3D Spectrum Mapping via Drone Mounted Mobile Receiver
LOG & TIME RECORD

DATE: 09.09.2016	**TIME IN:** 8:44	**TIME OUT:** 15:35
ACTIVITIES:	Discussed entry of "Gesture Based Drone Control" into Siemens research competition, discussed possibility of future drone work and/or signal jamming, short lesson on basic signal transmission & interference principles as well as mitigating techniques, started research of SDR basics, began reading Professor Zhong's work on "Transmit Only"	
PROBLEMS/COMMENTS:		

DATE: 09.16.2016	**TIME IN:** 8:37	**TIME OUT:** 16:02
ACTIVITIES:	Continued writing "Gesture Based Drone Control" research paper, spoke with Prof. Seskar re: forms for aforementioned project, finished reading "Transmit Only" papers, continued research on SDR basics, began exploring possibilities re: transmit only work, discussed possibility of using a drone as a receiver to determine points of interference within an area	
PROBLEMS/COMMENTS:		

DATE: 09.23.2016	**TIME IN:** 8:43	**TIME OUT:** 16:07
ACTIVITIES:	Continued discussion with Professor Seskar, completed additional readings provided from Dragoslav	
PROBLEMS/COMMENTS:		

DATE: 09.30.2016	**TIME IN:** 8:21	**TIME OUT:** 16:10
ACTIVITIES:	Chose project of mapping interference with a drone based system, began reading previous summer group’s work on the subject	
PROBLEMS/COMMENTS:		

DATE: 10.07.2016	**TIME IN:** 8:43	**TIME OUT:** 16:20
ACTIVITIES:	Refined project choice- making signal area with drone; data will be GPS location, SQI, time; watched SDR tech conference Europe 2014 talks; tested SDRSharp program; prepped Linux external boot drive; read part of Octave documentation; downloaded Octave	
PROBLEMS/COMMENTS:		

DATE: 10.14.2016	**TIME IN:** 9:12	**TIME OUT:** 16:48
ACTIVITIES:	Met with graduate student Shweta Sagari, read two papers on interpolation (Practical Interpolation for Spectrum Cartography through Local Path Loss Modeling, Path Loss Estimation Algorithms and Results for RF Sensor Networks), completed another Octave tutorial, wrote up a project description, began creating a timeline and list of items	
PROBLEMS/COMMENTS:	Mother’s car broke down- had to drive to dealership so arrival was slightly later than usual	

DATE: 10.21.2016	**TIME IN:** 8:32	**TIME OUT:** 15:46
ACTIVITIES:	Finish Octave tutorials and begin writing program to produce a map based on test data, spoke with Prof. Seskar about obtaining the hardware for the project, began programming drone flight pattern, determined the signal emitter and device for project	
PROBLEMS/COMMENTS:	Left slightly earlier than usual to take care of some Air Force work, having some problems with 3D plotting in Octave- will work on resolving tomorrow	

DATE: 10.28.2016	**TIME IN:** 8:41	**TIME OUT:** 16:20
ACTIVITIES:	Spent the day trying to create 3D graphs of vectors, started creation of sample data set, worked with PhD candidate Dragoslav who explained the concepts behind “plot” and “hold on” in Octave, read further tutorials on graphing specifics	
PROBLEMS/COMMENTS:	Plan for next week- create initial drone flight pattern over ORBIT base station, configure mobile receiver and determine necessary programming language to retrieve data from it	

DATE: 11.04.2016	**TIME IN:** 8:36	**TIME OUT:** 16:14
ACTIVITIES:	Installed MissionPlanner, created alternate flight program, created mission, uploaded mission to 3DR drone, flew drone x2, successful test results	
PROBLEMS/COMMENTS:	Plan for next week- configure mobile receiver and determine necessary programming language to retrieve data from it, finish visualization Octave program	

DATE: 11.18.2016	**TIME IN:** 8:26	**TIME OUT:**15:47
ACTIVITIES:	Did some more graphing work in Octave, spoke to Prof. Seskar about configuring mobile phone for WINLAB base station, updated Prof. Trappe about current project progress	
PROBLEMS/COMMENTS:		

DATE: 12.02.2016	**TIME IN:** 8:34	**TIME OUT:**12:07
ACTIVITIES:	Attempted to graph 3D vectors in Octave, updated timeline and documentation, researched mobile receivers and linear interpolation, Wrote basic interpolation program in Octave, updated Octave, re-installed drivers, updated GitHub repository	
PROBLEMS/COMMENTS:	Left early for Air Force medical exam	

DATE: 12.09.2016	**TIME IN:** 8:41	**TIME OUT:**15:48
ACTIVITIES:	Tested basic data in Octave for 3D graphing, Re-installed graphics packages for Octave, revised timeline, constructed waypoint data for flight pattern (created optimized “crop seeding” pattern, implemented based on area), confirmed usage of mobile receiver for next week (due to it being at a conference in CA), started final presentation & writeup, began documentation of project safety & instructions for future users	
PROBLEMS/COMMENTS:		

DATE: 12.16.2016	**TIME IN:** 8:36	**TIME OUT:**16: 26
ACTIVITIES:	Received mobile device, completed “Hello World” ORBIT tutorial, configured PuTTY terminal, reserved space in sandbox3 (2hr. max), tested LTE experiment, completed data retrieval tutorial, SSH’ed into sb3.node1-1 and sb3.node1-2, worked final presentation & writeup, worked on documentation of project safety & instructions for future users	
PROBLEMS/COMMENTS:	Lab will be closed next week.	

DATE: 12.23.2016	**TIME IN:** N/A	**TIME OUT:**N/A
ACTIVITIES:	Worked on documentation as per Prof. Trappe	
PROBLEMS/COMMENTS:		

DATE: 12.30.2016	**TIME IN:** N/A	**TIME OUT:** N/A
ACTIVITIES:	Booked time on test bed for next week, downloaded test file, archived test data from 12.23 and 12.16, emailed Prof. Seskar about lacking system image in SB3	
PROBLEMS/COMMENTS:		

DATE: 01.06.2017	**TIME IN:** 8:33	**TIME OUT:** 16:06
ACTIVITIES:	Worked on mentorship presentation and written report, began student written evaluation, re-read interpolation algorithm papers, outline Octave final program & compiled reference documentation for graphing, began work on signal logging app, finalized drone flight plan, proposed alternative attachment of device to drone to prevent damage to either device	
PROBLEMS/COMMENTS:	Talked to Prof. Seskar- found out that SB3 does not have a wireless dongle, will test on SB1 next week if possible	

DATE: 01.13.2017	**TIME IN:** 11:10	**TIME OUT:** 16:48
ACTIVITIES:	Tested LTE tutorials on sb6.node1-1, ran systems test of wireless network on mobile application, integrated CSV reading portion into Octave program, finalized problem outline and completion	
PROBLEMS/COMMENTS:		

DATE: 01.20.2017	**TIME IN:** 9:02	**TIME OUT:** 16:16
ACTIVITIES:	Ran LTE tutorial on sb7-node1.1 and sb7.node1-2, linked mobile receiver to base station, ran program with test data, changed time scale to increase dynamic effect on signal graph, updated records of ORBIT hardware and software, printed and read the following papers: ● Channel Surfing and Spatial Retreats: Defenses against Wireless Denial of Service ● The Feasibility of Launching and Detecting Jamming Attacks in Wireless Networks ● On the Vulnerabilities of CSI in MIMO Wireless Communication Systems	
PROBLEMS/COMMENTS:	Was unable to test outside on actual drone (too windy)	

DATE: 01.27.2017	**TIME IN:** N/A	**TIME OUT:** N/A
ACTIVITIES:	Completed paper and general documentation	
PROBLEMS/COMMENTS:		

DATE: 03.05.2017	**TIME IN:** N/A	**TIME OUT:** N/A
ACTIVITIES:	Created GitHub repository at github.com/karoush/droneSpectrumMap, began creation of JSSF poster	
PROBLEMS/COMMENTS:		

DATE: 03.16.2017	**TIME IN:** N/A	**TIME OUT:** N/A
ACTIVITIES:	Finished JSSF poster, updated GitHub repo with improved code	
PROBLEMS/COMMENTS:		

DATE: 03.17.2017	**TIME IN:** N/A	**TIME OUT:** N/A
ACTIVITIES:	Uploaded work log to GitHub, created README file for repo	
PROBLEMS/COMMENTS:		