

# Senior Design - Spring 2010

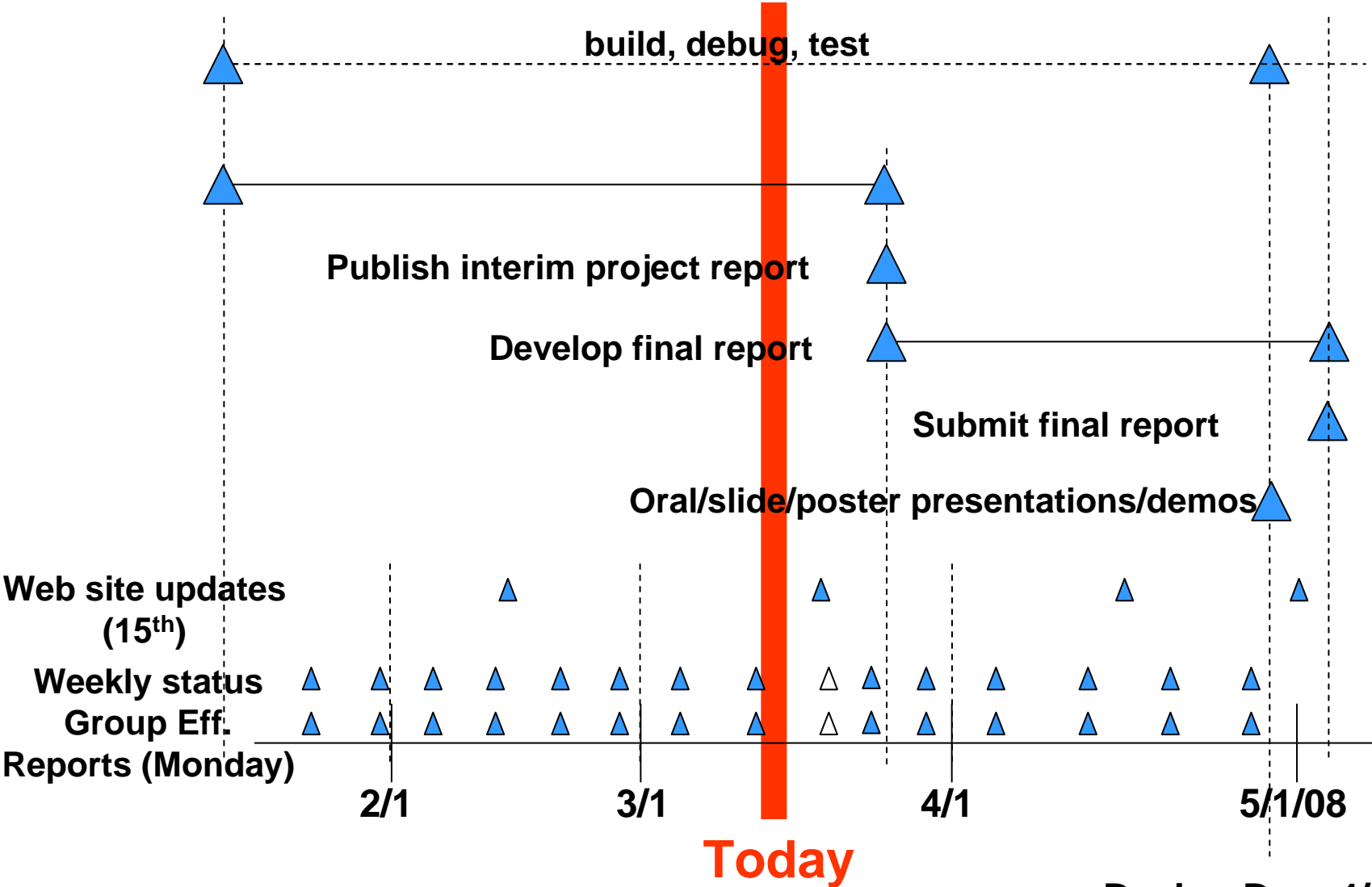
## EE/CpE 424

Class 2 – 3/9/10

# Outline

- Spring 2010 tasks
- Upcoming priorities
- Other items

# Senior Design Tasks – Spring '10



# Deliverables Schedule

- Interim project report due Tuesday after Spring Break (3/23/10)
  - Specific details on  
[http://koala.ece.stevens-tech.edu/sd/material/Spring\\_Interim.pdf](http://koala.ece.stevens-tech.edu/sd/material/Spring_Interim.pdf)
  - Interim Progress Report vs. previous report focus:
    - **updated** design progress
    - **current** thinking about architecture, implementation, features and functions of prototype
    - how will you evaluate prototype performance?
    - subsystem tests and results
    - design risks and how to control them?
    - remaining technical issues
- Design Day is April 28<sup>th</sup> – less than 2 months from now
- Final report is due Tuesday, May 4

# Design Day Resources Available

- Poster board – I am assuming 2.5/group
- Large format HP DesignJet “plotter” in B200
  - You must coordinate the time you plan to use the plotter with Mary Schurgot so we can help you with this.
  - If previous years are any indication, most of you will show up after 6pm on the night before Design Day. If we run out of paper at that point, the chances of being able to find the special paper the plotter **requires** are slim. (Many groups were dismayed to see what happens when ink droplets are sprayed against paper that wasn’t designed to absorb them.)
  - Check with Mary about suitable print output formats and page sizes. You can generally set the page size as needed and generate compatible files in most page creation tools (e.g., Powerpoint, PageMaker, MS Publisher, etc.). The HP plotter will generate up to a D size drawing (~22” x ~34”), but we are now using smaller posters. Bring the resulting file to B200 to print. You can’t send the print job over the network

# Design Day Resources Assumed

- One table, ~30" x 60" per group
- Two 110 VAC outlets per group
- Two Ethernet connections per group
  
- If you need anything special, let me know by Wednesday, 3/10/10. E.g.,
  - Proximity to a particular other department group
  - Special positioning in the room (e.g., a corner)
  - Special test equipment
  - Liquid helium for cryogenic cooling
  
- We will try to request/accommodate special requests, but these can't be guaranteed. If you need to borrow equipment from the Boesch lab, (1) it won't be available until the day of the SD Expo and (2) it will be given on a first-come-first-served basis

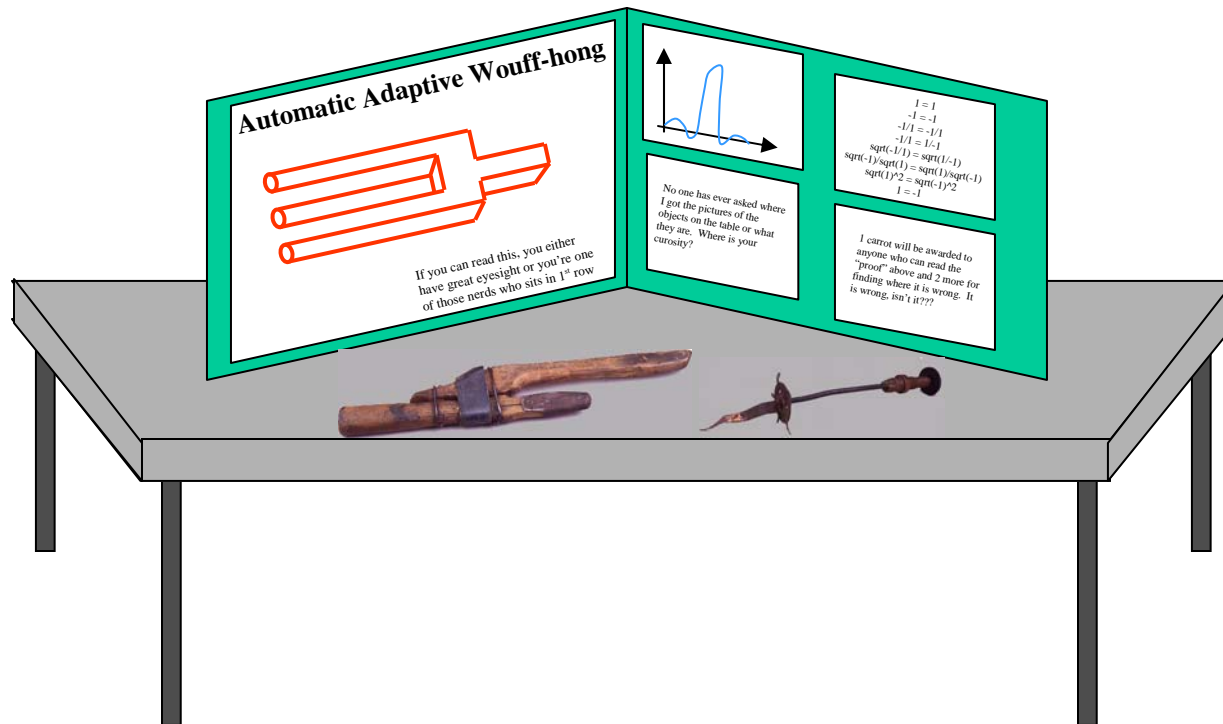
# Design Day 2003



EE/CpE424:  
Senior Design  
Spring 2008

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# Senior Design Day



- What will catch the interest of a passer-by?
- What have you done that is significant/worth demonstrating?
- Organization of the poster is important to maximize effectiveness
- Use each media (demo, words, pictures, conversation) to present what is best done with that media.
- Demonstrate your project concept

# Project Brochure

- Introduced by a '03 ECE Senior Design group
  - Improved upon by '04
  - ECE now sets the standard for other Departments' Senior Design teams
- Provides a brief “take-away” synopsis of project
- Your project’s “business card”
- Each group must create one, put it on web site, and bring at least 25 copies to Design Day
- Basic format at:  
[http://koala.ece.stevens-tech.edu/sd/material/brochure format.pdf](http://koala.ece.stevens-tech.edu/sd/material/brochure%20format.pdf)  
  
Enhanced format is worth extra credit

**For more details, please visit our website:**

<http://koala.ece.stevens-tech.edu/sd/archive/03F-04S/websites/grpNN/>

<b>Group NN:</b> Group Title	
<b>Group Members:</b>	
Seymour Clearly	Major: EE, Minor: Optics
L.E. Vator	Major: CE, Minor: Transport
Brief Overview:	
Block Diagram:	
(Indicate 4-7 major points presented on diagram)	
For more details, please visit our website: <a href="http://koala.ece.stevens-tech.edu/sd/archive/03F-04S/websites/grpNN/">http://koala.ece.stevens-tech.edu/sd/archive/03F-04S/websites/grpNN/</a>	

# A Sample Brochure from 2004

## GPS Technology Background: Basics 101

The Global Positioning System (GPS) is actually a constellation of 27 Earth-orbiting satellites (24 in operation and three extras in case one fails). Each of these solar-powered satellites circles the globe at about 12,000 miles, making two complete rotations every day. The orbits are arranged so that at any time, anywhere on Earth, there are at least four satellites "visible" in the sky.

A GPS receiver's job is to locate 4 or more of these satellites, figure out the distance to each, and use this information to deduce its own location. This operation is based on a simple mathematical principle called trilateration. 3-D trilateration involves the intersection of the satellites' spheres. A sphere is generated by using the distance between the receiver and a satellite as the radius. The receiver would exist on the surface of several satellite spheres at an intersecting point.  
*From [www.howstuffworks.com](http://www.howstuffworks.com)*



## About the Stevens Campus:

"This land was a part of the island of Hoboken which was deeded on Feb. 16, 1663 by Peter Stuyvesant, governor of New Amsterdam for the benefit of his sister Anna, widow of Samuel Bayard of Amsterdam.

In 1784, these 564 acres belonging to Willie Bayard, her great great grandson, were declared forfeit because he had "joined the army of the King of Great Britain." They were bought at public auction for 13,360 pounds by Colonel John Stevens, "Treasurer on Horseback" of the state of New Jersey during the war of the Revolution.

In 1868, his son Edwin Augustus who had married Martha Bayard Dod of Princeton, a descendant in the seventh generation of Anna Stuyvesant Bayard, left this land and an endowment for a school of learning which was established in the year 1870 as the Stevens Institute of Technology."  
-On the Wittpenn Walk plaque

Stevens Institute of Technology  
Castle Point on the Hudson  
Hoboken, NJ 07030

Phone: 201-216-5100  
Site: [www.stevens.edu](http://www.stevens.edu)  
Group 2 koala.ecs.stevens-tech.edu/  
[sd/archive/03F-04S/websites/grp02](http://sd/archive/03F-04S/websites/grp02)

Project Brochure

Project Brochure

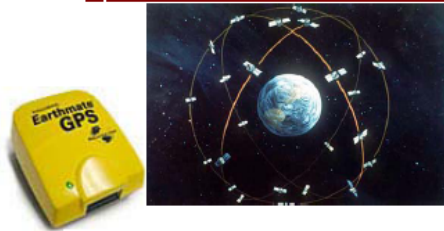
Group 2:  
eaGPS Senior  
Design Project  
2004



Senior Design Day  
April 28, 2004

# A Sample Brochure from 2004

## Environment Aware GPS Information Extravaganza



### Project Description

The Global Positioning Satellite (GPS) System is one of the hottest technologies to permeate the consumer market from its military origins. GPS receivers are excellent at providing precise positional data on the globe, yet a vast potential for greater utilization of GPS technology as an interactive informational delivery aid remains to be tapped.

Current GPS systems for the consumer market make minimal use of the information provided by the technology. Our project intends to add environmental awareness, which the group defines as the ability to provide detailed information on what is situated at and around a particular location, and what is interesting or important about it, to portable GPS devices. By simply walking around and exploring, a user can get a full and insightful account of a locale, including information such as the history of a statue or building, or perhaps that a restaurant near a particular location is highly regarded and is a "must-stop" eatery.

The group's approach to technically creating the described system involves the amalgamation of several existing technologies. The platform for this system is a Personal Digital Assistant (PDA) attached with a compatible GPS receiver module. The group has also developed a native application and database for this platform capable of providing the described usage.

### Design Approach



#### PDA:

- Hp iPaq H2215

#### Microsoft Products:

- Visual Studio .NET '03  
- SQL Server 2000  
- Windows CE  
- eMbedded Visual Tools  
- Pocket PC 2003 SDK

#### Earthmate GPS Receiver:

- USB-powered for laptop  
- Bluetooth compatible



## The Team Bios



**Christopher Dong** is the team leader of this project. Having the initial concept for this project, he has persistently driven the group mad in completing his "baby".



**Nicole Taylor** is the assistant manager of this project. Her direct approach and calmness during adversity has made everyone jealous and scared at the same time.



**Omar McGarr** likes the ladies. The ladies like Omar. His past accomplishments are passing classes at the last moment, and starting a game club based on the icebreaking game 'Mafia'.



**Vikram Sori** lead the procurement of project materials. The Police have yet to find the bodies he's hidden (psst...check the trunk). He was last seen impersonating a graduating engineer.



**Allan Flores** is lovable, charming, and likes to flatter himself. His project support involved counting campus wildlife. None of the 2 bunnies, 3 groundhogs, or geese were hurt.

# Other items

- Other scheduled items

- Luncheon for Senior Design sponsors (past, current and future) – noon, April 28  
(if you haven't responded already, please send me contact information for sponsors by 3/10)

- Award\$\$\$

- Center for Integration of Medicine and Innovative Technology (cimit.org):  
\$10,000 semifinalist award to a 2010 ECE/BME group
- Rochester Institute of Technology IEEE Student Design Competition  
<http://ieee.rit.edu/>
- IEEE North Jersey Section – Spring 2010 Student Presentation Contest  
[http://ewh.ieee.org/r1/north\\_jersey/sac/ieee.html](http://ewh.ieee.org/r1/north_jersey/sac/ieee.html)
- Senior Design Technogenesis Award  
[http://www.stevens.edu/iti/Technogenesis/senior\\_prize.html](http://www.stevens.edu/iti/Technogenesis/senior_prize.html)