



Senior Design Project in Electrical & Computer Engineering



USCGA Wireless Network

No Strings Attached

Cadets: 1/c Matthew Shaffer & 1/c Karen Appel

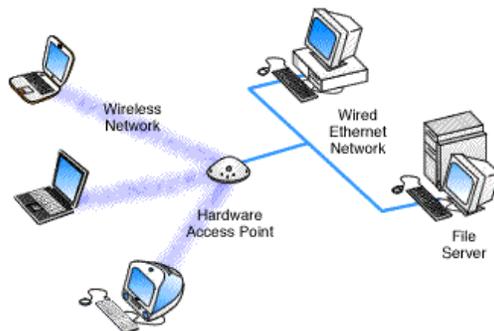
Advisor: LCDR Godfrey

Sponsor: USCGA Information Services Division

Project Background

The United States Coast Guard Academy has decided it must upgrade its networks in order to provide improved access and mobility. As a first step, laptops purchased by the class of 2008 through the Academy's Information Services (IS) Division included a wireless network card. The second step is to install a Wireless Local Area Network (WLAN) throughout the Academy.

Wireless access doesn't come without a cost. The ability to use the network anywhere on campus without having to "plug-in" means anyone with a wireless card could obtain network access, even if they are not on Academy grounds. To ensure that unauthorized personnel do not use the Academy's resources, the installed wireless network must have sufficient safeguards in place.



A basic Wireless Local Area Network

Project Plan

- Identify suitable wireless networking equipment that is compatible with the Academy's current networking equipment.
- Determine required network security measures to prevent illegal/improper use of a Government network.
- Ensure the installed wireless access points provide adequate coverage of the Library's first floor and exterior courtyard.
- Conduct usage tests with members of the class of 2008 to determine how the wireless network will function in a heavy volume environment.

Project Work

Our group will research and procure the most suitable equipment necessary to build a WLAN in the first deck of the library.

Based upon our determination of wireless router coverage patterns, the WLAN access points will be installed in the optimal locations throughout the Library.

We will test both system security and usage requirements, and develop plans to ensure the WLAN networks meet the security and accessibility requirements.

Project Deliverables

- WLAN installed on the first deck of the library by December 10, 2004
- Security Test Plan
- Recommendations on how to expand the WLAN to other areas on campus



The Library