iEE 491 WEEKLY REPORT 1   **Date:1/31/17**

Group number: 1705

Project title: Drone Energy Deliver

Client &/Advisor: Drs. Geiger and Chen

Team Members/Role: Dustin Reed: Communication, Eric Himmelblau: Team Lead, Avanish Kuntla, Jeffery Schons, Justin Howe, Chidike Ubani

o **Weekly Summary**

This week we worked on the backbone of our project. We met with our advisors twice so we could get the goal of the project pinned down. We also worked on basic research of drone controls and electrical contacts.

o **Past week accomplishments (please describe as what was done, by whom, when or collectively as a group)**

· Dustin Reed: Set up the list, and currently communicating with FP&M to see what we need to do to be able to fly drones on campus. Also researched federal drone regulations.

· Avanish Kuntla: Researched methods of interfacing drones with smartphones and open source drone software. Set up Google drive folder.

· Justin Howe: Researching GPS solutions that will be viable for both gross navigation and for precise coordination for landing the drone. Looking into additional sensors or assisted GPS systems.

· Eric Himmelblau: Preliminary exploration of DJI's SDKs. DJI is the manufacturer of the Inspire 1 version 2 we are initially considering developing our application for. There is an SDK for the mobile platform (both iOS and Android), an onboard SDK for integrating our own hardware, and a Guidance SDK. Guidance is a vision sensing system that can be attached to DJI's Matrice 100 flight platform. In addition, the onboard SDK is only compatible with the Matrice series of drones. The mobile SDK is compatible with both the Inspire 1 and the Matrice series.

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o **Pending issues (if applicable)**

· Dustin Reed: I still have not gotten a straight answer from FP&M on what we need to do for drone clearance on campus.

o **Individual contributions**

NAME	Individual Contributions	Hours this week	HOURS cumulative
Dustin	Drone	5	5

Reed	Regulations Research, Set up list		
Avanish Kuntla	Drive folder, Researched smartphone interfacing and open source drone software	4	4
Jeffery Schons		4	4
Eric Himmelblau	Explored DJI's SDKs	5	5
Chidike Ubani	Read Documentation on mobile SDK	4	4
Justin Howe	Researched GPS and methods of increasing accuracy locally	4	4

o **Comments and extended discussion**

The biggest thing this week was figuring out exactly what was expected of us from our advisors. After talking with them over the course of two meetings, we figured out that our goal will be to get a drone autonomously to an electrical node, use the drone to charge it, then have the drone fly autonomously back. The biggest challenge right now will be figuring out how to code flight instructions, and on location/tracking options for getting the drone to the nodes.

o **Plan for coming week (please describe as what, who, when)**

·   Dustin Reed: I will be calling FP&M back on Wednesday if they have not gotten back to me. I will also look into coding possibilities for the drone flight path.

·   Avanish Kuntla: Look into other drone models and compatibility with software found this week.

·   Jeffery Schons: looked into different ways to transfer power from the drone

- Eric Himmelblau: Explore DJI's Mobile SDK further, yet keep my eye open for alternative APIs or platforms.

- Justin Howe: Get a good idea of how we intend on handling both general positioning and navigation and precise adjustment required for landing.

-Chidike Ubani: Look at some of the autonomous capabilities that DJI products currently have(as I saw a few). And see if that can help us implements it ourselves.

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o **<u>Summary of weekly advisor meeting</u>**

We met with our advisors, who are also our clients. We spent both of our meetings clearly defining the goal of our project.

<u>Grading criteria</u>

Each weekly report is worth 10 points. Scores will be awarded as follows:

·   **8 – 10**: Progress for your project seems to be suitable. Documentation and hours reported by team members are adequate.

·   **6 – 8**: There is scope of improvement both in your report and your project progress. Can consult with instructor/TA after class for further inputs.

·   **< 6**: Please talk to instructors/TA after class hours about any difficulties that you/your team is facing.