

Environmental Monitoring System

Preliminary Design
by
SaintSoft

Welcome

Mr. Kenneth Swarner

Computer Science System

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&

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SaintSoft Team Organization

- Daniel Schuldt - *Team Leader*
- David Moore - *Systems Administrator*
- Christian Damberg – *Webmaster*
- Hannah Palmer – *Librarian*
- Lioubov Mikhailova - *Design Consultant*
- Tina Ting - *Software Developer*

Agenda

- **Introduction** - Daniel Schuldt
- **Use Cases and Data flow diagrams** – Hannah Palmer
- **Functional Requirements** – Christian Damberg
- **Prototypes**- Daniel Schuldt
- **Development/Production Environments and Data Dictionary**- David Moore
- **Product Testing** – Christian Damberg
- **Conclusion and Questions** – Daniel Schuldt

Use Cases & Data Flow Diagrams

Hannah Palmer

Use Cases

➤ Sensored User

- Login
- Register with system
- Change Sensor Settings
- View Account and Sensor Information
- Change Personal Information
- Add or Remove Sensors

Use Cases Cont'd

➤ Remote User

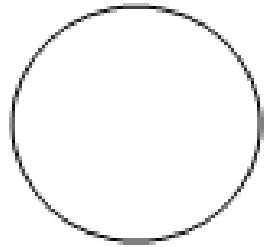
- Login
- Change Personal Settings
- View Account and Sensor Information
- Add Sensors

Use Case Cont'd

➤ Website Administrator

- Special Login
- Change Admin Password and E-mail
- View System Status
- Query the Database for User Information
- Change User Information
- Activate and Deactivate Accounts and Sensors

Data Flow Symbols



Process



Data Flow



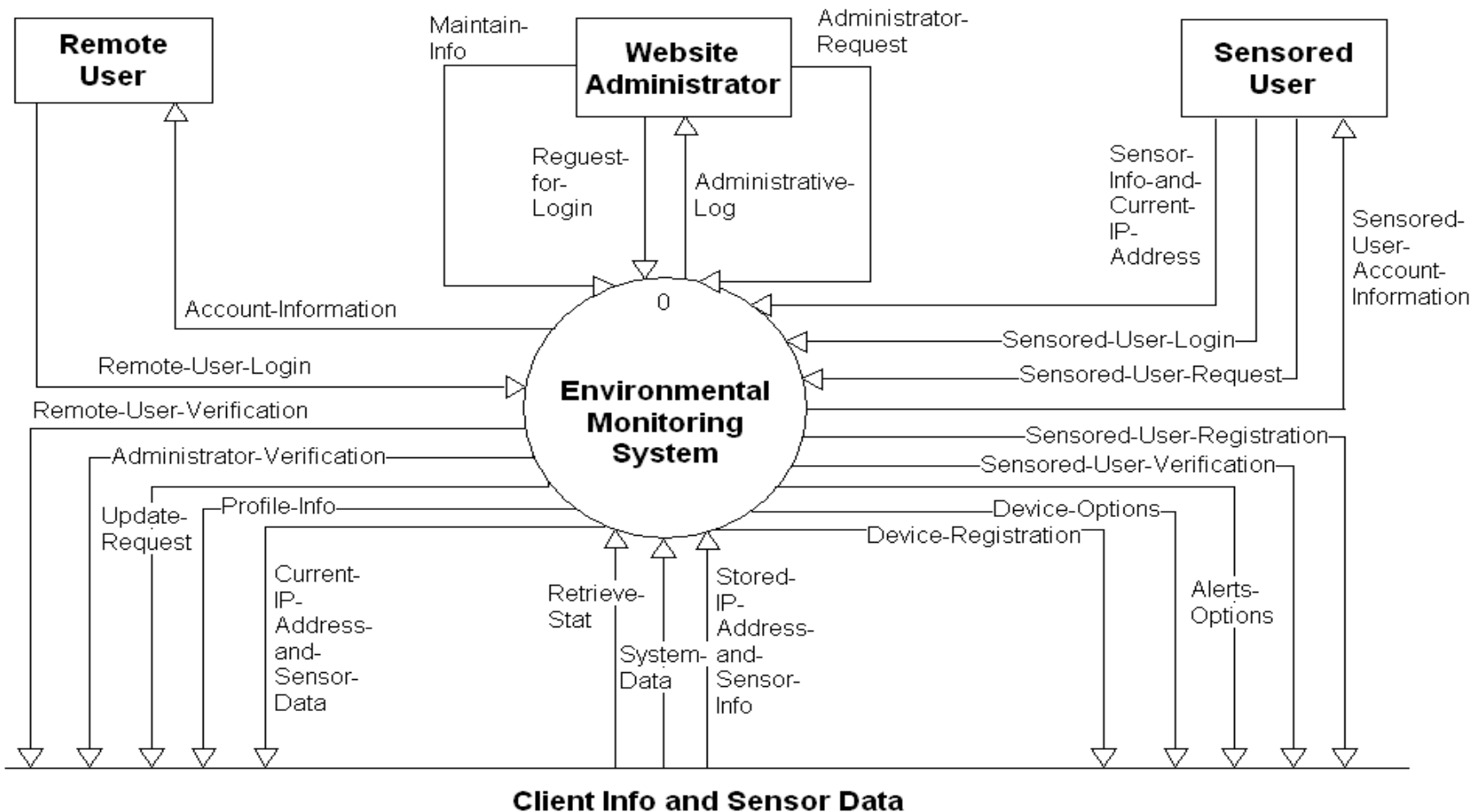
Data Store



Data Source

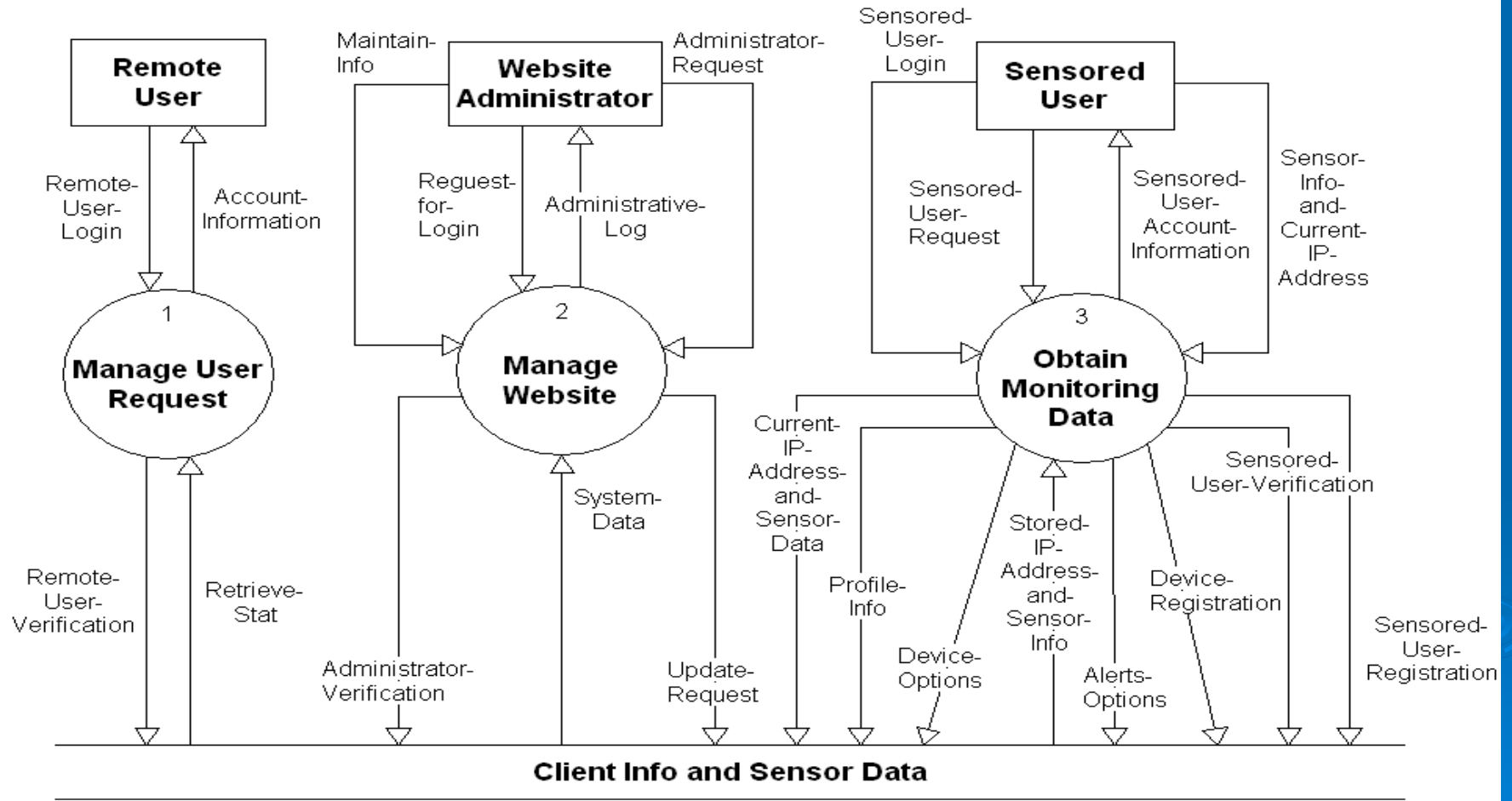
Context Diagram

Visible Systems Corporation EDUCATIONAL/TRAINING Version



Level 0

Visible Systems Corporation EDUCATIONAL/TRAINING Version



Functional Requirements

Christian Damberg

Functional Requirements

➤ Sensored User

- Login
- View Sensor Information and Personal Profile
- Add or Delete Sensor
- Change Sensor Thresholds and Personal Profile
- Logout

Functional Requirements Cont'd.

➤ Remote User

- Log in
- View Sensor Information
- View Alert History
- Logout
- When User adds sensor the user becomes a Sensored User

Functional Requirements Cont'd

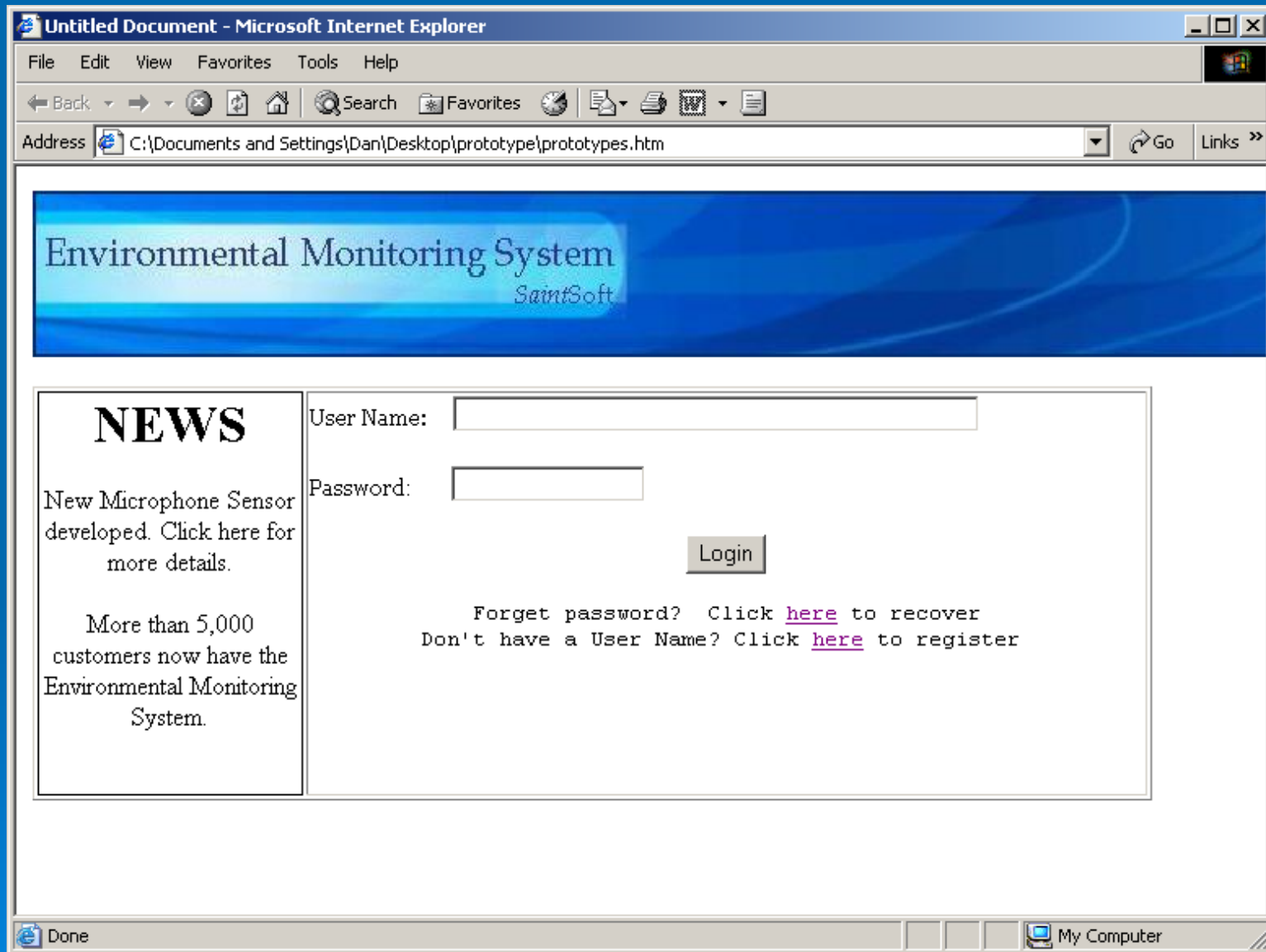
➤ Administrator

- Log in
- View System Status
- View and Change Users Profiles
- Activate or Deactivate User accounts and Sensors
- Change Administrator Information
- Log out

Prototypes

Daniel Schuldts

Log In Screen



Password Recovery

The screenshot shows a Microsoft Internet Explorer window titled "Untitled Document - Microsoft Internet Explorer". The address bar displays "C:\Documents and Settings\Dan\Desktop\prototype\prototypes.htm". The page content includes a blue header with the text "Environmental Monitoring System" and "SaintSoft". Below the header is a section titled "Password Recovery" with the following text: "Enter your username, which is your e-mail address, below and answer the security question. If both are correct then an e-mail will be sent to your e-mail address with your password." The form contains three input fields: "User name (e-mail address):", "Security question:" (with a dropdown menu showing "What is your mothers maiden name?"), and "Answer:". At the bottom of the form are two buttons: "Submit" and "Back". The browser's status bar at the bottom shows "Done" and "My Computer".

Environmental Monitoring System
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Password Recovery

Enter your username, which is your e-mail address, below and answer the security question. If both are correct then an e-mail will be sent to your e-mail address with your password.

User name (e-mail address):

Security question:

Answer:

First Registration Screen

Environmental Monitoring System
SaintSoft

Welcome New User

We are pleased that you picked the Environmental Monitoring system for your monitoring and security needs.

Account Information

This information will allow you to enter into our system. Your e-mail address will be your USERNAME and will be the address where billing and updated system information will be sent. Your password must adhere to some of our standards. The password must be at least 6 characters long. The password must have at least **1 upper case letter, 1 lower case, and 1 special character**. The special characters include _ & + - * ? % ^ . Additionally, you must pick a security question and provide an answer for it. You will need to know the security question and answer if you forget your password. You can click on the "Forgot your password?" link on the log in page. All the fields are required.

E-mail:

Password: **Retype Password:**

Security question: What is your mothers maiden name?

Answer:

Second Registration Screen

Environmental Monitoring System
SaintSoft

Contact Information

Please fill out the form below so we are able to contact you, all fields are required.
NOTICE: Do not register on this computer unless this will be the computer you will be attaching sensors to!!

First Name: Last Name:

Street:

City: State:

Location Name: (Home, Office, Classroom, Jim's Office)
when you sign onto this computer the Location name will appear

Phone: () -

Third Registration Screen

Environmental Monitoring System
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Notification Information

This information will allow our system to contact you when a threshold is exceeded on your sensors or there are errors. You are allowed to enter upto 5 different e-mail address and 5 phone numbers. Please, via the check boxes choose which e-mail address and phone number you would like to be notified by. Also specify what type of phone you are using. Landline phones include digital phones and regular home/office phoness. You will always be notified via your primary e-mail address.

E-mail Address:

E-mail Addresses:	E-mail address to use:
1. ilovesaintsoft@siena.edu	<input type="checkbox"/>
2. <input type="text"/>	<input type="checkbox"/>
3. <input type="text"/>	<input type="checkbox"/>
4. <input type="text"/>	<input type="checkbox"/>
5. <input type="text"/>	<input type="checkbox"/>

Phone:

Numbers:	Type:	Phone to use:
1. <input type="text"/>	Cell <input type="radio"/> Landline <input type="radio"/>	<input checked="" type="checkbox"/>

Initial Monitored User Screen



Register Sensor Screen

Untitled Document - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Print W

Address: Back to Untitled Document d Settings\Dan\Desktop\prototype\main screen.htm Go Links

Environmental Monitoring System

SaintSoft

- HOME
- User Profile
- Refresh
- Add Device
- Log Off

REGISTER SENSORS

Here you can add the sensor you have attached to your computer. Enter the name of the owner of the sensor in the first box.

Then enter the location of the sensor, for example Home, Office, Sister's House. IP address and Operating systems should be prefilled, then select the type of sensor using the drop down box. Click submit when you are finished.

Owner of the Sensor:

Location:

IP address: 192.168.0.1

Operating System: Windows XP

Sensor Type:

Submit Back

Done My Computer

Sensored User Screen

Untitled Document - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address Go Links >>

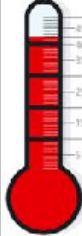

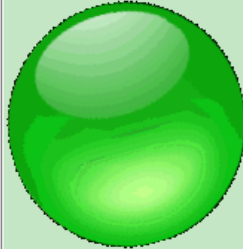
Environmental Monitoring System SaintSoft

- HOME
- User Profile
- Refresh
- Add Device
- Log Off

Welcome Mr. Swarner

IP Address: 192.168.0.1 Location: Home

Current Status of your Devices

 <i>dynamic</i>		
HOME	OFFICE	BASEMENT
74°F	No Motion No Sound	OK
<input type="button" value="Alert History"/>	<input type="button" value="Alert History"/>	<input type="button" value="Alert History"/>
<input type="button" value="Device Options"/>	<input type="button" value="Device Options"/>	<input type="button" value="Device Options"/>
<input type="button" value="Delete"/>	<input type="button" value="Delete"/>	<input type="button" value="Delete"/>

Done My Computer

User Profile Screen

Untitled Document - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Print Print Preview Stop

Address <C:\Documents and Settings\Dan\Desktop\prototype\main screen.htm> Go Links >>

Environmental Monitoring System

SaintSoft

- HOME
- User Profile
- Refresh
- Add Device
- Log Off

User Profile

Your profile information will appear here. You are able to change any of it just by deleting what is in the text box, inserting the corrected information and pressing submit.

Contact Information

First Name:

Last Name:

Street:

City: State:

Location:

Phone: () -

My Computer

Sensor Alert Screens

Environmental Monitoring System
SaintSoft

HOME
User Profile
Refresh
Add Device
Log Off

Temperature Sensor Alerts

Alerts: 2

Time	Date	Alert
19:48:00	12/25/05	Temperature Exceeded 90°F
19:49:00	12/25/05	Temperature decreased to under 90°F
05:25:26	1/12/05	Temperature Exceeded 90°F
05:55:26	1/12/05	Temperature decreased to under 90°F

Done My Computer

Device Options Screens

The screenshot shows a Microsoft Internet Explorer window titled 'Untitled Document - Microsoft Internet Explorer'. The address bar displays the path: C:\Documents and Settings\Dan\Desktop\prototype\main screen.htm. The page content includes a blue header with the text 'Environmental Monitoring System' and 'SaintSoft'. Below the header is a navigation menu with buttons for 'HOME', 'User Profile', 'Refresh', 'Add Device', and 'Log Off'. The main content area is titled 'Temperature Sensor' and displays the following information and controls:

- Current Temperature: 74°F
- Owner of Sensor:
- Location:
- Threshold: °F
- Enable Disable
- Submit Cancel

The Windows taskbar at the bottom shows the 'My Computer' icon.

Remote User Screens

Untitled Document - Microsoft Internet Explorer

File Edit View Favorites Tools Help

← Back → Search Favorites

Address C:\Documents and Settings\Dan\Desktop\prototype\remote main screen.htm

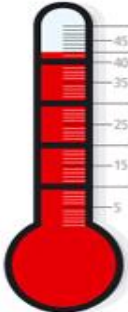

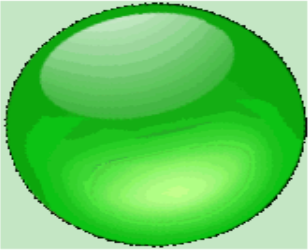
Environmental Monitoring System SaintSoft

HOME
Refresh
Add Device
Log Off

Welcome Mr. Swarner

IP Address: 22.134.32.2	Location: Remote
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Current Status of your Devices

		
HOME	OFFICE	BASEMENT
74°F	No Motion No Sound	OK
<input type="button" value="Alert History"/>	<input type="button" value="Alert History"/>	<input type="button" value="Alert History"/>

Done My Computer

Administrator Screens

The screenshot shows a web browser window titled "Untitled Document - Microsoft Internet Explorer". The address bar shows the URL: "C:\Documents and Settings\Dan\Desktop\prototype\admin main screen.htm". The page content includes a blue header with the text "Environmental Monitoring System" and "SaintSoft". Below the header is a navigation menu with buttons for "HOME", "Admin Location", "Refresh", "Change E-mail", "Change Password", and "Log Off". The main heading is "Welcome Administrator". In the center, there is an illustration of three penguins. Below the penguins, there are two boxes: "IP address: 192.168.0.1" and "Location: Ken's Office RB 352". On the left side, there is an "Account Management" section with a "User Name:" label and an input field. Below this are buttons for "Delete Account", "Deactivate", "Disable/Enable Sens", and "Activate". At the bottom, there are two panels: "Statistics" and "Recent Alerts (within the last 24 hours)".

Environmental Monitoring System
SaintSoft

Welcome Administrator

HOME
Admin Location
Refresh
Change E-mail
Change Password
Log Off

Account Management

User Name:

Delete Account
Deactivate
Disable/Enable Sens
Activate

IP address: 192.168.0.1 Location: Ken's Office RB 352

Statistics:	
Number of users:	1,000
Number of Sensors:	2,325
Current users logged in: 625	
System Status:	NORMAL
{ External Connection error,	

Recent Alerts (within the last 24 hours)	
spikeman44@hotmail.com	Temperature 12/25/05 19:15:23
ilovesaintsoft@siena.edu	Water 12/25/05 15:35:23
sds8081@siena.edu	Temperature 12/25/05 08:56:45

Done My Computer

Administrator Screens Cont.

The screenshot shows a Microsoft Internet Explorer window titled 'Untitled Document - Microsoft Internet Explorer'. The address bar displays 'C:\Documents and Settings\Dan\Desktop\prototype\admin main screen.htm'. The main content area features a blue header with the text 'Environmental Monitoring System' and 'SaintSoft'.

On the left side, there is a vertical menu of buttons: HOME, Admin Location, Refresh, Change E-mail, Change Password, and Log Off.

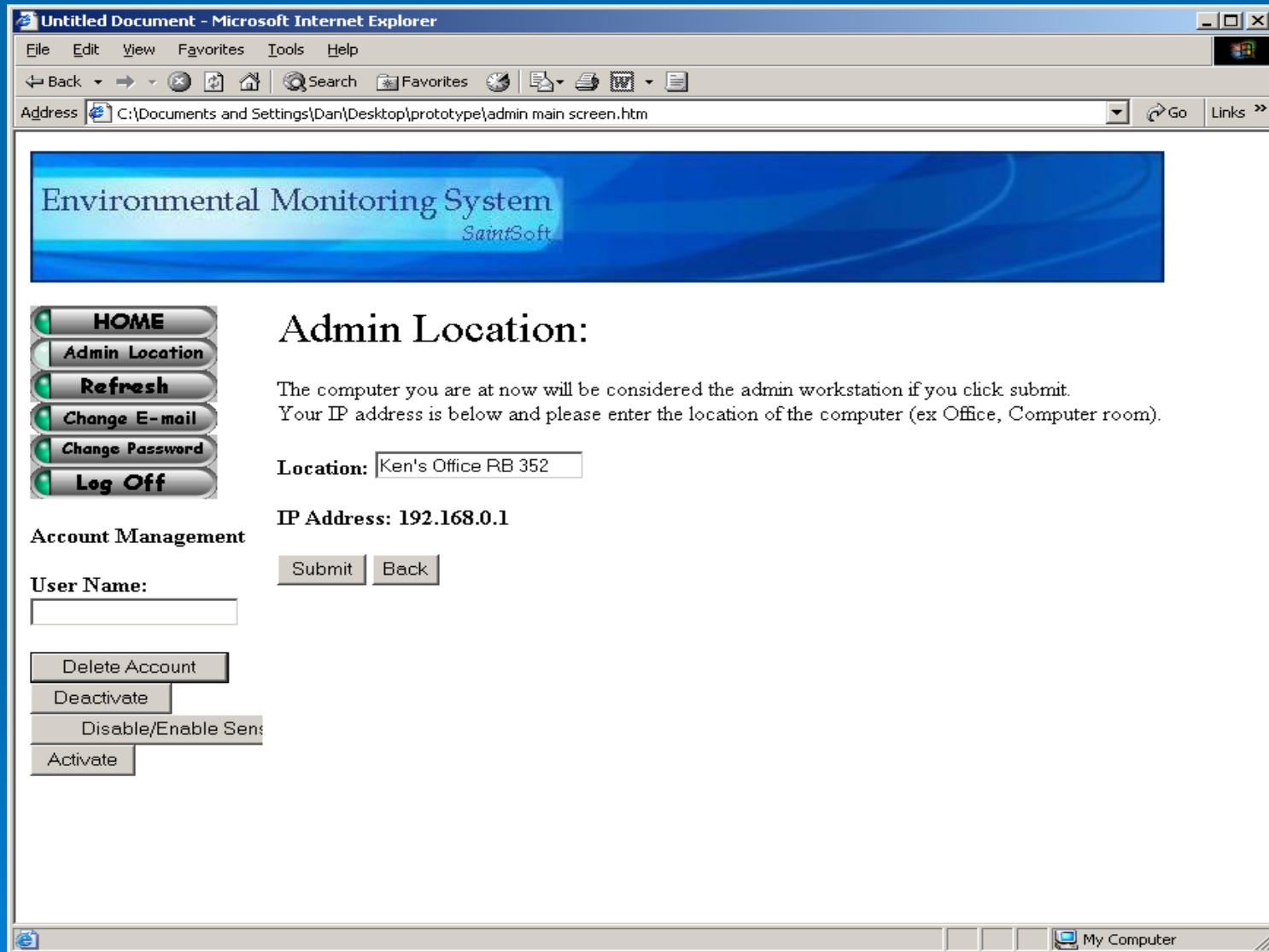
The main content area is divided into two columns. The left column displays system status: 'System Status: NORMAL' in green, followed by error messages in red: '{ External Connection error, Database Down, software error }'. The right column shows user information: 'sds8081@siena.edu' and 'Temperature 12/25/05 08:56:45'.

Below the status information, the heading 'View/Modify User Data:' is followed by search options: 'Search By:' with radio buttons for Username, Sensor, Alerts, Name, and Date. Below this, 'Information to include:' has checkboxes for Username, Sensor, Alerts, Name, and Date. 'Sort By:' has radio buttons for Ascending and Descending. A 'Search' button is located at the bottom of these options.

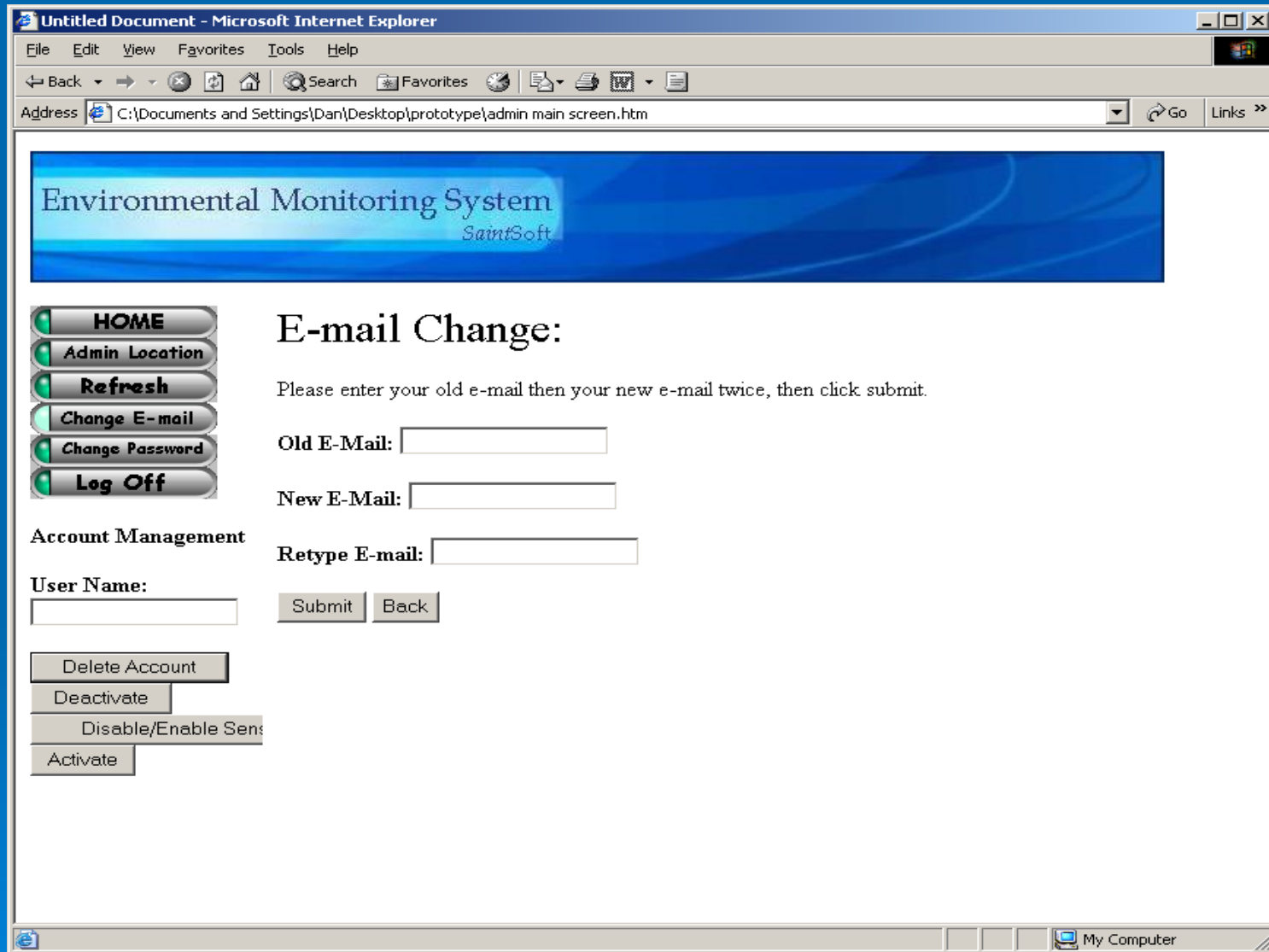
On the left side, under 'Account Management', there is a 'User Name:' input field and several buttons: Delete Account, Deactivate, Disable/Enable Sens, and Activate.

The browser's status bar at the bottom shows 'Done' and 'My Computer'.

Admin Location Screen



Change E-mail Screen



Change Password Screen

The screenshot shows a Microsoft Internet Explorer window titled "Untitled Document - Microsoft Internet Explorer". The address bar displays the URL: "C:\Documents and Settings\Dan\Desktop\prototype\admin main screen.htm". The page content includes a blue header with the text "Environmental Monitoring System" and "SaintSoft". Below the header is a vertical navigation menu with buttons for "HOME", "Admin Location", "Refresh", "Change E-mail", "Change Password", and "Log Off". The main content area is titled "Password Reset:" and contains the instruction: "Please enter your old password then your new password twice, then click submit." There are three input fields labeled "Old Password:", "New Password:", and "Retype Password:". Below these fields are "Submit" and "Back" buttons. To the left of the password fields is an "Account Management" section with a "User Name:" label and an input field, followed by buttons for "Delete Account", "Deactivate", "Disable/Enable Sens", and "Activate". The status bar at the bottom shows the file path "file:///C:/Documents%20and%20Settings/Dan/Desktop/prototype/adminpass.htm" and a "My Computer" icon.

Environmental Monitoring System
SaintSoft

HOME
Admin Location
Refresh
Change E-mail
Change Password
Log Off

Password Reset:

Please enter your old password then your new password twice, then click submit.

Old Password:

New Password:

Retype Password:

Submit Back

Account Management

User Name:

Delete Account
Deactivate
Disable/Enable Sens
Activate

file:///C:/Documents%20and%20Settings/Dan/Desktop/prototype/adminpass.htm My Computer

Disable/Enable Sensor Screen

Environmental Monitoring System
SaintSoft

HOME
Admin Location
Refresh
Change E-mail
Change Password
Log Off

Account Management

User Name:

Delete Account
Deactivate
Disable/Enable Sensor
Activate

Disable/Enable Sensor

Username: ilovesaintsoft@siena.edu

Sensor	Location	Action
Temperature	Home	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Web Cam	Office	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Water	Basement	<input checked="" type="radio"/> Enable <input type="radio"/> Disable

Submit Back

Done My Computer

Query Result Screen

The screenshot shows a Microsoft Internet Explorer window titled 'Untitled Document - Microsoft Internet Explorer'. The address bar shows the URL: C:\Documents and Settings\Dan\Desktop\prototype\TMP24bb7qozym.htm. The page content includes a blue header with the text 'Environmental Monitoring System' and 'SaintSoft'. Below the header is a navigation menu with buttons: HOME, Admin Location, Refresh, Change E-mail, Change Password, and Log Off. The main content area is titled 'Query Result' and contains a paragraph of instructions: 'Click on headings (Username, Sensors, etc) to sort by that field. A triangle will indicate the field and the direction of the sort (ascending or descending)'. Below this is a section labeled 'Search Results:' containing a table with four columns: User Name, Sensors, Name, and Select. The table lists three users: sds8081@siena.edu (3 sensors), spikeman44@hotmail.com (4 sensors), and welovesaintsoft@yahoo.com (1 sensor). Below the table are buttons for 'Delete Account', 'Deactivate', 'Disable/Enable Sens', and 'Activate'. At the bottom of the table area are buttons for 'Changed Selected' and 'Back'. The browser's status bar at the bottom shows 'Done' and 'My Computer'.

Environmental Monitoring System
SaintSoft

HOME
Admin Location
Refresh
Change E-mail
Change Password
Log Off

Query Result

Click on headings (Username, Sensors, etc) to sort by that field. A triangle will indicate the field and the direction of the sort (ascending or descending).

Search Results:

User Name ▲	Sensors	Name	Select
sds8081@siena.edu	3	Schuldt, Dan	<input type="radio"/>
spikeman44@hotmail.com	4	Schmidt, Joseph	<input type="radio"/>
welovesaintsoft@yahoo.com	1	Swarner, Ken	<input checked="" type="radio"/>

Delete Account
Deactivate
Disable/Enable Sens
Activate

Changed Selected Back

Production/Development Environment David Moore

Server Environment

Oraserv

Oracle, version 10g

MySQL, version 4.1.14

PHP, version 4.3.11

Apache Web Server, version 2.0.46

Red Hat Linux – ES Release 3

Dell 2550 Server

1.125 Mhz Intel Pentium III

512 Kb Cache

1 GB of RAM

Hard drives

2 x 73 GB

2 x 36 GB

2 x 18 GB

Windows Environments

- Microsoft Windows 2000 5.00.2195 Service Pack 3
- Microsoft Windows XP Professional Version 2002 Service Pack 2

PC Environment

- Dell Dimension Dim4550
- Intel Pentium 4 2.40 GHz
- 512 MB of RAM

Logical Data Stores

➤ User Information

- user_id
- fname
- lname
- user_name
- password
- primary_phone

Logical Data Stores

Cont'd

Location Information

- user_id
- location
- ip_address
- street_addr
- city
- state
- zip
- phone
- phone_type
- e-mail
- last_login

Logical Data Stores Cont'd

Sensor Information

- user_id
- location
- sensor1
- sensor2
- sensor3
- threshold1
- threshold2
- threshold3
- last_recieved1
- last_recieved2
- last_recieved3

Testing

Christian Damberg

Testing Plans

- Unit Testing
- Integration Testing
- System Testing
- Acceptance Testing

Unit Testing (sample)

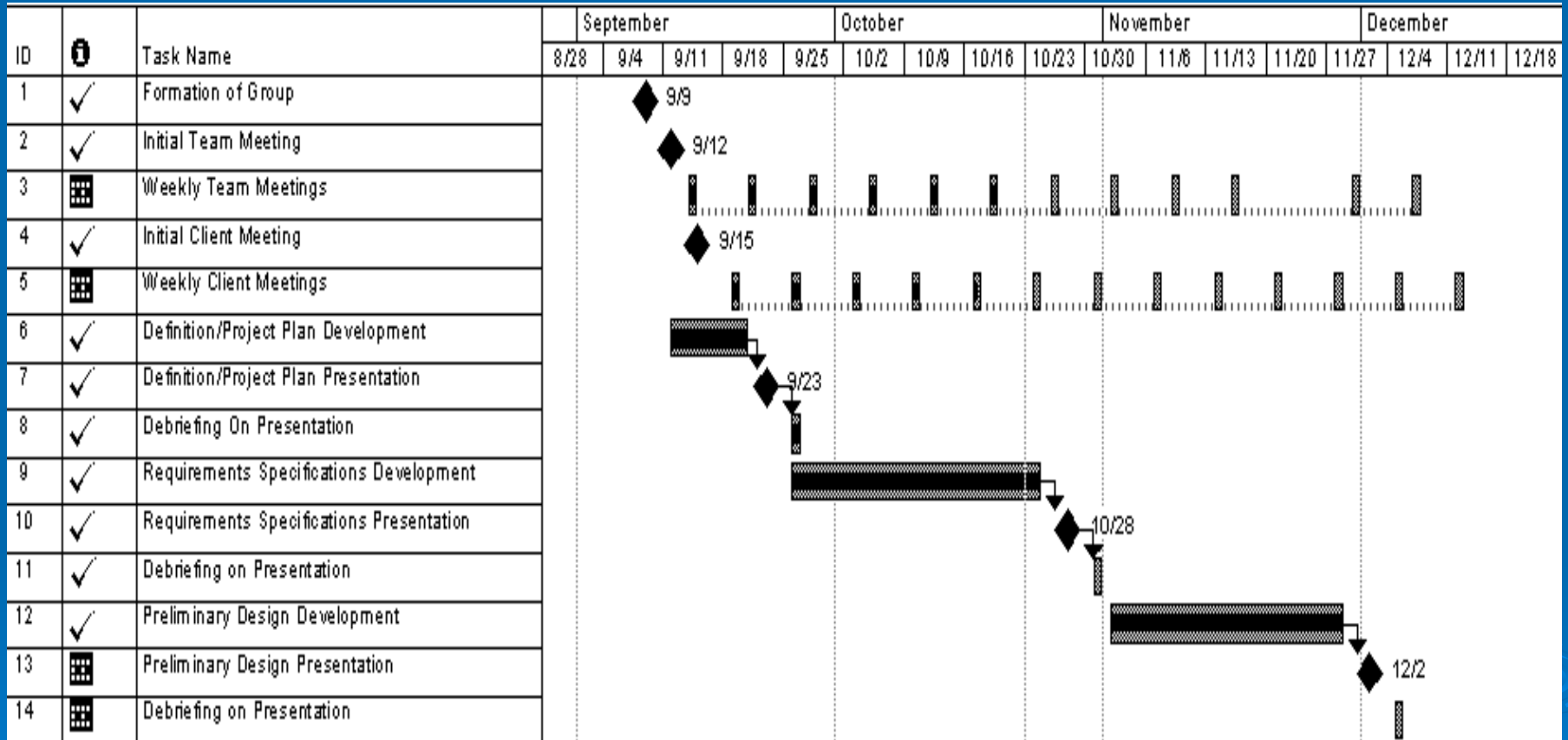
Unit Test: 1. Monitored User Screen

ID I.#	What is being tested:	Tested for:	Expected Outcome:	Pass or Fail:	Comments:
1	User accessing monitored user screen	Does it load?	Page loads, user's name, location, and IP are displayed. User's devices show up with information regarding their status		
2	User clicks the Personal Profile button	Does it load?	The user's profile is displayed		
3	User clicks the Log Out button	Does it work?	The user is logged out		
4	User clicks the Alert History button	Does it load?	The Alert History page loads displaying all alerts for the specified device		
5	User clicks the Device Options button	Does it load?	The Sensor Options Menu page loads		
6	User clicks the Refresh Devices link	Does it load?	The page is refreshed, specifically the sensors, incase one is not working properly or the browser window has been open for a long period of time		
7	User clicks the link to register/delete a sensor	Does it load?	The page to register or delete a sensor is loaded		

Conclusion

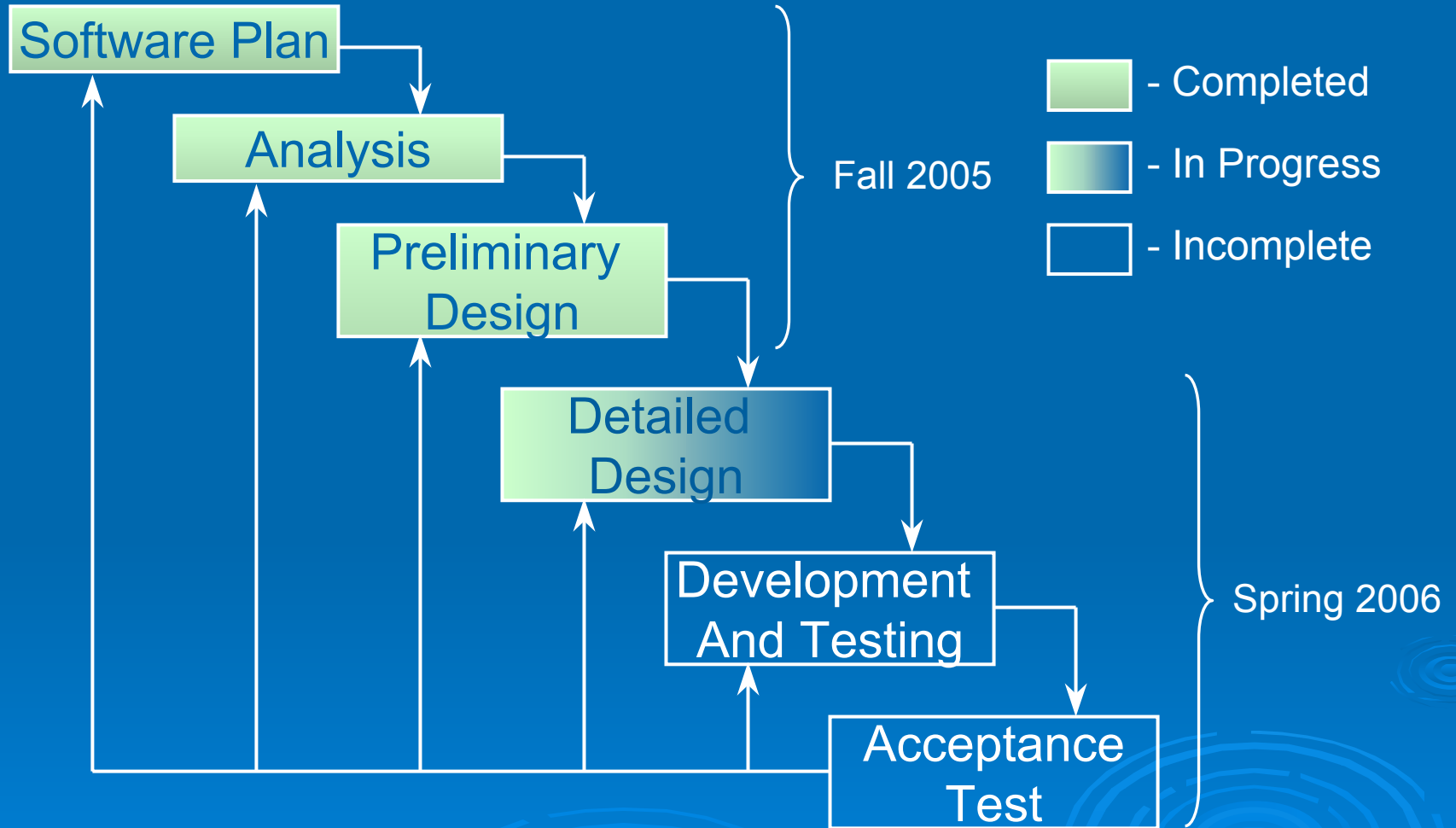
Daniel Schuldt

Development Schedule



Project: SaintSoft Date: Sun 10/23/05	Task 	Progress 	Milestone 
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Project Plan



Thank You!

Any Questions?