

Weekly Progress Report

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Week 1 and 2

Date:01/06- 01/19

Summary:

The team established consistent meeting times for Monday and Friday at 6 pm at EB93 at PSU. We also, created a project schedule and set a draft of milestones. We decided to go ahead and make a proposal for ordering a drone kit, which we will use to port and test Cleanflight; initially using Arm and then RISC-V.

We have been working on mapping the makefile, establish a good understanding of how SPI works and document it, understand the process of operation for RISC-V, JTAG, startup file, SDK, IDE and porting to the particular architecture. We also have drafted the Project Design Specifications and we decided to track our project using the "GitHub Project". Our sponsors will receive a weekly email with our progress that is updated at the end of each calendar week on Sunday at 10 pm.

Bliss Summary :

Eric Summary :

Nikolay Summary :

Primarily worked on PDS, Project Schedule and Project Planning, meeting notes (documentation)

Ruben Summary :

Done:

- Watched the videos that Eric has uploaded that describe building and porting a drone
- Establish meeting times
- Project Design Specifications draft and template
- Schedule
- Email to Roy and Michal
- Makefile high level map
- Research RISC-V tools
- Weekly Progress Report

- Set Milestones
- Install Freedom Studio
- Build Cleanflight

TODO:

- Finish PDS
- Make a small presentation for Feb 7th
- mpu_9050.c -> How it works
- Flowchart for Cleanflight
- Flowchart for porting
- Flowchart for makefile
- Use a sensor with the HiFive board

Challenges:

- The repo is huge and it takes time to navigate

Notes:

Proposed Milestones - A sensor is working with HiFive board and breadboard - Drone Kit is built, tested and reverse engineered - Makefile modified for the correct SDK - Makefile ported for RISC-V - SPI working with HiFive - All necessary drivers have been modified for HiFive - Drone is responding to basic commands - Project is presented to sponsor

Proposed Schedule for the next 10 weeks

Week	Goals and Tasks
Week 1	Confirm availability, meet sponsor, schedule meeting times
Week 2	Research RISC-V, Makefile, IMU
Week 3	PDS(draft), Weekly Report, F3 Drivers, Freedom Studio, RISC-V Assembly, SPI, Weekly Report
Week 4	PDS(final review), Weekly Report, get one sensor working with board, ECE 412 class check in
Week 5	Use Cleanflight to a drone Kit, weekly report, ECE 412 team project review
Week 6	Begin porting the makefile, weekly report
Week 7	Continue porting makefile and SDK, begin unit testing, weekly report
Week 8	Port I/O, unit testing, weekly report
Week 9	Port Drivers, unit testing , weekly report
Week 10	Port Drivers, IMU, Cleanflight, integration testing
Week 11	Acceptance testing, review with sponsor and advisor, deliver project; drone is using accelerometer and gyroscope and responds to basic commands such as up/down, left/right, forward and backward