

Context:

According to MIT professor Nicholas Negroponte "EVERYTHING you assumed about telecommunications is about to change. Large wired and wireless telephone companies will be replaced by micro-operators, millions of which can be woven into a global fabric of **broadband connectivity**. How will this come to be? Here's the story. Over the past 30 years, telecommunications has enjoyed three major changes, each a real epoch. The first, in the '70s, was **digital**. The second was **packet switching**. The third was **wireless**. Each spurred some fundamental innovation. The first launched multimedia, among other things. The second, "always on" connectivity. And the third, functional mobility. Combined with worldwide deregulation, these generational changes have given the consumer more services at lower costs." He goes on to state that "the computer industry has been driving an initiative for wireless local area networks, called **802.11** or **Wi-Fi** that will become the real "**Next Generation**" wireless communications technology.

Initially **Wi-Fi**, or **Wireless Fidelity**, was developed to replace coaxial cables and remove the need to drill holes and string wires. **Wi-Fi** is freedom: it allows you to connect to the Internet from your couch at home, a bed in a hotel room or a conference room at work without wires. How? Wi-Fi is a wireless technology like a cell phone. Wi-Fi enabled devices send and receive data indoors and out; anywhere within the range of a base station. And the best thing of all, it's several times faster than the fastest cable modem connection. **Wi-Fi** technology is spawning all sorts of new services and devices which can connect to a **Wi-Fi** base station and transfer information using **Internet Protocol (IP)**. Homes, schools, offices, hospitals, campuses, neighborhoods, parks or anywhere an Internet connection is available is an area that is ripe for a **Wi-Fi** networks, services or devices!

Challenge:

Research, design and develop a Wi-Fi enabled device that can connect to a Wi-Fi base-station and be used for communications and personal security by Middle and High school students.

Resources:

DreamWeaver Studio MX	iBook & PC/Win Computers
IPhoto, Adobe Photoshop	iMovie & Digital Video Camera
ITLA Design Guide	NVCC Labs & Instructors
Macromedia Portfolio Guide	Modeling Materials

Constraints:

1. Your device may not be a notebook computer, a cell phone or PDA device.
2. Your team must form a company, assign responsibilities, develop a company identity, research Wi-Fi technologies, propose ideas, design devices, create a prototype model, a 3-D Computer model and marketing materials.
3. You must Apply and Document the research, problem solving and critical thinking processes used to design, plan and produce your Wi-Fi device in your personal Web-Based Portfolio that uses digital photography, video and animation to document your activities.
4. Your team must Apply and Document the research, problem solving and critical thinking processes used to design, plan and produce your Wi-Fi device on your team Web Site using digital photography, video and animation to document your activities.

Evaluation:

1. Evaluate your progress throughout the project using the Design Guide Assessment Rubrics.
2. Complete your personal web based portfolio and post to a non-commercial web server.
3. Complete your team project web site and post to a non-commercial web server.
4. Present your team solutions to a panel of IT business professionals at the IT Leadership Academy Expo.