

Detailed Design

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RAEMS

Remote Access Environmental Monitoring System

EIN Systems

Environmental Intelligence Network Systems

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Environmental Intelligence Network Systems

Remote Access Environmental Monitoring System

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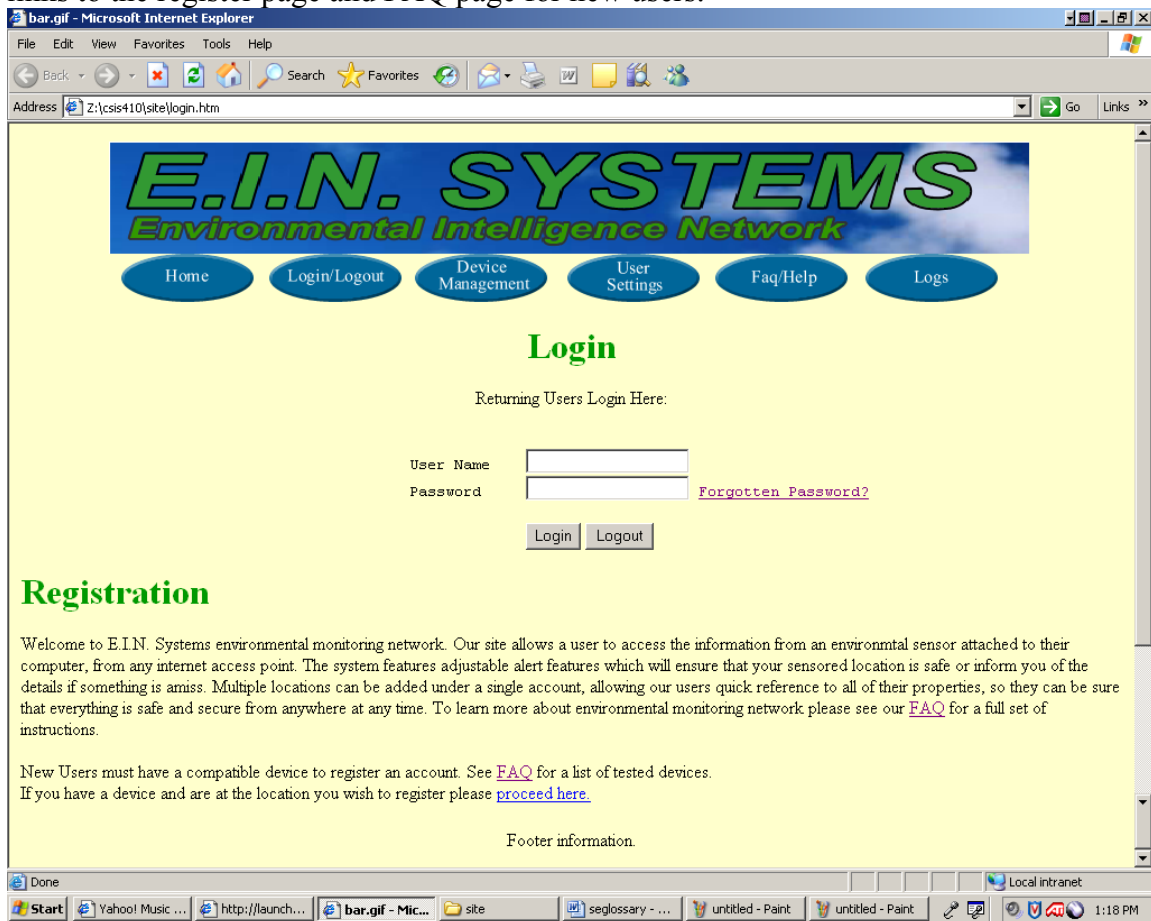
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1. User Case (Scenarios)

--Read-Only User--

A read-only user begins by opening the user's Web browser and navigating to the EIN homepage. The login page will appear asking the read-only user to enter the user's E-mail address for the user's login and the user's password which 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. After being authenticated, the read-only user will be sent to the user logged-in screen, which will include a welcome message, as well as a message informing the read-only user that the user is at an unrecognized location. Displayed below for the read-only user are the registered locations, the devices associated with each location and the status for each. However, a read-only user will be unable to access any of the buttons on the navigation toolbar and will only be able to check the status of the devices.

A Read-Only user begins at the EIN Homepage. This is the page a user sees when the user first navigates to the website. It allows a returning user to log in, as well as contains links to the register page and FAQ page for new users.



After authentication a read-only users logged in screen is loaded. This page shows all of the devices and the current status of each device associated with the users account, separated according to the user's location.

E.I.N. SYSTEMS
Environmental Intelligence Network

Home Login/Logout Device Management User Settings Faq/Help Logs

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: ?
 You have recieved 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:

Device	Status	Reading
Temperature Sensor	ACTIVE	70 F at 11:30:00 on 11/16/05

Quick Bar
 DEVICE ALERTS Logout

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

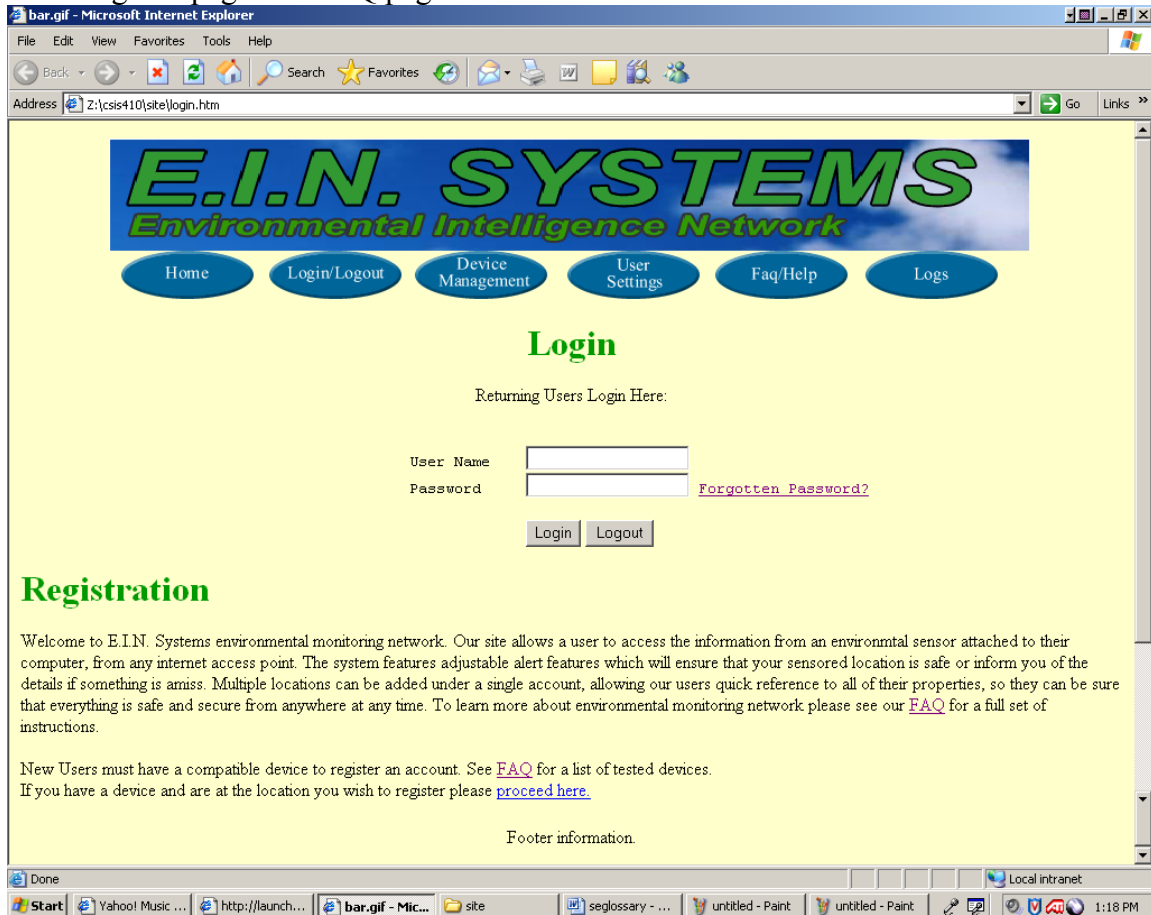
Quick Bar
 DEVICE ALERTS Logout

Footer information.

--Remote User--

A remote user is a sensed user who is traveling and will be able to check on the status of devices when away from home. The remote user opens a web browser and navigates to the EIN homepage. The login page is shown and the remote user's email address is entered for the username followed by the user's 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. After authentication, a logged-in screen is displayed, which welcomes the remote user and states the user is at an unknown or unregistered location. The remote user is also shown the status of the user's devices, grouped by location. If the remote user has a device and wants to add a new location, the remote user can click on register a new location, and follow the registration process, which will change the remote user to a sensed user. The remote user cannot make any changes to devices or change alert settings from an unregistered location.

A Remote user begins at the EIN homepage. This is the page a user sees when the user first navigates to the website. It allows a returning user to log in, as well as contains links to the register page and FAQ page for new users.



After authentication a remote user logged in screen is loaded. This page welcomes the remote user and states the user is at an unknown or unregistered location. This page also shows the status of the user's devices, grouped by location.

E.I.N. SYSTEMS
Environmental Intelligence Network

Home Login/Logout Device Management User Settings Faq/Help Logs

Home Page

Welcome Back, Mr.Swarner

Your are located at an unregistered location.
IP: ?
You have recieved 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:

Device	Status	Reading
Temperature Sensor	ACTIVE	70 F at 11:30:00 on 11/16/05

Quick Bar
DEVICE ALERTS Logout

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

Quick Bar
DEVICE ALERTS Logout

Footer information.

A remote user can also view the logs page. This page displays the logs of all of the devices at all of the remote users associated locations.

E.I.N. SYSTEMS
Environmental Intelligence Network

Home Login/Logout Device Management User Settings Faq/Help Logs

Logs

Devices: Messages Received Since Last Alert
Thermometer #1 Location: Office

Message	Status	Date and Time	Reading
Reading	ACTIVE	11/14/05 12:00:00	70F
Reading	ACTIVE	11/13/05 12:00:00	71F
Alert (Below Range)	ACTIVE	11/12/05 15:16:08	62F

Quick Bar
DEVICE ALERTS Logout

Thermometer #2 Location: Home

Message	Status	Date and Time	Reading
Reading	ACTIVE	11/14/05 16:00:00	73F
Reading	ACTIVE	11/13/05 16:00:00	72F
Alert (No Signal)	INACTIVE	11/13/05 01:23:09	None

Quick Bar
DEVICE ALERTS Logout

Camera Location: Home

Message	Status	Date and Time	Reading
Reading	ACTIVE	11/15/05 12:00:00	Snapshot
Reading	ACTIVE	11/14/05 12:00:00	Snapshot
Reading	ACTIVE	11/13/05 12:00:00	Snapshot
Alert (User Defined)	ACTIVE	11/13/05 11:30:00	Motion Detected(Snapshot)

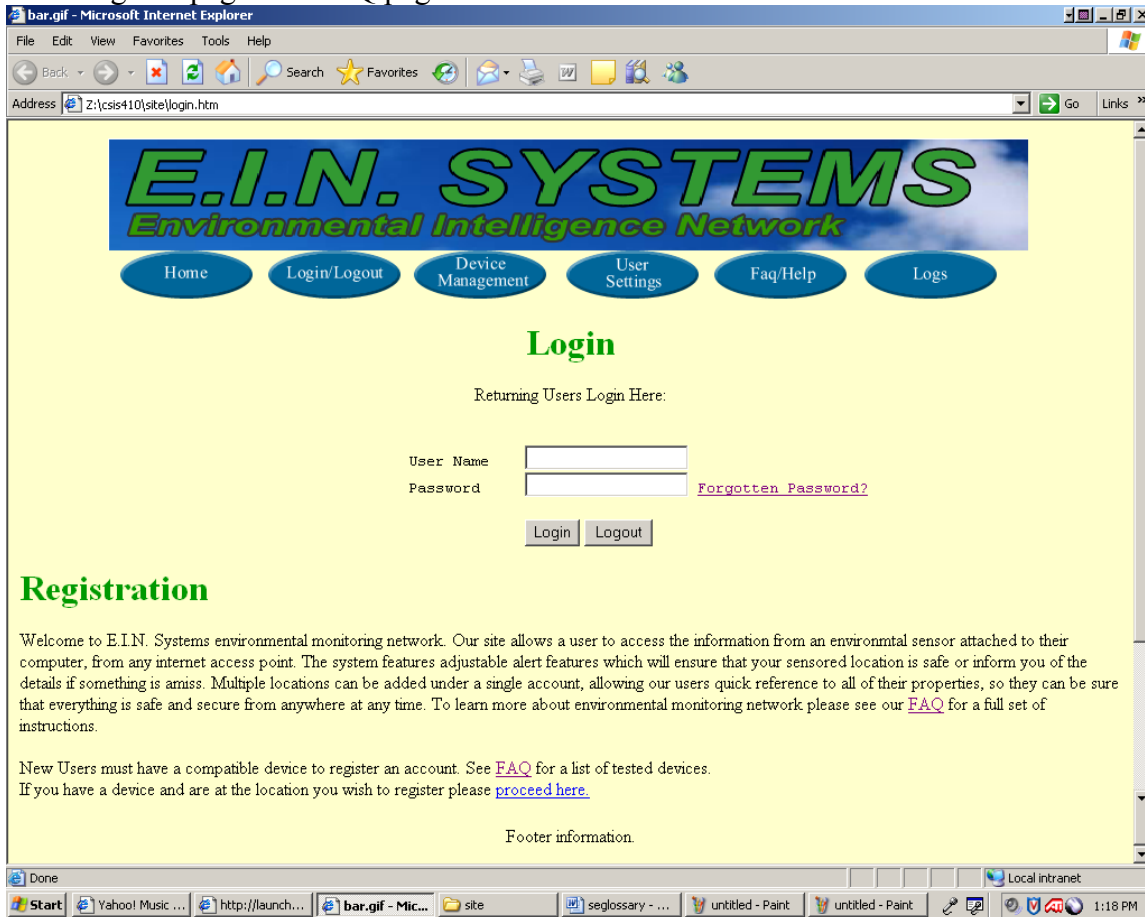
Quick Bar
DEVICE ALERTS Logout

Footer information.

--Sensored User--

A sensed user's Web browser will be set by default to the EIN homepage. Once the web browser is opened, the login page appears and the sensed user will enter the user's E-mail address for the username followed by the user's password, which will consist 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. Once the sensed user is authenticated, a logged-in screen comes up with a welcome message, as well as a message informing the sensed user that the user is at a recognized, monitored location. Displayed below for the sensed user, are the user's registered locations, with the current "at" location highlighted, the devices associated with each location and the status for each. A sensed user will have a navigation bar with buttons that will take the sensed user to the different pages on the website which will allow the user to change various aspects of the user's account. The Account button will take the sensed user to a page that will allow the sensed user to add or delete an account, a regular account or a "read-only" account. The Device button will navigate the sensed user to a page, which will allow the sensed user to add or delete a device as well as check the alert status of each device. A sensed user can also change the settings of the devices that are associated with the user's current location. The Profile settings button will navigate the sensed user to a page which will allow the sensed user to change the settings associated with the user's online account, including changing the sensed user's E-mail or password. A sensed user may also click on the Logs button that will send the user to a page that will display the entire alert and event logs in each device's history. However, a sensed user is unable to select the New Location button. This button will send the user to the Web page that would allow the user to add a new location.

A sensed user begins at the EIN homepage. This is the page a user sees when the user first navigates to the website. It allows a returning user to log in, as well as contains links to the register page and FAQ page for new users.



After authentication a sensed user logged in screen is loaded. The sensed user's homepage contains a welcome message, as well as a message informing the sensed user that the user is at a recognized, monitored location. Displayed below the message, are the user's registered locations, with the current "at" location highlighted, the devices and status grouped into each location.

E.I.N. SYSTEMS
Environmental Intelligence Network

Home Login/Logout Device Management User Settings Faq/Help Logs

Home Page

Welcome Back, Mr.Swarner

Your are located at your office location.
IP: 192.168.0.101
You have recieved 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:

Device	Status	Reading
Temperature Sensor	ACTIVE	70 F at 11:30:00 on 11/16/05

Quick Bar
DEVICE ALERTS Logout

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

Quick Bar
DEVICE ALERTS Logout

Footer information.

A sensed user can view, change, or add/remove devices. The device management page also provides detailed information about each device registered at the sensed user's current location. In addition, the device management page also contains links to the pages that allow a sensed user to add or delete a device as well as links to the devices themselves that will allow the user to change the settings for the device.

E.I.N. SYSTEMS
Environmental Intelligence Network

Home Login/Logout Device Management User Settings Faq/Help Logs

Device Management

You have registered 3 devices at 2 locations.
 You can add a new device to a location [here](#).
 You can remove a current device from a location [here](#).

Devices:

Device	Brand	Status	Location	Alerts Set
Thermometer #1	Sorny #24601	ACTIVE	OFFICE	65 F < OK <= 85 F Enabled: Yes Change Settings
Thermometer #2	Panaphonic #69	ACTIVE	HOME	65 F < OK <= 85 F Enabled: Yes Change Settings
Camera	Magnetbox #8675309	ACTIVE	HOME	Last Saved Image  Change Settings

Quick Bar
 DEVICE ALERTS Logout

Footer information.

A sensed user can view, change, add/remove a profile, or register a read-only user. This page provides boxes to allow the user to change the various account settings, as well as boxes to enter information for adding a new user. This page also contains a link to the page that will allow a sensed user to delete an account.

E.I.N. SYSTEMS
Environmental Intelligence Network

Home Login/Logout Device Management User Settings Faq/Help Logs

User Account Management

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

User Info	Register A Read Only Guest User
First <input type="text"/>	First <input type="text"/>
Last <input type="text"/>	Last <input type="text"/>
Address <input type="text"/>	Address <input type="text"/>
Phone <input type="text"/>	Phone <input type="text"/>
Email <input type="text"/>	Email <input type="text"/>
Password <input type="text"/>	Password <input type="text"/>
Security Question <input type="text"/>	Security Question <input type="text"/>
Security Answer <input type="text"/>	Security Answer <input type="text"/>
<input type="button" value="Submit Changes"/>	<input type="button" value="Submit Guest User"/>

[Click here to remove an account.](#)

Footer information.

A sensed user can view and change alert settings. This page displays the current alert settings to each device, as well as provides a link to the device's page that will allow the user to change the alert settings.

E.I.N. SYSTEMS
Environmental Intelligence Network

Home Login/Logout Device Management User Settings Faq/Help Logs

Alerts by Device

Thermometers

Device	Status	Location	Alert when temp <	Alert when temp >=
Thermometer #1	ACTIVE	OFFICE	65 F	85 F
Thermometer #2	ACTIVE	HOME	65 F	85 F

Quick Bar
DEVICE ALERTS Logout

Cameras

Device	Status	Location	Alert: Motion Activated	Scheduled Snapshot
Camera	ACTIVE	HOME	On	Setting: On Frequency: 15 Min

Quick Bar
DEVICE ALERTS Logout

Local intranet

Start | Yahoo! Music Vid... | http://launchoda... | Alerts - Micros... | site | seglossary (Previ... | 2 Paint | 1:03 PM

A sensed user also has access to the logs page. This page displays the logs of all of the devices at all of the sensed users associated locations.

E.I.N. SYSTEMS
Environmental Intelligence Network

Home Login/Logout Device Management User Settings Faq/Help Logs

Logs

Devices: Messages Received Since Last Alert
Thermometer #1 Location: Office

Message	Status	Date and Time	Reading
Reading	ACTIVE	11/14/05 12:00:00	70F
Reading	ACTIVE	11/13/05 12:00:00	71F
Alert (Below Range)	ACTIVE	11/12/05 15:16:08	62F

Quick Bar
DEVICE ALERTS Logout

Thermometer #2 Location: Home

Message	Status	Date and Time	Reading
Reading	ACTIVE	11/14/05 16:00:00	73F
Reading	ACTIVE	11/13/05 16:00:00	72F
Alert (No Signal)	INACTIVE	11/13/05 01:23:09	None

Quick Bar
DEVICE ALERTS Logout

Camera Location: Home

Message	Status	Date and Time	Reading
Reading	ACTIVE	11/15/05 12:00:00	Snapshot
Reading	ACTIVE	11/14/05 12:00:00	Snapshot
Reading	ACTIVE	11/13/05 12:00:00	Snapshot
Alert (User Defined)	ACTIVE	11/13/05 11:30:00	Motion Detected(Snapshot)

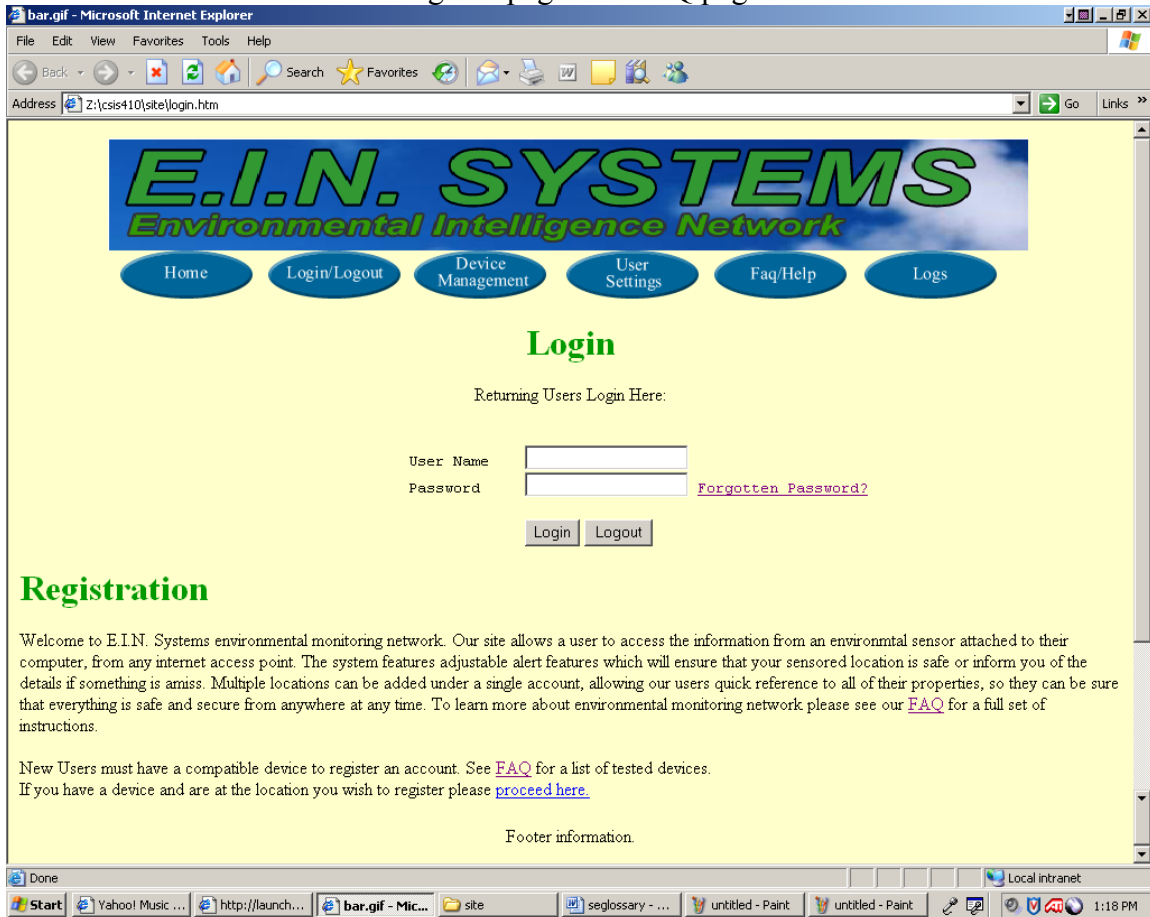
Quick Bar
DEVICE ALERTS Logout

Footer information.

--Site Administrator--

The site administrator is responsible for maintaining the database of sensed users as well as upkeep and troubleshooting for a sensed user's software interaction and devices. The site administrator turns on a computer whose IP address is recognized by the EMS system, and opens a browser that has the EIN webpage as its homepage. The login page is shown and the site administrator enters the site administrator email address for the username followed by an 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. The site administrator screen is displayed, including a welcome statement and a message informing the site administrator of the current location. It displays the last 10 lines of recent account activity by remote or sensed users, as well as the last 10 alerts, each displayed with the most recent at the top, and includes a more button to view expanded logs of activity and alerts. The bottom of the page features a navigation bar that allows the site administrator to move to a complete list of sensed users or devices or alerts. The site administrator can click on the Sensed User button on the administrator navigation bar and arrive at a page where the administrator can select a sensed user's account and see the sensed user's information including locations, devices, system activity, account information, and alerts. The site administrator can disable user accounts or devices as necessary via the User Information pages. The site administrator can click on the Devices button on the administrator navigation bar and navigate to a page where the administrator can filter the devices by either sensed user's that have them or by the names of the devices. The site administrator can click on the Alerts button on the administrator navigation bar and navigate to a page where the administrator can view all of the alerts reported for any sensed user to the EMS with most recent displayed at the top. The site administrator can filter the alerts by sensed user location, or sensed user device.

A site administrator at recognized IP navigates to the EIN home page. This is the page a user sees when the user first navigates to the website. It allows a returning user to log in, as well as contains links to the register page and FAQ page for new users.



A site administrator at recognized IP address after authentication. This page displays a welcome statement and a message informing the site administrator of the current location. It displays the last 10 lines of recent account activity by remote or sensed users, as well as the last the site administrator to move to a complete 10 alerts, each displayed with the most recent at the top, and includes a more button to view expanded logs of activity and alerts. The bottom of the page features a navigation bar, which allows list of sensed users or devices or alerts.

E.I.N. SYSTEMS
Environmental Intelligence Network

Home Login/Logout Device Management User Settings Faq/Help Logs

Home Page

Welcome Mr. Arnold Administrator

Your are located at IP: 867.53.09
You last logged in on 11/14/05 at 13:35:04

Most Recent Events:

Date & Time	Account ID	Location	Event	IP
11:30:00 on 11/16/05	101	Office	Logged In	192.168.0.101
08:30:03 on 11/16/05	100	Office	Logged In	192.168.0.100
10:30:00 on 11/15/05	127	Home	New Device Added	127.0.0.01
10:25:08 on 11/14/05	127	Home	Logged In	127.0.0.01
13:30:00 on 11/14/05	134	Home	Account Registration	134.132.0.100
11:30:00 on 11/13/05	127	Office2	New Location Added	127.0.00.010
10:45:00 on 11/13/05	127	Unknown	Logged In	127.0.00.010
22:30:23 on 11/12/05	128	Home	Logged In	127.0.0.01
11:30:00 on 11/11/05	192	Office	Logged In	192.168.0.101
11:30:00 on 11/10/05	192	Office	Logged In	192.168.0.101

[Click](#) to expand view for all events.

Most Recent Alerts:

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

[Click](#) to expand view for all Alerts.

Filter Accounts By:

DEVICE ALERTS Users

Footer information.

2. Functional Requirements

Read-Only User

User with a read-only account.

- A read-only user's Web browser is set to the EIN Homepage by default if at a monitored location.
- A read-only user has to open the read-only user's Web browser and navigate to the EIN homepage, if the read-only user is at a remote location.
- A read-only user logs into the read-only user's account using the read-only user's username and password.
- A read-only user's username is the read-only 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 “#\$\$%^!&*=”.
- After the read-only user has been authenticated, a read-only user homepage comes up with a welcome message, as well as a message informing the read-only user that the read-only user is at a recognized, monitored location if the read-only user is at a recognized monitored location.
- If the read-only user is at a remote location, after being authenticated, the read-only user will be sent to a similar read-only user homepage. However, this homepage includes a welcome message, as well as, a message informing the read-only user that the read-only user is at an unrecognized location.
- On the bottom of the read-only user logged-in page for the read-only user are the registered locations, the devices associated with each location and the status for each and the reading for each.
- The read-only user is able to check on the previous status of each device at each location by clicking on the Logs button.
- The Account, Device, Profile Settings, and New Location buttons are displayed on the navigation bar, however, the buttons will all be grayed out and the read-only user is unable to click on any of the buttons.

Remote User

Sensored user who is traveling and will be able to check on the status of devices when away from home.

- The remote user opens a web browser and navigates to the EIN homepage.
- The login page is shown and the remote user's email address is entered for the username.
- The remote user also must enter the remote user's 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 “#\$\$%^!&*=”.
- After authentication a logged-in page is shown, which welcomes the remote user and states the remote user is at an unknown or unregistered location.
- At the remote user logged-in page, the remote user is also shown the status of the remote user's devices, grouped by location.

- The New Location button is enabled, allowing the remote user to navigate to a page, which will allow the remote user to add a new location, if they have a new device to add at that location.
- At this New Location page, the remote user must go through a registration process, which after completion will turn them into a sensed user.
- The remote user cannot make any changes to device or alert settings from an unregistered location.
- The Account and Device buttons are all displayed on the navigation bar, however the buttons are grayed out and the remote user is unable to click on the buttons.
- The Profile Settings button navigates the remote user to a page that allows the remote user to change the settings associated with the remote user's online account, including changing the remote user's E-mail or password.

Sensed User

Registered user who is at a monitored location.

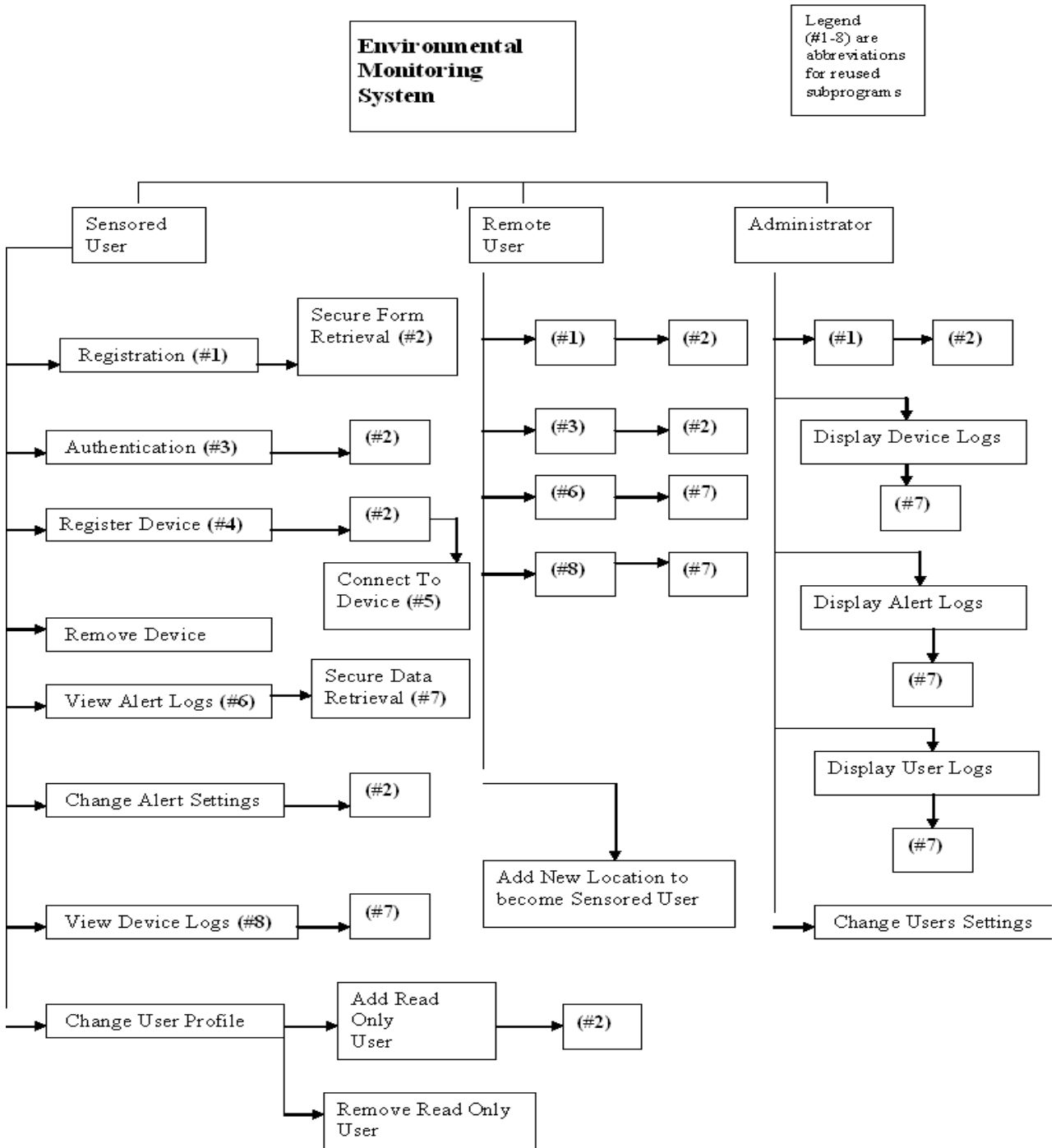
- A sensed user's Web browser is set to the EIN Homepage by default.
- A sensed user logs into the sensed user's account using the sensed user's username and password.
- A sensed user's username is the user's E-mail.
- A sensed user's password consists of 6-12 characters, and includes at least one number, one uppercase letter, one lowercase letter, and at least one of eight recognized special characters shown here within double quotes "#\$%^!&*=".
- After the sensed user has been authenticated, a logged-in screen comes up with a welcome message, as well as a message informing the sensed user that the user is at a recognized, monitored location.
- Displayed at the bottom of the sensed user's logged in screen, are the sensed user's registered locations with the current "at" location highlighted, the devices associated with each location and the status for each.
- A sensed user also has a navigation bar with buttons that take the sensed user to the different pages on the website which allow the sensed user to change various aspects of the user's account.
- The Account button navigates the sensed user to a page that allows the sensed user to add or delete an account, a regular account or a "read-only" account.
- The Device button navigates the sensed user to a page that allows the sensed user to add or delete a device as well as to check the alert status of each device and change the settings of the devices which are associated with the location the sensed user is currently at.
- The Profile Settings button navigates the sensed user to a page that allows the sensed user to change the settings associated with the sensed user's online account, including changing the sensed user's E-mail or password.
- The Logs button navigates the sensed user to a page that displays the entire alert and event logs in each device's history.
- The New Location button, which normally navigates the sensed user to the Web page that allows the user to add a new location, will be grayed out, and unable to be selected.

Site Administrator

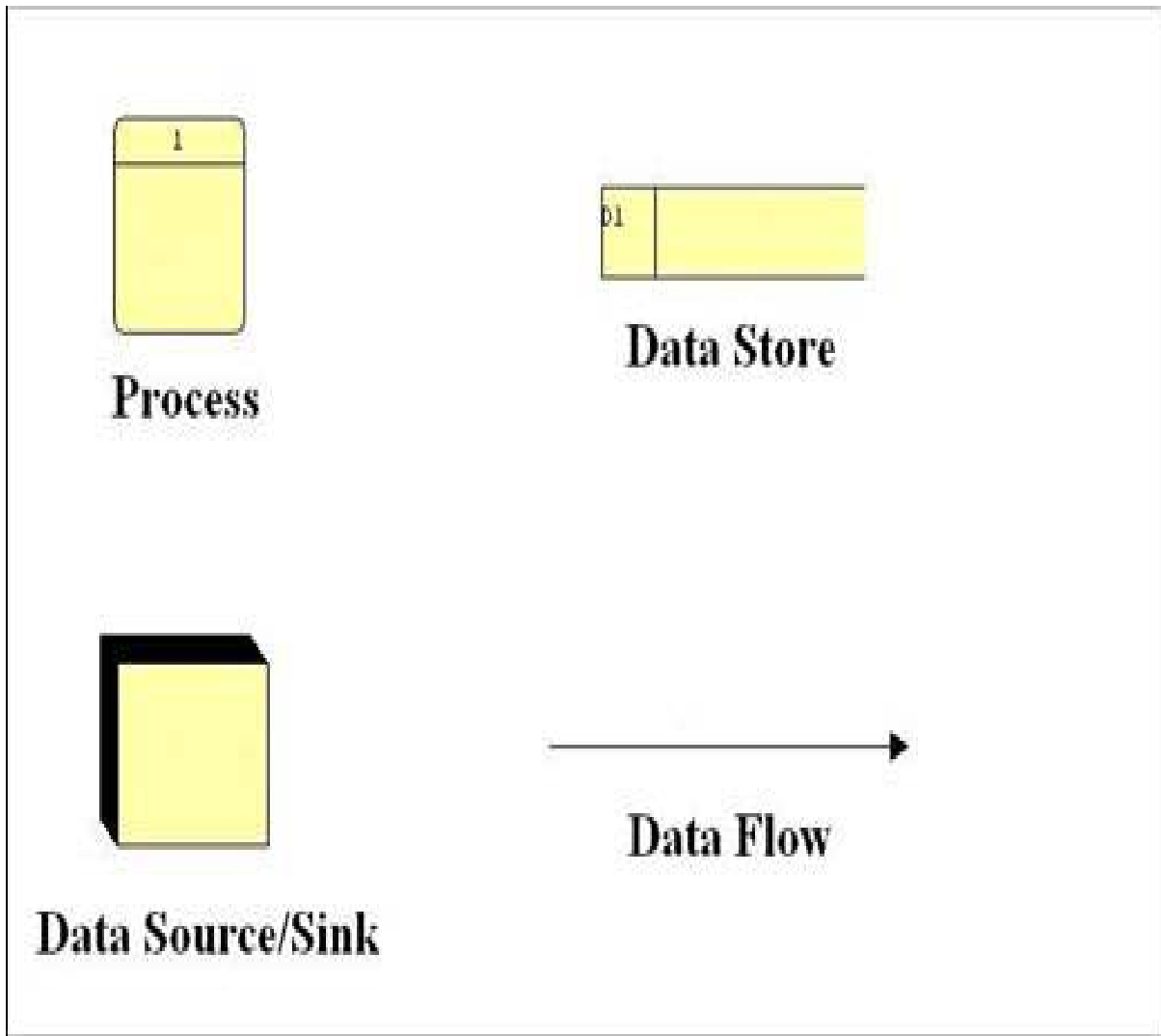
- The site administrator is responsible for maintaining the database of sensed users as well as upkeep and troubleshooting for a sensed user's software interaction and devices.
- The site administrator turns on a computer whose IP address is recognized by the EMS system, and opens a Web browser, which has the EIN webpage as its homepage.
- The login page is shown and the site administrator enters the site administrator's email address for the username
- The site 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 site administrator page is displayed, including a welcome statement and a message informing the site administrator of the current location.
- The site administrator page also displays the last 10 lines of recent account events by remote or sensed users, as well as, the last 10 alerts, with each displayed with the most recent at the top.
- The site administrator page also includes a "More" button to view expanded logs of events and alerts.
- The bottom of the site administrator page has a navigation bar that allows the site administrator to move to a complete list of sensed users or devices or alerts.
- The site administrator can click on the Sensed User button on the site administrator navigation bar and arrive at a page where the site administrator can select a sensed user's account and see the sensed user's information including locations, devices, system events, account information, and alerts.
- The site administrator can disable user accounts or devices as necessary via the User Information pages.
- The site administrator can click on the Devices button on his or her navigation bar and navigate to a page where the site administrator can filter the devices by either sensed user's that have the devices or by the names of the devices.
- The site administrator can click on the Alerts button on the site administrator navigation bar and navigate to a page where the site administrator can view all of the alerts reported for any sensed user to the EMS with most recent displayed at the top.
- The site administrator can filter the alerts by sensed user location, or sensed user device.

3. Component Hierarchy Chart using a Main Program/Subprogram Architecture

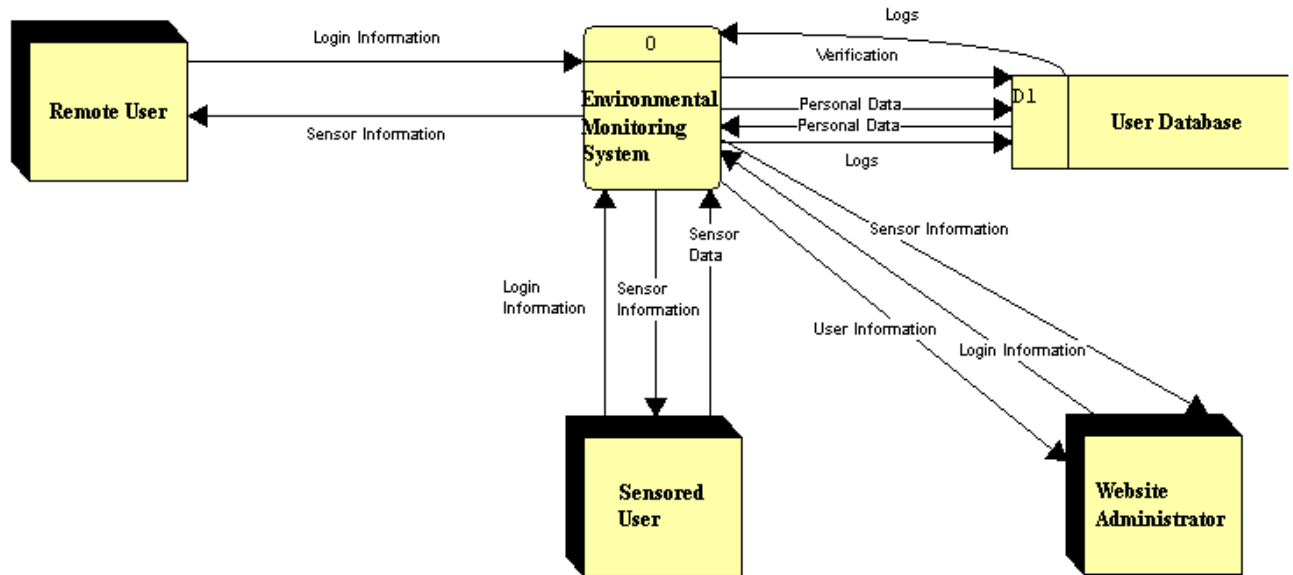
The following chart decomposes our main program into various subprograms, which will help identify and manage components. The top down structure proceeds with each component leading to a smaller component starting with the main program, leading to controller programs of users, and finally a users available actions and the interaction with data.



4. Data Flow Diagrams

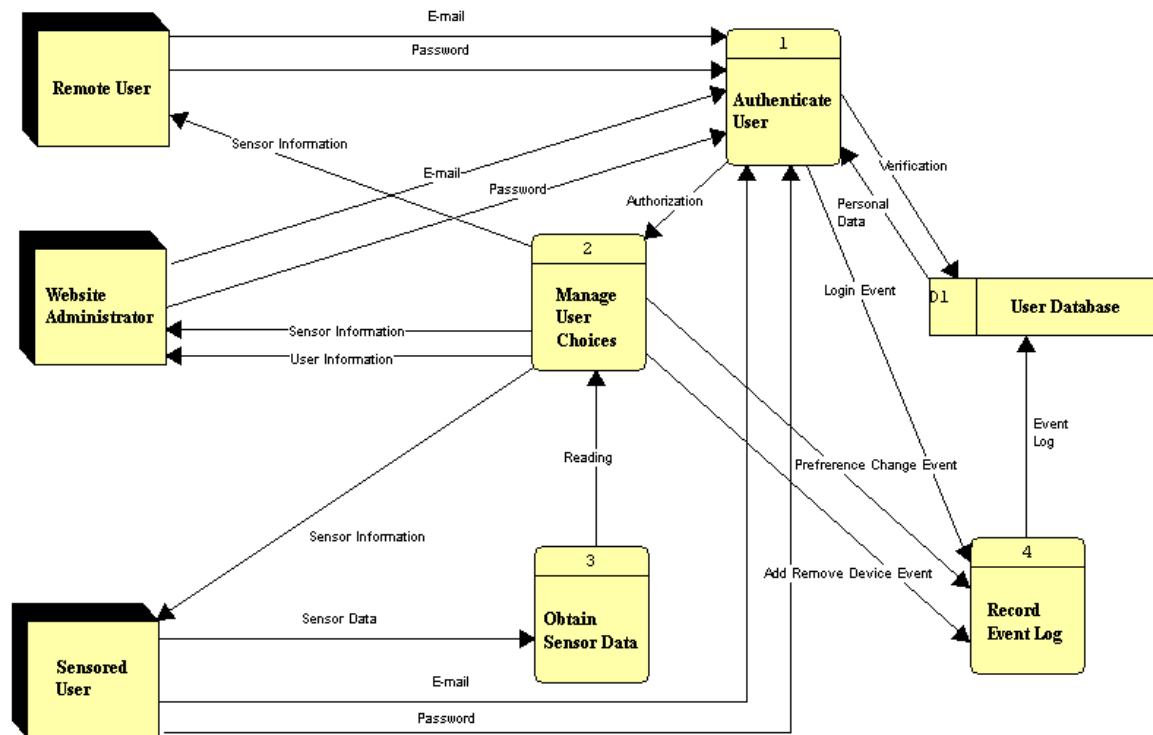


Context Diagram



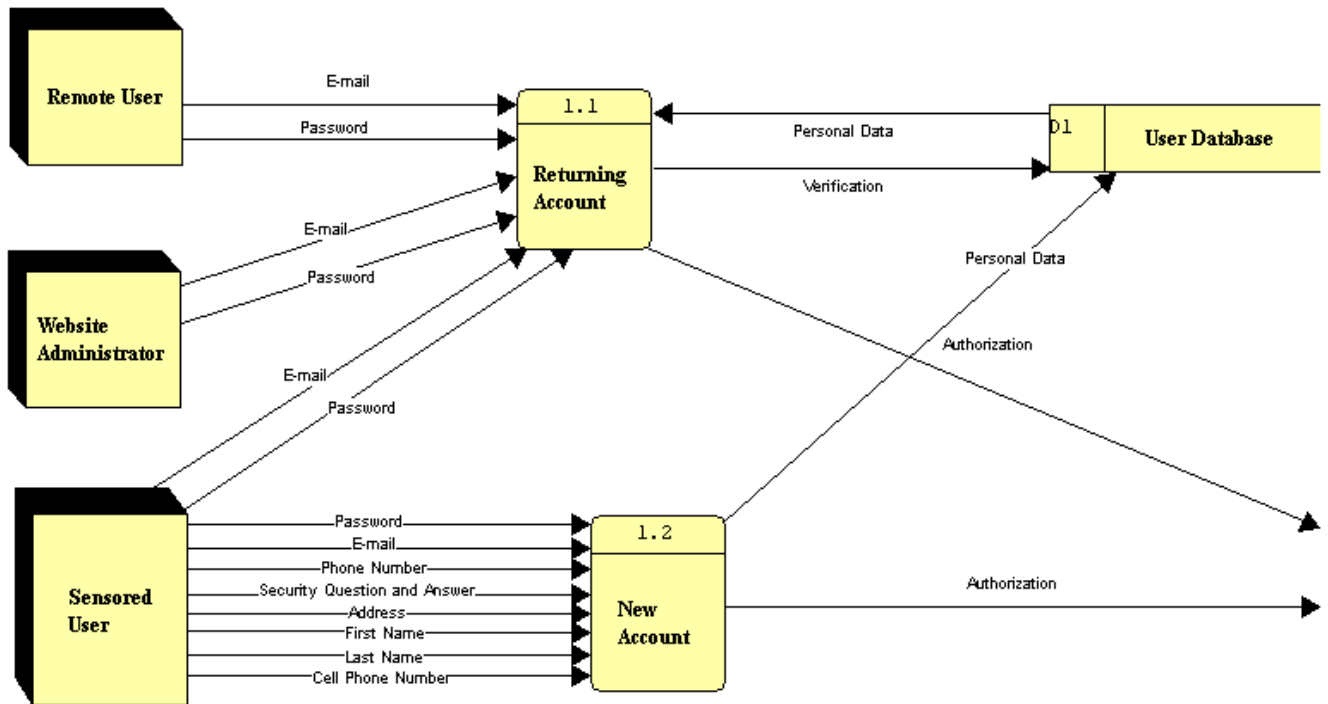
This is the first Data Flow Diagram. It is the most basic model of the Environmental Monitoring System. It shows the different users' need to send login information into the system in order to get any information out of it. The Sensored and Remote users both get Sensor Information from the system, while the Website Administrator gets this information as well as User Information. This diagram also shows some of the data flows between the system and the User Database.

Decomposition of Environmental Monitoring System

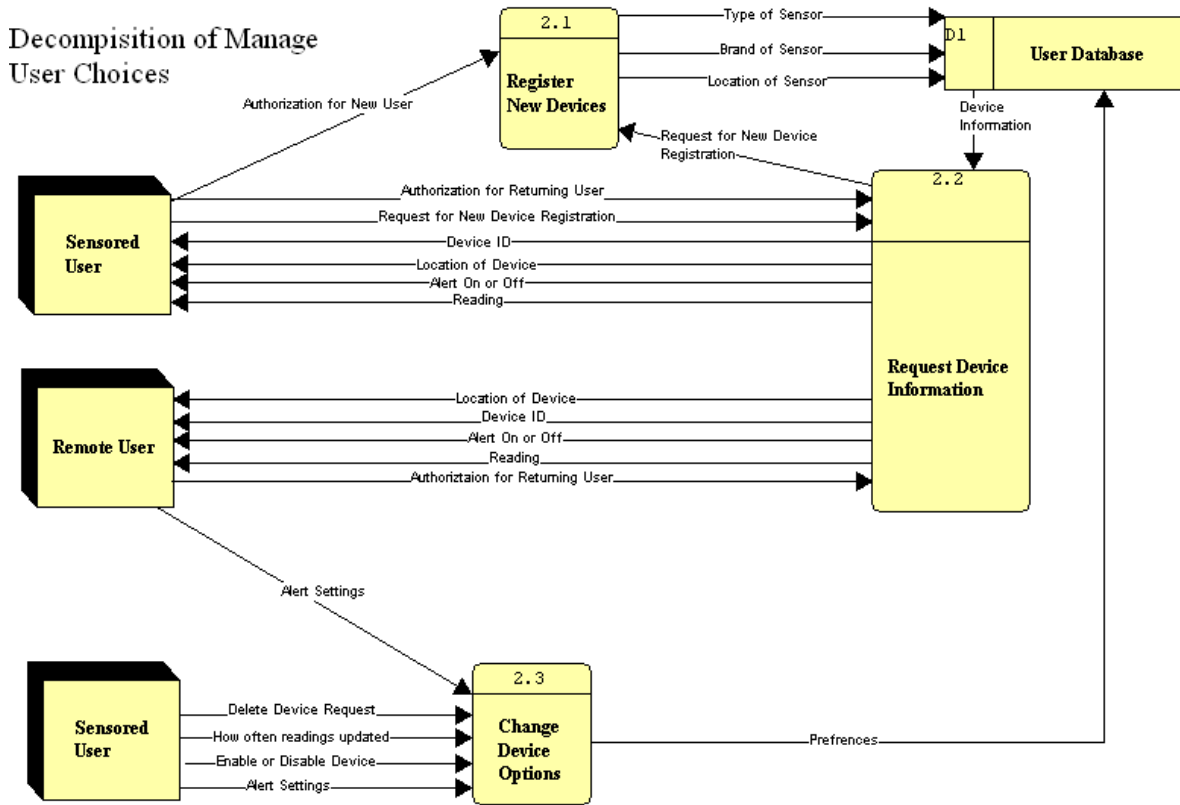


This diagram shows the system's most basic functions. The system must authenticate users, manage the users' choices, record event logs, and obtain sensor data. In this diagram, the login information has been split into its two components, the E-mail and Password. This diagram shows that a log is recorded each time the user changes the preferences, adds or removes a device, or logs in to the system. In addition, the diagram shows that the system needs to wait for authentication from the authenticate user process in order to start the manage user choices process.

Decomposition of Authenticate User

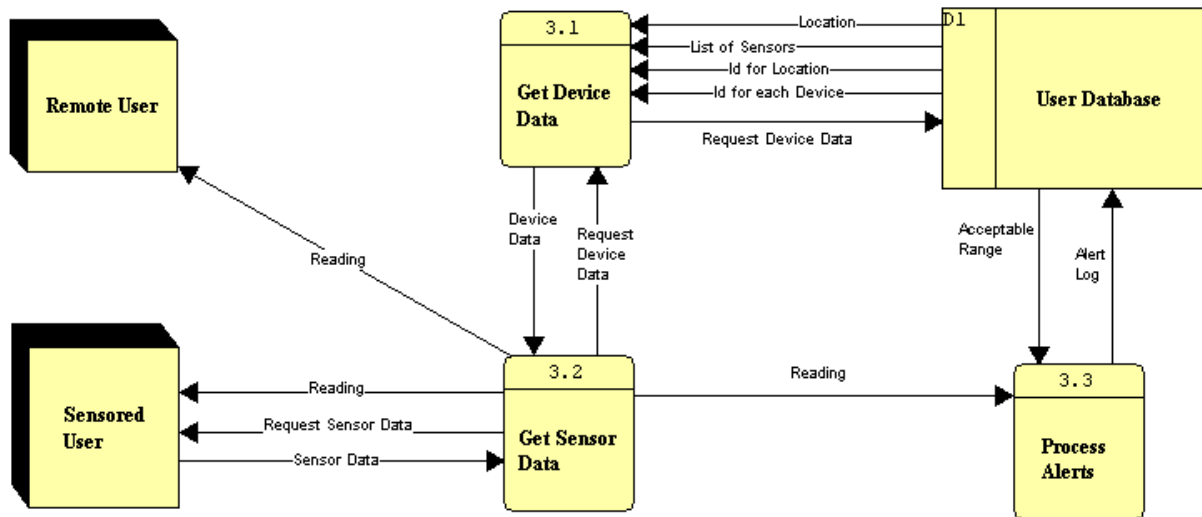


This diagram shows the Authenticate User process broken down into two more process: Returning Account, and New Account. This diagram also shows how personal data is broken down into Phone Number, Cell Phone Number, First Name, Last Name, Address, and Security Question and Answer. The diagram also shows that the Authentication data flow leaves this chart and proceeds into the Manage User Choices process.



This diagram shows how the Manage User Choices process is broken down. The process is broken into three different processes: Change Device Options, Request Device Information, and Register New Devices. The Register New Devices process is accessed immediately from an authorization for a new user, as a new user must register a device in order to become a Sensored user. Request Device Information is only available for returning users, as is Change Device Options. This diagram also shows that the Preferences data flow is broken down into the How Often Readings Updated, Alert Settings, and Enable or Disable Device data flows, as well as the Device Information data flow being divided into the Type of Sensor, Brand of Sensor, and Location of Sensor data flows.

Decomposition of Obtain Sensor Data



This diagram shows how the database is accessed to get information regarding the user's devices, as well as how the Sensored User's computer sends the system the sensor information. This diagram also shows how alerts are processed through the Process Alerts process, which takes in the Reading and Acceptable Range data flows and compares them to determine if there should be an alert or not.

5. Logical Data Store

User

User ID – A number assigned to each user account to be used as a primary key in the User table. It is used to identify users.

E-mail – The e-mail address of the user and is used to log in to the system.

Password – The password supplied at log on to give access to a user with a valid e-mail address. Must be between 6 and 12 characters, containing at least one upper case character, lower case character, and at least one of the following characters: \$, *, #, %, ^, |, =, %.

Last Name – The last name of a particular user.

First Name – The first name of a particular user.

Cell Phone – The cell phone number of the user.

Home Phone – The user's home phone number.

Address – The home address of the user.

Security Question/Answer Data – The security question and answer used to recover a password if the user loses it.

Permissions – The user's level. A zero signifies a guest account, a one is a regular user, and a two signifies the administrator.

Location

Location ID – A number assigned to each location to be used as the primary key in the Location table. It is used to identify specific locations.

Owner ID – The User ID for the user that owns the particular location.

IP Address – The IP address of the computer at the location.

Name – The name of the location.

Description – A short description of the location.

Address – The address of the location.

Phone Number – The phone number of the location.

Goos

Goos ID – A number assigned to each Weather Goos by our system to be used as the primary key in the Goos table. It is used to identify each Goos in the system.

Location – The Location ID number of the site the Goos is located.

IP Address – The IP address of the Goos.

ID Number – The ID number the Goos assigns itself.

Name – The name of the Goos device.

Peripheral

Peripheral ID – A number assigned to each individual peripheral attached to a Weather Goos by the system to be used as the primary key in the Peripheral table.

Goos ID – The Goos ID of the Goos that the peripheral is attached to.

Device ID – The identification number the device assigns itself.

Previous Reading – The last reading received from the peripheral.

Type of Sensor – The type of sensor the peripheral is.

Threshold Low – The lower threshold reading that if crossed will trigger an alert.

Threshold High – The higher threshold reading that if crossed will trigger an alert.

Time of Last Alert – The date and time of the last alert to be issued by the device.

Alarm Enabled – The status of an alarm for a device. On or Off.

Camera

Camera ID – A number assigned to each camera to be used as the primary key in the Camera table.

Location – The Location ID number of the site the camera is located at.

IP Address – The IP Address of the camera.

Event

Event ID – A number assigned to each event to be used as the primary key in the Event table.

User ID – The User ID of the account the event occurred under.

Location ID – The Location ID of the location the event occurred at.

Time of Event – The date and time of the event.

Event Type – The type of event that occurred.

Event Message – A message describing the event.

Alert

Alert ID – A number assigned to each alert by the system to be used as the primary key in the event table.

Peripheral ID – The identification number of the peripheral that triggered the alert.

Location ID – The identification number of the location the alert occurred at.

Date of Alert – The date and time of the alert.

Time in Alert Status – The total amount of time the device remained outside the threshold.

Reading – The reading that caused the alert.

Type – The type of alert that was triggered.

Alert Message – A message describing the alert.

6. Logical Format of Data Files and Databases

The information used to develop our catalog will be stored in a database system. As we have determined from information from our clients, the data needed to create the college catalog are typically text documents, since text files are what is sent to the catalog publisher. Text files also allow for easier editing for any users. Therefore, our database will have tables that will store our information in text files.

As we have stated in the last section, we will also need to copy Banner tables into our database, as Banner contains the most up-to-date information about courses and faculty. The information that we retrieve from Banner will also be stored in text format, allowing the entire document to be visible within Microsoft Word, or any other word processing program.

7. Logical Data Library

Acceptable Range

Data Flow

Description:

The range set by the user that if exceeded will trigger an alert

Location:

[Obtain Sensor Data](#)

(3)

Source: User Database (Data Store)
Dest: Process Alerts (Process)

Add Remove Device Event Data Flow

Description:

An event log of a user adding or removing a device.

Location:

[Environmental Monitoring System](#) (0)

Source: Manage User Choices (Process)

Dest: Record Event Log (Process)

Address Data Flow

Description:

The user's address.

Location:

[Authenticate User](#) (1)

Source: Sensored User (External Entity)

Dest: New Account (Process)

Data Flow --> [Personal Data](#)

Alert Log Data Flow

Description:

A log of an alert for use by the system administrator or the user.

Composition:

Alert ID : Undefined
Device with Alert : Undefined
Location of Alert : Undefined
Date : Undefined
Time in Alert Status : Undefined
Time of Alert : Undefined
Alert Reading : Undefined
Type of Alert : Undefined
Alert Message : Undefined

Location:

[Obtain Sensor Data](#) (3)

Source: Process Alerts (Process)

Dest: User Database (Data Store)

Data Flow --> [Logs](#)

Alert On or Off Data Flow

Description:

Tells whether the device's alert is on or off.

Location:

[Manage User Choices](#)

(2)

Source: Request Device Information (Process)

Dest: Remote User (External Entity)

Source: Request Device Information (Process)

Dest: Sensored User (External Entity)

Data Flow -->

[Reading](#)

Data Flow -->

[Sensor Information](#)

Data Flow -->

[Device Information](#)

Alert Settings

Data Flow

Description:

The settings that determine when the system notifies the user that a device has reached a critical point.

Location:

[Manage User Choices](#)

(2)

Source: Sensored User (External Entity)

Dest: Change Device Options (Process)

Source: Remote User (External Entity)

Dest: Change Device Options (Process)

Data Flow -->

[Preferences](#)

Authorization

Data Flow

Description:

Authorization that the user should be in the system. It is granted after the email and password is verified through the database.

Composition:

Authorization for New User :

Authorization for Returning User :

Authorization for Returning User :

Location:

[Environmental Monitoring System](#)

(0)

Source: Authenticate User (Process)

Dest: Manage User Choices (Process)

[Authenticate User](#)

(1)

Source: Returning Account (Process)

Dest: *** Not on Diagram ***

Source: New Account (Process)

Dest: *** Not on Diagram ***

Date Last Altered: 11/28/2005

Date Created: 11/21/2005

Authorization for New User

Data Flow

Description:

Authorization for a new user. The new user needs to register a new device and become a sensored user before the new user can become a remote user.

Location:

[Manage User Choices](#) (2)
Source: Sensored User (External Entity)
Dest: Register New Devices (Process)
Data Flow --> [Authorization](#)

Authorization for Returning User Data Flow

Description:

Authorization granted for a returning user. Sends the user to the user's home page describing the condition of the user's devices.

Location:

[Manage User Choices](#) (2)
Source: Sensored User (External Entity)
Dest: Request Device Information (Process)
Data Flow --> [Authorization](#)

Authorization for Returning User Data Flow

Description:

Authorization granted for a returning user. Sends the user to the user's home page describing the condition of the user's devices.

Location:

[Manage User Choices](#) (2)
Source: Remote User (External Entity)
Dest: Request Device Information (Process)
Data Flow --> [Authorization](#)

Brand of Sensor Data Flow

Description:

The brand of the sensor to be registered

Location:

[Manage User Choices](#) (2)
Source: Register New Devices (Process)
Dest: User Database (Data Store)
Data Flow --> [Reading](#)
Data Flow --> [Device Information](#)

Cell Phone Number Data Flow

Description:

The user's cell phone number. Will be used in some alerts if the user has the cell phone alert preference

Location:

[Authenticate User](#) (1)
Source: Sensored User (External Entity)

Description:

The user's email that is used to log in to the system.

Location:

[Environmental Monitoring System](#) (0)

Source: Remote User (External Entity)

Dest: Authenticate User (Process)

Source: Sensored User (External Entity)

Dest: Authenticate User (Process)

Source: Website Administrator (External Entity)

Dest: Authenticate User (Process)

[Authenticate User](#) (1)

Source: Remote User (External Entity)

Dest: Returning Account (Process)

Source: Website Administrator (External Entity)

Dest: Returning Account (Process)

Source: Sensored User (External Entity)

Dest: Returning Account (Process)

Source: Sensored User (External Entity)

Dest: New Account (Process)

Data Flow -->

[Login Information](#)

Data Flow -->

[Personal Data](#)

Enable or Disable Device

Data Flow

Description:

A setting to allow the user to enable or disable a device

Location:

[Manage User Choices](#) (2)

Source: Sensored User (External Entity)

Dest: Change Device Options (Process)

Data Flow -->

[Preferences](#)

Event Log

Data Flow

Description:

An event log passed into the database for later use by the administrator or user.

Composition:

Event ID : Undefined

Date : Undefined

Time : Undefined

Location : Undefined

IP Address : Undefined

Message : Undefined

Type : Undefined

Location:

[Environmental Monitoring System](#) (0)

Source: Record Event Log (Process)

Data Flow --> [Personal Data](#)

List of Sensors Data Flow

Description:

A list of all the sensors for a user

Location:

[Obtain Sensor Data](#) (3)

Source: User Database (Data Store)

Dest: Get Device Data (Process)

Date Last Altered: 11/28/2005 *Date Created:* 11/21/2005

Location Data Flow

Description:

The location for a group of sensors

Location:

[Obtain Sensor Data](#) (3)

Source: User Database (Data Store)

Dest: Get Device Data (Process)

Data Flow --> [Reading](#)

Location of Device Data Flow

Description:

The physical location of the device, used to monitor different locations

Location:

[Manage User Choices](#) (2)

Source: Request Device Information (Process)

Dest: Remote User (External Entity)

Source: Request Device Information (Process)

Dest: Sensored User (External Entity)

Data Flow --> [Sensor Information](#)

Data Flow --> [Device Information](#)

Location of Sensor Data Flow

Description:

The location of the sensor, used to monitor different locations

Location:

[Manage User Choices](#) (2)

Source: Register New Devices (Process)

Dest: User Database (Data Store)

Login Event Data Flow

Location:

[Environmental Monitoring System](#) (0)

Source: Authenticate User (Process)
Dest: Record Event Log (Process)

Login Information

Data Flow

Description:

The information passed into the web browser and into the system that identifies the user and verifies that the user is allowed in

Composition:

E-mail :

Password :

Location:

[Context](#) (CONTEXT)

Source: Remote User (External Entity)

Dest: Environmental Monitoring System (Process)

Source: Sensored User (External Entity)

Dest: Environmental Monitoring System (Process)

Source: Website Administrator (External Entity)

Dest: Environmental Monitoring System (Process)

Logs

Data Flow

Description:

Logs of events or alerts that have occurred for a user.

Composition:

Alert Log :

Event Log :

Location:

[Context](#) (CONTEXT)

Source: User Database (Data Store)

Dest: Environmental Monitoring System (Process)

Source: Environmental Monitoring System (Process)

Dest: User Database (Data Store)

Data Flow -->

[User Information](#)

Password

Data Flow

Description:

The password the user provides at log in to verify the user should have access to the system.

Location:

[Environmental Monitoring System](#) (0)

Source: Remote User (External Entity)

Dest: Authenticate User (Process)

Source: Sensored User (External Entity)

Dest: Authenticate User (Process)

Source: Website Administrator (External Entity)

[Authenticate User](#) (1)

Dest: Authenticate User (Process)

Source: Remote User (External Entity)

Dest: Returning Account (Process)

Source: Website Administrator (External Entity)

Dest: Returning Account (Process)

Source: Sensored User (External Entity)

Dest: Returning Account (Process)

Source: Sensored User (External Entity)

Dest: New Account (Process)

Data Flow --> [Login Information](#)

Personal Data

Data Flow

Description:

The personal data for the user, including email, address, phone numbers, and name.

Composition:

Address :
 Cell Phone Number :
 E-mail :
 First Name :
 Last Name :
 Phone Number :
 Security Question and Answer :

Location:

[Context](#) (CONTEXT)

Source: User Database (Data Store)

Dest: Environmental Monitoring System (Process)

[Environmental Monitoring System](#) (0)

Source: User Database (Data Store)

Dest: Authenticate User (Process)

[Authenticate User](#) (1)

Source: User Database (Data Store)

Dest: Returning Account (Process)

Source: New Account (Process)

Dest: User Database (Data Store)

[Context](#) (CONTEXT)

Source: Environmental Monitoring System (Process)

Dest: User Database (Data Store)

Data Flow --> [User Information](#)

Phone Number

Data Flow

Description:

The user's home phone number. A part of personal information

Location:

Authenticate User (1)

Source: Sensored User (External Entity)

Dest: New Account (Process)

Data Flow -->

Personal Data

Preferences

Data Flow

Description:

The preferences set by the user to be stored in the database

Composition:

Alert Settings :

Enable or Disable Device :

How often readings updated :

Location:

Manage User Choices (2)

Source: Change Device Options (Process)

Dest: User Database (Data Store)

Preference Change Event

Data Flow

Description:

An event log of the user changing his or her preferences.

Location:

Environmental Monitoring System (0)

Source: Manage User Choices (Process)

Dest: Record Event Log (Process)

Reading

Data Flow

Description:

The reading from the sensor devices as parsed by the system so that it is in a meaningful format for the user.

Composition:

Location :

Type of Sensor :

Brand of Sensor :

Alert On or Off :

Reading :

Location:

Environmental Monitoring System (0)

Source: Obtain Sensor Data (Process)

Dest: Manage User Choices (Process)

Manage User Choices (2)

Source: Request Device Information (Process)

Dest: Remote User (External Entity)

Source: Request Device Information (Process)

Dest: Sensored User (External Entity)

[Obtain Sensor Data](#) (3)

Source: Get Sensor Data (Process)
Dest: Sensored User (External Entity)
Source: Get Sensor Data (Process)
Dest: Remote User (External Entity)
Source: Get Sensor Data (Process)
Dest: Process Alerts (Process)

Data Flow -->

[Reading](#)

Data Flow -->

[Sensor Information](#)

Request Device Data

Data Flow

Description:

A request for information on the current devices

Location:

[Obtain Sensor Data](#) (3)

Source: Get Device Data (Process)
Dest: User Database (Data Store)
Source: Get Sensor Data (Process)
Dest: Get Device Data (Process)

Request for New Device Registration

Data Flow

Description:

A request to add a new device

Location:

[Manage User Choices](#) (2)

Source: Sensored User (External Entity)
Dest: Request Device Information (Process)
Source: Request Device Information (Process)
Dest: Register New Devices (Process)

Request Sensor Data

Data Flow

Description:

A request for the data from a sensor

Location:

[Obtain Sensor Data](#) (3)

Source: Get Sensor Data (Process)
Dest: Sensored User (External Entity)

Security Question and Answer

Data Flow

Description:

The security question and answer that the user provides in case the user loses the password.

Location:

[Authenticate User](#) (1)

Type of Sensor

Data Flow

Description:

The type of sensor, be it temperature, water level, motion sensor, or other sensor.

Location:

Manage User Choices

(2)

Source: Register New Devices (Process)

Dest: User Database (Data Store)

Data Flow -->

Reading

Data Flow -->

Device Information

User Information

Data Flow

Description:

Information on the user that the website admin is concerned with. Includes logs and personal information on users.

Composition:

Logs :

Personal Data :

Location:

Environmental Monitoring System

(0)

Source: Manage User Choices (Process)

Dest: Website Administrator (External Entity)

Context

(CONTEXT)

Source: Environmental Monitoring System (Process)

Dest: Website Administrator (External Entity)

Verification

Data Flow

Description:

The system checks the users email and password against the information in the database to make sure that the user should have access.

Location:

Context

(CONTEXT)

Source: Environmental Monitoring System (Process)

Dest: User Database (Data Store)

Environmental Monitoring System

(0)

Source: Authenticate User (Process)

Dest: User Database (Data Store)

Authenticate User

(1)

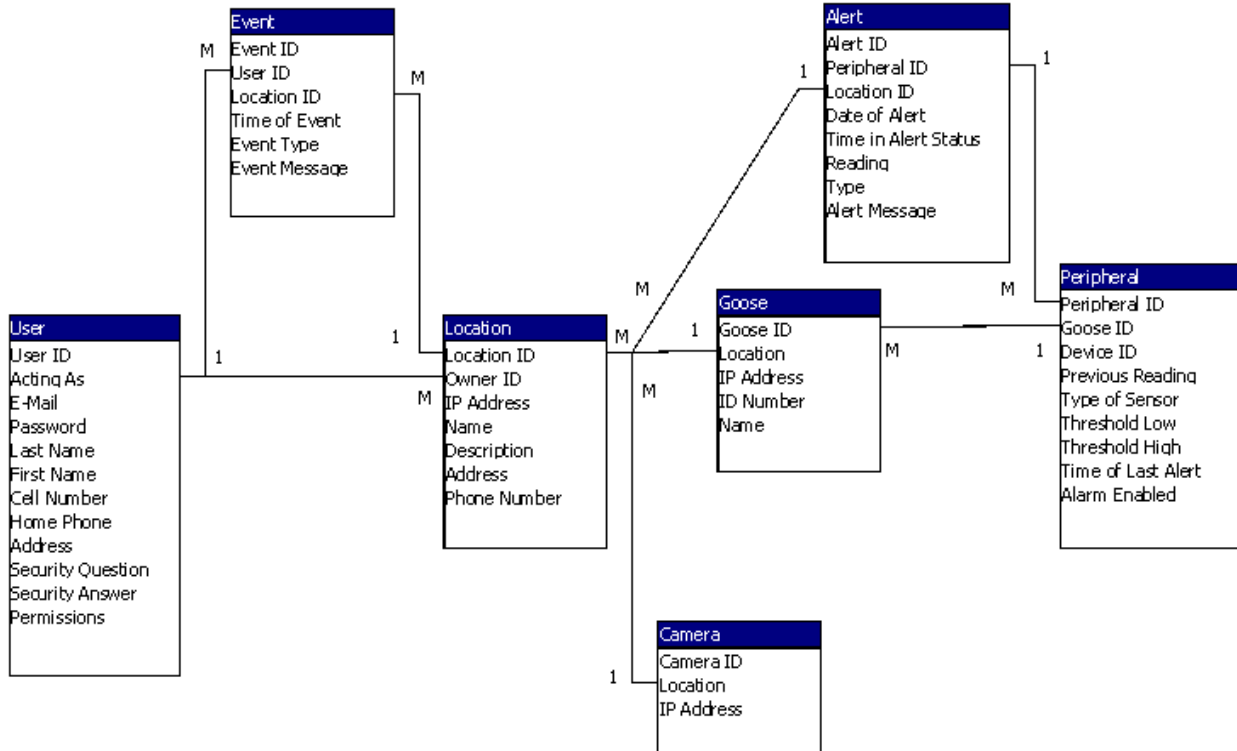
Source: Returning Account (Process)

Dest: User Database (Data Store)

8. Database Schema

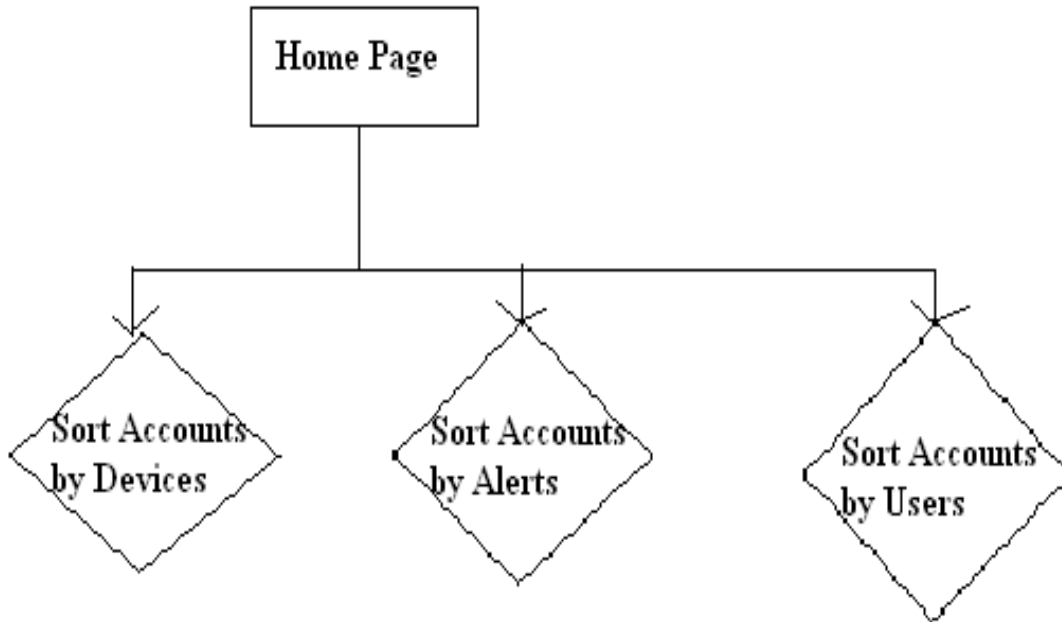
Relationships for EINDesign

Monday, March 06, 2006

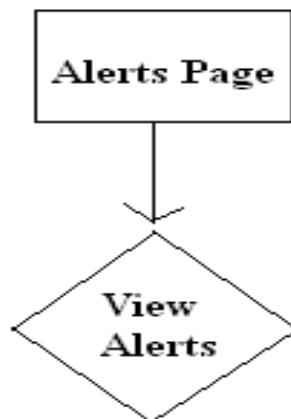


9. Structure Diagrams

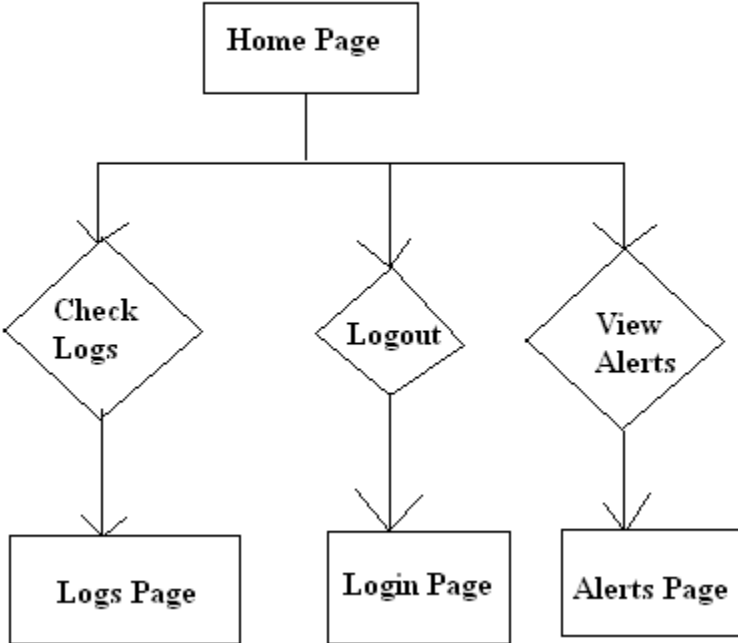
Admin



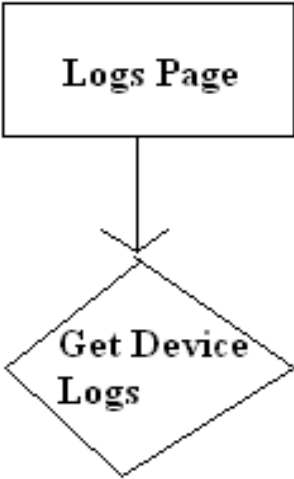
Guest User



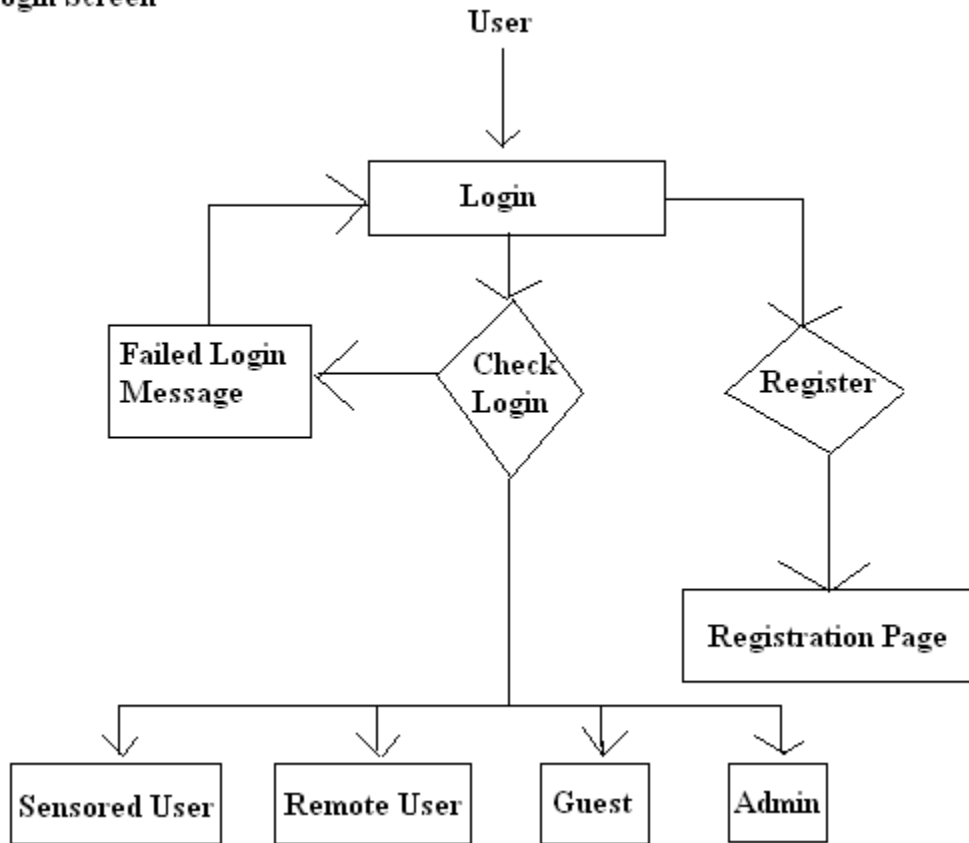
Guest User



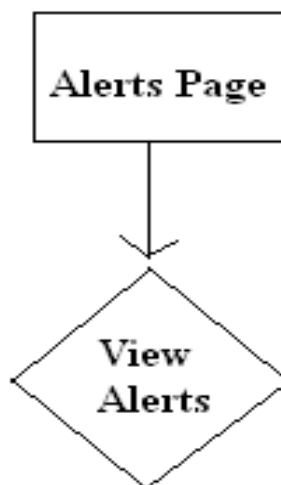
Guest User



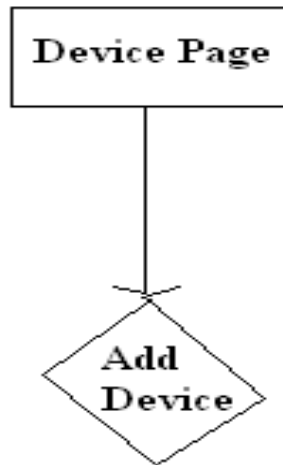
Login Screen



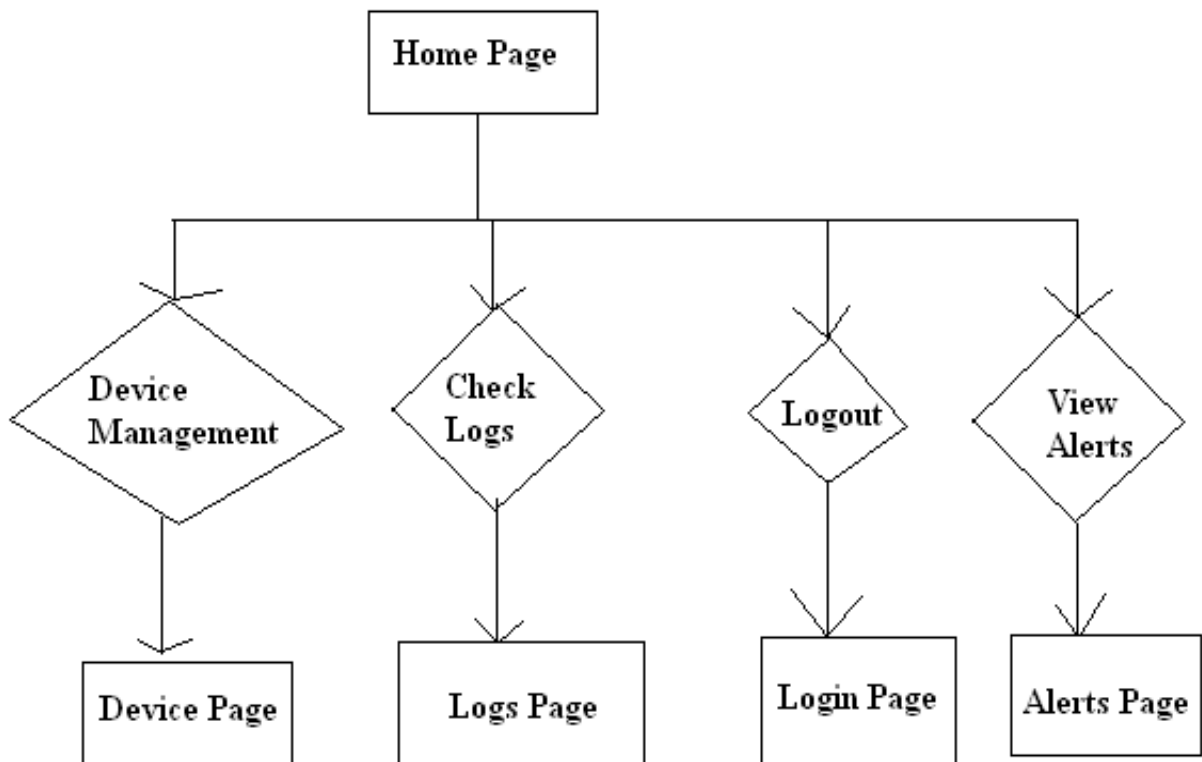
Remote User



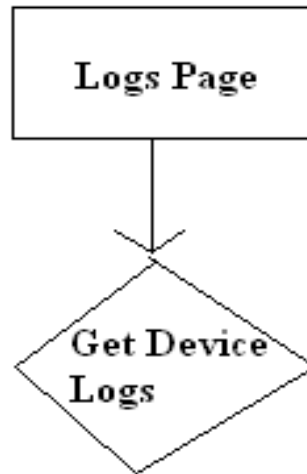
Remote User



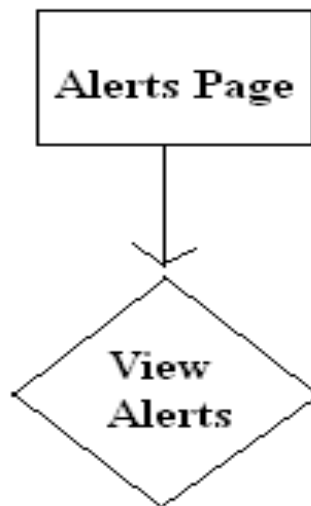
Remote User



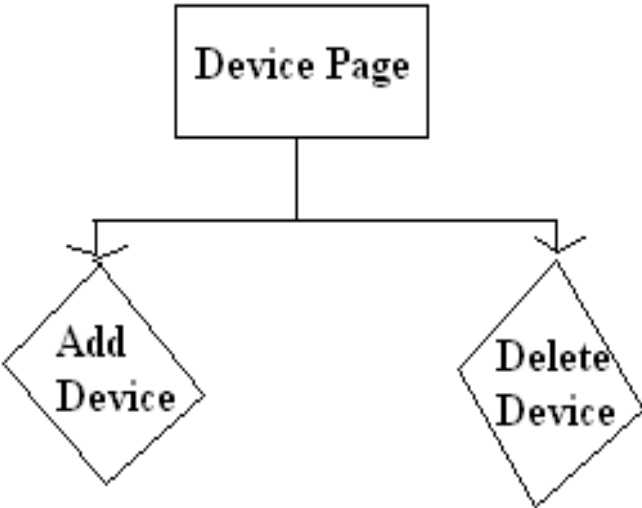
Remote User



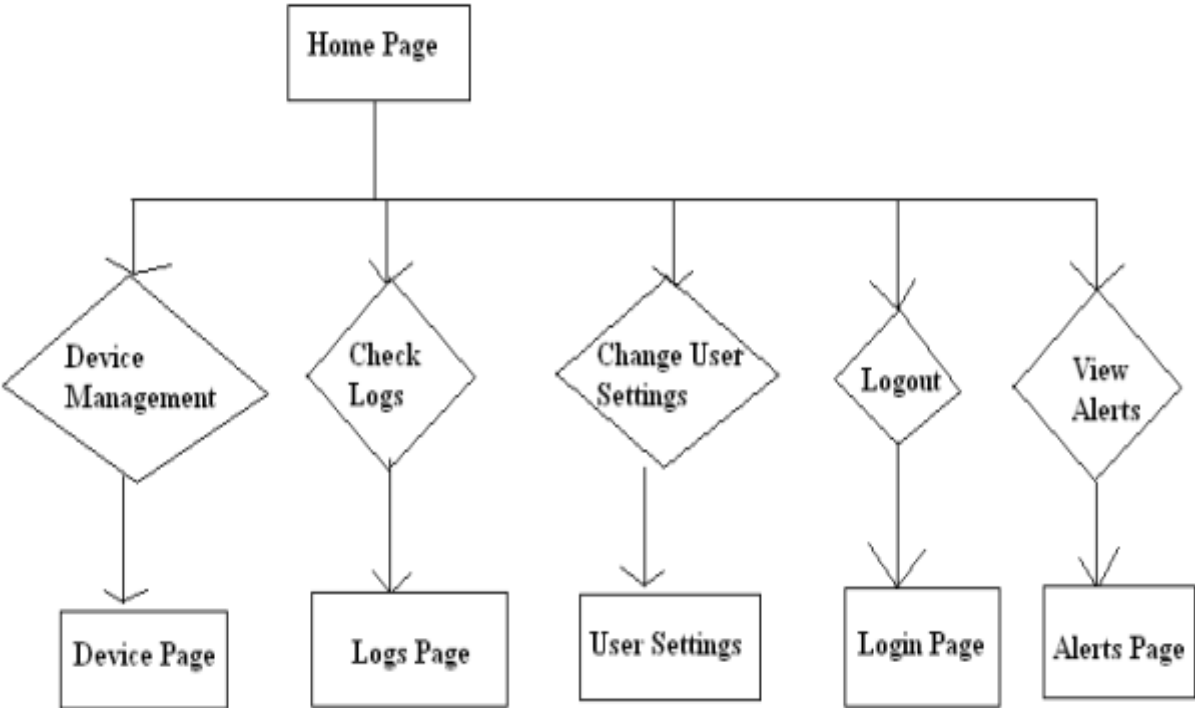
Sensored User



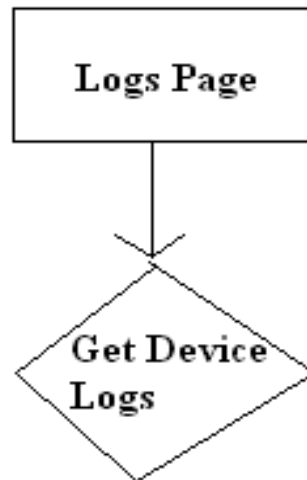
Sensored User



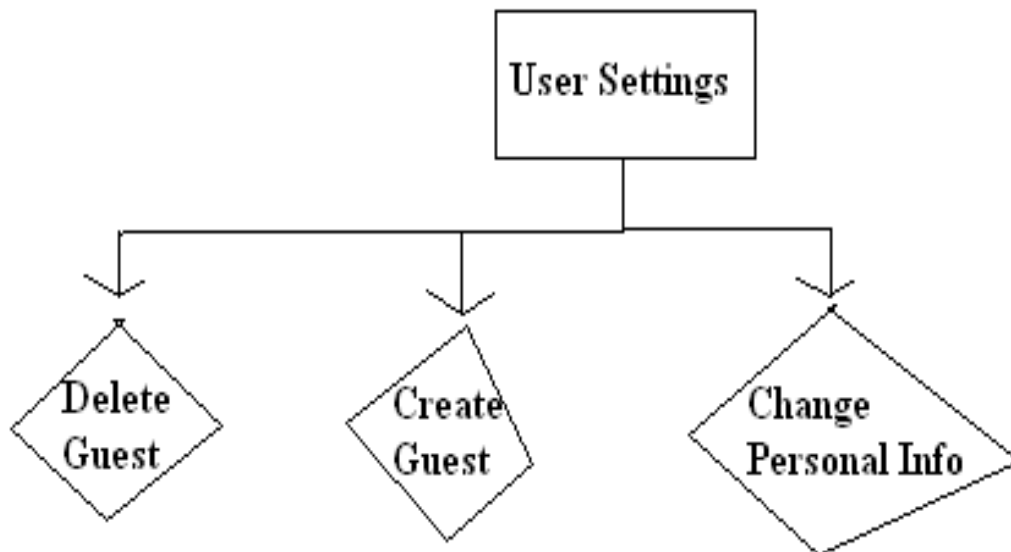
Sensored User



Sensored User



Sensored User



10. Physical Data Structures

User : Table			
	Field Name	Data Type	Description
	User ID	AutoNumber	This field stores the unique account number for the user
	Acting As	Number	This field stores the original user ID for the guest, the User ID of the regular user, or the User ID the Admin wants to check on.
	E-Mail	Text	This field stores the e-mail address of the user which is used for a login username.
	Password	Text	This field stores the login password for the user.
	Last Name	Text	This field stores the last name of the user.
	First Name	Text	This field stores the first name of the user.
	Cell Number	Text	This field stores the cell phone number of the user.
	Home Phone	Text	This field stores the home phone number of the user.
	Address	Text	This field stores the address of the user.
	Security Question	Text	This field stores a security question provided by the user.
	Security Answer	Text	This field stores the answer to the security question provided by the user.
	Permissions	Number	This field stores the user level. 0 for guest, 1 for regular user, and 2 for administrator.

User - This table stores information about a user in the database. All information pertaining to the user is stored within this table. This information includes the user ID, the user's E-mail, password the user's full name, security questions as well as the user's address and contact info.

Event : Table			
	Field Name	Data Type	Description
	Event ID	AutoNumber	This field stores the unique event number for the event.
	User ID	Number	This field stores the User ID number of the user the event was triggered for.
	Location ID	Number	This field stores the Location ID of the location where the event was triggered.
	Time of Event	Date/Time	This field stores the time the event occurred.
	Event Type	Text	This field stores the type of event that occurred.
	Event Message	Text	This field stores the message generated by the event.

Event - This table stores information about a event of a device in the database. All information pertaining to the event of a device is stored within this table. This includes the Event ID, the user and their location, and the time, type of and message associated with the event.

Location : Table			
	Field Name	Data Type	Description
	Location ID	AutoNumber	This field stores the unique location number for the location.
	Owner ID	Text	This field stores the account number for the user that registered this location.
	IP Address	Text	This field stores the IP Address of this location.
	Name	Text	This field stores the name assigned to this location.
	Description	Text	This field stores the description assigned to this location.
	Address	Text	This field stores the address of this location.
	Phone Number	Text	This field stores the phone number of this location.

Location - This table stores information about a registered location in the database. All information pertaining to a registered location is stored within this table. This includes the location's ID, the owner's ID, the location's IP address and the name, description and address of the registered location.

Goose : Table			
	Field Name	Data Type	Description
🔍	Goose ID	AutoNumber	This field stores the unique ID number for this Goos device.
	Location	Number	This field stores the ID number for the location the Goos is located.
	IP Address	Text	This field stores the IP Address of the Goos device.
	ID Number	Number	This field stores the ID number the Goos device assigns itself.
	Name	Text	This field stores the name of the Goos device.

Goos - This table stores information about a goos in the database. All information pertaining to the goos is stored within this table. This includes the goos ID, location, IP address, ID number, and name.

Camera : Table			
	Field Name	Data Type	Description
🔍	Camera ID	AutoNumber	This field stores the unique ID number of the camera.
	Location	Number	This field stores the ID number of the location the camera is at.
	IP Address	Text	This field stores the IP Address of the camera.

Camera - This table stores information about a camera in the database. All information pertaining to the camera is stored within this table. This includes the camera's ID, location and IP address.

Alert : Table			
	Field Name	Data Type	Description
🔍	Alert ID	AutoNumber	This field stores the unique ID number of the alert.
	Peripheral ID	Number	This field stores the ID number of the Peripheral that is in alert status.
	Location ID	Number	This field stores the ID number of loaction the alert occurred at.
	Date of Alert	Date/Time	This field stores the date and time of the alert.
	Time in Alert Status	Text	This field stores the total amount of minutes the peripheral was in alert status.
	Reading	Number	This field stores the reading that triggered the alert.
	Type	Text	This field stores the type of alert.
	Alert Message	Text	This field stores a message describing the alert.

Alert- This table stores information about a Alert in the database. All information pertaining to the Alert is stored within this table. This includes the Alert's ID, the ID of the peripheral which has the alert, the ID of the location with the alert, the date of the alert the Alert's time and status, as well as the reading associated with, message and type of alert.

Peripheral : Table			
	Field Name	Data Type	Description
🔍	Peripheral ID	AutoNumber	This field stores the unique ID number of a peripheral attached to a Goos device.
	Goose ID	Number	This field stores the ID number of the Goos that the peripheral is attached to.
	Device ID	Number	This field stores the ID number the peripheral assigns itself.
	Previous Reading	Text	This field stores the last reading from the peripheral.
	Type of Sensor	Text	This field stores the the type of sensor the peripheral is.
	Threshold Low	Number	This field stores the value that if the reading is lower will trigger an alert.
	Threshold High	Number	This field stores the value that if exceeded by the reading will trigger an alert.
	Time of Last Alert	Date/Time	This field stores the date and time of the last alert, if any.
	Alarm Enabled	Yes/No	This field stores if the peripheral is in alert status.

Peripheral - This table stores information about a peripheral in the database. All information pertaining to the peripheral is stored within this table. This includes the peripheral ID, the ID of the goos with the peripheral, the ID of the device associated with the peripheral, the peripheral's previous reading, the type of sensor, and thresholds of the peripheral. It also contains when an alarm was tripped, the time of the last alert of the peripheral, and whether or not the alarm is enabled.

11. Packaging Specification

Our software package will include an instructional manual that may be of assistance to the user. This manual will provide the user with information regarding installation and usage of the software. All users will be given a copy of this manual to instruct them on login procedures and a step-by-step guide to how the system works. In addition, the system administrator will be given additional information regarding permission setting.

12. Development Environment

The development environment is the atmosphere which we used to develop our documents, images, etc. The development environment also contains the tools used to create our documents, images, etc. Oraserv is the name of the machine that is our development environment. Its operation system is Red Hat Enterprise Linux ES release.

The following tools are a part of our development environment.

Name	Version	Creator	Copyright
Apache	2.046		
BlueJ	2.0.4/ 2.0.4.7	Deakin University, Melbourne, Australia University of Kent, Canterbury, UK.	Michael Kolling John Rosenberg
Internet Explorer	6.0.2900.2180 w/ SP2	Microsoft Corporation	1995-2004
Internet Explorer	6.0.2800.1106 w/ SP1	Microsoft Corporation	1995-2001
Macromedia Dreamweaver MX	6.0.1722.0	Macromedia, Inc.	1997 - 2002
Macromedia Fireworks MX	6.0.0.273	Macromedia, Inc.	1997 - 2002
Microsoft Excel	11.0.6355.0	Microsoft Corporation	1983-2003
Microsoft Excel	9.0.0.3822	Microsoft Corporation	1985-1999
Microsoft Word	11.0.6359.0	Microsoft Corporation	1983-2003
Microsoft Word	9.0.0.3822	Microsoft Corporation	1985-1999
Microsoft Paint	6.0.2900.2180	Microsoft Corporation	1985-2003
Microsoft Paint	5.0	Microsoft Corporation	1981-1999
Microsoft PowerPoint	11.0.6361.0	Microsoft Corporation	1987-2003
Microsoft PowerPoint	9.0.0.3821	Microsoft Corporation	1987-1999

Microsoft Windows NT 2000 Professional, SP3, Intel Pentium 4 CPU, 1300 MGHZ, 130, 352 of RAM

Microsoft Windows XP Professional – Version 2002, Service Pack 2, Intel Pentium 4 CPU, 2.40 GHz, 512 MB of RAM

Microsoft Windows XP Professional – Version 2002, Service Pack 2, Intel Pentium 4 CPU, 1.80 GHz, 256 MB of RAM

Mozilla Firefox	1.0.0	Mozilla Foundation	1998-2004
mySQL	4.1.14		
Netscape	7.1	Netscape Communications Corporation	2000-2003
Oracle	10G		

Not all of the software listed above is required for a user to operate our security software. However, the software listed above is illustrated at the minimum versions allowed in order for our Remote Monitoring Access System to function properly on a user's computer.

13. Production Environment

The production environment is the environment in which the software will be produced, tested, and implemented. Oraserv is also the name of the machine that is our production environment. Its operation system is Red Hat Enterprise Linux ES release.

14. Test Plan

1. Test Plan Identifier

This is version 1.0 of the EIN Systems Environmental Monitoring Project Test Plan.

2. Introduction

We will be using Unit Testing and Acceptance Testing to provide the quality standards for our software. A Unit Test for each page of our software will define the pass/fail criterion for an item being tested. The test deliverables include a complete Unit Test document along with a fully completed checklist of our Functional Requirements and Acceptance Test.

3. Test Items

Our software test items will include our web based security software for monitoring one's home or office. Other test items include the software from our development environment such as:

- Apache 2.046
- Internet Explorer 6.0.2900.2180 w/ Service Pack 2
- Mozilla Firefox 1.0.0
- mySQL 4.1.14
- Netscape 7.1
- Oracle 10 g
- PHP 4.3.11
- Putty 0.53b

These items must work congruently with an operating system that runs at minimum Microsoft Windows NT 2000 Professional w/ Service Pack 3. These are the minimum software requirements and any system that using our software must have the software listed above with the corresponding version number or greater. We must test for the top three web browsers IE, Firefox, and Netscape. The hardware test items of our software will require a potential user to operate it on a pc that has at least an Intel Pentium 4 CPU with a 1,300 MHz processor speed and 128 MB of RAM.

4. Features to be Tested

The features of the software that will be tested include the software interface to make sure that it responds properly to the user's commands and displays the appropriate menus and data. In addition, the validation of the links will be tested to make sure that they are functional and direct the user to the proper pages, and the text boxes will be tested to make sure that the information entered by a user is correct and appropriate. Furthermore, the code of the software will be vigorously tested to make sure that the interface to prevent any malfunctions from occurring and to ensure the validity and reliability of our software. We want the user's experience to be as relaxed as possible.

1. Read-Only User

- a. Login page
 - Can enter e-mail for username

- Can enter 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 “#\$\$%^!&*=”
- Submit button works and submits the information within the e-mail and password fields
- Submit button sends the read-only user to the logged-in screen which, is a user homepage with a welcome message, as well as a message informing the read-only user that the user is at a recognized, monitored location.
- The forgotten password link works and guides the read-only user with instruction on getting a working password
- The FAQ link works
- The new registration link works

b. Registration page

- Can enter in first name, last name, address, e-mail, password, security question and answer, phone number, and cell phone number.
- Can click submit to transmit the information in the registration fields

c. Logged-in Homepage

- Shows a welcome message, as well as a message informing the read-only user that the user is at a recognized, monitored location
- Displayed at the bottom of the read-only user’s logged in screen, are the read-only user’s registered locations, with the current “at” location highlighted, the devices associated with each location and the status for each
- Has a navigation bar with buttons that take the read-only user to the different pages on the website which allow the read-only user to change various aspects of the user’s account.
- Account link does not work
- Device Management link does not work
- Profile settings link works
- Logout link works
- Add New location link does not work

d. Profile Settings page

- Allows the read-only user to change the settings associated with the read-only user’s online account
- Can change e-mail address
- Can change password
- Submit button transmits any changes made

- e. Logs page
 - Navigates the read-only user to a page that displays all the alert and event logs in each device's history.

2. Remote User

- a. Login page
 - Can enter e-mail for username
 - Can enter 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 “#\$%^!&*=”
 - Submit button works and submits the information within the e-mail and password fields
 - Submit button sends the remote user to the logged-in screen which is a user homepage with a welcome message, as well as a message informing the remote user that the user is at a recognized, monitored location.
 - The forgotten password link works and guides the remote user with instruction on getting a working password
 - The FAQ link works
 - The new registration link works
- b. Registration page
 - Can enter in first name, last name, address, e-mail, password, security question and answer, phone number, and cell phone number.
 - Can click submit to transmit the information in the registration fields
- c. Logged-in Homepage
 - Shows a welcome message, as well as a message informing the remote user that the user is at a recognized, monitored location
 - Displayed at the bottom of the remote user's logged in screen are the remote user's registered locations, with the current “at” location highlighted, the devices associated with each location and the status for each
 - Has a navigation bar with buttons that take the remote user to the different pages on the website which allow the remote user to change various aspects of the user's account.
 - Account link does not work
 - Device Management link does not work
 - Profile settings link works
 - Logout link works
 - Add New location link works

- d. Profile Settings page
 - Allows the remote user to change the settings associated with the remote user's online account
 - Can change e-mail address
 - Can change password
 - Submit button transmits any changes made
 - e. Logs page
 - Navigates the remote user to a page that displays all the alert and event logs in each device's history.
 - f. New Location Page
 - Able to add a new location
- 3. Sensored User**
- a. Login page
 - Can enter e-mail for username
 - Can enter 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 “# \$ % ^ ! & * =”
 - Submit button works and submits the information within the e-mail and password fields
 - 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
 - b. Registration page
 - Can enter in first name, last name, address, e-mail, password, security question and answer, phone number, and cell phone number.
 - Can click submit to transmit the information in the registration fields
 - c. Logged-in Homepage
 - Shows a welcome message, as well as a message informing the sensored user that the user is at a recognized, monitored location
 - Displayed at the bottom of the sensored user's logged in screen for the sensored user, are the sensored user's registered locations, with the current “at” location highlighted, the devices associated with each location and the status for each

- Has a navigation bar with buttons that take the sensed user to the different pages on the website which allow the sensed user to change various aspects of the user's account.
 - Account link works
 - Device Management link works
 - Profile settings link works
 - Logout link works
 - Add new location link does not work
- d. Account page
- Allows the sensed user to add or delete an account, both a regular account and a "read-only" account
 - Submit button transmits any changes made
- e. Device Management page
- Allows the sensed user to add or delete a device
 - Can check the alert status of each device
 - Can change the acceptable range of the readings for a device
 - Submit button transmits any changes made
- f. Profile Settings page
- Allows the sensed user to change the settings associated with the sensed user's online account
 - Can change e-mail address
 - Can change password
 - Submit button transmits any changes made
- g. Logs page
- Navigates the sensed user to a page that displays all the alert and event logs in each device's history.

5. Features not to be Tested

The features that will not be tested include our style sheets that our software is based on because we are confident that they present the information and data precisely the way it should be.

6. Approach

Unit tests for each page will be used to ensure the quality of the system. These unit tests will be used in integration tests, and this will complete our Acceptance Testing.

7. Item Pass/Fail Criteria

Home Page (home.htm)										
Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
1	Home Page Link Clicked	Link	Home Page Link is Clicked	home.htm	home.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	home.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		
3	Device Manangement Link Clicked	Link	Device Management Link is Clicked	home.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		
4	User Settings Link Clicked	Link	User Settings Link is Clicked	home.htm	user.htm	None	Load webpage	user.htm page is loaded automatically		
5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	home.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		
6	Logs Link Clicked	Link	Logs Link is Clicked	home.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		
7	Device Link Clicked	Link	Device Link is Clicked based on its location	home.htm	device.htm	None	Load webpage	device.htm webpage is loaded giving the description and information of every device		
8	Alerts Link Clicked	Link	Alerts Link is Clicked based on its Location	home.htm	alerts.htm	None	Load webpage	alerts.htm webpage is loaded giving the information of every user		
9	Logout Link Clicked	Link	Logout Link is Clicked under its location	home.htm	logout.htm	None	Load webpage	logout.htm page is loaded automatically		

Login Page (login.htm)										
Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
1	Home Page Link Clicked	Link	Home Page Link is Clicked	login.htm	home.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	login.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		
3	Device Manangement Link Clicked	Link	Device Management Link is Clicked	login.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		
4	User Settings Link Clicked	Link	User Settings Link is Clicked	login.htm	user.htm	None	Load webpage	user.htm page is loaded automatically		
5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	login.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		
6	Logs Link Clicked	Link	Logs Link is Clicked	login.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		
7	Enter User Name	User Name	User enter his/her user name in the user name text box	login.htm	login.htm	user name	Enter text into User Name text box	User Name text box displays the name that the user has entered		
8	Enter Password	Password	User enter his/her password in the password text box	login.htm	login.htm	password	Enter text into Password text box	Password text box displays the encrypted password that the user has entered		
9	Forgotten Password Link Clicked	Link	Forgotten Password Link is Clicked	login.htm	lostpassword.htm	None	Load webpage	lostpassword.htm webpage is loaded automatically that helps instructs user how to get a new password		

10	Incorrect User Name	User Name	valid, incorrect user name is entered	login.htm	Error page	user name, password	Load error webpage	webpage is loaded automatically telling user that his/her authentication attempt was incorrect		
11	Incorrect Password	Password	valid, correct user name is entered and valid, incorrect password is entered	login.htm	Error page	user name, password	Load error webpage	webpage is loaded automatically telling user that his/her authentication attempt was incorrect		
12	Invalid Password	Password	An invalid password is entered	login.htm	Error page	user name, password	Load error webpage	webpage is loaded automatically telling user that his/her authentication attempt was incorrect		
13	Correct Login	login	valid, correct user name and password is entered	login.htm	home.htm	user name, password	Load webpage	home.htm page is loaded automatically		
14	Faq Link Clicked	Link	Faq Link is Clicked	login.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		
15	New User Registration Link Clicked	Link	New User Registration Link is Clicked	login.htm	new.htm	None	Load webpage	new.htm page is loaded automatically for a new user can create a new account		

Device Management Page (device.htm)

Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
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1	Home Page Link Clicked	Link	Home Page Link is Clicked	device.htm	home.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	device.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		
3	Device Management Link Clicked	Link	Device Management Link is Clicked	device.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		
4	User Settings Link Clicked	Link	User Settings Link is Clicked	device.htm	user.htm	None	Load webpage	user.htm page is loaded automatically		
5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	device.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		
6	Logs Link Clicked	Link	Logs Link is Clicked	device.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		
7	Alerts Set Drop Down Menu Clicked	Drop Down Menu	Alerts Set Drop Down Menu is Clicked	device.htm	device.htm	None	Displays options within the drop down menu	Drop down menu is displayed listing all possible options to change current device alert settings		
8	Device Link Clicked	Link	Device Link is Clicked based on its location	device.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		
9	Alerts Link Clicked	Link	Alerts Link is Clicked based on its Location	device.htm	alerts.htm	None	Load webpage	alerts.htm page is loaded automatically		
10	Logout Link Clicked	Link	Logout Link is Clicked under its location	device.htm	logout.htm	None	Load webpage	logout.htm page is loaded automatically		

User Settings (user.htm)										
Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
1	Home Page Link Clicked	Link	Home Page Link is Clicked	user.htm	home.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	user.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		
3	Device Management Link Clicked	Link	Device Management Link is Clicked	user.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		
4	User Settings Link Clicked	Link	User Settings Link is Clicked	user.htm	user.htm	None	Load webpage	user.htm page is loaded automatically		
5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	user.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		
6	Logs Link Clicked	Link	Logs Link is Clicked	user.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		
7	User First Name Entered	User First Name	User's Guest's First Name is entered in text box	user.htm	user.htm	first name of user	Enter text into User First Name text box	first name of user is shown in the text box as entered		
8	User's Guest's Last Name Entered	User Last Name	User Last Name is entered in text box	user.htm	user.htm	last name of user	Enter text into User Last Name text box	last name of user is shown in the text box as entered		
9	User Address is Entered	Address	User Address is entered in text box	user.htm	user.htm	user address	Enter text into User's Address text box	address of user is shown in the text box as entered		
10	User Phone Number is Entered	User Phone Number	User Phone Number is entered in text box	user.htm	user.htm	user phone number	Enter text into User's Phone Number text box	phone number of user is shown in the text box as entered		
11	User Email is Entered	User Email	User Email is entered in text box	user.htm	user.htm	user email	Enter text into User's email text box	email of user is shown in the text box as entered		

12	User Password is Entered	User Password	User Password is entered in text box	user.htm	user.htm	user password	Enter text into User's Password text box	password of user is shown in the text box as entered		
13	User Security Question is Entered	User Security Question	User Security Question is entered in text box	user.htm	user.htm	user security question	Enter text into User's Security Question text box	security question of user is shown in the text box as entered		
14	User Security Answer is Entered	User Security Answer	User Security Answer is entered in text box	user.htm	user.htm	user security answer	Enter text into User's Security Answer text box	security answer of user is shown in the text box as entered		
15	Submit Changes Button Clicked	Link	Submit Button is Clicked	user.htm	userchanges.htm	None	Load webpage	userchanges.htm webpage is loaded telling the user that he/she has successfully made changes to his/her account info		
16	User's Guest's First Name Entered	User's Guest's First Name	User's Guest's First Name is entered in text box	user.htm	user.htm	first name of user's guest	Enter text into User's Guest's First Name text box	first name of user's guest is shown in the text box as entered		
17	User's Guest's Last Name Entered	User's Guest's Last Name	User's Guest's Last Name is entered in text box	user.htm	user.htm	last name of User's Guest's	Enter text into User's Guest's Last Name text box	last name of User's Guest is shown in the text box as entered		
18	User's Guest's Address is Entered	Address	User's Guest's Address is entered in text box	user.htm	user.htm	User's Guest's address	Enter text into User's Guest's Address text box	address of User's Guest is shown in the text box as entered		
19	User's Guest's Phone Number is Entered	User's Guest's Phone Number	User's Guest's Phone Number is entered in text box	user.htm	user.htm	User's Guest's phone number	Enter text into User's Guest's Phone Number text box	phone number of User's Guest is shown in the text box as entered		
20	User's Guest's Email is Entered	User's Guest's Email	User's Guest's Email is entered in text box	user.htm	user.htm	User's Guest's email	Enter text into User's Guest's email text box	email of User's Guest is shown in the text box as entered		

21	User's Guest's Password is Entered	User's Guest's Password	User's Guest's Password is entered in text box	user.htm	user.htm	User's Guest's password	Enter text into User's Guest's Password text box	password of User's Guest is shown in the text box as entered		
22	User's Guest's Security Question is Entered	User's Guest's Security Question	User's Guest's Security Question is entered in text box	user.htm	user.htm	User's Guest's security question	Enter text into User's Guest's Security Question text box	security question of User's Guest is shown in the text box as entered		
23	User's Guest's Security Answer is Entered	User's Guest's Security Answer	User's Guest's Security Answer is entered in text box	user.htm	user.htm	User's Guest's security answer	Enter text into User's Guest's Security Answer text box	security answer of User's Guest is shown in the text box as entered		
24	Submit Guest User Button Clicked	Link	Submit Button is Clicked	user.htm	guest.htm	None	Load webpage	guest.htm webpage is loaded telling the User's Guest that he/she has successfully registered his/her guest user		

Faq/Help (faq.htm)

Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
1	Home Page Link Clicked	Link	Home Page Link is Clicked	faq.htm	home.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	faq.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		
3	Device Manangement Link Clicked	Link	Device Management Link is Clicked	faq.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		
4	User Settings Link Clicked	Link	User Settings Link is Clicked	faq.htm	user.htm	None	Load webpage	user.htm page is loaded automatically		
5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	faq.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		

6	Logs Link Clicked	Link	Logs Link is Clicked	faq.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		
7	Register New Device Link Clicked	Link	Register New Device Link is Clicked	faq.htm	new.htm	None	Load webpage	webpage is loaded allowing the user to register a new device at a location		

Logs (logs.htm)

Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
1	Home Page Link Clicked	Link	Home Page Link is Clicked	logs.htm	home.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	logs.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		
3	Device Manangement Link Clicked	Link	Device Management Link is Clicked	logs.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		
4	User Settings Link Clicked	Link	User Settings Link is Clicked	logs.htm	user.htm	None	Load webpage	user.htm page is loaded automatically		
5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	logs.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		
6	Logs Link Clicked	Link	Logs Link is Clicked	logs.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		
7	Device Link Clicked	Link	Device Link is Clicked based on its location	logs.htm	device.htm	None	Load webpage	device.htm webpage is loaded giving the device's description and information		
8	Alerts Link Clicked	Link	Alerts Link is Clicked based on its Location	logs.htm	alerts.htm	None	Load webpage	alerts.htm page is loaded automatically		

9	Logout Link Clicked	Link	Logout Link is Clicked under its location	logs.htm	logout.htm	None	Load webpage	logout.htm page is loaded automatically		
Administrator Page (admin.htm)										
Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
1	Home Page Link Clicked	Link	Home Page Link is Clicked	admin.htm	admin.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	admin.htm	admin.htm	None	Load webpage	login.htm page is loaded automatically		
3	Device Manangement Link Clicked	Link	Device Management Link is Clicked	admin.htm	admin.htm	None	Load webpage	device.htm page is loaded automatically		
4	User Settings Link Clicked	Link	User Settings Link is Clicked	admin.htm	admin.htm	None	Load webpage	user.htm page is loaded automatically		
5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	admin.htm	admin.htm	None	Load webpage	faq.htm page is loaded automatically		
6	Logs Link Clicked	Link	Logs Link is Clicked	admin.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		
6	All Events Link Clicked	Link	All Events Link is Clicked	admin.htm	adminevents.htm	None	Load webpage	adminevents.htm page is loaded automatically		
7	All Alerts Link Clicked	Link	All Alerts Link is Clicked	admin.htm	adminalerts.htm	first name of user	Load webpage	adminalerts.htm page is loaded automatically		
8	Device Link Clicked	Link	Device Link is Clicked based on its location	admin.htm	admindevices.htm	None	Load webpage	admindevices.htm webpage is loaded giving the device's description and information		
9	Alerts Link Clicked	Link	Alerts Link is Clicked based on its Location	admin.htm	adminalerts.htm	None	Load webpage	adminalerts.htm page is loaded automatically		

10	Users Link Clicked	Link	User Link is Clicked	admin.htm	adminusers.htm	None	Load webpage	adminusers.htm page is loaded automatically		

Administrator Alerts Page (adminalerts.htm)

Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
1	Home Page Link Clicked	Link	Home Page Link is Clicked	adminalerts.htm	home.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	adminalerts.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		
3	Device Management Link Clicked	Link	Device Management Link is Clicked	adminalerts.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		
4	User Settings Link Clicked	Link	User Settings Link is Clicked	adminalerts.htm	user.htm	None	Load webpage	user.htm page is loaded automatically		
5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	adminalerts.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		
6	Logs Link Clicked	Link	Logs Link is Clicked	adminalerts.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		
8	Device Link Clicked	Link	Device Link is Clicked based on its location	adminalerts.htm	admindevices.htm	None	Load webpage	admindevices.htm webpage is loaded giving the device's description and information		
9	Alerts Link Clicked	Link	Alerts Link is Clicked based on its Location	adminalerts.htm	adminalerts.htm	None	Load webpage	adminalerts.htm page is loaded automatically		
10	Users Link Clicked	Link	User Link is Clicked	admin.htm	adminusers.htm	None	Load webpage	adminusers.htm page is loaded automatically		

Add Location Page (location.htm)										
Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
1	Home Page Link Clicked	Link	Home Page Link is Clicked	location.htm	home.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	location.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		
3	Device Management Link Clicked	Link	Device Management Link is Clicked	location.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		
4	User Settings Link Clicked	Link	User Settings Link is Clicked	location.htm	user.htm	None	Load webpage	user.htm page is loaded automatically		
5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	location.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		
6	Logs Link Clicked	Link	Logs Link is Clicked	location.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		
7	Location Name Entered	Location Name	Name of User's new Location is entered in text box	location.htm	location.htm	name of location	Enter text into Location Name text box	name of user's new location is shown in the text box as entered		
8	Location Address Entered	Location Address	Address of User's new Location is entered in text box	location.htm	location.htm	address of location	Enter text into Location Address text box	address of user's new location is shown in the text box as entered		
9	Location Description Entered	Location Description	Description of User's new Location is entered in text box	location.htm	location.htm	description of location	Enter text into Location Description text box	description of user's new location is shown in the text box as entered		

New User Registration page (newuser.htm)										
Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
1	Home Page Link Clicked	Link	Home Page Link is Clicked	newuser.htm	home.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	newuser.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		
3	Device Management Link Clicked	Link	Device Management Link is Clicked	newuser.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		
4	User Settings Link Clicked	Link	User Settings Link is Clicked	newuser.htm	user.htm	None	Load webpage	user.htm page is loaded automatically		
5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	newuser.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		
6	Logs Link Clicked	Link	Logs Link is Clicked	newuser.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		
7	User First Name Entered	User First Name	User's Guest's First Name is entered in text box	newuser.htm	newuser.htm	first name of user	Enter text into User First Name text box	first name of user is shown in the text box as entered		
8	User's Guest's Last Name Entered	User Last Name	User Last Name is entered in text box	newuser.htm	newuser.htm	last name of user	Enter text into User Last Name text box	last name of user is shown in the text box as entered		
9	User Address is Entered	Address	User Address is entered in text box	newuser.htm	newuser.htm	user address	Enter text into User's Address text box	address of user is shown in the text box as entered		
10	User Phone Number is Entered	User Phone Number	User Phone Number is entered in text box	newuser.htm	newuser.htm	user phone number	Enter text into User's Phone Number text box	phone number of user is shown in the text box as entered		
11	User Email is Entered	User Email	User Email is entered in text box	newuser.htm	newuser.htm	user email	Enter text into User's email text box	email of user is shown in the text box as entered		

12	User Password is Entered	User Password	User Password is entered in text box	newuser.htm	newuser.htm	user password	Enter text into User's Password text box	password of user is shown in the text box as entered		
13	User Security Question is Entered	User Security Question	User Security Question is entered in text box	newuser.htm	newuser.htm	user security question	Enter text into User's Security Question text box	security question of user is shown in the text box as entered		
14	User Security Answer is Entered	User Security Answer	User Security Answer is entered in text box	newuser.htm	newuser.htm	user security answer	Enter text into User's Security Answer text box	security answer of user is shown in the text box as entered		
15	Submit Changes Button Clicked	Link	Submit Button is Clicked	newuser.htm	userchanges.htm	None	Load webpage	webpage is loaded telling the user that he/she has successfully made changes to his/her account info		

Read-Only User Home Page (readonlyhome.htm)

Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
1	Home Page Link Clicked	Link	Home Page Link is Clicked	readonlyhome.htm	home.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	readonlyhome.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		
3	Device Management Link Clicked	Link	Device Management Link is Clicked	readonlyhome.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		
4	User Settings Link Clicked	Link	User Settings Link is Clicked	readonlyhome.htm	user.htm	None	Load webpage	user.htm page is loaded automatically		

5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	readonlyhome.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		
6	Logs Link Clicked	Link	Logs Link is Clicked	readonlyhome.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		
7	Device Link Clicked	Link	Device Link is Clicked based on its location	readonlyhome.htm	device.htm	None	Load webpage	device.htm webpage is loaded giving the device's description and information		
8	Alerts Link Clicked	Link	Alerts Link is Clicked based on its Location	readonlyhome.htm	alerts.htm	None	Load webpage	alerts.htm page is loaded automatically		
9	Logout Link Clicked	Link	Logout Link is Clicked under its location	readonlyhome.htm	logout.htm	None	Load webpage	logout.htm page is loaded automatically		

Remote User Home Page (remotehome.htm)

Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
1	Home Page Link Clicked	Link	Home Page Link is Clicked	remotehome.htm	home.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	remotehome.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		
3	Device Management Link Clicked	Link	Device Management Link is Clicked	remotehome.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		
4	User Settings Link Clicked	Link	User Settings Link is Clicked	remotehome.htm	user.htm	None	Load webpage	user.htm page is loaded automatically		
5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	remotehome.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		
6	Logs Link Clicked	Link	Logs Link is Clicked	remotehome.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		

7	Device Link Clicked	Link	Device Link is Clicked based on its location	remotehome.htm	device.htm	None	Load webpage	device.htm webpage is loaded giving the device's description and information		
8	Alerts Link Clicked	Link	Alerts Link is Clicked based on its Location	remotehome.htm	alerts.htm	None	Load webpage	alerts.htm page is loaded automatically		
9	Logout Link Clicked	Link	Logout Link is Clicked under its location	remotehome.htm	logout.htm	None	Load webpage	logout.htm page is loaded automatically		
7	Add New Location Link Clicked	Link	Add New Location Link is Clicked	remotehome.htm	location.htm	None	Load webpage	location.htm page is loaded automatically		

Logout Page (logout.htm)

Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
7	Return to Login Link Clicked	Link	Return to Login Link is Clicked	logout.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		

Lost Password Page (lostpassword.htm)

Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
1	Home Page Link Clicked	Link	Home Page Link is Clicked	lostpassword.htm	home.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	lostpassword.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		
3	Device Management Link Clicked	Link	Device Management Link is Clicked	lostpassword.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		
4	User Settings Link Clicked	Link	User Settings Link is Clicked	lostpassword.htm	user.htm	None	Load webpage	user.htm page is loaded automatically		
5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	lostpassword.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		

6	Logs Link Clicked	Link	Logs Link is Clicked	lostpassword.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		
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Guest Page (guest.htm)

Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
1	Home Page Link Clicked	Link	Home Page Link is Clicked	guest.htm	home.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	guest.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		
3	Device Manangement Link Clicked	Link	Device Management Link is Clicked	guest.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		
4	User Settings Link Clicked	Link	User Settings Link is Clicked	guest.htm	user.htm	None	Load webpage	user.htm page is loaded automatically		
5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	guest.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		
6	Logs Link Clicked	Link	Logs Link is Clicked	guest.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		

User Submitted Changes Page (userchanges.htm)

Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
1	Home Page Link Clicked	Link	Home Page Link is Clicked	userchanges.htm	home.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	userchanges.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		
3	Device Manangement Link Clicked	Link	Device Management Link is Clicked	userchanges.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		

4	User Settings Link Clicked	Link	User Settings Link is Clicked	userchanges.htm	user.htm	None	Load webpage	user.htm page is loaded automatically		
5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	userchanges.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		
6	Logs Link Clicked	Link	Logs Link is Clicked	userchanges.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		

Admin Devices Page (admindevices.htm)

Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
1	Home Page Link Clicked	Link	Home Page Link is Clicked	admindevices.htm	home.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	admindevices.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		
3	Device Management Link Clicked	Link	Device Management Link is Clicked	admindevices.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		
4	User Settings Link Clicked	Link	User Settings Link is Clicked	admindevices.htm	user.htm	None	Load webpage	user.htm page is loaded automatically		
5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	admindevices.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		
6	Logs Link Clicked	Link	Logs Link is Clicked	admindevices.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		

Admin User Page (adminusers.htm)

Num	Name	ID	Description	State Before Test	State After Test	Input/Test Values	Steps to be Executed	Expected Results	Pass/Fail	Comments
1	Home Page Link Clicked	Link	Home Page Link is Clicked	adminusers.htm	home.htm	None	Load webpage	home.htm page is loaded automatically		
2	Login/Logout Link Clicked	Link	Login/Logout Link is Clicked	adminusers.htm	login.htm	None	Load webpage	login.htm page is loaded automatically		

3	Device Management Link Clicked	Link	Device Management Link is Clicked	adminusers.htm	device.htm	None	Load webpage	device.htm page is loaded automatically		
4	User Settings Link Clicked	Link	User Settings Link is Clicked	adminusers.htm	user.htm	None	Load webpage	user.htm page is loaded automatically		
5	Faq/Help Link Clicked	Link	Faq/Help Link is Clicked	adminusers.htm	faq.htm	None	Load webpage	faq.htm page is loaded automatically		
6	Logs Link Clicked	Link	Logs Link is Clicked	adminusers.htm	logs.htm	None	Load webpage	logs.htm page is loaded automatically		

8. Suspension Criteria and Resumption Requirements

- Devices not functioning properly (Solved by consumer)
- Database not acquiring the exact data (Solved by contacting the administrator, he will take over situation)

9. Test Deliverables

The test deliverables include a complete Unit Test and Integration Test documents along with a fully completed checklist of our Functional Requirements and Acceptance Test.

10. Testing Tasks

The Testing Tasks can be broken down into the unit tests of each web page that the user will be able to view. There are currently a login page, a home page, and a device management page. Each of these pages will need to be extensively tested. These pages will be tested in a logical order that should help to reduce the amount of time required to test them. First will be the Login Page, followed by the Home Page, and finally the Device Management Page. The resources required to test these pages can be found in the Resources section of the document. In addition, two team members will be needed to test the login page, two members to test the device management page, and because of the relatively low amount of unit tests for the home page, only one member will be needed to test. Each of these tasks can be done concurrently.

11. Environmental Needs:

- A version of our software to test.
- A set of devices known to be compatible with the software.
- An Apache web-server to run our software on.
- The Apache web-server must have PHP version 4.3.11 installed.
- Macintosh OSX, Windows XP, Windows 2000, and Linux workstations with internet access, to allow testing on all of the software's compatible platforms.
- The workstation must also include all of the compatible browsers for our software.
- Rooms to test the devices.
- An Oracle 10g database to hold our software's information.

- Test data will be provided by the tester, with the goal of testing all of the possible conditions of the system.

12. Responsibilities:

- Vernell Mitchell will be the head tester, and will be in charge of setting risks as well as providing an overall strategy for the testing.
- Vernell will also be selecting which features will be tested and not tested as well as ensure that all required elements are in place for testing.
- Vernell will also be working on the testing to be provided, as well as giving any necessary training throughout the testing phase.
- Anthony Ruotolo, as team leader will check the data throughout the testing.
- Anthony will also provide solutions for scheduling conflicts.
- Anthony will also make any critical decisions for any item not covered in the test plan.

13. Staffing and Training Needs:

- The Person to be in charge of the testing will be Vernell Mitchell
- Vernell will also have two other members of our team to help him conduct the testing, Michael Devanandan and Ybelka Brito

14. Schedule

The testing tasks must be completed by May 1, 2006 in order to complete the Unit Testing Document. The tasks can begin as soon as functionality is completed with the user interface and the user database has been fully implemented. Testing will start no later than April 24, 2006 in order to allow enough time for the tasks to be completed and to make any corrections necessary to the system.

15. Risks and Contingencies

- An intruder login without person to take certain information (Solution to be determined)
- No alarms sent to consumer or administrator when a device has been asked to do so in dangerous situations
- Consumer not checking for alarm when it is sent
- Power outage

16. Approvals

Following are the signatures of the stakeholders in the plan, showing that they agree with the plan.

Appendix A: Glossary of Terms

Access – Program being used to help build the database design.

Alert Log - A sequential data record of alerts.

Authenticate - The process by which a computer, computer program, or another user attempts to confirm that the computer, computer program, or user from whom the second party has received some communication is, or is not, the claimed first party.

Axis 211A Network Camera – The web camera currently used to monitor the client

Code – The symbolic arrangement of data or instructions in a computer program or the set of such instructions.

Context Diagram - The most abstract view of a system, showing the system as a whole, its inputs and outputs from/to external systems.

C++ – A compiled object oriented programming language.

Database – A collection of data arranged for ease and speed of search and retrieval.

Data Flow Diagram (DFD) - A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system. A data flow diagram can also be used for the visualization of data processing (structured design). It is common practice for a designer to first draw a context-level DFD first which shows the interaction between the system and outside entities. This context-level DFD is then "exploded" to show more detail of the system being modeled.

Data Repository - A data repository is a central place where data is stored and maintained. A data repository can be a place where multiple databases or files are located for distribution over a network, or a data repository can be a location that is directly accessible to the user without having to travel across a network.

EIN – *Environmental Intelligence Network* – Our team name for the six software engineers who will design and implement a home environmental regulation system available over the internet.

EMS – *Environmental Monitoring System* – Name for our project consisting on monitoring environmental devices.

Event - A software message that indicates something has happened. This action can be initiated either by the user or the computer.

Event Log - A sequential data record of events.

Functional Decomposition Diagram – Diagram that shows the breaking down of a process into non-redundant operations. It provides a hierarchical breakdown of the program into the individual operations, or routines, that are required.

Gantt Chart – A chart that depicts progress in relation to time, of ten used in planning and tracking a project.

GUI – *Graphical User Interface* – An interface, which uses text box's and buttons to allow easy access of information by a mouse or other input device.

HTML – *Hypertext-markup language* – HTML is a markup language used to structure text and offers hypertext links between documents. It is the standard of the World Wide Web.

HTTP – *Hypertext Transfer Protocol* – The foundation protocol of the World Wide Web. It sets the rules for exchanges between browser and server. It provides for the transfer of hypertext and hypermedia, for recognition of file types, and other functions.

HTTPS – *Hypertext Transfer Protocol Secure* – This is a more secure version of HTTP. It is often used for credit card transactions over the web.

Internet – An interconnected system of networks that connects computers around the world via the TCP/IP protocol.

Java – An object oriented programming language.

Mini Goos – A smaller system of devices used to monitor the client.

Monitored Location – Registered and known location found in the database. Has a sensor installed at the location.

PHP – *PHP Hypertext Preprocessor* – PHP is a widely-used server-sided scripting language and can be embedded into HTML.

Reading - An action performed by computers, to acquire data from a source and place it into their volatile memory for processing.

Read – Only User – User at an unrecognized location who will only have access to check the status of the devices. The read – only user will only be able to see the registered locations, the devices associated with each location and the status for each.

Registered User – A user who has gone through the registration process and currently has a sensed location.

Remote User – Sensed user at an unknown or unregistered location who will be able to check on the status of devices when away from home. From an unregistered location, the

remote user can not make any changes to the devices or alert settings. The Remote User is able to add new locations which will make the user a sensed user.

Remote Location – An unknown or unregistered location not found in the database.

Sensor – A device that obtains and transmits environmental readings.

Sensed – An attribute indicating an installed sensor.

Sensed Location - Registered and known location found in the database. Has a sensor installed at the location.

Sensed User – Person at a monitored location who is able to add or delete devices and update other key elements such as alerts, passwords, etc. A sensed may not add a new location.

Site Administrator - The site administrator is responsible for maintaining the database of sensed users as well as upkeep and troubleshooting for a sensed user's software interaction and devices. The site administrator can disable user accounts or devices.

SNMP – *Simple Network Management Protocol* – A protocol which can support monitoring of network-attached devices for any conditions that warrant administrative attention.

SSL – *Secure Socket Layer* –A cryptographic protocol which provides secure communications on the internet.

Status – Current state of the device.

Structured Chart – See **Functional Decomposition Diagram**.

Weather Goos – The system of devices used to monitor the client

Web Browser - A software application that enables a user to display and interact with HTML documents hosted by web servers or held in a file system.

Appendix B: Gantt Chart

