Detailed Design

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RAEMS
Remote Access Environmental Monitoring System

EIN Systems
Environmental Intelligence Network Systems

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February 21, 2006
Environmental Intelligence Network Systems
Remote Access Environmental Monitoring System

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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.

*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.

ID: ?

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

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

**Location 1 Office:**

<table>
<thead>
<tr>
<th>Device</th>
<th>Status</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Sensor</td>
<td>ACTIVE</td>
<td>70 F at 11:30:00 on 11/15/05</td>
</tr>
</tbody>
</table>

**Quick Bar**

- **DEVICE**
- **ALERTS**
- **Logout**

**Location 2 Home:**

<table>
<thead>
<tr>
<th>Device</th>
<th>Status</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Sensor</td>
<td>ACTIVE</td>
<td>72 F at 11:30:00 on 11/15/05</td>
</tr>
<tr>
<td>Motion Sensor</td>
<td>ACTIVE</td>
<td>No movement at 11:30:00 on 11/15/05</td>
</tr>
</tbody>
</table>

**Quick Bar**

- **DEVICE**
- **ALERTS**
- **Logout**

Footer information
--Remote User--

A remote user is a sensor 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 sensored 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.
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.
--Sensored User--

A sensored 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 sensored 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 sensored user is authenticated, a logged-in screen comes up with a welcome message, as well as a message informing the sensored user that the user is at a recognized, monitored location. Displayed below for the sensored 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 sensored user will have a navigation bar with buttons that will take the sensored 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 sensored user to a page that will allow the sensored user to add or delete an account, a regular account or a “read-only” account. The Device button will navigate the sensored user to a page, which will allow the sensored user to add or delete a device as well as check the alert status of each device. A sensored 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 sensored user to a page which will allow the sensored user to change the settings associated with the user’s online account, including changing the sensored user’s E-mail or password. A sensored 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 sensored 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.

**Registration**

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

New Users must have a compatible device to register an account. See FAQ for a list of tested devices.
If you have a device and are at the location you wish to register please proceed here.
After authentication a sensored user logged in screen is loaded. The sensored user’s homepage contains a welcome message, as well as a message informing the sensored 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.

![Diagram of EIN Systems Home Page](image)

### Home Page

**Welcome Back, Mr. Swarner**

You are located at your office location.
ID: 192.168.0.101
You have received 0 alert(s) since you last logged in on 11/19/05 at 12:39:04
The EMS is currently monitoring two locations: 1. Office 2. Home

#### Location 1 Office:

<table>
<thead>
<tr>
<th>Device</th>
<th>Status</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Sensor</td>
<td>ACTIVE</td>
<td>78°F at 11:30:00 on 11/16/05</td>
</tr>
</tbody>
</table>

#### Location 2 Home:

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

### Quick Bar

DEVICE ALERTS Logout
A sensored user can view, change, or add/remove devices. The device management page also provides detailed information about each device registered at the sensored user’s current location. In addition, the device management page also contains links to the pages that allow a sensored 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.
A sensored 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 sensored user to delete an account.
A sensored 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.
A sensored user also has access to the logs page. This page displays the logs of all of the devices at all of the sensored users associated locations.
--Site Administrator--
The site administrator is responsible for maintaining the database of sensored users as well as upkeep and troubleshooting for a sensored 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 sensored 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 sensored users or devices or alerts. The site administrator can click on the Sensored User button on the administrator navigation bar and arrive at a page where the administrator can select a sensored user’s account and see the sensored 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 sensored 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 sensored user to the EMS with most recent displayed at the top. The site administrator can filter the alerts by sensored user location, or sensored 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 sensored 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 sensored users or devices or alerts.
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 sensored 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.

**Sensored User**
Registered user who is at a monitored location.

• A sensored user’s Web browser is set to the EIN Homepage by default.
• A sensored user logs into the sensored user’s account using the sensored user’s username and password.
• A sensored user’s username is the user’s E-mail.
• A sensored 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 sensored user has been authenticated, a logged-in screen comes up with 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, are the sensored user’s registered locations with the current “at” location highlighted, the devices associated with each location and the status for each.
• A sensored user also has a navigation bar with buttons that take the sensored user to the different pages on the website which allow the sensored user to change various aspects of the user’s account.
• The Account button navigates the sensored user to a page that allows the sensored user to add or delete an account, a regular account or a “read-only” account.
• The Device button navigates the sensored user to a page that allows the sensored 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 sensored user is currently at.
• The Profile Settings button navigates the sensored user to a page that allows the sensored user to change the settings associated with the sensored user’s online account, including changing the sensored user’s E-mail or password.
• The Logs button navigates the sensored 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 sensored 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 sensored users as well as upkeep and troubleshooting for a sensored 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 sensored 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 sensored users or devices or alerts.
- The site administrator can click on the Sensored User button on the site administrator navigation bar and arrive at a page where the site administrator can select a sensored user’s account and see the sensored 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 sensored 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 sensored user to the EMS with most recent displayed at the top.
- The site administrator can filter the alerts by sensored user location, or sensored 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 user's available actions and the interaction with data.
4. Data Flow Diagrams

![Data Flow Diagram]

- **Process**
- **Data Source/Sink**
- **Data Store**
- **Data Flow**
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.
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.
This diagram shows the Authenticate User process broken down into two more processes: 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**

<table>
<thead>
<tr>
<th>Acceptable Range</th>
<th>Data Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>The range set by the user that if exceeded will trigger an alert</td>
</tr>
<tr>
<td><strong>Location:</strong></td>
<td><strong>Obtain Sensor Data</strong> (3)</td>
</tr>
</tbody>
</table>

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Add Remove Device Event

**Description:**
An event log of a user adding or removing a device.

**Location:**
- **Source:** Manage User Choices (Process)
- **Dest:** Record Event Log (Process)

Address

**Description:**
The user's address.

**Location:**
- **Source:** Sensored User (External Entity)
- **Dest:** New Account (Process)

Alert Log

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

Alert On or Off

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

**Location:**
**Alert Settings**  
*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)

**Authorization**  
*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)

**Authorization for New User**  
*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:*
Authorization for Returning User

**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:**
- **Source:** Sensored User (External Entity)
- **Destination:** Request Device Information (Process)

Data Flow --> Authorization

Brand of Sensor

**Description:**
The brand of the sensor to be registered

**Location:**
- **Source:** Register New Devices (Process)
- **Destination:** User Database (Data Store)

Data Flow --> Reading
Data Flow --> Device Information

Cell Phone Number

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

**Location:**
- **Source:** Sensored User (External Entity)
Delete Device Request

Description:
A request to delete a device from the system

Location:
Manage User Choices (2)
Source: Sensored User (External Entity)
Dest: Change Device Options (Process)

Device Data

Location:
Obtain Sensor Data (3)
Source: Get Device Data (Process)
Dest: Get Sensor Data (Process)

Device ID

Description:
The ID used by the system to identify the device

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)

Device Information

Description:
Information on the device, including type, brand and location of the sensor.

Composition:
Brand of Sensor:
Location of Device:
Type of Sensor:
Device ID:
Alert On or Off:

Location:
Manage User Choices (2)
Source: User Database (Data Store)
Dest: Request Device Information (Process)

E-mail

EIN Systems Detailed Design Page 33
**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**

**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**

**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)
**First Name**  
*Description:* The user's first name  
*Location:*  
- **Authenticate User** (1)  
  - **Source:** Sensored User (External Entity)  
  - **Dest:** New Account (Process)  

**How often readings updated**  
*Description:* Determines when the system requests the information from the device  
*Location:*  
- **Manage User Choices** (2)  
  - **Source:** Sensored User (External Entity)  
  - **Dest:** Change Device Options (Process)  

**Id for each Device**  
*Description:* The ID the system uses to identify each device  
*Location:*  
- **Obtain Sensor Data** (3)  
  - **Source:** User Database (Data Store)  
  - **Dest:** Get Device Data (Process)  

**Id for Location**  
*Description:* The ID for the location of a group of sensors  
*Location:*  
- **Obtain Sensor Data** (3)  
  - **Source:** User Database (Data Store)  
  - **Dest:** Get Device Data (Process)  

**Last Name**  
*Description:* The user's last name  
*Location:*  
- **Authenticate User** (1)  
  - **Source:** Sensored User (External Entity)  
  - **Dest:** New Account (Process)
List of Sensors

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

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

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

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

Location:
- **Environmental Monitoring System** (0)

Data Flow -->  Personal Data

Data Flow -->  Reading

Data Flow -->  Sensor Information

Data Flow -->  Device Information

Data Flow -->  Environmental Monitoring System
Source: Authenticate User (Process)
Dest: Record Event Log (Process)

Login Information

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)

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

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

Composition:
Alert Log :
Event Log :

Location: (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

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)
**Personal Data**

*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)

**Context** (CONTEXT)
- **Source:** Environmental Monitoring System (Process)
- **Dest:** User Database (Data Store)

*Data Flow:*

**Phone Number**

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

*Location:*
Authenticate User

Source: Sensored User (External Entity)
Dest: New Account (Process)

Preferences

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

Preference Change Event

Description:
An event log of the user changing his or her preferences.
Location:
Environmental Monitoring System

Reading

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

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**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**

*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**

*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**

*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**

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

*Location:*

**Authenticate User** (1)
Sensor Data

Description:
Raw sensor data directly from the sensor devices. This information needs to be parsed by the system and made into meaningful data for the user.

Location:
Context (CONTEXT)
Source: Sensored User (External Entity)
Dest: Environmental Monitoring System (Process)

Obtain Sensor Data (3)
Source: Sensored User (External Entity)
Dest: Get Sensor Data (Process)

Sensor Information

Description:
Information from the devices, including the location, id, and reading. This is the info that the user will most likely be concerned with.

Composition:
Alert On or Off:
Device ID:
Location of Device:
Reading:

Location:
Context (CONTEXT)
Source: Environmental Monitoring System (Process)
Dest: Remote User (External Entity)
Source: Environmental Monitoring System (Process)
Dest: Sensored User (External Entity)

Environmental Monitoring System (0)
Source: Manage User Choices (Process)
Dest: Remote User (External Entity)
Source: Manage User Choices (Process)
Dest: Sensored User (External Entity)
Source: Manage User Choices (Process)
Dest: Website Administrator (External Entity)

Context (CONTEXT)
Source: Environmental Monitoring System (Process)
Dest: Website Administrator (External Entity)
**Type of Sensor**

*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**

*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**

*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

[Database schema diagram with entity relationships and attributes listed for each entity.]
9. *Structure Diagrams*

Admin

- Home Page
- Sort Accounts by Devices
- Sort Accounts by Alerts
- Sort Accounts by Users

Guest User

- Alerts Page
  - View Alerts
Login Screen

User

Login

Check Login

Failed Login Message

Register

Registration Page

Sensored User
Remote User
Guest
Admin

Remote User

Alerts Page

View Alerts
Remote User

Logs Page

Get Device Logs

Sensored User

Alerts Page

View Alerts
Sensored User

Device Page

- Add Device
- Delete Device

Sensored User

Home Page

- Device Management
- Check Logs
- Change User Settings
- Logon
- View Alerts

- Device Page
- Logs Page
- User Settings
- Login Page
- Alerts Page
10. **Physical Data Structures**

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>User : Table</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User ID</td>
<td>Autonumber</td>
<td>This field stores the unique account number for the user</td>
</tr>
<tr>
<td>Email</td>
<td>Text</td>
<td>This field stores the email address of the user</td>
</tr>
<tr>
<td>Password</td>
<td>Text</td>
<td>This field stores the login password for the user</td>
</tr>
<tr>
<td>First Name</td>
<td>Text</td>
<td>This field stores the first name of the user</td>
</tr>
<tr>
<td>Last Name</td>
<td>Text</td>
<td>This field stores the last name of the user</td>
</tr>
<tr>
<td>Address</td>
<td>Text</td>
<td>This field stores the address of the user</td>
</tr>
<tr>
<td>Email</td>
<td>Text</td>
<td>This field stores the email address of the user</td>
</tr>
<tr>
<td>Security Question</td>
<td>Text</td>
<td>This field stores a security question provided by the user</td>
</tr>
<tr>
<td>Security Answer</td>
<td>Text</td>
<td>This field stores the answer to the security question provided by the user</td>
</tr>
</tbody>
</table>

**Event : Table**

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event ID</td>
<td>Autonumber</td>
<td>This field stores the unique event number for the event</td>
</tr>
<tr>
<td>User ID</td>
<td>Number</td>
<td>This field stores the User ID number of the user the event was triggered for</td>
</tr>
<tr>
<td>Location ID</td>
<td>Number</td>
<td>This field stores the Location ID of the location where the event was triggered</td>
</tr>
<tr>
<td>Time of Event</td>
<td>Date/Time</td>
<td>This field stores the time the event occurred</td>
</tr>
<tr>
<td>Event Type</td>
<td>Text</td>
<td>This field stores the type of event that occurred</td>
</tr>
<tr>
<td>Event Message</td>
<td>Text</td>
<td>This field stores the message generated by the event</td>
</tr>
</tbody>
</table>

**Location : Table**

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location ID</td>
<td>Autonumber</td>
<td>This field stores the unique location number for the location</td>
</tr>
<tr>
<td>Owner ID</td>
<td>Text</td>
<td>This field stores the account number for the user that registered this location</td>
</tr>
<tr>
<td>IP Address</td>
<td>Text</td>
<td>This field stores the IP Address of this location</td>
</tr>
<tr>
<td>Name</td>
<td>Text</td>
<td>This field stores the name assigned to this location</td>
</tr>
<tr>
<td>Description</td>
<td>Text</td>
<td>This field stores the description assigned to this location</td>
</tr>
<tr>
<td>Address</td>
<td>Text</td>
<td>This field stores the address of this location</td>
</tr>
<tr>
<td>Phone Number</td>
<td>Text</td>
<td>This field stores the phone number of this location</td>
</tr>
</tbody>
</table>

**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** - This table stores information about an 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** - 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 -** This table stores information about a goose in the database. All information pertaining to the goose is stored within this table. This includes the goose’s ID, location, IP address, ID number, and name.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goose ID</td>
<td>AutoNumber</td>
<td>This field stores the unique ID number for this goose device.</td>
</tr>
<tr>
<td>Location</td>
<td>Number</td>
<td>This field stores the ID number for the location the goose is located.</td>
</tr>
<tr>
<td>IP Address</td>
<td>Text</td>
<td>This field stores the IP Address of the goose device.</td>
</tr>
<tr>
<td>ID Number</td>
<td>Number</td>
<td>This field stores the ID number the goose device assigns itself.</td>
</tr>
<tr>
<td>Name</td>
<td>Text</td>
<td>This field stores the name of the goose device.</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camera ID</td>
<td>AutoNumber</td>
<td>This field stores the unique ID number of the camera.</td>
</tr>
<tr>
<td>Location</td>
<td>Number</td>
<td>This field stores the ID number of the location the camera is at.</td>
</tr>
<tr>
<td>IP Address</td>
<td>Text</td>
<td>This field stores the IP Address of the camera.</td>
</tr>
</tbody>
</table>

**Alert -** This table stores information about an 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.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alert ID</td>
<td>AutoNumber</td>
<td>This field stores the unique ID number of the alert.</td>
</tr>
<tr>
<td>Peripheral ID</td>
<td>Number</td>
<td>This field stores the ID number of the Peripheral that is in alert status.</td>
</tr>
<tr>
<td>Location</td>
<td>Number</td>
<td>This field stores the ID number of location the alert occurred at.</td>
</tr>
<tr>
<td>Date of Alert</td>
<td>Date/Time</td>
<td>This field stores the date and time of the alert.</td>
</tr>
<tr>
<td>Time in Alert Status</td>
<td>Text</td>
<td>This field stores the total amount of minutes the peripheral was in alert status.</td>
</tr>
<tr>
<td>Reading</td>
<td>Number</td>
<td>This field stores the reading that triggered the alert.</td>
</tr>
<tr>
<td>Type</td>
<td>Text</td>
<td>This field stores the type of alert.</td>
</tr>
<tr>
<td>Alert Message</td>
<td>Text</td>
<td>This field stores a message describing the alert.</td>
</tr>
</tbody>
</table>

**Peripheral -**

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

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

Microsoft Windows NT 2000 Professional, SP3, Intel Pentium 4 CPU, 1300 MHz, 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 Communications Corporation | 2000-2003       |
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 sensored user to the different pages on the website which allow the sensored 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 sensored 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 sensored 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 sensored user to change the settings associated with the sensored user’s online account
• Can change e-mail address
• Can change password
• Submit button transmits any changes made

g. Logs page
Navigates the sensored 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)

<table>
<thead>
<tr>
<th>Num</th>
<th>Name</th>
<th>ID</th>
<th>Description</th>
<th>State Before Test</th>
<th>State After Test</th>
<th>Input/Test Values</th>
<th>Steps to be Executed</th>
<th>Expected Results</th>
<th>Pass/Fail</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Home Page Link Clicked</td>
<td>Link</td>
<td>Home Page Link is Clicked</td>
<td>home.htm</td>
<td>home.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>home.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Login/Logout Link Clicked</td>
<td>Link</td>
<td>Login/Logout Link is Clicked</td>
<td>home.htm</td>
<td>login.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>login.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Device Management Link Clicked</td>
<td>Link</td>
<td>Device Management Link is Clicked</td>
<td>home.htm</td>
<td>device.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>device.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>User Settings Link Clicked</td>
<td>Link</td>
<td>User Settings Link is Clicked</td>
<td>home.htm</td>
<td>user.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>user.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Faq/Help Link Clicked</td>
<td>Link</td>
<td>Faq/Help Link is Clicked</td>
<td>home.htm</td>
<td>faq.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>faq.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Logs Link Clicked</td>
<td>Link</td>
<td>Logs Link is Clicked</td>
<td>home.htm</td>
<td>logs.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>logs.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Device Link Clicked</td>
<td>Link</td>
<td>Device Link is Clicked based on its location</td>
<td>home.htm</td>
<td>device.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>device.htm webpage is loaded giving the description and information of every device</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Alerts Link Clicked</td>
<td>Link</td>
<td>Alerts Link is Clicked based on its Location</td>
<td>home.htm</td>
<td>alerts.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>alerts.htm webpage is loaded giving the information of every user</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Logout Link Clicked</td>
<td>Link</td>
<td>Logout Link is Clicked under its location</td>
<td>home.htm</td>
<td>logout.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>logout.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Num</td>
<td>Name</td>
<td>ID</td>
<td>Description</td>
<td>State Before Test</td>
<td>State After Test</td>
<td>Input/Test Values</td>
<td>Steps to be Executed</td>
<td>Expected Results</td>
<td>Pass/Fail</td>
<td>Comments</td>
</tr>
<tr>
<td>-----</td>
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<td>-------------------</td>
<td>----------------------</td>
<td>------------------------------------------</td>
<td>-----------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Home Page Link Clicked</td>
<td>Link</td>
<td>Home Page Link is Clicked Home.htm login.htm</td>
<td>home.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>home.htm page is loaded automatically</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Login/Logout Link Clicked</td>
<td>Link</td>
<td>Login/Logout Link is Clicked login.htm login.htm</td>
<td>login.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>login.htm page is loaded automatically</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Device Management Link Clicked</td>
<td>Link</td>
<td>Device Management Link is Clicked login.htm device.htm</td>
<td>login.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>device.htm page is loaded automatically</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>User Settings Link Clicked</td>
<td>Link</td>
<td>User Settings Link is Clicked login.htm user.htm</td>
<td>login.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>user.htm page is loaded automatically</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Faq/Help Link Clicked</td>
<td>Link</td>
<td>Faq/Help Link is Clicked login.htm faq.htm</td>
<td>login.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>faq.htm page is loaded automatically</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Logs Link Clicked</td>
<td>Link</td>
<td>Logs Link is Clicked logs.htm login.htm logs.htm</td>
<td>login.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>logs.htm page is loaded automatically</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Enter User Name</td>
<td>User Name</td>
<td>User enter his/her user name in the user name text box login.htm login.htm</td>
<td>login.htm</td>
<td>user name</td>
<td>Enter text into User Name text box</td>
<td>User Name text box displays the name that the user has entered</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Enter Password</td>
<td>Password</td>
<td>User enter his/her password in the password text box login.htm login.htm</td>
<td>login.htm</td>
<td>password</td>
<td>Enter text into Password text box</td>
<td>Password text box displays the encrypted password that the user has entered</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Forgotten Password Link Clicked</td>
<td>Link</td>
<td>Forgotten Password Link is Clicked login.htm lostpassword.htm login.htm</td>
<td>login.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>lostpassword.htm webpage is loaded automatically that helps instructs user how to get a new password</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Action</td>
<td>Description</td>
<td>File Path</td>
<td>Page Path</td>
<td>User name, password</td>
<td>Load page</td>
<td>Expected Results</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>---------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------</td>
<td>-----------</td>
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<td>-------------------------------------------------------</td>
<td>------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Incorrect User Name</td>
<td>User Name, incorrect user name is entered</td>
<td>login.htm</td>
<td></td>
<td>user name, password</td>
<td>Load error page automatically telling user that his/her authentication attempt was incorrect</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Incorrect Password</td>
<td>Password, valid, correct user name is entered and valid, incorrect password is entered</td>
<td>login.htm</td>
<td></td>
<td>user name, password</td>
<td>Load error page automatically telling user that his/her authentication attempt was incorrect</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Invalid Password</td>
<td>Password, An invalid password is entered</td>
<td>login.htm</td>
<td></td>
<td>user name, password</td>
<td>Load error page automatically telling user that his/her authentication attempt was incorrect</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Correct Login</td>
<td>Login, valid, correct user name and password is entered</td>
<td>login.htm</td>
<td>home.htm</td>
<td>user name, password</td>
<td>Load page home.htm page is loaded automatically</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Faq Link Clicked</td>
<td>Link, Faq Link is Clicked</td>
<td>login.htm</td>
<td>faq.htm</td>
<td>None</td>
<td>Load page faq.htm page is loaded automatically</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>New User Registration Link Clicked</td>
<td>Link, New User Registration Link is Clicked</td>
<td>login.htm</td>
<td>new.htm</td>
<td>None</td>
<td>Load page new.htm page is loaded automatically for a new user can create a new account</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Device Management Page (device.htm)**

<table>
<thead>
<tr>
<th>Num</th>
<th>Name</th>
<th>ID</th>
<th>Description</th>
<th>State Before Test</th>
<th>State After Test</th>
<th>Input/Test Values</th>
<th>Steps to be Executed</th>
<th>Expected Results</th>
<th>Pass/Fail</th>
<th>Comments</th>
</tr>
</thead>
</table>

**Device Management Page (device.htm)**

*EIN Systems Detailed Design Page 62*
<table>
<thead>
<tr>
<th></th>
<th>Home Page Link Clicked</th>
<th>Link</th>
<th>Home Page Link is Clicked</th>
<th>device.htm</th>
<th>home.htm</th>
<th>None</th>
<th>Load webpage</th>
<th>home.htm page is loaded automatically</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Login/Logout Link Clicked</td>
<td>Link</td>
<td>Login/Logout Link is Clicked</td>
<td>device.htm</td>
<td>login.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>login.htm page is loaded automatically</td>
</tr>
<tr>
<td>3</td>
<td>Device Management Link Clicked</td>
<td>Link</td>
<td>Device Management Link is Clicked</td>
<td>device.htm</td>
<td>device.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>device.htm page is loaded automatically</td>
</tr>
<tr>
<td>4</td>
<td>User Settings Link Clicked</td>
<td>Link</td>
<td>User Settings Link is Clicked</td>
<td>device.htm</td>
<td>user.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>user.htm page is loaded automatically</td>
</tr>
<tr>
<td>5</td>
<td>Faq/Help Link Clicked</td>
<td>Link</td>
<td>Faq/Help Link is Clicked</td>
<td>device.htm</td>
<td>faq.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>faq.htm page is loaded automatically</td>
</tr>
<tr>
<td>6</td>
<td>Logs Link Clicked</td>
<td>Link</td>
<td>Logs Link is Clicked</td>
<td>device.htm</td>
<td>logs.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>logs.htm page is loaded automatically</td>
</tr>
<tr>
<td>7</td>
<td>Alerts Set Drop Down Menu Clicked</td>
<td>Drop Down Menu</td>
<td>Alerts Set Drop Down Menu is Clicked</td>
<td>device.htm</td>
<td>device.htm</td>
<td>None</td>
<td>Displays options within the drop down menu</td>
<td>Drop down menu is displayed listing all possible options to change current device alert settings</td>
</tr>
<tr>
<td>8</td>
<td>Device Link Clicked</td>
<td>Link</td>
<td>Device Link is Clicked based on its location</td>
<td>device.htm</td>
<td>device.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>device.htm page is loaded automatically</td>
</tr>
<tr>
<td>9</td>
<td>Alerts Link Clicked</td>
<td>Link</td>
<td>Alerts Link is Clicked based on its Location</td>
<td>device.htm</td>
<td>alerts.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>alerts.htm page is loaded automatically</td>
</tr>
<tr>
<td>10</td>
<td>Logout Link Clicked</td>
<td>Link</td>
<td>Logout Link is Clicked under its location</td>
<td>device.htm</td>
<td>logout.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>logout.htm page is loaded automatically</td>
</tr>
<tr>
<td>Num</td>
<td>Name</td>
<td>ID</td>
<td>Description</td>
<td>State Before Test</td>
<td>State After Test</td>
<td>Input/Test Values</td>
<td>Steps to be Executed</td>
<td>Expected Results</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------</td>
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<td>------------------------------------------</td>
<td>-------------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>-----------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Home Page Link Clicked</td>
<td>Link</td>
<td>Home Page Link is Clicked</td>
<td>user.htm</td>
<td>home.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>home.htm page is loaded automatically</td>
</tr>
<tr>
<td>2</td>
<td>Login/Logout Link Clicked</td>
<td>Link</td>
<td>Login/Logout Link is Clicked</td>
<td>user.htm</td>
<td>login.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>login.htm page is loaded automatically</td>
</tr>
<tr>
<td>3</td>
<td>Device Management Link Clicked</td>
<td>Link</td>
<td>Device Management Link is Clicked</td>
<td>user.htm</td>
<td>device.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>device.htm page is loaded automatically</td>
</tr>
<tr>
<td>4</td>
<td>User Settings Link Clicked</td>
<td>Link</td>
<td>User Settings Link is Clicked</td>
<td>user.htm</td>
<td>user.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>user.htm page is loaded automatically</td>
</tr>
<tr>
<td>5</td>
<td>Faq/Help Link Clicked</td>
<td>Link</td>
<td>Faq/Help Link is Clicked</td>
<td>user.htm</td>
<td>faq.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>faq.htm page is loaded automatically</td>
</tr>
<tr>
<td>6</td>
<td>Logs Link Clicked</td>
<td>Link</td>
<td>Logs Link is Clicked</td>
<td>user.htm</td>
<td>logs.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>logs.htm page is loaded automatically</td>
</tr>
<tr>
<td>7</td>
<td>User First Name Entered</td>
<td>User First Name</td>
<td>User's Guest's First Name is entered in text box</td>
<td>user.htm</td>
<td>user.htm</td>
<td>first name of user</td>
<td>Enter text into User First Name text box</td>
<td>first name of user is shown in the text box as entered</td>
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<td>User's Guest's Last Name Entered</td>
<td>User Last Name</td>
<td>User Last Name is entered in text box</td>
<td>user.htm</td>
<td>user.htm</td>
<td>last name of user</td>
<td>Enter text into User Last Name text box</td>
<td>last name of user is shown in the text box as entered</td>
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<td>Address</td>
<td>User Address is entered in text box</td>
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<td>user.htm</td>
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<td>address of user is shown in the text box as entered</td>
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<td>User Phone Number is entered in text box</td>
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<td>user phone number</td>
<td>Enter text into User's Phone Number text box</td>
<td>phone number of user is shown in the text box as entered</td>
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<td>User Email is entered in text box</td>
<td>user.htm</td>
<td>user.htm</td>
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<td>Enter text into User's email text box</td>
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<td></td>
<td>User's Password is Entered</td>
<td>User's Security Question is Entered</td>
<td>User Security Answer is Entered</td>
<td>Submit Changes Button Clicked</td>
<td>User's Guest's First Name Entered</td>
<td>User's Guest's Last Name Entered</td>
<td>User's Guest's Address is Entered</td>
<td>User's Guest's Phone Number is Entered</td>
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<td>user.htm</td>
<td>userchange.s.htm</td>
<td>None Load webpage</td>
<td>userchanges.htm webpage is loaded telling the user that he/she has successfully made changes to his/her account info</td>
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<td>user.htm</td>
<td>user.htm</td>
<td>first name of user's guest Enter text into User's Guest's First Name text box</td>
<td>first name of user's guest is shown in the text box as entered</td>
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<td>user.htm</td>
<td>user.htm</td>
<td>last name of User's Guest's Enter text into User's Guest's Last Name text box</td>
<td>last name of User's Guest is shown in the text box as entered</td>
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<td>State After Test</td>
<td>Input/Test Values</td>
<td>Steps to be Executed</td>
<td>Expected Results</td>
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<td>webpage is loaded allowing the user to register a new device at a location</td>
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<th>State After Test</th>
<th>Input/Test Values</th>
<th>Steps to be Executed</th>
<th>Expected Results</th>
<th>Pass/Fail</th>
<th>Comments</th>
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<td>Link</td>
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<td>device.htm</td>
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<td>device.htm page is loaded giving the device's description and information</td>
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## Administrator Page (admin.htm)

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<th>State After Test</th>
<th>Input/Test Values</th>
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<th>Expected Results</th>
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<td>Device Link is Clicked based on its location</td>
<td>adminevents.htm</td>
<td>admindevices.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>admindevices.htm webpage is loaded giving the device's description and information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Alerts Link Clicked</td>
<td>Link</td>
<td>Alerts Link is Clicked based on its Location</td>
<td>adminevents.htm</td>
<td>adminalerts.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>adminalerts.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Users Link Clicked</td>
<td>Link</td>
<td>User Link is Clicked</td>
<td>admin.htm</td>
<td>adminusers.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>adminusers.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Num</td>
<td>Name</td>
<td>ID</td>
<td>Description</td>
<td>State Before Test</td>
<td>State After Test</td>
<td>Input/Test Values</td>
<td>Steps to be Executed</td>
<td>Expected Results</td>
<td>Pass/Fail</td>
<td>Comments</td>
</tr>
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<td>----------</td>
</tr>
<tr>
<td>1</td>
<td>Home Page Link Clicked</td>
<td>Link</td>
<td>Name of User's new Location is entered in text box</td>
<td>location.htm</td>
<td>location.htm</td>
<td>name of location</td>
<td>Enter text into Location Name text box</td>
<td>name of user's new location is shown in the text box as entered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Login/Logout Link Clicked</td>
<td>Link</td>
<td>Location Name is entered in text box</td>
<td>location.htm</td>
<td>location.htm</td>
<td>name of location</td>
<td>Enter text into Location Address text box</td>
<td>address of user's new location is shown in the text box as entered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Device Management Link Clicked</td>
<td>Link</td>
<td>Name of User's new Location is entered in text box</td>
<td>location.htm</td>
<td>location.htm</td>
<td>name of location</td>
<td>Enter text into Location Description text box</td>
<td>description of user's new location is shown in the text box as entered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Num</td>
<td>Name</td>
<td>ID</td>
<td>Description</td>
<td>State Before Test</td>
<td>State After Test</td>
<td>Input/Test Values</td>
<td>Steps to be Executed</td>
<td>Expected Results</td>
<td>Pass/Fail</td>
<td>Comments</td>
</tr>
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<td>----------------------</td>
<td>-----------------------------------</td>
<td>-----------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Home Page Link Clicked</td>
<td>Link</td>
<td>Home Page Link is Clicked</td>
<td>newuser.htm</td>
<td>home.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>home.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Login/Logout Link Clicked</td>
<td>Link</td>
<td>Login/Logout Link is Clicked</td>
<td>newuser.htm</td>
<td>login.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>login.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Device Management Link Clicked</td>
<td>Link</td>
<td>Device Management Link is Clicked</td>
<td>newuser.htm</td>
<td>device.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>device.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>User Settings Link Clicked</td>
<td>Link</td>
<td>User Settings Link is Clicked</td>
<td>newuser.htm</td>
<td>user.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>user.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Faq/Help Link Clicked</td>
<td>Link</td>
<td>Faq/Help Link is Clicked</td>
<td>newuser.htm</td>
<td>faq.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>faq.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Logs Link Clicked</td>
<td>Link</td>
<td>Logs Link is Clicked</td>
<td>newuser.htm</td>
<td>logs.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>logs.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>User First Name Entered</td>
<td>User First Name</td>
<td>User's Guest's First Name is entered in text box</td>
<td>newuser.htm</td>
<td>newuser.htm</td>
<td>first name of user</td>
<td>Enter text into User First Name text box</td>
<td>first name of user is shown in the text box as entered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>User's Last Name Entered</td>
<td>User Last Name</td>
<td>User Last Name is entered in text box</td>
<td>newuser.htm</td>
<td>newuser.htm</td>
<td>last name of user</td>
<td>Enter text into User Last Name text box</td>
<td>last name of user is shown in the text box as entered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>User Address is Entered</td>
<td>Address</td>
<td>User Address is entered in text box</td>
<td>newuser.htm</td>
<td>newuser.htm</td>
<td>user address</td>
<td>Enter text into User's Address text box</td>
<td>address of user is shown in the text box as entered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>User Phone Number is Entered</td>
<td>User Phone Number</td>
<td>User Phone Number is entered in text box</td>
<td>newuser.htm</td>
<td>newuser.htm</td>
<td>user phone number</td>
<td>Enter text into User's Phone Number text box</td>
<td>phone number of user is shown in the text box as entered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>User Email is Entered</td>
<td>User Email</td>
<td>User Email is entered in text box</td>
<td>newuser.htm</td>
<td>newuser.htm</td>
<td>user email</td>
<td>Enter text into User's email text box</td>
<td>email of user is shown in the text box as entered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step</td>
<td>Description</td>
<td>Link/Action</td>
<td>State Before Test</td>
<td>State After Test</td>
<td>Input/Test Values</td>
<td>Steps to be Executed</td>
<td>Expected Results</td>
<td>Pass/Fail</td>
<td>Comments</td>
<td></td>
</tr>
<tr>
<td>------</td>
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<td>------------------</td>
<td>-------------------</td>
<td>---------------------</td>
<td>-------------------</td>
<td>----------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>User Password is Entered</td>
<td>User Password is entered in text box</td>
<td>newuser.htm</td>
<td>user password</td>
<td>Enter text into User’s Password text box</td>
<td>password of user is shown in the text box as entered</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>User Security Question is Entered</td>
<td>User Security Question is entered in text box</td>
<td>newuser.htm</td>
<td>user security question</td>
<td>Enter text into User’s Security Question text box</td>
<td>security question of user is shown in the text box as entered</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>User Security Answer is Entered</td>
<td>User Security Answer is entered in text box</td>
<td>newuser.htm</td>
<td>user security answer</td>
<td>Enter text into User’s Security Answer text box</td>
<td>security answer of user is shown in the text box as entered</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Submit Changes Button Clicked</td>
<td>Submit Button is Clicked</td>
<td>newuser.htm</td>
<td>userchange.s.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>webpage is loaded telling the user that he/she has successfully made changes to his/her account info</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Read-Only User Home Page (readonlyhome.htm)
Remote User Home Page (remotehome.htm)

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

<table>
<thead>
<tr>
<th>Num</th>
<th>Name</th>
<th>ID</th>
<th>Description</th>
<th>State Before Test</th>
<th>State After Test</th>
<th>Input/Test Values</th>
<th>Steps to be Executed</th>
<th>Expected Results</th>
<th>Pass/Fail</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Return to Login Link Clicked</td>
<td>Link</td>
<td>Return to Login Link is Clicked</td>
<td>login.htm</td>
<td>login.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>login.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Lost Password Page (lostpassword.htm)

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

**Guest Page (guest.htm)**

**User Submitted Changes Page (userchanges.htm)**
<table>
<thead>
<tr>
<th>Num</th>
<th>Name</th>
<th>ID</th>
<th>Description</th>
<th>State Before Test</th>
<th>State After Test</th>
<th>Input/Test Values</th>
<th>Steps to be Executed</th>
<th>Expected Results</th>
<th>Pass/Fail</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Home Page Link Clicked</td>
<td>Link</td>
<td>Home Page Link is Clicked</td>
<td>admindevices.htm</td>
<td>home.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>home.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Login/Logout Link Clicked</td>
<td>Link</td>
<td>Login/Logout Link is Clicked</td>
<td>admindevices.htm</td>
<td>login.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>login.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Device Management Link Clicked</td>
<td>Link</td>
<td>Device Management Link is Clicked</td>
<td>admindevices.htm</td>
<td>device.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>device.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>User Settings Link Clicked</td>
<td>Link</td>
<td>User Settings Link is Clicked</td>
<td>admindevices.htm</td>
<td>user.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>user.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Faq/Help Link Clicked</td>
<td>Link</td>
<td>Faq/Help Link is Clicked</td>
<td>admindevices.htm</td>
<td>faq.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>faq.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Logs Link Clicked</td>
<td>Link</td>
<td>Logs Link is Clicked</td>
<td>admindevices.htm</td>
<td>logs.htm</td>
<td>None</td>
<td>Load webpage</td>
<td>logs.htm page is loaded automatically</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Admin User Page (adminusers.htm)

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

**Remote User** – Sensored 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 sensored user.

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

**Sensor** – A device that obtains and transmits environmental readings.

**Sensored** – An attribute indicating an installed sensor.

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

**Sensored 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 sensored may not add a new location.

**Site Administrator** - The site administrator is responsible for maintaining the database of sensored users as well as upkeep and troubleshooting for a sensored 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.