



Senior Design Project in Electrical & Computer Engineering



Automatic Position Reports For C.G. Aircraft

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Project Background

The current manual position report system that allows OPCENTER personnel to keep track of Coast Guard aircraft and flights does not meet Coast Guard current or future requirements. The USCG is looking to commercial satellite systems to meet future needs. A prototype system was developed and tested using the ORBCOMM satellite system for reporting of aircraft location. The aircraft SATCOM unit automatically reports the aircraft's position to a dedicated ground station, where they are collected and analyzed.

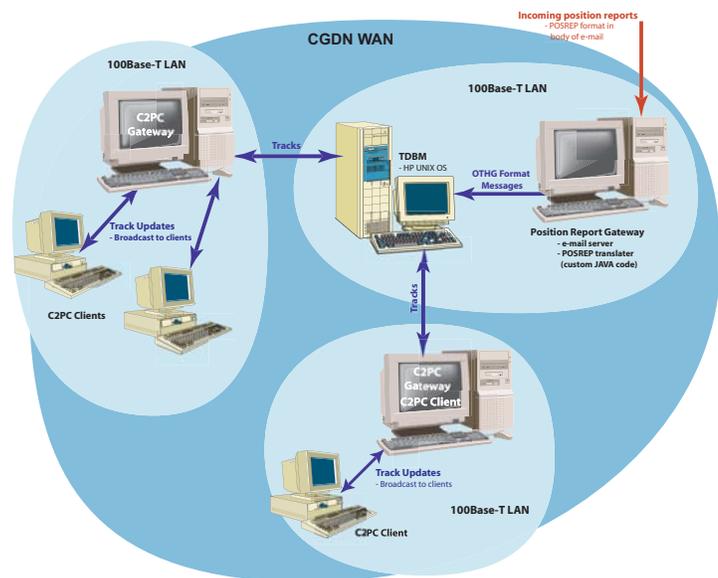
Last year, the project took another approach by adding in HF to provide coverage in areas outside of the ORBCOMM satellite footprint. Many CG aircraft have or are receiving ALE capable HF radios. In order to use HF for position reports an HF data modem is connected to the HF ALE radio. Reports are sent using a combination of Coast Guard written software (HF POSREP) and commercial software (HF Messenger from Rockwell-Collins). HF Messenger provides the interface to the HF ALE radio acting as an email server to send and receive email via the HF data link.

Project Plan

The project plan for this semester is to finish up last year's project which consisted of writing software to capture GPS information and transmit it as a position report using HF messenger. Specifically, the hardware interfaces to the HF modem and HF radio need to be configured and tested. And then the entire system needs to be tested.

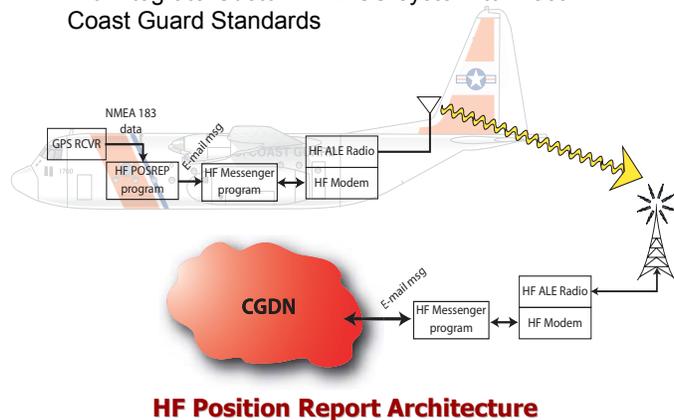
This semester I will also be looking at the idea to integrate the Custom TRACS system that uses a custom "black box" connected to the HF radio to send position information to their land unit and modify it to integrate into our shore system.

Shore Architecture for POSREP Distribution



Project Goals

- To troubleshoot/test HF messenger system
- Test HF messenger system over the air
- Test HF POSREP software with HF messenger and modem
- To integrate Custom TRACS system to meet Coast Guard Standards



HF Position Report Architecture