ECE 453 Project Proposal (Fall 2018)

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1 Introduction

We are interested in building a *quadcopter* plus *ground station* and *web-based user interface*. We have chosen to call this project the **fault-tolerant quadcopter**. This name reveals one of our stretch goals that will be covered in a future section.

This document serves as the formal proposal to be vetted by the course instructor, Joe Krachey. We have additional documentation in work online that we plan to keep in sync with our project's scope and current progress. At the time of writing it is not yet in a stable state.

This project is designed for three major bodies of work that were mentioned above but are better captured by Figure 1:

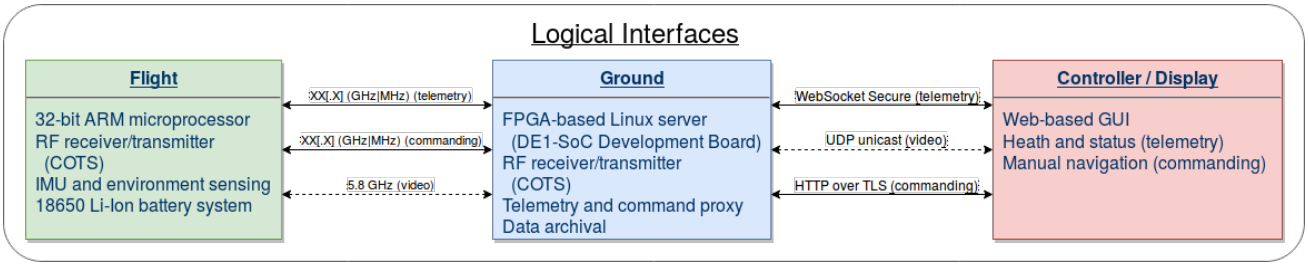

Figure 1: High-level overview of the major components and their interfaces

This high-level architecture is inspired by existing aerospace avionics and software systems that we have done research on and have some first-hand experience with. Our current, collective experience with such systems and the technical challenges we anticipate being associated with them is minimal, though. For this reason we seek feedback on our lower-level goals and approach, provided that this high-level idea suffices as a project worth pursuing.

2 Technical Features

TODO

2.1 Quadcopter

Responsible Engineer: **Vaughn**

- TODO

2.2 Ground Station

Responsible Engineer: **Cooper**

- TODO

2.3 Display and Controller

Responsible Engineer: **Mayank**

- TODO

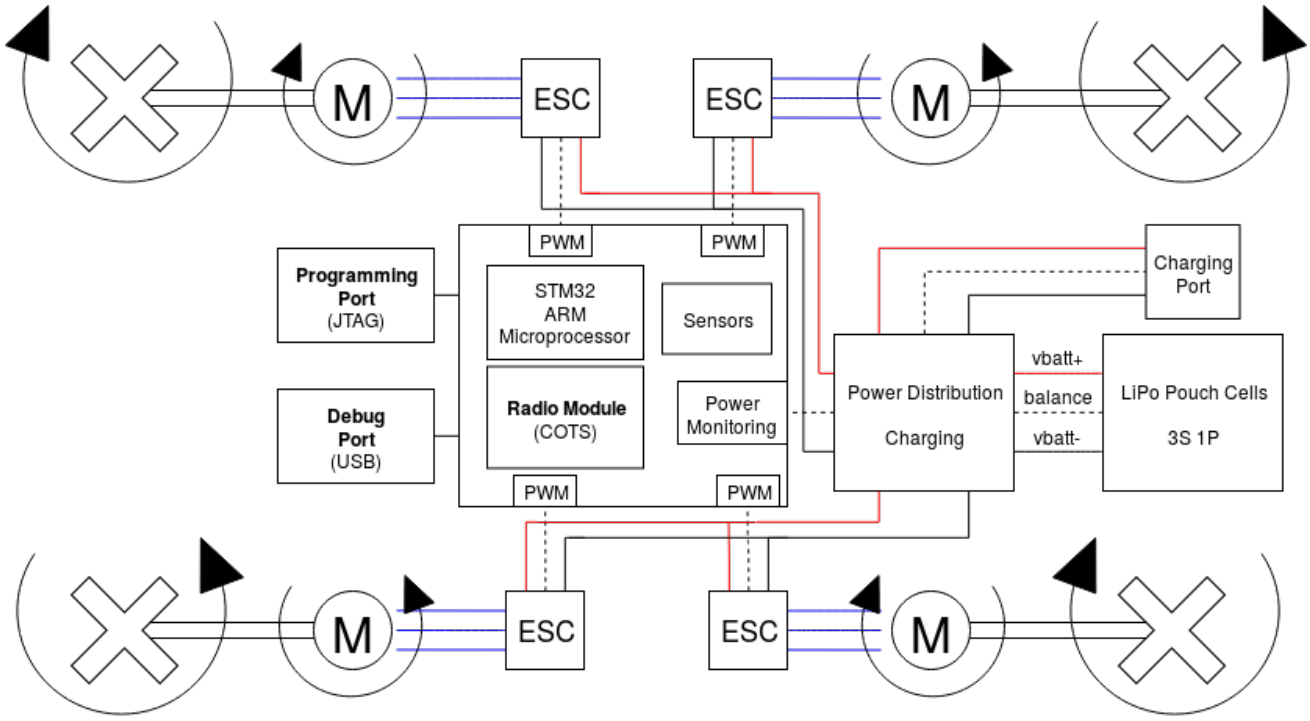

Figure 2: Block diagram view of the quadcopter

3 Responsibilities

How we plan to share responsibility.

3.1 Vaughn Kottler

Responsible Engineer for the following:

Flight Vehicle TODO

Control Algorithms TODO

3.2 Mayank Katwal

Responsible Engineer for the following:

Telemetry Display TODO

Vehicle Controller Hardware of Software

3.3 Cooper Green

Responsible Engineer for the following:

Ground Station TODO

Radio Frequency Communication TODO

4 Project Management

TODO

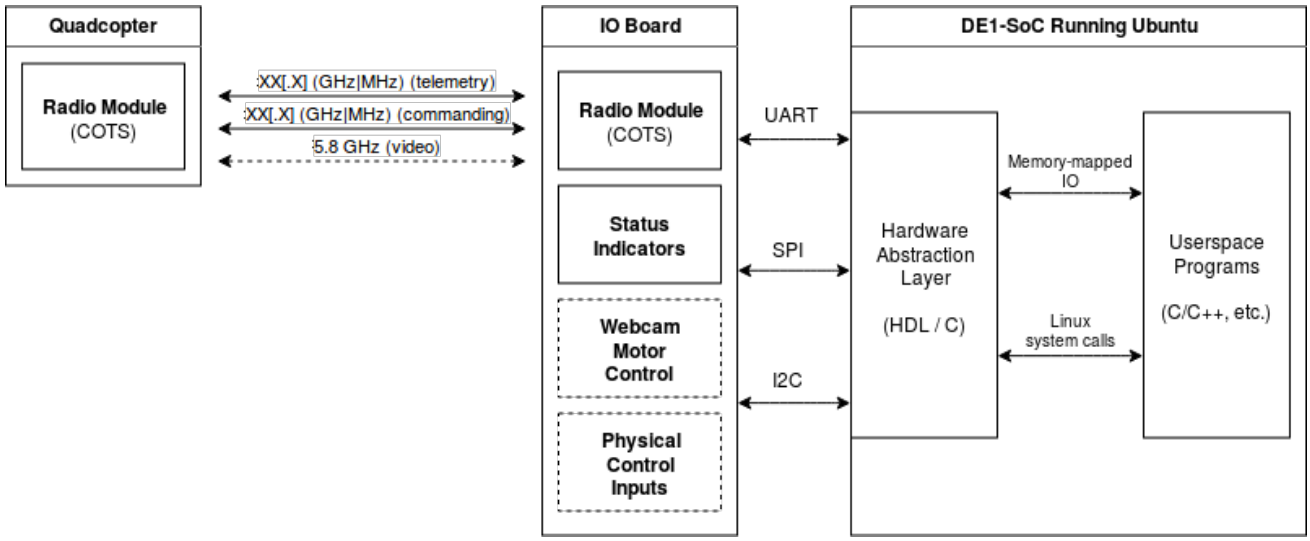

Figure 3: Block diagram view of the ground station

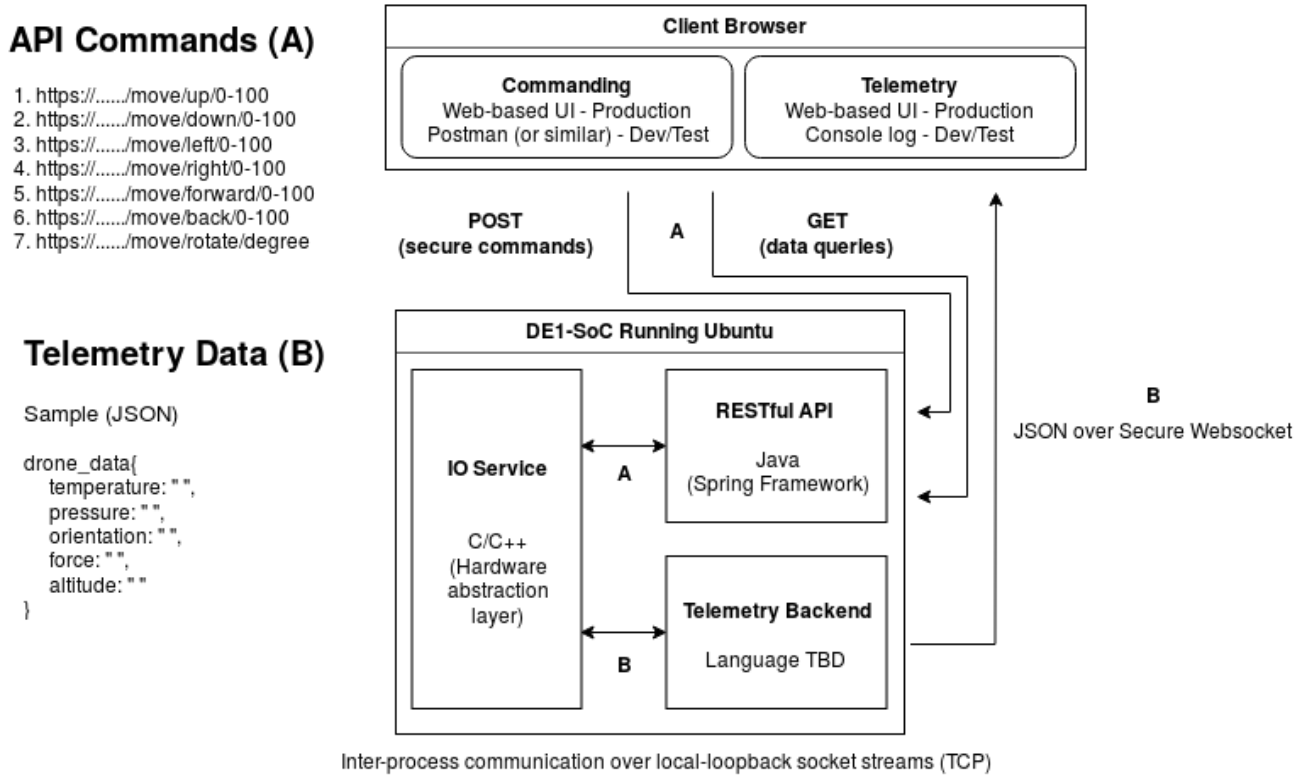

Figure 4: Block diagram view of the display and control user interface