Environmental Intelligence Network Systems
Remote Monitoring System
- Preliminary Design -

Welcome

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Systems Administrator

Dr. Tim Lederman
Professor
EIN Systems Organization

Team Structure

Ybelka Brito  Librarian
Michael Devanandan  Team Leader
Joseph Halvey  Software Developer
Michael Jakubowski  Project Engineer
Vernell Mitchell  Webmaster
Anthony Ruotolo  Systems Analyst
Preliminary Design Presentation

Roger Bacon 328
December 5, 2005

Michael Devanandan: Introduction & Conclusion
Anthony Ruotolo: Use Cases
Joseph Halvey: Data Flow Diagrams
Michael Devanandan: Functional Requirements
Vernell Mitchell: Environments & Testing
Michael Jakubowski: Prototypes
Use Case - Sensored User

- Sensored User – Registered User at a monitored location
- Able to check any sensored location data
- Able to delete the sensored user account
- Able to add and delete “read only” user accounts
- Able to delete the current monitored location
- Able to add or delete a sensor
- Able to change both system and personal preferences
Use Case - Remote User

- **Remote User** – Registered User at an unmonitored location
- Able to check any sensored location data
- Able to check logs
- Able to change the current, unregistered location to a registered, monitored location if an acceptable device has been installed (becoming a sensored user).
Use Case - “Read Only” User

- Read Only User – Guest Account
- Able to check any sensored location data
- Unable to change any settings
- Unable to add or delete sensors, locations, or accounts
- Associated with a Regular User account that created it
Use Case - Website Administrator

- Has ability to make visual changes to the site
- Can add users or otherwise make any changes if problems occur
- Has complete control of everything our program controls except the installation and setup of the software on the server
Data Flow Diagrams

Process

Data Store

Data Source/Sink

Data Flow
Data Flow Diagrams

Context Diagram
Data Flow Diagrams

Decomposition of Environmental Monitoring System

Remote User
- Email
- Password
- Sensor Information

Website Administrator
- Sensor Information
- User Information

Manage User Choices
- Authorization
- Personal Data
- Login Event
- Preference Change Event
- Add Remove Device Event
- Event Log

Authenticate User
- Verification
- E-mail
- Password

Obtain Sensor Data
- Sensor Information
- E-mail
- Password

Record Event Log
- Event Log

Sensored User
- Sensor Data
Data Flow Diagrams

Decomposition of Manage User Choices

- User Database
  - p1
  - Request Device Information
  - Device Information

2.1 Register New Devices
- Type of Sensor
- Brand of Sensor
- Location of Sensor
- Request for New Device Registration

2.2 Request Device Information
- Device Information

- User Database

- Sensored User
  - Authorization for New User
  - Request for New Device Registration
  - Device ID
  - Location of Device
  - Alert On or Off
  - Reading

- Remote User
  - Location of Device
  - Device ID
  - Alert On or Off
  - Reading
  - Authorization for Returning User
  - Alert Settings

- Sensored User
  - Delete Device Request
  - How often readings updated
  - Enable or Disable Device
  - Alert Settings

2.3 Change Device Options
- Preferences
Logical Data Store

- A logical data store is a description of the fields in the tables of a database.
- It is used to help plan the schema of a database.
- This logical data store will be used in the creation of the User Database for the Environmental Monitoring System.
Personal Data

- Account ID – A unique ID number for the user’s account. **NUMBER**
- E-mail Address – the e-mail address of the user, used to identify the user at login. **VARCHAR (50)**
- Password – The user’s password supplied at login to give access to the system. Must be between 6 and 12 characters long, including at least one upper case, one lower case, and at least one of the following characters: $, *, #, &, ^, |, =, %. **VARCHAR (13)**
- First Name – The user’s first name. **VARCHAR (30)**
- Last Name – The user’s last name. **VARCHAR (30)**
Sensor Information

- Device ID – A unique ID number for the sensor. NUMBER
- Location – The location of the device. VARCHAR (20)
- Reading – The last reading received from the device. NUMBER
- Type of Sensor – The type of the sensor, including temperature, motion, and water level. VARCHAR (25)
- Acceptable Range – The acceptable range for a device. If the device leaves this range, it will trigger an alert. VARCHAR (7)
- Alert Status – The alert status of the device. A 1 indicates an alert, while a 0 indicates everything is normal. BOOLEAN
- Time Since Last Alert – The time elapsed since the last alert was triggered. VARCHAR2 (9)
Functional Requirements

- Create a database to store user information
- Have a web-based application that will interface with the database
- Allow users to create accounts and register a sensor device
- Allow users to view and manage their monitoring devices
Sensored User

- A sensored user’s Web browser is set to the EIN Homepage by default.
- Username is the user’s E-mail.
- Password consists of 6-12 characters, and includes at least one number, one uppercase letter, one lowercase letter, and at least one of eight recognized special characters shown here within double quotes “#$%^|&*=”. 
Sensored User

- After authentication, a welcome message informs the user is at a recognized, monitored location.
- The user home page shows registered locations with the current location highlighted, and the devices and status associated with each location.
Sensored User

- The top of the screen has a navigation bar that leads to other functions available to the sensored user.

- The User Settings button allows the sensored user to delete the user’s own account, change the settings, as well as add or delete a “read-only” account.
Sensored User

- The Device button allows the sensored user to add, delete, or change the settings of the devices which are associated with the current location.

- The Logs button navigates the sensored user to a page that displays all the alert and event logs in each device’s history.
Remote User

- A remote user must open a web browser and navigate to the EIN homepage.
- A remote user’s username is the user’s E-mail.
- Password consists of 6-12 characters, and includes at least one number, one uppercase letter, one lowercase letter, and at least one of eight recognized special characters shown here within double quotes “#$%^|&*=”.
Remote User

- After authentication, a welcome message informs that the remote user is at an unrecognized, non-monitored location.
- The user home page screen shows the remote user’s registered locations and the devices and status associated with each location.
Remote User

- The top of the screen has a navigation bar that leads to other functions available to the remote user.
- The User Settings and Device buttons are not usable by the remote user.
- The Logs button navigates the remote user to a page that allows the remote user to view the readings received by each device since the last alert.
Remote User

- The Add a New Location Link is shown on the home page, allowing the remote user to navigate to a page which will allow the remote user to add a new location.

- At this New Location page, the remote user must go through a registration process, which after completion will turn the remote user into a sensored user.
“Read-only” User

- A Read-only user must open a web browser and navigate to the EIN homepage.
- A "read-only" user’s username is the user’s E-mail.
- A "read-only" user’s password consists of 6-12 characters, and includes at least one number, one uppercase letter, one lowercase letter, and at least one of eight recognized special characters shown here within double quotes “#$%^|&*=”.
“Read-only” User

- After authentication, a welcome message informs the "read-only" user is at a recognized location if applicable.
- The User Home screen shows the "read-only" user’s registered locations with the current location highlighted, and the devices and status associated with each location if applicable.
- The User Settings, Device, and Log buttons are all disabled.
Website Administrator

- The website administrator opens a Web browser which has the EIN webpage as its homepage.
- The website administrator enters the site administrator’s email address for the username.
- The website administrator also enters the site administrator password which is between 6-12 characters long, features at least one number, one capital letter, one lowercase letter, and at least one of eight recognized special characters shown here within double quotes “#$%^|&*=”.
The website administrator page is displayed, including a welcome statement and a message informing the site administrator of the current location.

The website administrator page also displays the last 10 lines of recent account events by the different users, as well as, the last 10 alerts, with each displayed with the most recent at the top.
Website Administrator

- The bottom of the website administrator page has a navigation bar which allows the site administrator to move to a complete list of sensored users or devices or alerts.

- The website administrator can click on the User button and arrive at a page where the site administrator can select a sensored user’s account and see the sensored user’s information.

- The website administrator can disable user accounts or devices as necessary via the User Information pages.
Website Administrator

- The Devices button navigates to a page where the site administrator can filter the devices by either sensored user’s that have the devices or by the names of the devices.
- The Alerts button navigates to a page where the site administrator can view all of the alerts reported for any sensored user to the EMS with most recent displayed at the top.
- The website administrator can filter the alerts by sensored user location, or sensored user device.
**Development Environment**

Oraserv is part of both our development and production environments (described later).

**HARDWARE**

- Intel Pentium 4 CPU
- 1,300 MHz
- 128 MB of RAM

- Intel Pentium 4 CPU
- 2.40 GHz
- 512 MB of RAM

**OS**

Microsoft Windows NT 2000 Professional
- Service Pack 3

Microsoft Windows XP Professional
- Version 2002
- Service Pack 2

Microsoft Windows XP Professional
- Version 2002
- Service Pack 2
Development Environment

Developer Software

Apache – 2.046
Internet Explorer – 6.0.2900.2180 w/ SP2
Macromedia Dreamweaver MX – 6.0.1722.0
Macromedia Fireworks MX – 6.0.0.273
Microsoft Excel – 11.0.6355.0
Microsoft Paint – 6.0.2900.2180
Microsoft PowerPoint – 11.0.6361.0
Microsoft Project – 9.0.2001.0219 SR-1
Microsoft Word – 11.0.6359.0
Development Environment

Developer Software

Mozilla Firefox – 1.0.0
mySQL – 4.1.14
Netscape – 7.1
Oracle – 10 g
PHP – 4.3.11
Putty - 0.53b
Visible Analyst Workshop - 7.5.5
WinSCP - 3.1.0.165
Production Environment

- Oraserv’s operating system is Red Hat Enterprise Linux ES release 3.
- Apache
- MySQL
- Oracle
- PHP
Testing

Unit Testing
Integration Testing
System Testing
Acceptance Testing
Acceptance Test

Sensored User

Login page

- Can enter e-mail for username
- Can enter password, 6-12 characters long, at least one number, capital letter, lowercase letter, and one of eight recognized special characters shown here within double quotes “# $ % ^ | & * =”
- Submit button works and submits the information within the e-mail and password fields
Acceptance Test

Sensored User

Login page

- Submit button sends the sensored user to the logged-in screen which is a user homepage with a welcome message, as well as a message informing the sensored user that the user is at a recognized, monitored location.

- The forgotten password link works and guides the sensored user with instruction on getting a working password

- The FAQ link works

- The new registration link works
## Unit Test

### UNIT TEST: 1. Authentication Screen (Index.php)

<table>
<thead>
<tr>
<th>Num</th>
<th>Name</th>
<th>ID</th>
<th>Description</th>
<th>State Before Test</th>
<th>State After Test</th>
<th>Input/Test Values</th>
<th>Steps to be Executed</th>
<th>Expected Results</th>
<th>Pass/Fail</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Load Page</td>
<td>Index</td>
<td>Page is loaded in the web browser</td>
<td>Index.php</td>
<td>Index2.php</td>
<td>None</td>
<td>Load webpage</td>
<td>Index2 page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Click submit w/o any info</td>
<td>Submit</td>
<td>Submit button is clicked without any login info in the fields</td>
<td>Index2.php</td>
<td>Error page</td>
<td>None</td>
<td>Directed to error page (may be redirected back to Index2 page after 5 sec.)</td>
<td>An error is given telling user the email address isn’t valid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Incorrect password</td>
<td>Password</td>
<td>Valid, correct user name (email) and valid, incorrect password is entered</td>
<td>Index2.php</td>
<td>Error page</td>
<td>Test Username, Test password</td>
<td>Directed to error page (click link to return to login page)</td>
<td>An error is given telling user that his password is incorrect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Correct Login</td>
<td>Login</td>
<td>Valid, correct email and password is entered</td>
<td>Index2.php</td>
<td>Login.php</td>
<td>Test Username, Test password</td>
<td>Load the login page</td>
<td>The login page is displayed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Incorrect username</td>
<td>Username</td>
<td>Valid, incorrect user name is entered</td>
<td>Index2.php</td>
<td>Error page</td>
<td>Test Username, Test password</td>
<td>Directed to error page (click link to return to login page)</td>
<td>An error is given telling user that his email address is incorrect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Invalid password</td>
<td>Password</td>
<td>An invalid password is entered</td>
<td>Index2.php</td>
<td>Error page</td>
<td>Test Username, Test password</td>
<td>Directed to error page (may be redirected back to Register page after 5 sec.)</td>
<td>An error is given stating the password is invalid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Registration link clicked</td>
<td>Link</td>
<td>Registration link is clicked</td>
<td>Index2.php</td>
<td>Register.php</td>
<td>None</td>
<td>Load registration page</td>
<td>Registration page is loaded</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
New User-EIN Home Page

E.I.N. SYSTEMS
Environmental Intelligence Network

Login

Returning Users Login Here:

User Name
Password
Forgot Password?
Login
Logout

Registration

Welcome to E.I.N. Systems' environmental monitoring network. Our site allows a user to access the information from an environmental sensor attached to their computer from any internet access point. The system features adjustable alert features which will ensure that your sensor's location is safe or inform you of the details if something is missed. Multiple locations can be added under a single account, allowing our users quick reference to all of their properties, so they can be sure that everything is safe and secure from anywhere at any time. To learn more about environmental monitoring network, please see our FAQ for a full set of instructions.

New Users must have a compatible device to register an account. See FAQ for a list of tested devices. If you have a device and are at the location you wish to register please proceed here.
New User Registration

Follow the process below to start registering your account. Remember after you submit the form you will have to register you first device for the account to become active.

Passwords must consist of 6-12 characters and include at least one uppercase letter, one lowercase letter, and at least one of eight recognized special characters including % * & ^ $ #

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td></td>
</tr>
<tr>
<td>Last</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Phone</td>
<td></td>
</tr>
<tr>
<td>Email</td>
<td></td>
</tr>
<tr>
<td>Password (EX: MyF4l=69)</td>
<td></td>
</tr>
<tr>
<td>Security Question</td>
<td></td>
</tr>
<tr>
<td>Favorite Pet?</td>
<td></td>
</tr>
<tr>
<td>Security Answer</td>
<td></td>
</tr>
</tbody>
</table>
Sensored User - Login EIN Home

Login

Returning Users Login Here:

User Name
Password
Forgotten Password?

Login | Logout

Registration

Welcome to E.I.N. Systems environmental monitoring network. Our site allows a user to access the information from an environmental sensor attached to their computer from any internet access point. The system features adjustable alert features which will ensure that your sensed location is safe or inform you of the details if something is amiss. Multiple locations can be added under a single account, allowing our users quick reference to all of their properties, so they can be sure that everything is safe and secure from anywhere at any time. To learn more about environmental monitoring network please see our FAQ for a full set of instructions.

New Users must have a compatible device to register an account. See FAQ for a list of tested devices. If you have a device and are at the location you wish to register please proceed here.
Sensored User-Home

Home Page
Welcome Back, Mr. Swarner

Your are located at your office location.
IP: 192.168.0.101
You have received 0 alert(s) since you last logged in on 11/15/05 at 13:35:04
The EMS is currently monitoring two locations: 1. Office 2. Home

<table>
<thead>
<tr>
<th>Location 1 Office</th>
<th>Device</th>
<th>Status</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Temperature Sensor</td>
<td>ACTIVE</td>
<td>70 F at 11:30:00 on 11/16/05</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location 2 Home</th>
<th>Device</th>
<th>Status</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Temperature Sensor</td>
<td>ACTIVE</td>
<td>72 F at 11:30:00 on 11/16/05</td>
</tr>
<tr>
<td></td>
<td>Motion Sensor</td>
<td>ACTIVE</td>
<td>No movement at 11:30:00 on 11/16/05</td>
</tr>
</tbody>
</table>
Sensored User-Alerts

Alerts by Device

Thermometers

<table>
<thead>
<tr>
<th>Device</th>
<th>Status</th>
<th>Location</th>
<th>Alert when temp</th>
<th>Alert when temp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermometer #1</td>
<td>ACTIVE</td>
<td>OFFICE</td>
<td>65 F</td>
<td>65 F</td>
</tr>
<tr>
<td>Thermometer #2</td>
<td>ACTIVE</td>
<td>HOME</td>
<td>65 F</td>
<td>65 F</td>
</tr>
</tbody>
</table>

Cameras

<table>
<thead>
<tr>
<th>Device</th>
<th>Status</th>
<th>Location</th>
<th>Alert Motion Activated</th>
<th>Scheduled Snapshot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camera</td>
<td>ACTIVE</td>
<td>HOME</td>
<td>On</td>
<td>Setting On Frequency 15 Min</td>
</tr>
</tbody>
</table>
Sensored User-Device MGMT

Device Management

You have registered 3 devices at 2 locations:
You can add a new device to a location [here](http://ares.cs.dana.edu~da09/ab0/device.htm).
You can remove a current device from a location [here](http://ares.cs.dana.edu~da09/ab0/device.htm).

### Devices:

<table>
<thead>
<tr>
<th>Device</th>
<th>Brand</th>
<th>Status</th>
<th>Location</th>
<th>Alerts Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermometer #1</td>
<td>Sorry #24501</td>
<td>ACTIVE</td>
<td>OFFICE</td>
<td>65 F &lt; OK &lt;= 95 F</td>
</tr>
<tr>
<td>Thermometer #2</td>
<td>Panaphonic #69</td>
<td>ACTIVE</td>
<td>HOME</td>
<td>65 F &lt; OK &lt;= 95 F</td>
</tr>
<tr>
<td>Camera</td>
<td>Magnetbox #8672309</td>
<td>ACTIVE</td>
<td>HOME</td>
<td>Motion Activated On</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Snapshot Setting On</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Frequency 15 Min</td>
</tr>
</tbody>
</table>

Remote Monitoring System
EIN Systems
Sensored User-User Settings

User Account Management

Here you can edit your personal information and add a read only user.

User Info

<table>
<thead>
<tr>
<th>Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
</tr>
<tr>
<td>Last</td>
</tr>
<tr>
<td>Address</td>
</tr>
<tr>
<td>Phone</td>
</tr>
<tr>
<td>Email</td>
</tr>
<tr>
<td>Password</td>
</tr>
<tr>
<td>Security Question</td>
</tr>
<tr>
<td>Security Answer</td>
</tr>
</tbody>
</table>

Submit Changes

Register A Read Only Guest User

<table>
<thead>
<tr>
<th>Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
</tr>
<tr>
<td>Last</td>
</tr>
<tr>
<td>Address</td>
</tr>
<tr>
<td>Phone</td>
</tr>
<tr>
<td>Email</td>
</tr>
<tr>
<td>Password</td>
</tr>
<tr>
<td>Security Question</td>
</tr>
<tr>
<td>Security Answer</td>
</tr>
</tbody>
</table>

Submit Guest User

Click here to remove an account.
# Sensored User-Logs

## Remote Monitoring System

### Logs

**Devices: Messages Received Since Last Alert**

#### Thermometer #1 Location: Office

<table>
<thead>
<tr>
<th>Message</th>
<th>Status</th>
<th>Date and Time</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>ACTIVE</td>
<td>11/14/05 12:00:00</td>
<td>70°F</td>
</tr>
<tr>
<td>Reading</td>
<td>ACTIVE</td>
<td>11/13/05 12:00:00</td>
<td>71°F</td>
</tr>
<tr>
<td>Alert (Below Range)</td>
<td>ACTIVE</td>
<td>11/12/05 15:16:08</td>
<td>62°F</td>
</tr>
</tbody>
</table>

#### Thermometer #2 Location: Home

<table>
<thead>
<tr>
<th>Message</th>
<th>Status</th>
<th>Date and Time</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>ACTIVE</td>
<td>11/14/05 16:00:00</td>
<td>73°F</td>
</tr>
<tr>
<td>Reading</td>
<td>ACTIVE</td>
<td>11/13/05 16:00:00</td>
<td>72°F</td>
</tr>
<tr>
<td>Alert (No Signal)</td>
<td>INACTIVE</td>
<td>11/13/05 01:23:09</td>
<td>None</td>
</tr>
</tbody>
</table>

#### Camera Location: Home

<table>
<thead>
<tr>
<th>Message</th>
<th>Status</th>
<th>Date and Time</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>ACTIVE</td>
<td>11/15/05 12:00:00</td>
<td>Snapshot</td>
</tr>
</tbody>
</table>
Remote User-Login

E.I.N. SYSTEMS
Environmental Intelligence Network

Login
Returning Users Login Here:

User Name
Password
Forgotten Password?
Login Logout

Registration

Welcome to E.I.N. Systems environmental monitoring network. Our site allows a user to access the information from an environmental sensor attached to their computer, from any internet access point. The system features adjustable alert features which will ensure that your sensored location is safe or inform you of the details if something is amiss. Multiple locations can be added under a single account, allowing our users quick reference to all of their properties, so they can be sure that everything is safe and secure from anywhere at any time. To learn more about environmental monitoring network please see our FAQ for a full set of instructions.

New Users must have a compatible device to register an account. See FAQ for a list of tested devices. If you have a device and are at the location you wish to register please proceed here.
Remote User-Home

Home Page

Welcome Back, Mr. Swarner

You are located at an unregistered location.
IP: 
You have received 0 alert(s) since you last logged in on 11/15/05 at 13:35:04
The EMS is currently monitoring two locations: 1. Office 2. Home
Add a new location here.

Location 1 Office:

<table>
<thead>
<tr>
<th>Device</th>
<th>Status</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Sensor</td>
<td>ACTIVE</td>
<td>70 F at 11:30:00 on 11/16/05</td>
</tr>
</tbody>
</table>

Quick Bar

DEVICE ALERTS Logout

Location 2 Home:

<table>
<thead>
<tr>
<th>Device</th>
<th>Status</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Sensor</td>
<td>ACTIVE</td>
<td>72 F at 11:30:00 on 11/16/05</td>
</tr>
<tr>
<td>Motion Sensor</td>
<td>ACTIVE</td>
<td>No movement at 11:30:00 on 11/16/05</td>
</tr>
</tbody>
</table>

Remote Monitoring System
EIN Systems
Remote User-Logs

Devices: Messages Received Since Last Alert

<table>
<thead>
<tr>
<th>Message</th>
<th>Status</th>
<th>Date and Time</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>ACTIVE</td>
<td>11/14/05 12:00:00</td>
<td>70°F</td>
</tr>
<tr>
<td>Reading</td>
<td>ACTIVE</td>
<td>11/13/05 12:00:00</td>
<td>71°F</td>
</tr>
<tr>
<td>Alert (Below Range)</td>
<td>ACTIVE</td>
<td>11/12/05 13:16:08</td>
<td>62°F</td>
</tr>
</tbody>
</table>

Quick Bar

- DEhVEICE
- ALERhTS
- Loggout

Thermometer #2 Location: Home

<table>
<thead>
<tr>
<th>Message</th>
<th>Status</th>
<th>Date and Time</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>ACTIVE</td>
<td>11/14/05 16:00:00</td>
<td>73°F</td>
</tr>
<tr>
<td>Reading</td>
<td>ACTIVE</td>
<td>11/13/05 16:00:00</td>
<td>72°F</td>
</tr>
<tr>
<td>Alert (No Signal)</td>
<td>INACTIVE</td>
<td>11/13/05 01:23:09</td>
<td>None</td>
</tr>
</tbody>
</table>

Quick Bar

- DEhVEICE
- ALERhTS
- Loggout

Camera Location: Home

<table>
<thead>
<tr>
<th>Message</th>
<th>Status</th>
<th>Date and Time</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Site Administrator-Login

Remote Monitoring System
EIN Systems

December 5, 2005
Site Administrator-Home

Home Page

Welcome Mr. Arnold Administrator

Your are located at ID: 567.53.09
You last logged in on 11/14/05 at 13:35:04

Most Recent Events:

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Account ID</th>
<th>Location</th>
<th>Event</th>
<th>IP</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:30:00 on 11/16/05</td>
<td>101</td>
<td>Office</td>
<td>Logged In</td>
<td>192.168.0.101</td>
</tr>
<tr>
<td>08:30:03 on 11/16/05</td>
<td>100</td>
<td>Office</td>
<td>Logged In</td>
<td>192.168.0.100</td>
</tr>
<tr>
<td>10:30:00 on 11/15/05</td>
<td>127</td>
<td>Home</td>
<td>New Device Added</td>
<td>127.0.0.01</td>
</tr>
<tr>
<td>10:25:08 on 11/14/05</td>
<td>127</td>
<td>Home</td>
<td>Logged In</td>
<td>127.0.0.01</td>
</tr>
<tr>
<td>13:30:00 on 11/14/05</td>
<td>134</td>
<td>Home</td>
<td>Account Registration</td>
<td>134.132.0.100</td>
</tr>
<tr>
<td>11:30:00 on 11/13/05</td>
<td>127</td>
<td>Office2</td>
<td>New Location Added</td>
<td>127.0.0.0.010</td>
</tr>
</tbody>
</table>
Most Recent Alerts:

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>IP</th>
<th>Account ID</th>
<th>Location</th>
<th>Device</th>
<th>Alert Type</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:30:00 on 11/10/05</td>
<td>192.168.0.101</td>
<td>192</td>
<td>Office</td>
<td>Camera</td>
<td>User Defined</td>
<td>Snap Shot Taken</td>
</tr>
<tr>
<td>07:25:07 on 11/9/05</td>
<td>192.168.0.101</td>
<td>134</td>
<td>Office</td>
<td>Thermometer</td>
<td>Below Range</td>
<td>Reading 63 F</td>
</tr>
<tr>
<td>12:30:00 on 11/16/05</td>
<td>109.342.45</td>
<td>101</td>
<td>Home</td>
<td>Camera</td>
<td>User Defined</td>
<td>Snap Shot Taken</td>
</tr>
</tbody>
</table>

Click to expand view for all alerts.
Site Administrator-Alert Filter

Logs by Alert

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Account ID</th>
<th>IP</th>
<th>Location</th>
<th>Device</th>
<th>Alert Type</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:30:00 on 11/16/05</td>
<td>101</td>
<td>109.342.45</td>
<td>Home</td>
<td>Camera</td>
<td>User Defined</td>
<td>Snap Shot Taken</td>
</tr>
<tr>
<td>02:00:00 on 11/13/05</td>
<td>100</td>
<td>867.5.309</td>
<td>Home</td>
<td>Water Sensor</td>
<td>Moisture</td>
<td>Water Detected</td>
</tr>
<tr>
<td>17:45:07 on 11/19/05</td>
<td>127</td>
<td>192.168.0.101</td>
<td>Office</td>
<td>Thermometer</td>
<td>Below Range</td>
<td>Reading 63 F</td>
</tr>
<tr>
<td>04:50:00 on 11/10/05</td>
<td>127</td>
<td>109.342.45</td>
<td>Home</td>
<td>Camera</td>
<td>User Defined</td>
<td>Snap Shot Taken</td>
</tr>
<tr>
<td>02:25:07 on 11/9/05</td>
<td>134</td>
<td>192.168.0.101</td>
<td>Office</td>
<td>Thermometer</td>
<td>Below Range</td>
<td>Reading 63 F</td>
</tr>
<tr>
<td>12:23:07 on 11/8/05</td>
<td>127</td>
<td>192.168.0.101</td>
<td>Office</td>
<td>Thermometer</td>
<td>Below Range</td>
<td>Reading 63 F</td>
</tr>
<tr>
<td>17:45:07 on 11/7/05</td>
<td>127</td>
<td>24.60.1</td>
<td>Home</td>
<td>Thermometer</td>
<td>Above Range</td>
<td>Reading 87 F</td>
</tr>
<tr>
<td>04:30:00 on 11/7/05</td>
<td>128</td>
<td>132.222.22.22</td>
<td>Dorm</td>
<td>Camera</td>
<td>User Defined</td>
<td>Snap Shot Taken</td>
</tr>
<tr>
<td>12:23:07 on 11/6/05</td>
<td>192</td>
<td>192.167.60.100</td>
<td>Office2</td>
<td>Thermometer</td>
<td>Below Range</td>
<td>Reading 62 F</td>
</tr>
<tr>
<td>12:23:07 on 11/8/05</td>
<td>192</td>
<td>192.162.0.101</td>
<td>Office</td>
<td>Thermometer</td>
<td>Above Range</td>
<td>Reading 90 F</td>
</tr>
</tbody>
</table>
Read Only User-Home

Home Page

Welcome Back, Mr. Friend

Your are located at unknown location and a read only user. Links to other pages are shown but are not active.

IP: 0

You have received 0 alert(s) since you last logged in on 11/15/05 at 13:35:04

The EMS is currently monitoring two locations: 1. Office 2. Home

Location 1 Office:

<table>
<thead>
<tr>
<th>Device</th>
<th>Status</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Sensor</td>
<td>ACTIVE</td>
<td>70 F at 11:30:00 on 11/16/05</td>
</tr>
</tbody>
</table>

Location 2 Home:

<table>
<thead>
<tr>
<th>Device</th>
<th>Status</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Gantt Chart

Remote Monitoring System

Development Plan

<table>
<thead>
<tr>
<th>ID</th>
<th>Task Name</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Team Meetings</td>
<td>23 days</td>
</tr>
<tr>
<td>2</td>
<td>Client Meetings</td>
<td>12 days</td>
</tr>
<tr>
<td>3</td>
<td>Software Plan</td>
<td>8 days</td>
</tr>
<tr>
<td>4</td>
<td>Software Plan Presentation</td>
<td>0 days</td>
</tr>
<tr>
<td>5</td>
<td>Software Requirements</td>
<td>26 days</td>
</tr>
<tr>
<td>6</td>
<td>Software Requirements Presents</td>
<td>0 days</td>
</tr>
<tr>
<td>7</td>
<td>Preliminary Design</td>
<td>26 days</td>
</tr>
<tr>
<td>8</td>
<td>Preliminary Design Presentation</td>
<td>0 days</td>
</tr>
</tbody>
</table>

Project: Remote Access Environmental Monitoring System
Date: Mon 9/19/05

Remote Monitoring System
EIN Systems
Classic Waterfall Model

Step 3: Preliminary Design

- Software Plan
- Analysis
- Preliminary Design
- Detailed Design
- Development & Testing
- Acceptance Test
Classic Waterfall Model

Step 4: Detailed Design

- Software Plan
- Analysis
- Preliminary Design
- Detailed Design
- Development & Testing
- Acceptance Test
What’s Next?

Tentative Dates

Detailed Design – February 15th, 2006

Acceptance Test – April 25th, 2006
Summary & Questions

Any Questions?