

Preliminary Design

Proposed Project:

Dynamic Network Device Mapping System (DNDMS)

Clients:

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School of Science Senior Systems Administrator
Siena College

Mr. Eric Crossman
School of Science Systems Administrator
Siena College

Delivered By:

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Dynamic Network Device Mapping System (DNDMS)

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Introduction

Our clients, Systems Administrators Ken Swarner and Eric Crossman, have certain physical limitations when attempting to recover information regarding components connected to the School of Science network. The most burdensome limitation seems to be the need for close physical proximity to a device in order to find information regarding that device.

The Dynamic Network Device Mapping System (DNDMS) will allow our clients to retrieve information regarding components connected to the network through a web-based building map, so that physical location of the user is irrelevant. Our clients will be able to gather information regarding a specific network device; add, delete, and edit information about devices; and edit user permissions.

Section 1: External Design Specifications

1.1 User Displays

SKYNET SOFTWARE
Dynamic Network Device Mapping System

Welcome to SKYNET Software's Dynamic Network Device Mapping System!
Please log in to gain access to the Siena College School of Science network device information.

Username:
Password:

[Siena College](#) | [Computer Science Department](#) | [Siena Software Engineering](#) | [SKYNET Software](#)
[\[Project Home\]](#)

Login:

The login page allows the user to log on. The user can also follow a hyperlink to the Siena College website, the Siena College Computer Science Department website, the Software Engineering website, SKYNET Software's website, or the project website.

Floor Plan:

SKYNET SOFTWARE
Dynamic Network Device Mapping System

Floor Selection

Welcome, ADMIN
[Control Panel](#) | [Administrator Control Panel](#) | [Logout](#)

Current Floor: Roger Bacon, 3rd Floor
Please select a new floor: Roger Bacon 1st Floor

350 Open Lab, 344, 340 Classroom, 330 Higgins System Lab, 322, 320, 318, 348, 346, 338, 334, 332, 326, 324 Library, 312 Study Lounge, 314, 316, 308, 306 C.S. Lab, 304 Applications Lab, 302 Classroom, 323, 321, 319, 317, 315, 313, 311, Women

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[Project Home]

The floor plan page will allow the user access to all floors available to them by use of the drop-down menu. The user can click on any rooms within their permission set to load the "room view" page. The user can also follow a hyperlink to the Siena College website, the Siena College Computer Science Department website, the Software Engineering website, SKYNET Software's website, or the project website.

Room View:

SKYNET SOFTWARE
Dynamic Network Device Mapping System

Room Selection

Welcome, ADMIN
[Control Panel](#) | [Administrator Control Panel](#) | [Logout](#)

Legend

- Macintosh
- PC
- Printer
- Hub

Roger Bacon Hall - 3rd Floor - Room 348

[Siena College](#) | [Computer Science Department](#) | [Siena Software Engineering](#) | [SKYNET Software](#)
[\[Project Home\]](#)

The administrator, department head and faculty members will all have the same view of the room page. The room page will have a description of the room and the layout for viewing. Since this page doesn't allow any user to modify it and is simply for viewing purposes it will show up the same to all users who have access to the page. The user can also follow a hyperlink to the Siena College website, the Siena College Computer Science Department website, the Software Engineering website, SKYNET Software's website, or the project website.

Main Menu:



The screenshot shows the main menu of the SKYNET Software. At the top left is a blue logo with a white 'S' inside a speech bubble. To its right, the text 'SKYNET SOFTWARE' is displayed in large, white, serif capital letters. Below this, the text 'Dynamic Network Device Mapping System' is centered. Underneath is a 'Main Menu' section. A welcome message 'Welcome, ADMIN' is followed by navigation links: 'Control Panel | Administrator Control Panel | Logout'. Two sections of hyperlinks are listed: 'Roger Bacon:' with links for 'RB 1st Floor', 'RB 2nd Floor', 'RB 3rd Floor', and 'RB 4th Floor'; and 'Morell Science Center:' with links for 'MSC 1st Floor', 'MSC 2nd Floor', and 'MSC 3rd Floor'. Below these are two search forms: 'Enter a room to jump to:' with a text box containing 'RB304' and a 'Submit' button; and 'Select an asset tag to jump to:' with a text box containing '21095' and a 'Submit' button. At the bottom, there are links for '[NetRegistration | Reset user password]' and a footer line: 'Siena College | Computer Science Department | Siena Software Engineering | SKYNET Software'.

The main menu page contains hyperlinks to each of the available floors based on the logged-in user's permissions. The page also contains text boxes to allow the user to easily view information regarding a specific room or device, without navigating through multiple levels of links. The user can also follow a hyperlink to the Siena College website, the Siena College Computer Science Department website, the Software Engineering website, SKYNET Software's website, or the project website. Administrators will also have links to add new devices to the database and reset user passwords.

Admin Control Panel:

SKYNET SOFTWARE

Dynamic Network Device Mapping System

Administrator Control Panel

Welcome, ADMIN

[Control Panel](#) | [Administrator Control Panel](#) | [Logout](#)

Please set permissions for Faculty [USER](#)

User type:

Administrator:

Department Head:

Faculty:

Insert asset tag to assign to [USER](#):
Seperate multiple asset tags with commas.

Search for device asset tag by:
(result will be auto-inserted in the field above)

IP Address
 MAC Address

[Siena College](#) | [Computer Science Department](#) | [Siena Software Engineering](#) | [SKYNET Software](#)
[Project Home]

The Administrator control panel allows an administrator to set permissions for any user by choosing if they are an administrator, faculty member, or department head. This page will also allow the administrator to assign one or multiple devices to a user by inputting the device's asset tag. The

asset tag for any device can be retrieved from this page also by searching by IP or MAC Address. The user can also follow a hyperlink to the Siena College website, the Siena College Computer Science Department website, the Software Engineering website, SKYNET Software's website, or the project website.

Admin Search:

SKYNET SOFTWARE
Dynamic Network Device Mapping System

Search

Welcome, ADMIN
[Control Panel](#) | [Administrator Control Panel](#) | [Logout](#)

Select a floor:
Enter search criteria:

Enter item:

Find rooms that contain at least one:

Advanced Search Options:
Building: Floor:
Room:
Network Device Type:

[Siena College](#) | [Computer Science Department](#) | [Siena Software Engineering](#) | [SKYNET Software](#)
[\[Project Home\]](#)



From the search page, an administrator will be able to lookup information regarding a device by searching by a number of different characteristics. In addition, the administrator can view rooms that contain at least one PC or Mac, or search by building, room, floor, or network device type. The user can also follow a hyperlink to the Siena College website, the Siena College Computer Science Department website, the Software Engineering website, SKYNET Software's website, or the project website.

Admin View Users:



SKYNET SOFTWARE

Dynamic Network Device Mapping System

View Users

Welcome, ADMIN

[Control Panel](#) | [Administrator Control Panel](#) | [Logout](#)

Username	User Type	Permissions	
ADMIN	Administrator	ALL	<input type="checkbox"/>
AWARNER	Faculty	View Room, View Room	<input type="checkbox"/>
DHEAD	Department Head	View Dept, View Room	<input type="checkbox"/>
F_MEM	Faculty	View Room	<input type="checkbox"/>
HIMBERT	Administrator	ALL	<input type="checkbox"/>
KFEALEY	Department Head	View Dept, View Room	<input type="checkbox"/>
SMALONEY	Department Head	View Room	<input type="checkbox"/>
TMARCH	Faculty	View Room	<input type="checkbox"/>

[Add](#) [Remove](#)

[Siena College](#) | [Computer Science Department](#) | [Siena Software Engineering](#) | [SKYNET Software](#)
[\[Project Home\]](#)

From the View Users page, an administrator will be able to add or delete users. The administrator can also follow a link to edit user permissions. The user can also follow a hyperlink to the Siena College website, the Siena College Computer Science Department website, the Software Engineering website, SKYNET Software's website, or the project website.

Department Head Main Menu:



SKYNET SOFTWARE

Dynamic Network Device Mapping System

Main Menu

Welcome, DHEAD
[Control Panel](#) | [Logout](#)

Select a floor:
(Only floors you have permission to access will be listed or selectable)

Roger Bacon:
RB 1st Floor
RB 2nd Floor
[RB 3rd Floor](#)
RB 4th Floor

[Sienna College](#) | [Computer Science Department](#) | [Sienna Software Engineering](#) | [SKYNET Software](#)
[\[Project Home\]](#)

The main menu page contains hyperlinks to each of the available floors based on the logged-in user's permissions. The user can also follow a hyperlink to the Siena College website, the Siena College Computer Science Department website, the Software Engineering website, SKYNET Software's website, or the project website.

Department Head Floor Plan:

SKYNET SOFTWARE
Dynamic Network Device Mapping System

Floor Selection

Welcome, DHEAD
[Control Panel](#) | [Logout](#)

Current Floor: Roger Bacon, 3rd Floor
Please select a new floor:

350 Open Lab, 344, 340 Classroom, 348, 346, 338, 330 Higgins System Lab, 322, 320, 318, 328 Classroom, 324 Library, 312 Study Lounge, 314, 316, 308, 306 CS Lab, 304 Applications Lab, 302 Classroom, 323, 321, 319, 317, 315, 313, 311, 308, 306 CS Lab, 304 Applications Lab, 302 Classroom

Siena College | Computer Science Department | Siena Software Engineering | SKYNET Software
[Project Home]

The floor plan page will allow the user access to all floors available to them by use of the drop-down menu. The user can click on any rooms within their permission set to load the "room view" page. The user can also follow a hyperlink to the Siena College website, the Siena College Computer Science Department website, the Software Engineering website, SKYNET Software's website, or the project website.

Department Head Room View:

The screenshot displays the SKYNET Software interface. At the top left is a logo featuring a stylized 'S' inside a blue speech bubble. To its right, the text 'SKYNET SOFTWARE' is written in a large, white, serif font. Below this, the text 'Dynamic Network Device Mapping System' is centered. The main content area is titled 'Room View' and includes a welcome message: 'Welcome, DHEAD' with links for 'Control Panel' and 'Logout'. The central focus is a network diagram for 'Roger Bacon Hall - 3rd Floor - Room 348'. This diagram shows a central hub connected to several desktop computers. A legend on the right side of the diagram identifies the icons: a Macintosh (apple logo), a PC (tower case), a Printer (printer icon), and a Hub (network switch icon). The bottom of the interface features a navigation bar with links to 'Siena College', 'Computer Science Department', 'Siena Software Engineering', and 'SKYNET Software', along with a '[Project Home]' button.

The administrator, department head and faculty members will all have the same view of the room page. The room page will have a description of the room and the layout for viewing. Since this page doesn't allow any user to modify it and is simply for viewing purposes it will show up the same to all users who have access to the page. The user can also follow a hyperlink to the Siena College website, the Siena College Computer Science Department website, the Software Engineering website, SKYNET Software's website, or the project website.

Faculty Main Menu:



SKYNET SOFTWARE

Dynamic Network Device Mapping System

Main Menu

Welcome, F_MEM
[Control Panel](#) | [Logout](#)

Select a floor:
(Only floors you have permission to access will be listed or selectable)

Roger Bacon:
RB 1st Floor
RB 2nd Floor
[RB 3rd Floor](#)
RB 4th Floor

[Siena College](#) | [Computer Science Department](#) | [Siena Software Engineering](#) | [SKYNET Software](#)
[Project Home]

The main menu page contains hyperlinks to each of the available floors based on the logged-in user's permissions. The user can also follow a hyperlink to the Siena College website, the Siena College Computer Science Department website, the Software Engineering website, SKYNET Software's website, or the project website.

Faculty Floor Plan:

The screenshot displays the SKYNET SOFTWARE interface. At the top left is the SKYNET logo, a blue stylized 'S' with a speech bubble. To its right, the text 'SKYNET SOFTWARE' is written in a large, white, serif font. Below this, 'Dynamic Network Device Mapping System' is written in a smaller white font. The interface has a dark blue background. In the center, there is a 'Floor Selection' section with the text 'Welcome, F_MEM' and two links: 'Control Panel' and 'Logout'. Below this, it says 'Current Floor: Roger Bacon, 3rd Floor' and 'Please select a new floor:' followed by a dropdown menu. The main part of the interface is a floor plan diagram of the 3rd floor, showing various rooms and their numbers. The rooms are color-coded: yellow for labs (350 Open Lab, 306 C.S. Lab, 304 Applications Lab), green for classrooms (340, 328, 302), orange for study areas (330 Higgins System Lab, 324 Library, 312 Study Lounge), and grey for other rooms (323, 321, 319, 317, 315, 313, 311, 314, 316, 308, 300, 320, 318, 322, 326, 334, 332, 338, 344, 352, 348, 346, 324, 326, 314, 316, 308, 306, 304, 302). At the bottom of the interface, there is a navigation bar with links: 'Siena College', 'Computer Science Department', 'Siena Software Engineering', and 'SKYNET Software'. Below these links is the text '[Project Home]'.

The floor plan page will allow the user access to all floors available to them by use of the drop-down menu. The user can click on any rooms within their permission set to load the "room view" page. The user can also follow a hyperlink to the Siena College website, the Siena College Computer Science Department website, the Software Engineering website, SKYNET Software's website, or the project website.

Faculty Room View:

The screenshot displays the SKYNET Software interface for a Faculty Room View. At the top, the SKYNET Software logo is shown on the left, and the text "SKYNET SOFTWARE" is prominently displayed in a large, white, serif font on a black background. Below this, the text "Dynamic Network Device Mapping System" is centered. The main content area has a blue background and features the text "Room View" centered. Below that, a welcome message "Welcome, F_MEM" is displayed, followed by two links: "Control Panel" and "Logout". The central focus is a network diagram for "Roger Bacon Hall - 3rd Floor - Room 348". This diagram shows a central hub connected to several desktop computers (PCs) and one printer. A legend on the right side of the diagram identifies the icons: a Macintosh icon for "Macintosh", a desktop computer icon for "PC", a printer icon for "Printer", and a hub icon for "Hub". At the bottom of the interface, a navigation bar contains the following text: "Siena College | Computer Science Department | Siena Software Engineering | SKYNET Software [Project Home]".

The administrator, department head and faculty members will all have the same view of the room page. The room page will have a description of the room and the layout for viewing. Since this page doesn't allow any user to modify it and is simply for viewing purposes it will show up the same to all users who have access to the page. The user can also follow a hyperlink to the Siena College website, the Siena College Computer Science Department website, the Software Engineering website, SKYNET Software's website, or the project website.

1.2 Data Flow Diagrams

see attached Data Flow Diagram Document

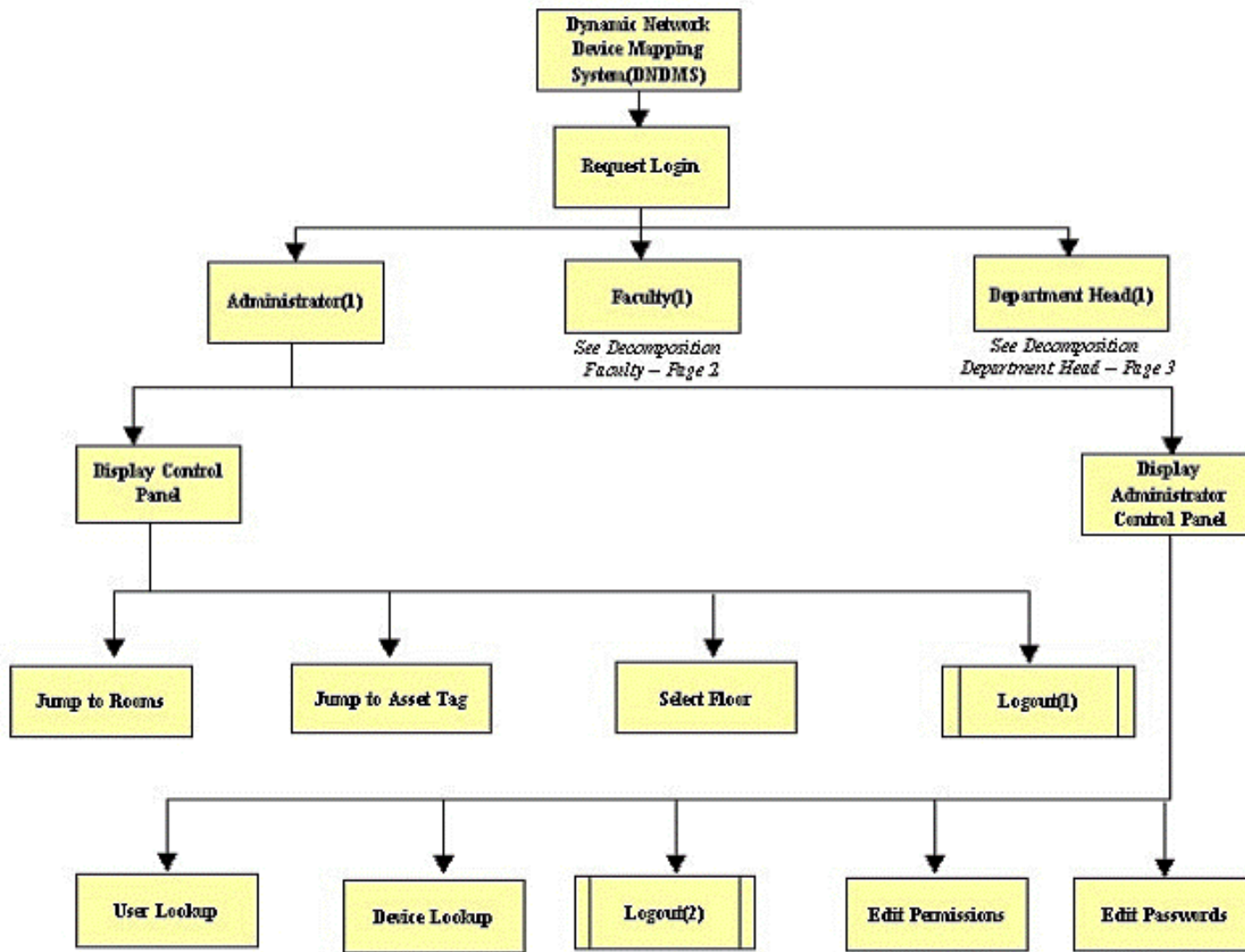
Section 2: Architectural Design Specification

2.1 Structure Diagram

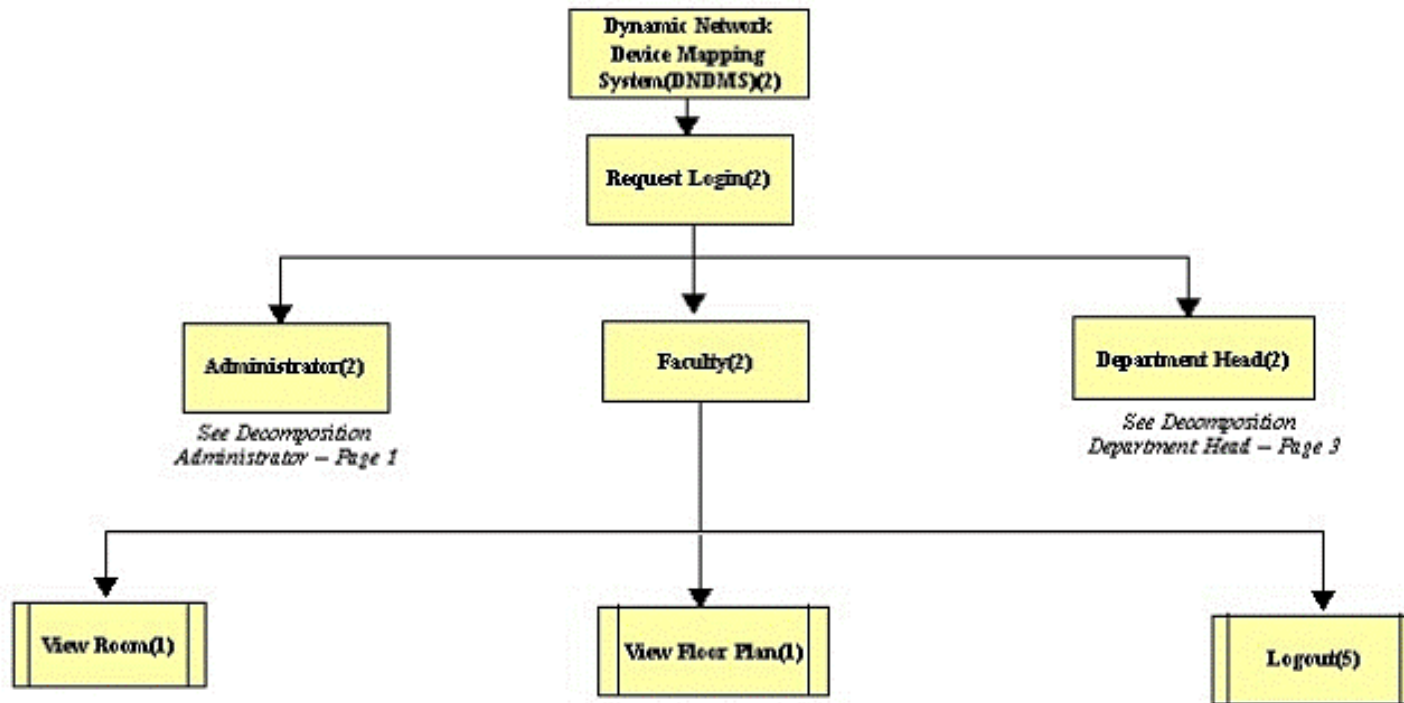


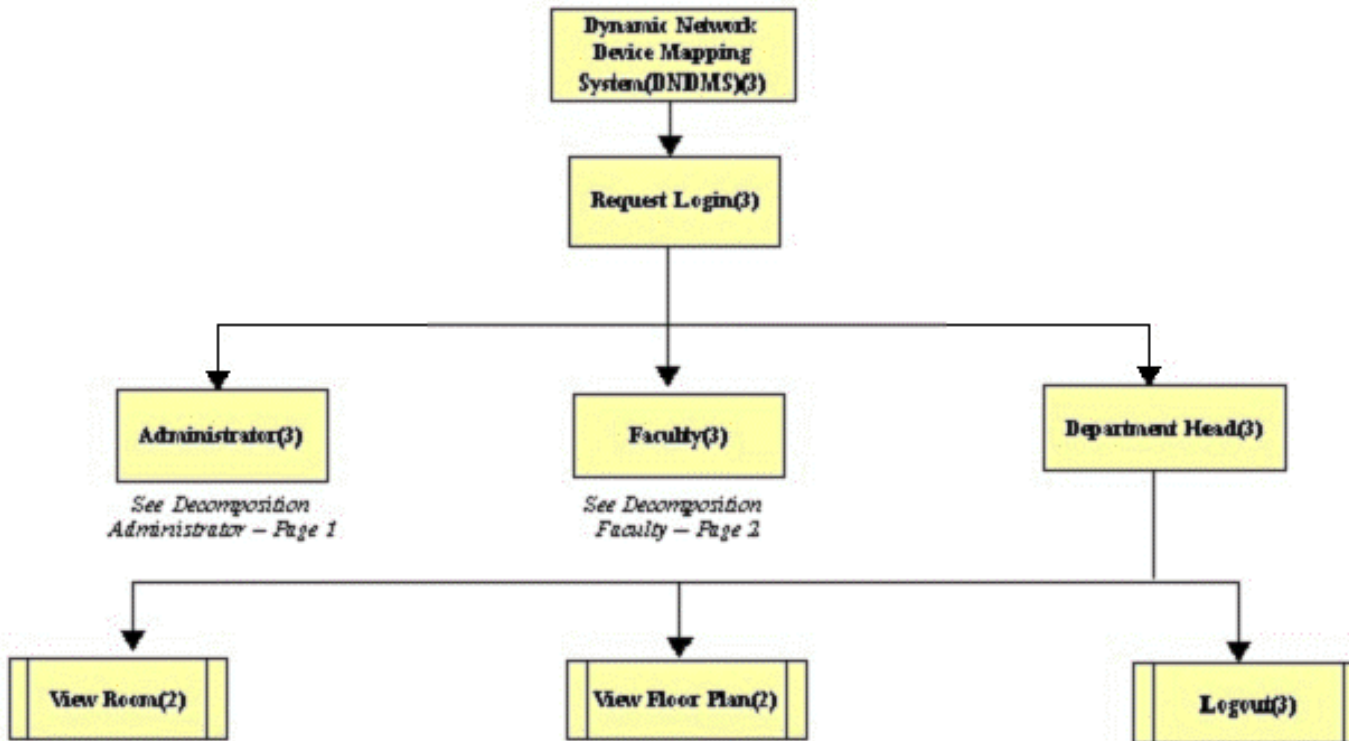
A **Module** represents an instruction that carries out an operation.

A **Library Module** behaves in the same manner every time that it is called upon.



SKYNET S SOFTWARE
Structure Diagram
Page 1





SKYNET SOFTWARE
Structure Diagram
Page 3

2.2 Use Case Narrative

SKYNET's Dynamic Network Device Mapping System will provide functionality for three user groups; Administrator, Department Heads, and Faculty.

Administrators will have all functions of the program available to them at all times. When an *Administrator* logs in, he will be presented with a screen displaying Roger Bacon and Morrell Science Center. From there, the *Administrator* can choose to view a particular floor within one of the two buildings. Once a floor is selected, a visual floor map will display within the web browser showing all devices connected to the network. This information will be pulled from a database, which will be updated any time the administrator makes a change to the floor map from within the DNDMS. If the *Administrator* desires, he/she can zoom into the floor map to the room level. This way, an *Administrator* will be able to see all devices connected to the network from within the DNDMS.

The *Administrator* will be given access to make additions and subtractions from the current School of Science inventory, as well as from the list of currently connected network components. The *Administrator* will have the capability to select a room he wants to move a network device to from a pull-down menu that contains each room number in the School of Science.

When an *Administrator* wants to find a specific computer within the School of Science, they will no longer have to physically search each room in the buildings. With the DNDMS, *Administrators* will be able to search through the list of devices by such attributes as MAC address, serial number, and IP address.

An *Administrator* will also have the ability to add and remove *Department Heads* and *Faculty* from the DNDMS. If a new user is hired, the *Administrator* can add a new user and choose that new user's permissions. Alternatively, if a user leaves Siena, the *Administrator* can easily remove that person's permission to the DNDMS.

Department Heads will be able to view the network devices in their entire department. *Department Heads* will not be able to make any changes to the floor plan, but can view all components, within their department, connected to the School of Science network.

Faculty, which includes anyone who works in the School of Science other than the *Administrators* and *Department Heads*, will be able to view the network devices in their office and any printers that are accessible to them. Faculty members will also not have access to make changes to the database or floor plans within the DNDMS – they will have read-only access of the view of their office and printers they may use.

2.3 Functional Requirements Inventory

The following list outlines the required functionality to be included in the final solution. The requirements are listed according to user case and then by screens the user will view.

General:

The Dynamic Network Device Mapping System is web-based.

Administrator User:

The Administrator user will have an account.

The Administrator user will have a username and password.

The Administrator will establish usernames and passwords for other users.

Login Page

All Users:

- The top of the page will contain a line of text with the name of the software (Dynamic Network Device Management System).
- There is a text box that will contain a brief description of the Dynamic Network Device Management Software will scrolling capability for intricate details about the software.
- The Username input box will be clearly labeled by a “Username:” line of text
- Immediately after the line of text will be the actual username box so that the user can input their username.
- There will be a “Password:” line of text right below the “Username:” line of text to indicate which box to input the password.
- The password input box is located immediately after the line of text indicating that it is a password input box and right below the username input box.
- Below the password box is a submit button that will allow the user to submit their username and password after successfully inputting them into the username and password boxes.
- The bottom of the page will contain 4 links reading left to right differentiated by a small vertical line.
- The furthest left link will guide the user to the Siena College main page.
- The second link from the left will link the user to the Siena College Computer Science Department web page.
- The second link from the right will link the user to the Siena Software Engineering page.
- The final link to the right will be a link to the SKYNET software page where the user will have instant access to all information related to the project and the team that is producing the project.

Floor Plan Page

All Users:

- The top of the page will contain a line of text with the name of the software (Dynamic Network Device Management System).
- There is a text box that will contain a brief description of the Floor that the current user is on and how the floor map will work. This will have scrolling capability for intricate details about the floor map page and description of the floor.
- There is a line of text that welcomes the user and shows their username which will allow the user to make sure they are logged on properly under the right username.
- There are now two links separated by a vertical bar right below the welcome line of text.
- The first link is the Control Panel link and it is inaccessible to all users. This will become active when we deem that there is something the users need to manipulate.
- The second link is a logout link that will allow the user to logout of their account from this page.
- Below the two links above, there is a line of text that will indicate the current floor that is being viewed.
- Below the line that indicates the current floor we are viewing is a line of text that indicates the user can choose a new floor by selecting a new floor from the drop down box.
- Immediately to the right there is a dropdown box that will have selected the current floor which will be set to the same floor as the user's office is located in. It will allow the user to access floor maps of other rooms they interact with as well.
- Below the dropdown box is an interactive image that shows the map of the floor and allows all users to access their office data by placing their cursor over their room or by moving their mouse over places they can print to. This way the user will have access to data regarding their personal PC and printers they can access.
- The bottom of the page will contain 4 links reading left to right differentiated by a small vertical line.
- The furthest left link will guide the user to the Siena College main page.
- The second link from the left will link the user to the Siena College Computer Science Department web page.
- The second link from the right will link the user to the Siena Software Engineering page.
- The final link to the right will be a link to the SKYNET software page where the user will have instant access to all information related to the project and the team that is producing the project.

Department Head and Administrator (All accessibility by the Department Head will also apply to the Administrator):

- The department head has the additional ability to select all floors that they manage which includes the offices of faculty in the department that may not be on their own floor. This will allow the department head to view the floor map for example on Roger Bacon 2nd floor, if faculty of that department are located there even if the department head does not teach or reside on the 2nd floor.
- The department head will not be restricted to looking at their own data but will be able to view all room data for all faculty rooms and accessible printers in their department.

Administrator Only:

- Below the welcome text the administrator will have an additional link located between the control panel and the logout links. This link is for the Administrator Control Panel.
- The administrator dropdown box has absolutely no restrictions and so the administrator will be able to view all floor plans that are in the database.
- The administrator will be able to view all the information in the database for any room on any floor.

Room Plan Page

All Users:

- The top of the page will contain a line of text with the name of the software (Dynamic Network Device Management System).
- There is a text box that will contain a brief description of the room that the current user is on and how the room map will work. This will have scrolling capability for intricate details about the room map page and description of the room.
- There is a line of text that welcomes the user and shows their username which will allow the user to make sure they are logged on properly under the right username.
- There are now two links separated by a vertical bar right below the welcome line of text.
- The first link is the Control Panel link and it is inaccessible to all users. This will become active when we deem that there is something the users need to manipulate.
- The second link is a logout link that will allow the user to logout of their account from this page.
- Below the links is an interactive image that shows the layout of the room and allows all users to access data about the network devices in that room.
- Below the room layout image is a line of text that indicates the building, floor, and room number that is being shown.
- The bottom of the page will contain 4 links reading left to right differentiated by a small vertical line.
- The furthest left link will guide the user to the Siena College main page.
- The second link from the left will link the user to the Siena College Computer Science Department web page.
- The second link from the right will link the user to the Siena Software Engineering page.
- The final link to the right will be a link to the SKYNET software page where the user will have instant access to all information related to the project and the team that is producing the project.

Administrators Only:

- Below the welcome text the administrator will have an additional link located between the control panel and the logout links. This link is for the Administrator Control Panel.
- The Administrator will also have additional functionality like the ability to move network devices in the room, and add or delete devices to the room.

Menu Page

All Users:

- The top of the page will contain a line of text with the name of the software (Dynamic Network Device Management System).
- There is a text box that will contain a brief description of the menu and how the menu page will work. This will have scrolling capability for intricate details about the menu page.
- There is a line of text that welcomes the user and shows their username which will allow the user to make sure they are logged on properly under the right username.
- There are now two links separated by a vertical bar right below the welcome line of text.
- The first link is the Control Panel link and it is inaccessible to all users. This will become active when we deem that there is something the users need to manipulate.
- The second link is a logout link that will allow the user to logout of their account from this page.
- Below the links is a line of text that indicates the beginning of a list of links to the different floors in the buildings.
- Below the line of explanation is a line explaining the building and then the floors that are located in each building. The floors that the user's office is located on and work in will be accessible.
- The bottom of the page will contain 4 links reading left to right differentiated by a small vertical line.
- The furthest left link will guide the user to the Siena College main page.
- The second link from the left will link the user to the Siena College Computer Science Department web page.
- The second link from the right will link the user to the Siena Software Engineering page.
- The final link to the right will be a link to the SKYNET software page where the user will have instant access to all information related to the project and the team that is producing the project.

Department Head and Administrator (All accessibility by the Department Head will also apply to the Administrator):

- The department head has the additional ability to select any floors that they manage which includes the offices of faculty in the department that may not be on their own floor. This will allow the department head to view the floor map for example on Roger Bacon 2nd floor, if faculty of that department are located there, even if the department head does not teach or reside on the 2nd floor.

Administrator Only:

- Since the administrator menu options are integrated into the Administrator Control Panel we will discuss this section in terms of the Administrator control panel.

Administrator Control Panel:

Administrator Only:

- The administrator Control panel is exactly like the menu page for the department head with a few upgrades.
- In the administrator control panel the text that defines the building name and the links to the separate floors have been shifted to the left.
- To the right of the floor links is a line of text indicated that there will be a text box to accept a room to jump to.
- After the line of text explaining the room jump box is the text box where the user can input a room.
- After the text box is a submit button that allows the user to go to the room they have just input into the jump box.
- To the right of the floor links, but below the text that explains where to enter a room to jump to, is a line of text that indicates that there will be a text box to accept an asset tag and jump to the room containing that asset tag.
- After the line of text explaining where to input the asset tag is the text box where the user can input the asset tag.
- After the text box is a submit button that allows the user to go to the room that contains the asset tag given.
- Below these two new search criteria are two more links separated by a vertical line.
- The first link is a link to the NetRegistration page that is only accessible by the administrator.
- The second link is a link to the Reset user password page which is also only accessible by the administrator.
- *The bottom of the page will also contain the 4 links that are outlined in the menu pages for all users.

User Permissions Page

Administrator Only:

- The top of the page will contain a line of text with the name of the software (Dynamic Network Device Management System).
- There is a text box that will contain a brief description of the user's permission page and how the permissions will work. This will have scrolling capability for intricate details about the permissions page and how to assign and change permissions.
- There is a line of text that welcomes the user and shows their username which will allow the user to make sure they are logged on properly under the right username.
- There are now three links separated by vertical bars right below the welcome line of text.
- The first link is the Control Panel link and it is inaccessible to all users. This will become active when we deem that there is something the users need to manipulate.
- The second link is a link to the Administrator Control Panel.
- The third link is a logout link that will allow the administrator to logout of their account from this page.
- Below the links the site breaks down into two columns.
- The first column is located on the left half of the page and there is a line of text explaining that you can set permissions of a given user who will be able to be chosen by clicking the USER link at the end of the line.
- Below this line is a line of text to show that there is going to be a list of possible permission options.
- Now we have listed all three user types in which one can be selected to give the user that was selected earlier, either the

Administrator, Department Head, or Faculty permission level.

- In the second column located to the right of the first column is a line of text explaining that the upcoming text box will allow the administrator to apply permissions to a user for an asset tag. The user is selected by the USER link at the end of the line.
- Below the line of text is a quick explanation of how to add multiple asset tags to a users permissions.
- There will then be a text box that allows the administrator to input tag numbers they wish to assign to the user.
- Below the text box will be a submit button to actually assign the asset tag to the user.
- Still in the right column under the asset tag assignment is a line of text explaining that you can search for an asset tag by IP or MAC address.
- Under this text is a notice that after searching for an asset tag by IP the result will show up in the asset tag text box mentioned previously.
- There will now be a text box where the administrator can enter their IP or MAC address.
- Below the text box is a dropdown menu that allows the administrator to choose what was just entered into the box above, either IP or MAC address.
- The bottom of the page will contain 4 links reading left to right differentiated by a small vertical line.
- The furthest left link will guide the user to the Siena College main page.
- The second link from the left will link the user to the Siena College Computer Science Department web page.
- The second link from the right will link the user to the Siena Software Engineering page.
- The final link to the right will be a link to the SKYNET software page where the user will have instant access to all information related to the project and the team that is producing the project.

Advanced Search Page:

Administrator Only:

- The top of the page will contain a line of text with the name of the software (Dynamic Network Device Management System).
- There is a text box that will contain a brief description of the search page and how the search page will work. This will have scrolling capability for intricate details about the search page and how to properly user all menus and options related to the search page.
- There is a line of text that welcomes the user and shows their username which will allow the user to make sure they are logged on properly under the right username.
- There are now three links separated by vertical bars right below the welcome line of text.
- The first link is the Control Panel link and it is inaccessible to all users. This will become active when we deem that there is something the users need to manipulate.
- The second link is a link to the Administrator Control Panel.
- The third link is a logout link that will allow the administrator to logout of their account from this page.
- Below the links is a line that explains to the user that they will be searching for a network device.

- Underneath this is a line of text that explains that the user will be entering search criteria based on a selection from a dropdown box.
- Immediately after this line is a dropdown box that contains searchable options such as Asset Tag Number, IP Address, MAC Address, or Serial Number.
- Below the line explaining the dropdown box is a line showing that the next text box should be filled with the value relative to the item selected from the dropdown box.
- This is immediately followed by the text box that will contain the Asset Tag Number, IP Address, MAC Address, or Serial Number depending on what the administrator chooses.
- Below these two boxes is a search button that will search the database for the value in the input box under the category from the dropdown menu.
- After these search criteria is a line explaining another search criterion, namely the ability to find rooms containing one or more of a certain network device. The user is to choose the network device they desire from the dropdown menu located after the line of text.
- There is a dropdown menu located immediately after this line of text that allows the user to pick either a PC or a MAC.
- This is then followed by a search button that will carry out the search for rooms with at least one PC or MAC.
- The last search option is mentioned by a short line of text and is referred to as the advanced search option.
- The first line explains the first dropdown menu is for the building.
- This will be followed by a dropdown menu to select either Roger Bacon or Morrell science center.
- The second line explains the second dropdown menu is for the floor.
- This is immediately followed by a dropdown that contains all possible floors for the give building.
- The third line of text explains the third box is for inputting the room number.
- The box immediately after this line is for inputting the room number that will be searched for in the building of the first dropdown menu on the floor of the second dropdown menu.
- The last line explains the last dropdown menu is to choose between a desktop, laptop, printer or a miscellaneous network device.
- The dropdown box will be for choosing which network device the administrator wishes to search for.
- Below these possible search options is a button that will search the database given the criteria inputted.
- The bottom of the page will contain 4 links reading left to right differentiated by a small vertical line.
- The furthest left link will guide the user to the Siena College main page.
- The second link from the left will link the user to the Siena College Computer Science Department web page.
- The second link from the right will link the user to the Siena Software Engineering page.
- The final link to the right will be a link to the SKYNET software page where the user will have instant access to all information related to the project and the team that is producing the project.

View Users Page

Administrator Only:

- The top of the page will contain a line of text with the name of the software (Dynamic Network Device Management System).
- There is a text box that will contain a brief description of the search page and how the search page will work. This will have scrolling capability for intricate details about the search page and how to properly user all menus and options related to the search page.
- There is a line of text that welcomes the user and shows their username, which will allow the user to make sure they are logged on properly under the right username.
- There are now three links separated by vertical bars right below the welcome line of text.
- The first link is the Control Panel link and it is inaccessible to all users. This will become active when we deem that there is something the users need to manipulate.
- The second link is a link to the Administrator Control Panel.
- The third link is a logout link that will allow the administrator to logout of their account from this page.
- A white division in the middle of the page will display a list of users, their user group, their permissions, and a checkbox to allow the administrator to remove one or more users from the database at a time.
- User names in the list will be clickable and will bring the administrator to a page to edit that user's permissions.
- "Add" and "Remove" buttons will appear below the list of users to allow the administrator to add or remove users from the database.
- The bottom of the page will contain 4 links reading left to right differentiated by a small vertical line.
- The furthest left link will guide the user to the Siena College main page.
- The second link from the left will link the user to the Siena College Computer Science Department web page.
- The second link from the right will link the user to the Siena Software Engineering page.

The final link to the right will be a link to the SKYNET software page where the user will have instant access to all information related to the project and the team that is producing the project.

2.4 Logical Data Dictionary

The following information presents a preliminary description of the data stored in the Dynamic Network Device Mapping System database. The data is presented in a layout of the table structure. Primary Keys are underlined. All tables but the Room, User Permissions, and User Room Permissions are external and will be provided to us by our clients.

Table: User

Fields:

Lname: CHAR(12)

-User's last name

Fname: CHAR(12)

-User's first name

UserGroup: VARCHAR(15)

- group user belongs to i.e. Administrator, Faculty, Department Head

Table: Room

Fields:

Num: VARCHAR(5)

- The room number

Building: CHAR(3)

- The building the room is found in

Department: CHAR(15)

- The department the room is used by

Type: CHAR(10)

- The type of room; i.e. lecture, lab, etc...

EEC: CHAR(1)

- Indicates if the room is an Electronically Enhanced Classroom - Y/N

Table: Machine

Fields:

Id: INTEGER

- A unique identifier

Host_Name: VARCHAR(30)

- The hostname of the machine

IP_Address: VARCHAR(15)

- The IP Address of the machine

MAC_Address: VARCHAR(20)

- The MAC Address of the machine

Asset_Tag: INTEGER

- The IT&S Asset Tag value

Serial_Num: VARCHAR(20)

- The machine's serial number

Department: CHAR(15)

- The department to which the machine belongs (the sub-network)

Building: CHAR(3)

- The building in which the machine is located

Room: VARCHAR(5)

- The room in which the machine is located

CPU: VARCHAR(6)

- The CPU type

Speed: VARCHAR(6)

- The speed of the processor

Disk: VARCHAR(5)

- The disk size

Memory: VARCHAR(5)

- The memory size

User: CHAR(12)

- The name of the primary user

User_Type: CHAR(15)

- The type of primary user; i.e. student, faculty, etc...

Priority: CHAR(1)

- Priority level; L-low; M- medium; H-High

PO_Num: VARCHAR(15)

- Purchase order number

VP_Code: CHAR(4)

- Always VPAA for Vice President of Academic Affairs

Manufacturer: CHAR(15)

- The name of the manufacturing company

Model: VARCHAR(15)

- The model number of the machine

Equipment_Type: CHAR(20)

- The type of equipment; i.e. PC, Mac, Laptop, Wireless Access Point, etc.

Monitor_Type: CHAR(5)

- The type of monitor; i.e. LCD, CRT

Purchase_Year: DATE

- The date the machine/equipment was purchased

Installed_Date: DATE

- The date the machine/equipment was installed

Comments: VARCHAR(100)

- Comments about the machine/equipment

Table: User Permissions

Fields:

UserLname: CHAR(12)

-User's last name

UserFname: CHAR(12)

-User's first name

MachineId: INTEGER

- A unique identifier

Table: User Room Permissions

Fields:

UserLname: CHAR(12)

- User's last name

UserFname: CHAR(12)

- User's first name

RoomNum: VARCHAR(5)

- The room number that the user has access to

2.6 Design Environment Information

The machines we will be using to do our development work, and their specifications, as well as the software that we will be using to develop our programs are listed here.

Server:

Oracle, version 10g

Mysql, version 4.1.14

PHP, version 4.3.11

Apache, version 2.0.46

Browser Environment:

Microsoft Internet Explorer version 6.0.2800.1106

Mozilla Firefox version 1.0 preview release

Mozilla Firefox version 1.0

Apple Safari 1.2

Software:

Adobe Acrobat version 5.0.5

Adobe Reader version 6.0.0

Microsoft Office Word 2000 9.0.4402

Microsoft Office PowerPoint 2000 SR1 9.0.3821

WinSCP version 3.1.0 (Build 165)

Putty Release 0.53b

Macromedia Dreamweaver MX Education Edition 6.0
Macromedia Fireworks MX Education Edition 6.0
Visible Analyst Education Edition version 7.5.5
Microsoft Project 2000 9.0.2001.0219SR1
Microsoft Windows 2000 5.00.2195 Service Pack 3
Microsoft Windows XP Professional Version 2002 Service Pack 2

Systems:

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

Macintosh iMac
2.0GHz Intel Core 2 Duo
1GB of RAM

Section 4: Testing Requirements

4.1 Unit Test

see attached Unit Test Document

4.2 Acceptance Test

Functional Requirements

The following list outlines the required functionality to be included in the final solution. The requirements are listed according to user case and then by screens the user will view.

General:

The Dynamic Network Device Mapping System is web-based.

Administrator User:

The Administrator user will have an account.

The Administrator user will have a username and password.

The Administrator will establish usernames and passwords for other users.

Login Page

All Users:

- The top of the page will contain a line of text with the name of the software (Dynamic Network Device Management System).
- There is a text box that will contain a brief description of the Dynamic Network Device Management Software will scrolling capability for intricate details about the software.
- The Username input box will be clearly labeled by a “Username:” line of text
- Immediately after the line of text will be the actual username box so that the user can input their username.
- There will be a “Password:” line of text right below the “Username:” line of text to indicate which box to input the password.
- The password input box is located immediately after the line of text indicating that it is a password input box and right below the username input box.
- Below the password box is a submit button that will allow the user to submit their username and password after successfully inputting them into the username and password boxes.
- The bottom of the page will contain 4 links reading left to right differentiated by a small vertical line.
- The furthest left link will guide the user to the Siena College main page.
- The second link from the left will link the user to the Siena College Computer Science Department web page.
- The second link from the right will link the user to the Siena Software Engineering page.
- The final link to the right will be a link to the SKYNET software page where the user will have instant access to all information related to the project and the team that is producing the project.

Floor Plan Page

All Users:

- The top of the page will contain a line of text with the name of the software (Dynamic Network Device Management System).
- There is a text box that will contain a brief description of the Floor that the current user is on and how the floor map will work. This will have scrolling capability for intricate details about the floor map page and description of the floor.
- There is a line of text that welcomes the user and shows their username which will allow the user to make sure they are logged on properly under the right username.
- There are now two links separated by a vertical bar right below the welcome line of text.

- The first link is the Control Panel link and it is inaccessible to all users. This will become active when we deem that there is something the users need to manipulate.
- The second link is a logout link that will allow the user to logout of their account from this page.
- Below the two links above, there is a line of text that will indicate the current floor that is being viewed.
- Below the line that indicates the current floor we are viewing is a line of text that indicates the user can choose a new floor by selecting a new floor from the drop down box.
- Immediately to the right there is a dropdown box that will have selected the current floor which will be set to the same floor as the user's office is located in. It will allow the user to access floor maps of other rooms they interact with as well.
- Below the dropdown box is an interactive image that shows the map of the floor and allows all users to access their office data by placing their cursor over their room or by moving their mouse over places they can print to. This way the user will have access to data regarding their personal PC and printers they can access.
- The bottom of the page will contain 4 links reading left to right differentiated by a small vertical line.
- The furthest left link will guide the user to the Siena College main page.
- The second link from the left will link the user to the Siena College Computer Science Department web page.
- The second link from the right will link the user to the Siena Software Engineering page.
- The final link to the right will be a link to the SKYNET software page where the user will have instant access to all information related to the project and the team that is producing the project.

Department Head and Administrator (All accessibility by the Department Head will also apply to the Administrator):

- The department head has the additional ability to select all floors that they manage which includes the offices of faculty in the department that may not be on their own floor. This will allow the department head to view the floor map for example on Roger Bacon 2nd floor, if faculty of that department are located there even if the department head does not teach or reside on the 2nd floor.
- The department head will not be restricted to looking at their own data but will be able to view all room data for all faculty rooms and accessible printers in their department.

Administrator Only:

- Below the welcome text the administrator will have an additional link located between the control panel and the logout links. This link is for the Administrator Control Panel.
- The administrator dropdown box has absolutely no restrictions and so the administrator will be able to view all floor plans that are in the database.
- The administrator will be able to view all the information in the database for any room on any floor.

Room Plan Page

All Users:

- The top of the page will contain a line of text with the name of the software (Dynamic Network Device Management System).
- There is a text box that will contain a brief description of the room that the current user is on and how the room map will work. This will have scrolling capability for intricate details about the room map page and description of the room.
- There is a line of text that welcomes the user and shows their username which will allow the user to make sure they are logged on properly under the right username.
- There are now two links separated by a vertical bar right below the welcome line of text.
- The first link is the Control Panel link and it is inaccessible to all users. This will become active when we deem that there is something the users need to manipulate.
- The second link is a logout link that will allow the user to logout of their account from this page.
- Below the links is an interactive image that shows the layout of the room and allows all users to access data about the network devices in that room.
- Below the room layout image is a line of text that indicates the building, floor, and room number that is being shown.
- The bottom of the page will contain 4 links reading left to right differentiated by a small vertical line.
- The furthest left link will guide the user to the Siena College main page.
- The second link from the left will link the user to the Siena College Computer Science Department web page.
- The second link from the right will link the user to the Siena Software Engineering page.
- The final link to the right will be a link to the SKYNET software page where the user will have instant access to all information related to the project and the team that is producing the project.

Administrators Only:

- Below the welcome text the administrator will have an additional link located between the control panel and the logout links. This link is for the Administrator Control Panel.
- The Administrator will also have additional functionality like the ability to move network devices in the room, and add or delete devices to the room.

Menu Page

All Users:

- The top of the page will contain a line of text with the name of the software (Dynamic Network Device Management System).
- There is a text box that will contain a brief description of the menu and how the menu page will work. This will have scrolling capability

for intricate details about the menu page.

- There is a line of text that welcomes the user and shows their username which will allow the user to make sure they are logged on properly under the right username.
- There are now two links separated by a vertical bar right below the welcome line of text.
- The first link is the Control Panel link and it is inaccessible to all users. This will become active when we deem that there is something the users need to manipulate.
- The second link is a logout link that will allow the user to logout of their account from this page.
- Below the links is a line of text that indicates the beginning of a list of links to the different floors in the buildings.
- Below the line of explanation is a line explaining the building and then the floors that are located in each building. The floors that the user's office is located on and work in will be accessible.
- The bottom of the page will contain 4 links reading left to right differentiated by a small vertical line.
- The furthest left link will guide the user to the Siena College main page.
- The second link from the left will link the user to the Siena College Computer Science Department web page.
- The second link from the right will link the user to the Siena Software Engineering page.
- The final link to the right will be a link to the SKYNET software page where the user will have instant access to all information related to the project and the team that is producing the project.

Department Head and Administrator (All accessibility by the Department Head will also apply to the Administrator):

- The department head has the additional ability to select any floors that they manage which includes the offices of faculty in the department that may not be on their own floor. This will allow the department head to view the floor map for example on Roger Bacon 2nd floor, if faculty of that department are located there, even if the department head does not teach or reside on the 2nd floor.

Administrator Only:

- Since the administrator menu options are integrated into the Administrator Control Panel we will discuss this section in terms of the Administrator control panel.

Administrator Control Panel:

Administrator Only:

- The administrator Control panel is exactly like the menu page for the department head with a few upgrades.
- In the administrator control panel the text that defines the building name and the links to the separate floors have been shifted to the left.
- To the right of the floor links is a line of text indicated that there will be a text box to accept a room to jump to.
- After the line of text explaining the room jump box is the text box where the user can input a room.

- After the text box is a submit button that allows the user to go to the room they have just input into the jump box.
- To the right of the floor links, but below the text that explains where to enter a room to jump to, is a line of text that indicates that there will be a text box to accept an asset tag and jump to the room containing that asset tag.
- After the line of text explaining where to input the asset tag is the text box where the user can input the asset tag.
- After the text box is a submit button that allows the user to go to the room that contains the asset tag given.
- Below these two new search criteria are two more links separated by a vertical line.
- The first link is a link to the NetRegistration page that is only accessible by the administrator.
- The second link is a link to the Reset user password page which is also only accessible by the administrator.
- *The bottom of the page will also contain the 4 links that are outlined in the menu pages for all users.

User Permissions Page

Administrator Only:

- The top of the page will contain a line of text with the name of the software (Dynamic Network Device Management System).
- There is a text box that will contain a brief description of the user's permission page and how the permissions will work. This will have scrolling capability for intricate details about the permissions page and how to assign and change permissions.
- There is a line of text that welcomes the user and shows their username which will allow the user to make sure they are logged on properly under the right username.
- There are now three links separated by vertical bars right below the welcome line of text.
- The first link is the Control Panel link and it is inaccessible to all users. This will become active when we deem that there is something the users need to manipulate.
- The second link is a link to the Administrator Control Panel.
- The third link is a logout link that will allow the administrator to logout of their account from this page.
- Below the links the site breaks down into two columns.
- The first column is located on the left half of the page and there is a line of text explaining that you can set permissions of a given user who will be able to be chosen by clicking the USER link at the end of the line.
- Below this line is a line of text to show that there is going to be a list of possible permission options.
- Now we have listed all three user types in which one can be selected to give the user that was selected earlier, either the Administrator, Department Head, or Faculty permission level.
- In the second column located to the right of the first column is a line of text explaining that the upcoming text box will allow the administrator to apply permissions to a user for an asset tag. The user is selected by the USER link at the end of the line.
- Below the line of text is a quick explanation of how to add multiple asset tags to a users permissions.
- There will then be a text box that allows the administrator to input tag numbers they wish to assign to the user.
- Below the text box will be a submit button to actually assign the asset tag to the user.
- Still in the right column under the asset tag assignment is a line of text explaining that you can search for an asset tag by IP or

MAC address.

- Under this text is a notice that after searching for an asset tag by IP the result will show up in the asset tag text box mentioned previously.
- There will now be a text box where the administrator can enter their IP or MAC address.
- Below the text box is a dropdown menu that allows the administrator to choose what was just entered into the box above, either IP or MAC address.
- The bottom of the page will contain 4 links reading left to right differentiated by a small vertical line.
- The furthest left link will guide the user to the Siena College main page.
- The second link from the left will link the user to the Siena College Computer Science Department web page.
- The second link from the right will link the user to the Siena Software Engineering page.
- The final link to the right will be a link to the SKYNET software page where the user will have instant access to all information related to the project and the team that is producing the project.

Advanced Search Page:

Administrator Only:

- The top of the page will contain a line of text with the name of the software (Dynamic Network Device Management System).
- There is a text box that will contain a brief description of the search page and how the search page will work. This will have scrolling capability for intricate details about the search page and how to properly user all menus and options related to the search page.
- There is a line of text that welcomes the user and shows their username which will allow the user to make sure they are logged on properly under the right username.
- There are now three links separated by vertical bars right below the welcome line of text.
- The first link is the Control Panel link and it is inaccessible to all users. This will become active when we deem that there is something the users need to manipulate.
- The second link is a link to the Administrator Control Panel.
- The third link is a logout link that will allow the administrator to logout of their account from this page.
- Below the links is a line that explains to the user that they will be searching for a network device.
- Underneath this is a line of text that explains that the user will be entering search criteria based on a selection from a dropdown box.
- Immediately after this line is a dropdown box that contains searchable options such as Asset Tag Number, IP Address, MAC Address, or Serial Number.
- Below the line explaining the dropdown box is a line showing that the next text box should be filled with the value relative to the item selected from the dropdown box.
- This is immediately followed by the text box that will contain the Asset Tag Number, IP Address, MAC Address, or Serial

Number depending on what the administrator chooses.

- Below these two boxes is a search button that will search the database for the value in the input box under the category from the dropdown menu.
- After these search criteria is a line explaining another search criterion, namely the ability to find rooms containing one or more of a certain network device. The user is to choose the network device they desire from the dropdown menu located after the line of text.
- There is a dropdown menu located immediately after this line of text that allows the user to pick either a PC or a MAC.
- This is then followed by a search button that will carry out the search for rooms with at least one PC or MAC.
- The last search option is mentioned by a short line of text and is referred to as the advanced search option.
- The first line explains the first dropdown menu is for the building.
- This will be followed by a dropdown menu to select either Roger Bacon or Morrell science center.
- The second line explains the second dropdown menu is for the floor.
- This is immediately followed by a dropdown that contains all possible floors for the give building.
- The third line of text explains the third box is for inputting the room number.
- The box immediately after this line is for inputting the room number that will be searched for in the building of the first dropdown menu on the floor of the second dropdown menu.
- The last line explains the last dropdown menu is to choose between a desktop, laptop, printer or a miscellaneous network device.
- The dropdown box will be for choosing which network device the administrator wishes to search for.
- Below these possible search options is a button that will search the database given the criteria inputted.
- The bottom of the page will contain 4 links reading left to right differentiated by a small vertical line.
- The furthest left link will guide the user to the Siena College main page.
- The second link from the left will link the user to the Siena College Computer Science Department web page.
- The second link from the right will link the user to the Siena Software Engineering page.
- The final link to the right will be a link to the SKYNET software page where the user will have instant access to all information related to the project and the team that is producing the project.

View Users Page

Administrator Only:

- The top of the page will contain a line of text with the name of the software (Dynamic Network Device Management System).
- There is a text box that will contain a brief description of the search page and how the search page will work. This will have scrolling capability for intricate details about the search page and how to properly user all menus and options related to the search page.
- There is a line of text that welcomes the user and shows their username, which will allow the user to make sure they are logged

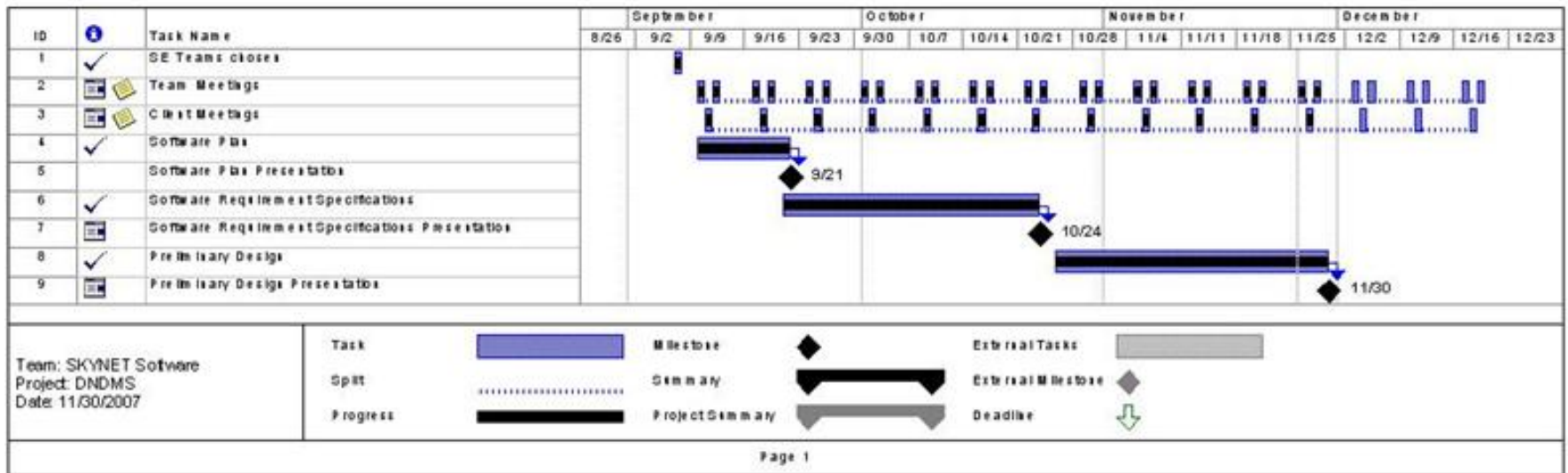
on properly under the right username.

- There are now three links separated by vertical bars right below the welcome line of text.
- The first link is the Control Panel link and it is inaccessible to all users. This will become active when we deem that there is something the users need to manipulate.
- The second link is a link to the Administrator Control Panel.
- The third link is a logout link that will allow the administrator to logout of their account from this page.
- A white division in the middle of the page will display a list of users, their user group, their permissions, and a checkbox to allow the administrator to remove one or more users from the database at a time.
- User names in the list will be clickable and will bring the administrator to a page to edit that user's permissions.
- "Add" and "Remove" buttons will appear below the list of users to allow the administrator to add or remove users from the database.
- The bottom of the page will contain 4 links reading left to right differentiated by a small vertical line.
- The furthest left link will guide the user to the Siena College main page.
- The second link from the left will link the user to the Siena College Computer Science Department web page.
- The second link from the right will link the user to the Siena Software Engineering page.
- The final link to the right will be a link to the SKYNET software page where the user will have instant access to all information related to the project and the team that is producing the project.

Non-Functional Requirements

We do not have any Non-Functional Requirements defined at this time.

Section 5: Gantt Chart



Section 6: Glossary of Terms

Central Processing Unit (CPU) – A logic machine that allows a computer to execute computer programs.

Component / Device - Any physical piece of a computer, including the circuitry inside of it.

Data Flow Diagram - A graphical representation of the flow of data through an information system.

Database – A structured collection of records or data.

Gantt Chart - A type of bar chart that illustrates a project schedule.

Linear Sequential Model / Classic Waterfall Model – A sequential software development model in which development is seen as flowing steadily downwards (like a waterfall) through various phases.

Local Area Network (LAN) - A small computer network covering a small geographic area like a home, office, or building(s).

MAC Address - A 48-bit hexadecimal (12 characters) number given to a device in a network. The address is normally assigned to a device, such as a network card, when it is manufactured.

Media Access Control (MAC) - A data protocol that provides addressing and channel access control mechanisms that make it possible for several terminals or network nodes to communicate within a multipoint network (typically a local area network (LAN)).

Network Device - A component/device that is on a network (Printer, computer, scanner, etc.).

PHP – A programming language used mainly in generating dynamic web pages and in server-side scripting.

Prototype – An original type, form, or instance of an object serving as a typical example or standard for other objects of the same category.

Virtual - An entity that exists in a form that is not natural.

Users Group - A collection of logins that will have the same permissions given to them.