



Senior Design Project in Electrical & Computer Engineering



Tow Tank Wireless Communication and Video Upgrade

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Sponsor: USCGA Naval Architecture and Marine Engineering Section

Project Goal

To improve the 1985 data transmission technology of the Tow Tank Laboratory via upgrading to wireless real-time data acquisition from the sensors to a student-workstation and installing a video system to capture and display video of the tests.

Project Objectives

- Enhance the Education of NA&ME Students and Faculty
- Expose students to newer technology
- Make the NA&ME program more competitive
 - With other colleges
 - For CG contract work
 - For research opportunities for faculty



A cadet performs a test in the Tow Tank Laboratory

Background Information

The USCG Academy's Tow Tank Laboratory is used analyze hull designs. It is a 100 foot long ship model towing tank that has a carriage mounted on a track that pulls models through the water to collect data such as, resistance, heave, and pitch.

Data transfer System

- Large desktop computer, bulky monitor on carriage
- Data collected after tests are run, not in real time.
- This delay of data hinders the experiment
 - Can't immediately determine if test is running correctly
 - Can't correlate data with what they are seeing

Old Methods

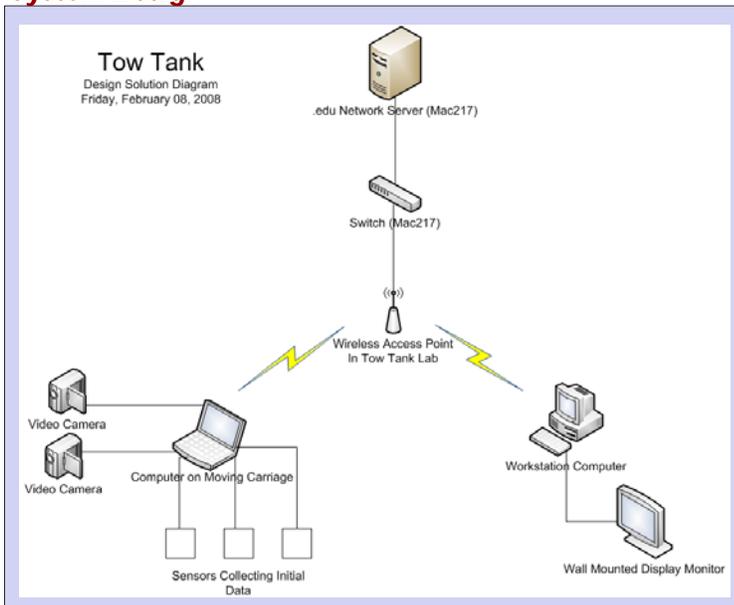
Video System

- No video recording or display
- Must look into tow tank to correlate numbers to image
- No video for later evaluation
- Can't view experiment again

Results/Status

- Wireless communication system has been implemented: the workstation computer and computer on the carriage are connected to the .edu network via the wireless access point.
- Flat screen monitor is installed
- Cameras are selected.

System Design



Project Timeline

