of documentation for board specs and encryption/decryption
- Fill out Gantt Chart tonight!

9523 - 4th Meeting

Wednesday, October 28, 2020 3:31 PM

Agenda for this meeting:

- Power Converter Details
 - Topology Recommendation
 - Input Requirements
- University of Minnesota Collaboration Effort
- SIM Card Purchase updates?
- Update 9523 schedule

Attendance:

- Cosette King
- Harrison Thomsen
- Joe Dennison
- Robert
- Taegan
- Drew Pilchard
- Avery Brock- Our Client
- Feng Li - Our instructor

Meeting Minutes:

- **[3:34 PM] - Call to Order**
- **[3:35 PM] - Update Design Validation with new deadlines**
- **[4:02 PM] - SIM Card Purchase updates?**
 - Feng said that the SIM card could be pretty expensive might have word next week if the school will help us fund the SIM for our project.
 - University of Minnesota is working on with a 9523
 - Parallel development to us
- **[3:35 PM] - Power Converter Details**
 - Will need to go to fly back
 - Through Wurth or coil craft
 - Pick turns ratio we are looking for
 - Anything above a 10/1 is going to be hard to find 5/1 is high as we want to go
 - Pchannel if we can, nchannel if we must

Action Points:

- CS team will be meeting to setup samd51 this Saturday
- Team name will be decided Thursday
- 9523 engineers will determine power converter details soon

9523 - 5th Meeting

Wednesday, November 11, 2020 3:41 PM

Attendance:

- Cosette King
- Harrison Thomsen
- Joe Dennison
- Robert
- Taegan
- Drew Pilchard
- Avery Brock- Our Client

Meeting Minutes:

- **[3:34 PM] - Call to Order**
- [3:40 PM] - Avery Meeting
- **[3:52] - Where are we at**
 - Joe has a list
 - Can we take hardware home with us over break?
 - Yes, no worries, just bring it back to campus at some point
 - Avery would like the board design done before break so we can board made when we get back
 - Harrison what's the progression on the boost converter?
 - Hoping to get the converter done by thanksgiving, currently working on the mosvet
 - For buck boost, just use the Texas instrument tools, if you want to send Avery first dev board, he can provide some feedback
 - Robert current status of the CS side
 - AES256 - with the current library will work
 - Team Fire's code has stuff missing so we are working on getting it working
 - Robert was working on splitting the code in two
 - What's the thoughts on the co-processor
 - The co-processor won't work as it has issues with asymmetric and symmetric encryption

Action Points:

- Get Slides done for tomorrow's presentation

9523 - 6th Meeting

Wednesday, December 2, 2020 3:28 PM

Attendance:

- Cosette King
- Harrison Thomsen
- Joe Dennison
- Robert
- Taegan
- Drew Pilchard
- Avery Brock- Our Client
- Alejandro Salas

Meeting Minutes:

- **[3:30 PM] - Call to Order**
- **[3:40 PM] - Avery Meeting**
- **[3:52PM] - NASA Design Review Finalization**

Action Points:

- Get Slides done for tomorrow's presentation

9523 - 7th Meeting

Wednesday, December 9, 2020 3:25 PM

Attendance:

- Cosette King
- Harrison Thomsen
- Joe Dennison
- Robert
- Taegan
- Drew Pilchard
- Avery Brock- Our Client

Meeting Minutes:

- **[3:34 PM] - Call to Order**
- **[3:35 PM] - Update on Sub parts of 9523**
 - Power Converter
 - Harrison Timeline for Power Converter
 - Once Done, they will transition for ADCS
 - Avery meeting tomorrow at for Power Converter
 - CS
 - Robert says the PowerPoint was a huge help in understanding RUDICS
 - Iridium IO, during break to catch up the rest of the team
 - Funds
 - Keep working like we are going to get RUDICS
 - Keep preparing the ground server like we will get a ground server
- **[3:52 PM] - Update on AI in the SKY**
 - No real deadline, we have time.
 - Priority is 9523, however, there is interest in the radiation shielding
- **[3:54 PM] - Start thinking of timeline.**
- **[3:56 PM] - Project Portfolio**
- **[4:00 PM] - Wiki Page**

Action Points:

- Get Sections done on the paper on the Wiki Folder on OneDrive
- Project Portfolio assignments in

9523 - 8th Meeting

Wednesday, January 20, 2021 3:27 PM

Attendance:

- Cosette King
- Harrison Thomsen
- Joe Dennison
- Robert
- Taegan
- Andrew Pilchard
- Avery

Meeting Minutes:

- **[3:31 PM] - Call to Order**
 - 99 days till expo
 - Couple weeks till engineering release presentation
- **[3:35 PM] - Update on Sub parts of 9523**
 - **Ground Server - Taegan and Cosette will manage**
 - Reach out to Feng to see if ITS is working on server hookup
 - Reach out to ITS to try to get a hookup
 - Raspberry pi is all we need
 - Web hosting \$5 a month
 - Requirements that Avery told us about for the server
 - EE Progress
 - Boost converters 30 volts, little bit of progress
 - Buck boost final design for it, won't pass transient input simulation
 - Higher voltage needed
 - Working on schematic for boost converter
 - Firmware and Encryption
 - First working code from team FIRE
 - Figured out how to put zeffer on the Arduino
 - Provides framework and error protection
 - We need to rebuild the encryption from ground up
 - Will need to look at the slideshow from Avery to see
 - <https://transport.sri.com/projects/rudics>
 - <https://www.unavco.org/projects/project-support/polar/remote/comms/comms.html>
- **[3:45] - Avery Update**
 - Go check the Virgin Flight - test 7 was a success
 - We need to be flight ready by April, We might be elfing the hardware
 - Because of the accelerated timeline, EE's might move over to the ACDS
 - What is our minimum viable product?
 - Would only need to run a techedsat and wouldn't need the buck boost
 - Makes life easy enough it might not be worth working on so EE's could move to ACDS
 - For CS, what is our minimum viable product to get our product working
 - What's holding us up is Mark, testing, and funds
 - Look at what is the absolute bare bones code to have serial code parsed and send it out
 - Could spin a dev board if Mark approves a dev board then will send our way
 - Minimum Requirements

- <https://documentcloud.adobe.com/link/review?uri=urn:aaid:scds:US:c62cc0cc-09fa-4926-8930-85ff099c4888>
- Ones we need:
 - SBD messages and be able to switch into RUDICS
 - Accept messages and send it back down
 - Ground Server needed for testing, won't be able to port things over to NASA's stuff
 - ◆ Won't need requirements, just make it work!
- Test 10 failed a few weeks into orbit, radios broadcast exactly at 3rd harmonic of primary gps with 12 watts of power. IT killed the GPS. **Turn off GPS on phones when testing**
- Operate under the assumption that Avery will ship us flight hardware in February

Action Points:

- For Engineering Presentation - we need schematics, working ground server
- Look into Zepher - watch how it works and setup
- Harrison, Andrew - Attend the ADCS meeting to transition
- Flyback Converter Spec

9523 - 12th Meeting

Wednesday, March 3, 2021 3:33 PM

Attendance:

- Cosette King
- Joe Dennison
- Robert
- Taegan
- Avery
- Feng

Meeting Minutes:

- **[3:00 PM] - Call to Order**
 - Update Feng
- **[3:30 PM] - Call to Order again**
- **[3:35] - Avery Update**
 - Attend meetings on Friday and give the other university something to do
 - Should have some time on the schematic next week.
- We need to determine a time for Engineering Release
- We will finish our Engineering Release Poster by the weekend

Action Points:

- Meeting Friday at 1 to test SBD and finish the poster
- Will hold a rehearsal on Monday for Tuesday Snapshot

9523 - 13th Meeting

Wednesday, March 10, 2021 3:06 PM

Attendance:

- Cosette King
- Joe Dennison
- Robert
- Taegan
- Avery
- Feng

Meeting Minutes:

- **[3:00 PM] - Call to Order**
 - Feng Review on Snapshot
- **[3:01 PM] - WikiPage**
 - Taegan is working on it
- **[3:05] - RUDICS Update**
 - RUDICS ordered on the way
- **[3:05] - Engineering Release Wednesday after break**
 - Spend time working on code and detailed material for the presentation
 - Meetup on Monday to work on presentation
 - Spend time working on code and detailed material for the presentation
 - Meetup on Monday to work on presentation
- **[3:13 PM] - Meeting Adjourned**

Action Points:

- Turn in Citizenship on Friday

9523 -14th Meeting

Wednesday, March 31, 2021 3:06 PM

Attendance:

- Joe Dennison
- Taegan
- Feng
- Avery

Meeting Minutes:

- **[3:00 PM] - Call to Order**
 - Feng Review on Snapshot
- **[3:01 PM] - Issues with Scubee Board**
 - Pushing our Design review back to April 8th at 1pm
- **[3:09 PM] - Update on Ground Server**
 - Moved code to the digital ocean server
 - Implemented AES256 encryption to transfer data

Action Points:

- Prepare for the Design Review
- Fill out log books for log book review
- Write one report or 2 for each team to turn in documents

9523 - 16th Meeting

Wednesday, April 14, 2021 3:33 PM

Attendance:

- Joe Dennison
- Taegan
- Robert Goes
- Cosette King
- Feng
- Avery

Meeting Minutes:

- **[3:30 PM] - Call to Order**
- **[3:34 PM] - Walk through Engineering Release Presentation**
 - Few more slides left to make
 - Need some demos
- **[3:41PM] - Presentation tomorrow**
- **[3:55 PM] - Meeting Adjourned**

Action Points:

- Turn Log books in Friday
- Presentation tomorrow

9523 - 17th Meeting

Wednesday, April 21, 2021 3:36 PM

Attendance:

- Joe Dennison
- Taegan
- Robert Goes
- Cosette King
- Feng
- Avery
- Alex

Meeting Minutes:

- **[3:30 PM] - Call to Order**
- **[3:36 PM] - MVP for the 9523**
 - Will we have a code package to flash on the board
 - What can the full team accomplish before the end of the semester

Action Points:

- Send Avery and Alex periodic updates when they are working on it this week

9523 - 18th Meeting

Wednesday, April 28, 2021 3:33 PM

Attendance:

- Joe Dennison
- Taegan
- Cosette King
- Feng
- Alex
- Avery

Meeting Minutes:

- **[3:30 PM] - Call to Order**
- **[3:36 PM] - Technical Presentation**
 - Joe shared a link
 - Taegan will pick up poster

Action Points:

- Get ready for Expo!

9523 - 19th Meeting

Wednesday, May 5, 2021 3:29 PM

Attendance:

- Joe Dennison
- Taegan
- Cosette King
- Robert

Meeting Minutes:

- **[3:30 PM] - Call to Order**
- **[3:36 PM] - Expo**
 - Awesome Job at expo and technical
- **[3:34 PM] - Things do next week**
 - Team evaluations
 - Wiki Page
 - Taegan is working on
 - Final Design Report
 - Cosette is creating

Action Points:

- Get All due materials done