The Wetcam Project

The University of California, Merced

THE WETCAM PROJECT

SPRING 2008: WETLANDS PROJECT FINAL PRESENTATION
Team Breakdown

Client: Grasslands Water District

COMMUNICATIONS TEAM

SOFTWARE TEAM

HARDWARE TEAM

MENTOR

Dr. Tom Harmon

COMMUNICATIONS TEAM

SOFTWARE TEAM

HARDWARE TEAM

Client: Grasslands Water District

Monday, May 12, 2008
The Spring ‘08 Team
Client: Grasslands Water District

Team Leader
Jose Mendez
Materials Engineering

Visual Presentation Coordinator
Rodney Severson
Mechanical Engineering

THE COMMUNICATIONS TEAM:
PROMOTING COLLABORATION BETWEEN THE CLIENT, TEAM, AND PUBLIC

Recorder
Heather Jackson
Environmental Engineering

Communications Specialist
Aurora Carlson
Environmental Engineering
The grassland area is approximately 178,000 acres; this includes both state and federal wildlife refuges.

The grasslands provide habitats for hundreds of plant and animals species; this figure includes nearly fifty species that have been federally listed as threatened, endangered or sensitive (GWD, 1997).

Monday, May 12, 2008
The GWD

GRASSLAND WETLANDS

- Private Lands
- State Refuges/Parks
- National Wildlife Refuges/Federal Land
- Tour Route
- Grassland Wetland Boundary
Team Proposal

- Construct and install the proposed webcam overlooking a section of the grasslands.
- Create a draft of an interactive website geared towards the education of children, the public, and other interest groups. In addition, the website will serve hunters who utilize the wetlands for game.
Proposed Ideas

* Regarding the Webcam...
  * live streaming to the internet
  * can be used for informational purposes, such as scientific data

* Regarding the Website...
  * fully interactive, “fun-to-use,” and highly educational content for use by children
  * encourage conservation through the delivery of grassland purposes and happenings
The Webcam

★ Capabilities
★ Rotation and Zoom
★ Live Observation
★ User Interactivity
★ Remote Controlled through the Internet

★ Other Features
★ Environmentally Friendly
★ Utilizes Solar Panels for Power
★ Safe from Animal/Human Tampering
The Webcam

Example Interactive Webcam-Control Interface

Axis 214-PTZ Network Camera
Our Progress

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Monday, May 12, 2008
Added Values

- Long Term Data
  - the webcams may be used to document changes in the environment, such as population patterns and other seasonal changes (community-based research)
- Strikes Interests
  - attract hunters to the wetlands if they can see what is there before they arrive
  - an interactive and educational tool for educators and their students
  - informs public of wetland happenings, such as maintenance, upkeep, and population control
The Spring ‘08 Team

Client: Grasslands Water District

Software Team Leader
Tony Truong
Computer Science Engineering

Team Member
Nam Nguyen
Bioengineering

THE SOFTWARE TEAM:
MAINTAINING THE WEBSITE AND BECOMING FAMILIAIR WITH CAMERA FUNCTIONS

Team Member
Angel Cuervas
Mechanical Engineering

Team Member
Darwin Castro
Environmental Engineering

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Camera Functionality

- Pan
- Tilt
- Zoom
- Preprogrammed Positions
- Fully-functional remote control of the webcam
Accomplishments of the Software Team

* The website has been set up
Accomplishments
of the Software Team

* A Plone website has been set up.
* So far, we have included the following on the site:
  * current member and advisor listing
  * project pictures, information, goals, reports, etc
  * links to various useful sites, including the GWD
* Meetings have been set up with Dr. Galivan to get familiarized with camera programming.
* We have an understanding of the necessary scripts that are readily available when the site is finally launched.
The Future
for the Software Team

* Team(s) to come should
  * consistently add weekly updates regarding the project
  * integrate a discussion board onto our Plone site
    * this will allow for additional means of communication
    * integrate a more interactive and playful website that
      * includes facts and a background on the wetlands
      * and integrates the camera
The Spring ‘08 Team

Client: Grasslands Water District

Team Member
Kurt Kniel
Earth Systems Science

Hardware Team Leader
Brent Rich
Bioengineering

Team Member
Calvin Heim
Environmental Engineering

THE HARDWARE TEAM:
DEVELOPING AND IMPLEMENTING THE CAMERA SYSTEM
Accomplishments of the Hardware Team

- Video Capture Subsystem: Camera is operational
- Power Subsystem: Streamlined Electronics, Load Testing
- Communications Subsystem: Wireless, Lacks range
- Prototype Demo at UC Merced’s Bobcat Day
  - attendees were able to directly interact with the camera
  - user reaction was generally positive
The Current Model

Component Separation

- Solar Panel
- Camera
- Battery
Proposed Models

The Tether Model

The Inverted Tripod
The Future
for the Hardware Team

* Team(s) to come will need to complete
  * the installation of the solar panel
  * develop the communications subsystem
  * rebuild the platform using sturdier materials
Feel free to ask the team any questions you may have regarding this project.
Thank You for Your Time

Feel free to ask the team any questions you may have regarding this project.

The University of California, Merced
Foster Family Center for Engineering Service Learning