The original target for the project was to place a rescue vehicle within about 15 feet of a victim in the water. Ultimately, we did even better – in repeated water tests, we successfully got the rescue vehicle within six feet of the victim using just GPS-based navigation. Below is a map of one of these water trials, performed in Elm Park, and a link to a Youtube video of the trial.

http://www.youtube.com/watch?v=koDYwOnNKTA

The rescue vehicle was built around a remote control boat, which has had its RC functionality removed. A development board is interfaced with the boat’s propeller and rudder, a wireless radio, and a GPS unit.

The victim unit is a custom-designed PCB designed to efficiently run off of a single battery, featuring an ATMega164 microcontroller, which broadcasts its GPS location over the wireless network.

The mothership runs the navigation software for the system, which takes in GPS data from the victim unit and rescue vehicle, and broadcasts control signals to the rescue vehicle.