Environmental Intelligence Network Systems Remote Monitoring System - Preliminary Design -

Welcome

Mr. Ken Swarner Systems Administrator Dr. Tim Lederman Professor

EIN Systems Organization

Team Structure

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

Remote Monitoring System EIN Systems

Preliminary Design Presentation

Roger Bacon 328 December 5, 2005

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

Remote Monitoring System EIN Systems

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



D1

Process







Data Source/Sink

Context Diagram



Remote Monitoring System EIN Systems

Decompisition of Environmental Monitoring System





Remote Monitoring System EIN Systems

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

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 "#%/^ | &*=".

- 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.

- 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 "readonly" account.

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.

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 "#%/^ | &*=".

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.

- 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.

- 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.

- 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.

- 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.

- 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
1.80 GHz
256 MB of RAM

Intel Pentium 4 CPU
2.40 GHz
512 MB of RAM

Microsoft Windows NT 2000 Professional - Service Pack 3 Microsoft Windows XP Professional - Version 2002 - Service Pack 2

OS

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

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

New User-EIN Home Page

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Login Returning Users Login Here:							
User Name December 2015 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 <u>FAQ</u> for a full set of instructions.							
New Users must have a compatible device to register an account. See <u>FAQ</u> for a list of tested devices. If you have a device and are at the location you wish to register please <u>proceed here.</u>	-						

ど Done

Internet

New User-Registration



Password (EX: Mfj*=69)
Security Question
Favorite Pet?
Security Answer
Remote Monitoring System

Email

Remote Monitoring System EIN Systems 🕝 Internet

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Sensored User-Login EIN Home

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Login								
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User Name Password Forgotten Password?								
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.								

Sensored User-Home

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Location 2 Home:									
	Device	Status	Reading						
	Temperature Sensor	ACTIVE	72 F at 11:30:00 on 11/16/05						
	Motion Sensor	ACTIVE	No movement at 11:30:00 on 11/16/05						
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Sensored User-Alerts



Sensored User-Device MGMT



Sensored User-User Settings

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Sensored User-Logs

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Remote User-Login

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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.	-
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Remote User-Home



Remote User-Logs

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Site Administrator-Login

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User Name Password Forgotten Password?				
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Tarted very favorite sport of the province of				
New Users must have a compatible device to register an account. See <u>FAQ</u> for a list of tested devices. If you have a device and are at the location you wish to register please <u>proceed here.</u>				

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Site Administrator-Home



December 5, 2005

Remote Monitoring System EIN Systems

Site Administrator-Home(Cont)

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12:30:00 on 11/16/05	109.342.45	101	H	lome	Camera	User Defined	Snap Shot Taken	
02:00:00 on 11/13/05	867.5.309	100	H	lome	Water Sensor	Moisture	Water Detected	
17:45:07 on 11/12/05	192.168.0.101	127	C	ffice	Thermometer	Below Range	Reading 63 F	
04:30:00 on 11/10/05	109.342.45	127	Н	lome	Camera	User Defined	Snap Shot Taken	
07:25:07 on 11/9/05	192.168.0.101	134	C	ffice	Thermometer	Below Range	Reading 63 F	
12:23:07 on 11/8/05	192.168.0.101	127	C	ffice	Thermometer	Below Range	Reading 63 F	
17:45:07 on 11/7/05	24.60.1	127	H	lome	Thermometer	Above Range	Reading 87 F	
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12:23:07 on 11/8/05	192.168.0.101	192	C	ffice	Thermometer	Above Range	Reading 90 F	
		Click to	expand view for all	Alerts.				
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Site Administrator-Alert Filter



Read Only User-Home



Gantt Chart

Development Plan



Classic Waterfall Model



Remote Monitoring System EIN Systems

Classic Waterfall Model



What's Next?

Tentative Dates Detailed Design – February 15th, 2006

Acceptance Test – April 25th, 2006

Summary & Questions

Any Questions?

Remote Monitoring System EIN Systems