Lessons Learned from The REDHAWK Endeavor

CDT Brendon Palowitch (CS): Spend the first two weeks creating a complete design overview of your project. Knowing how each part will come together (i.e. data output from one system as input to another) will save an incredible amount of time. Furthermore, each person will be well-aware of what each team member is working on. Otherwise, no one is working in parallel and the capstone will be several individual pieces that are not prepared to interact together.

CDT Michael Chiu (IT): Verify all external hardware early on all machines it will be used. We had problems getting all the CentOS laptops to recognize the Alfa adapter automatically and had issues with being able to read the GPS receivers. The GPS receivers were not compatible with CentOS and had to be connected to a Raspberry Pi instead. Also, CentOS could not bridge an internet connection but the Raspberry Pi can.

CDT Andrew Kane (EE): Be certain that the entire team is in sync on what the project requirements are so that constructive efforts by one member do not end up being a hindrance to another. This happened in a couple limited instances for our group and were quickly identified because the three disciplines were almost always interfacing with each other.

CDT David Weidman (CS): Become well acquainted with the Redhawk documentation. Pay attention to my notes on how to modify and compile components. It is unlike any other development environment that I’ve seen. Contact me on Facebook when you inevitably have questions. The geolocation algorithms can still be tailored to be more accurate. I will mark which of the constants and equations are not intrinsic to the math behind the geolocation.

CDT Nicholas Treiberg (EE): Retest individual hardware components before testing the system as a whole. Familiarize yourself with each sub-system, so that when one inevitably fails, you know what right looks like and can fix it. Specifically the pseudo-doppler antennas switch, this system is extremely fragile, and must be understood in order to perform direction-finding.

CDT James Cho (SE): Update and refine planning every lesson. The most critical time to ensure proper integration of subsystems comes through a collective discussion with ALL team members present. This was accomplished through scrum meetings at the beginning of class. When this meeting failed to happen, issues between subsystems went unchecked for far to long.