Web Based Wind Monitoring

IIT IPRO 330

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Project Overview

- The goal of this project is to develop a system that will provide real time wind condition data at Montrose Beach, Lake Michigan that will be available via the internet.

Overall Schematic

Light Tower: Anemometer & Transmitter

Beach House: DAQ PC & Receiver

INTERNET

IIT: Web Server

Previous Accomplishments

- Spring 2000
  - Initial design, purchased anemometer, wireless transceivers
  - Established contact with Chicago Park District.
- Fall 2000
  - Installation hardware, power issue, DAQ PC
  - Refined web site and DAQ system
  - Established DSL connection at beach house

Current Project Tasks

- Install anemometer along with its necessary power supply at the lighthouse on Montrose Beach.
- Improve accuracy and stability of data acquisition system.
- Develop a website which provides real-time wind condition data from the anemometer.
- Market and publicize web site and obtain funds for operation.

Team Organization

- Hardware & Installation
  - Brian Kaczor
- Data Acquisition
  - Jobby Mampilly
  - Imran Hussaini
- Web Design and Implementation
  - Nikie Parikh
  - Aaron Graham
- Publicity and Marketing
  - Anwuli Oganwu
  - Osama Sheth

Hardware & Installation

- Anemometer
- Wireless Transceivers
- DAQ PC
- Mounting/Storage Equipment
- Power System

Power Requirements

Current use at 12VDC

- Anemometer 374mA
- Transceiver 91mA-125mA

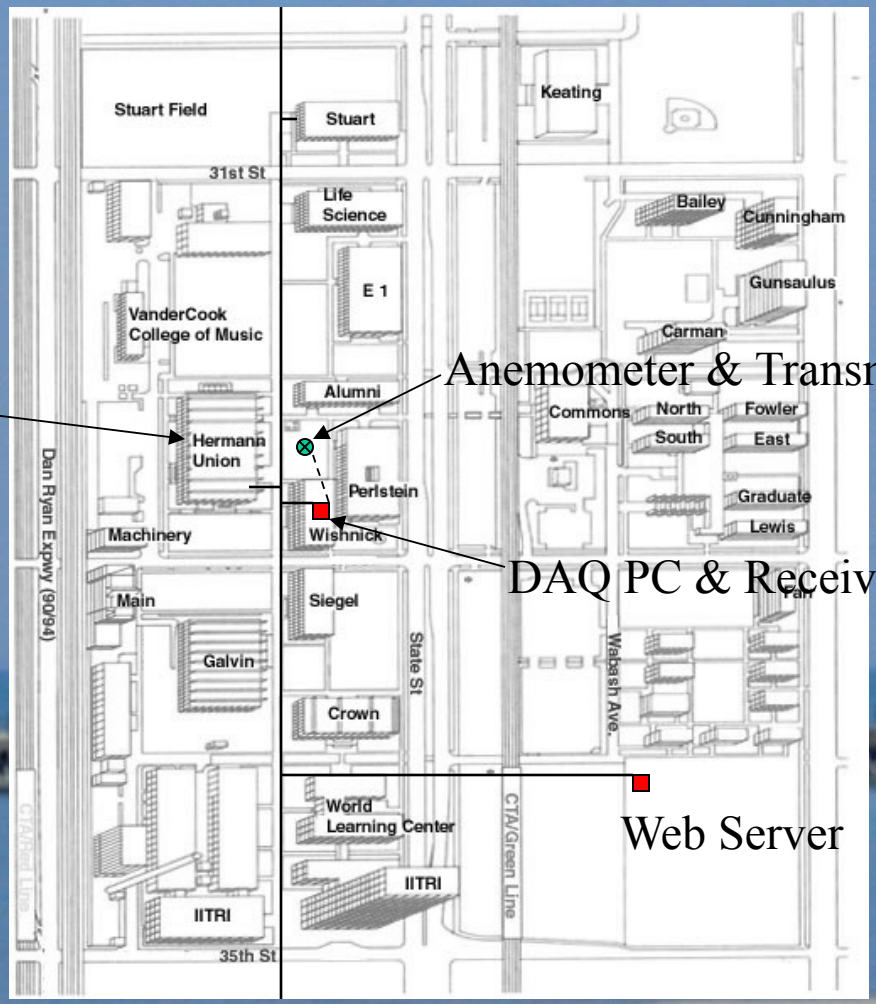
Amp-Hours Needed

- (15 days) x (24 hours) x (0.5 amps)=180AH

Charging/Power System

- Three 12V 90AH Deep Cycle Batteries
- 75W Siemens Solar Panel
- Solar Charge Controller

Current Configuration



Data Acquisition

- Debug Software
  - Prevent program from crashing
  - Prevent data spikes
- Refine Software
  - Change rate of data collection
  - Modify gust/lull definitions

Data Acquisition

- Battery Backup Issue
  - Allow system to continue to run for brief power outage
- Automatic Startup Issue
  - Allow system to completely start up after extended period of power loss

Web Design & Implementation

- Present the data in a more aesthetic manner
- Add more functionality to the site
  - Access Archived Data
  - Hit Counter
- Maintenance
- Web site tour

Publicity and Marketing

- Publicity
  - Increasing public awareness of the availability of the IIT wind monitor and its services.
- Sponsorships
  - Request for aid and financial assistance in the maintenance of the project.

Publicity and Marketing

- Contacts established
  - Chicago Park District
  - Iwindsurf.com
  - Corinthian Yacht Club
- Marketing Strategies
  - Registered web site with web search engines
  - Article to be submitted to sailing magazines

Impact

- Enhance the enjoyment and safety of people who use the lake.
- Accurate and archived wind condition data available to those interested in wind power.
- Utilization of this system will draw attention to IIT and the IPRO educational experience.

Future Possibilities

- Install sensors to monitor water quality.
- Make the information accessible by handheld Internet devices.
- Expand wind data monitoring to other sites along Lake Michigan.

Acknowledgements

- IIT IPRO
- Chicago Park District
- Windward Sports


Thank You!!!
www.windmonitor.iit.edu