Interface Design

Week 7

MSDN Account

All the accounts are created. If students did not get an email then they already had an account.

All you need to do is to give your students this URL http://msdn06.e-academy.com/elms/Storefront/Home.aspx?campus=csun_e_ceng

and have them click on the login and forgotten my password link. Then put in their CSUN gmail account and it will send them their account info.

Or you could have them email me (Mark Siegmund [msiegmund@gmail.com]).

Agenda (Lecture)

- Interface design

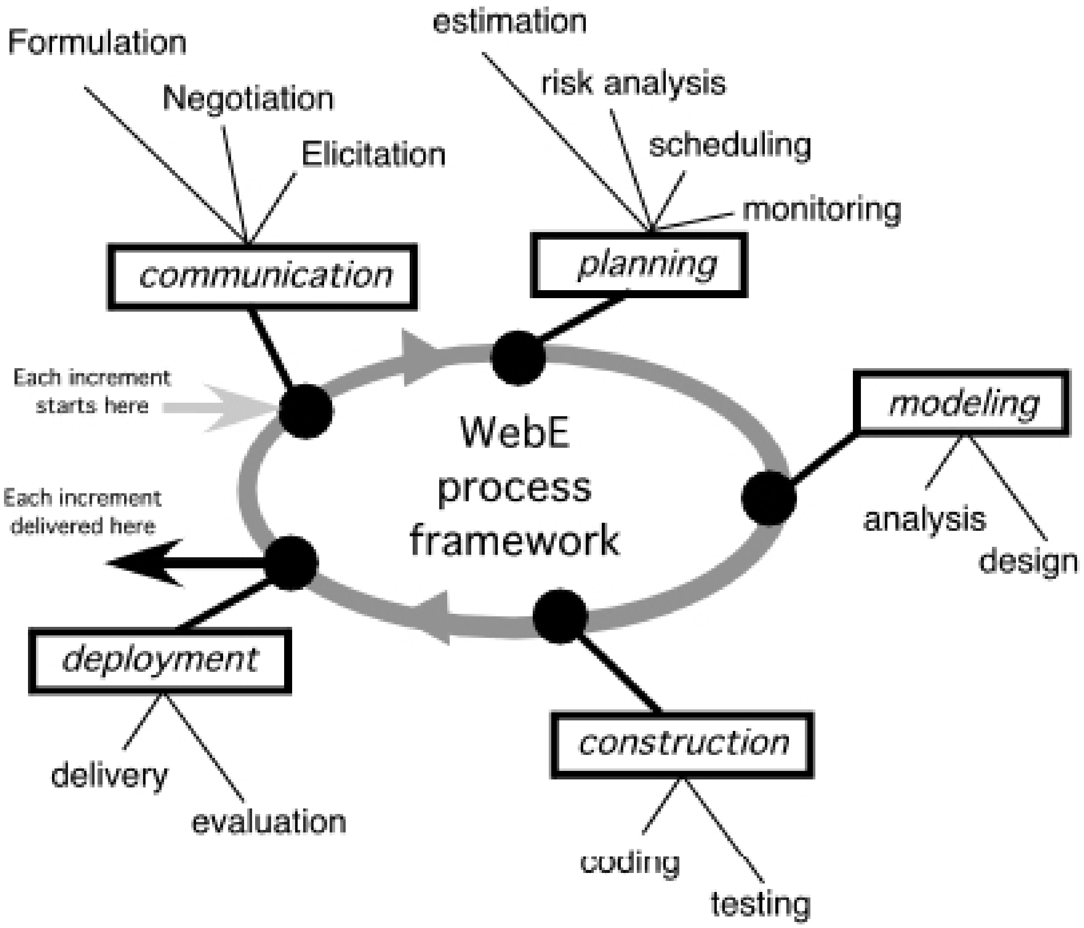
Agenda (Lab)

- Weekly progress report
- Homework/Lab assignments

Team Lab Assignment #6

- Submit the first version of the interface design document for your group project
    - Make slides for presentation
- Due date
    - The beginning of the 3/14 lab session

WebE Process Activities & Actions



Interaction Design

- Design an interface to answer three generic questions:
  - *Where am I?* The interface should (1) provide an indication of the WebApp that has been accessed and (2) inform users of their location in the content hierarchy.
  - *What can I do now?* The interface should always help users understand their current options—what functions are available, what links are live, what content is relevant?
  - *Where have I been, where am I going?* The interface must facilitate navigation. Hence, it must provide a "map" (implemented in a way that is easy to understand) of where users have been and what paths they may take to move elsewhere within the WebApp.

Design Principles (Tognozzi) - I

- **Anticipation.** *Designed so that it anticipates the user's next move.*
- **Communication.** *The interface should communicate the status of any activity initiated by the user.*
- **Consistency.** *The use of navigation controls, menus, icons, and aesthetics (e.g., color, shape, layout) should be consistent throughout the WebApp.*
- **Controlled autonomy.** *The interface should facilitate user movement throughout the WebApp, but it should do so in a manner that enforces navigation conventions that have been established for the application.*
- **Efficiency.** *The design of the WebApp and its interface should optimize the user's work efficiency, not the efficiency of the Web engineer who designs and builds it or the client-server environment that executes it.*
- **Flexibility.** *The interface should be flexible enough to enable some users to accomplish tasks directly and others to explore the WebApp in a somewhat random fashion.*
- **Focus.** *The WebApp interface (and the content it presents) should stay focused on the user task(s) at hand.*

Design Principles (Tognozzi) - II

- **Fitt’s law.** *“The time to acquire a target is a function of the distance to and size of the target”*
- **User Interface Objects.** *A vast library of reusable human interface objects (and patterns) has been developed for WebApps.*
- **Latency reduction.** *Rather than making the user wait for some internal operation to complete (e.g., downloading a complex graphical image), the WebApp should use multitasking in a way that lets the user proceed with work as if the operation has been completed.*
- **Learnability.** *A WebApp interface should be designed to minimize learning time and, once learned, to minimize relearning required when the WebApp is revisited.*
- **Metaphors.** *An interface that uses an interaction metaphor is easier to learn and easier to use, as long as the metaphor is appropriate for the application and the user.*

Design Principles (Tognozzi) - III

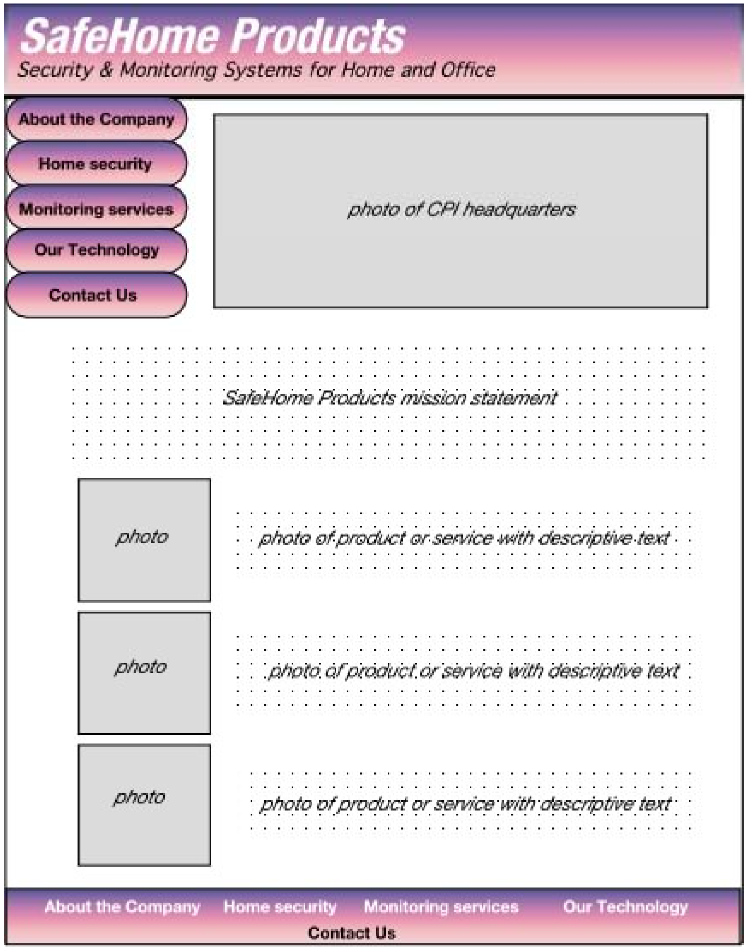
- **Maintain work product integrity.** *A work product (e.g., a form completed by the user, a user-specified list) must be automatically saved so that it will not be lost if an error occurs.*

- **Readability.** *All information presented through the interface should be readable by young and old.*

- **Track state.** *When appropriate, the state of user interactions should be tracked and stored so that users can log off and return later to pick up where they left off.*

- **Visible navigation.** *A well-designed WebApp interface provides "the illusion that users are in the same place, with the work brought to them"*

Preliminary Page Layout


SafeHome Products
Security & Monitoring Systems for Home and Office
About the Company
Home security
Monitoring services
Our Technology
Contact Us
photo of CPI headquarters
SafeHome Products mission statement
photo
photo of product or service with descriptive text
photo
photo of product or service with descriptive text
photo
photo of product or service with descriptive text
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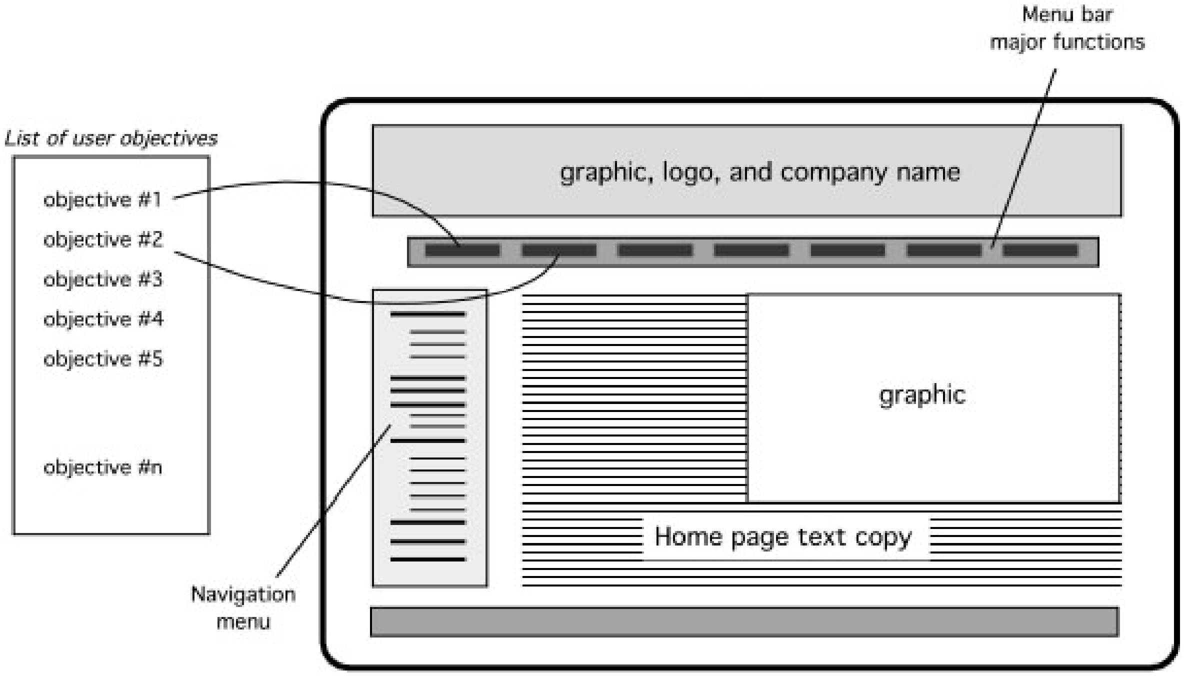
Pragmatic Design Guidelines

- Reading speed on a computer monitor is approximately 25 percent slower than reading speed for hard copy. Therefore, *do not force the user to read voluminous amounts of text*
- *Avoid "under construction" signs* —they raise expectations and cause an unnecessary link that is sure to disappoint or frustrate users.
- *Users prefer not to scroll.* Important information should be placed within the dimensions of a typical browser window.
- *Navigation menus and head bars should be designed consistently and should be available on all pages that are available to the user.* The design should not rely on browser functions (e.g., the back arrow) to assist in navigation.
- *Aesthetics should never supersede functionality.* For example, a simple button might be a better navigation option than an aesthetically pleasing, but vague image or icon whose intent is unclear.
- *Navigation options should be obvious, even to the casual user.* The user shouldn't have to search the screen to determine how to link to other content or services.

Interface Design Workflow - I

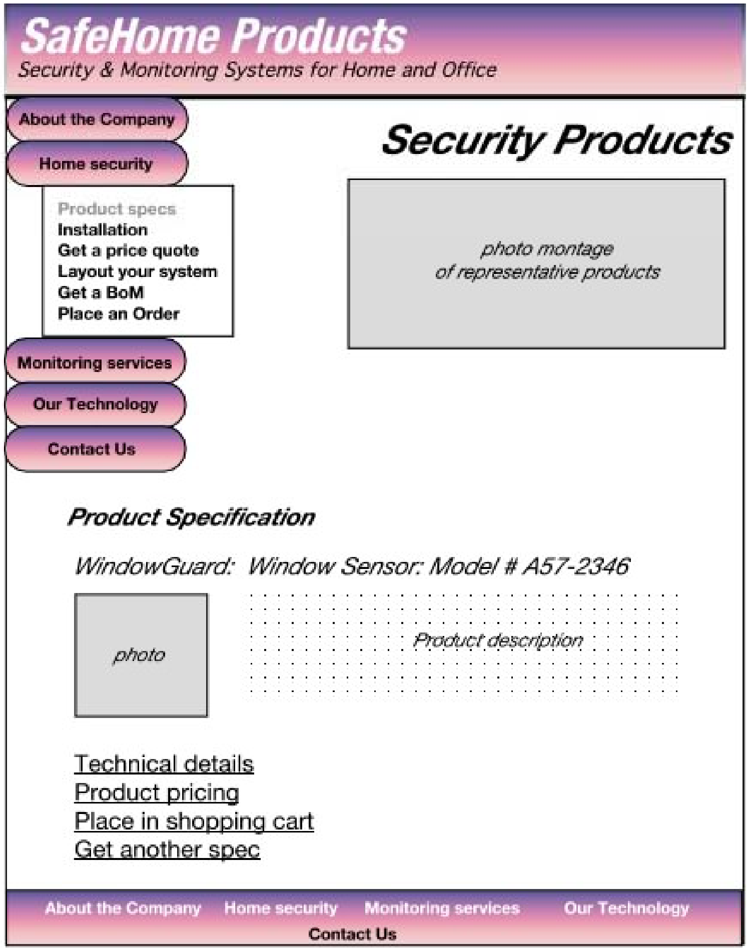
- Review user characteristics and categories, user tasks, use cases, and related information contained in the analysis model and refine as required.
- Develop a rough design prototype of the WebApp interface layout.
- Map user objectives into specific interface actions.



Interface Design Workflow - II

- Define a set of user tasks that are associated with each action.
- Develop screen images for each interface action.
- Refine interface layout and screen images using input from aesthetic design.
- Identify user interface objects that are required to implement the interface.
- Develop a procedural representation of the user’s interaction with the interface.
- Develop a behavioral representation of the interface.
- Describe the interface layout for each state.
- Pair walkthroughs (Chapter 5) should be conducted throughout all these design tasks and should focus on usability.

Elaborate the design

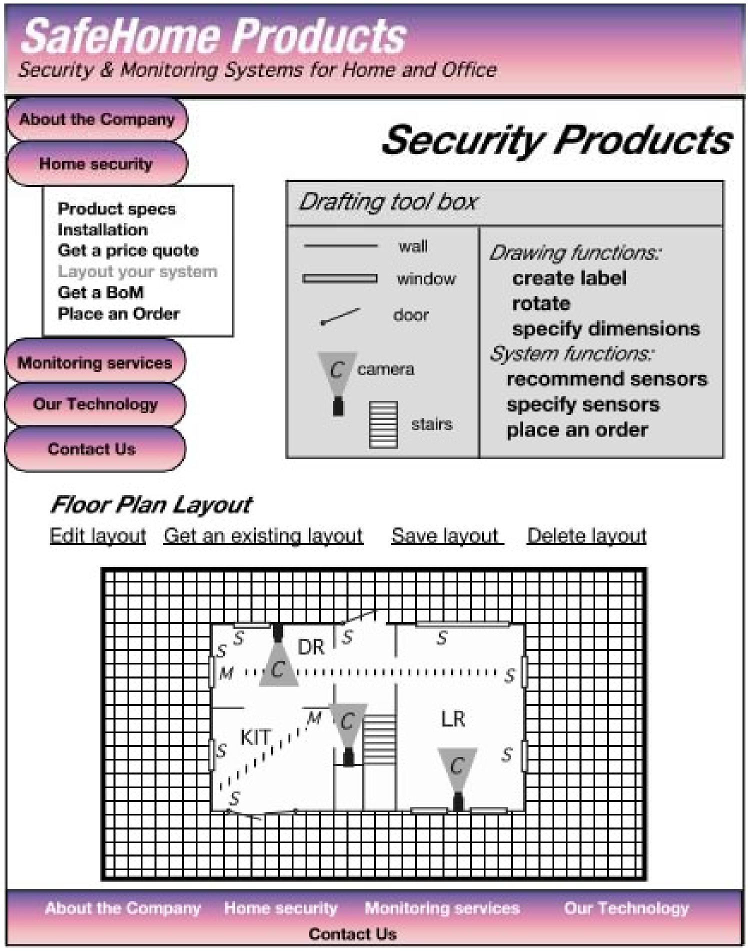


Security Products

Product Specification

WindowGuard: Window Sensor: Model # A57-2346

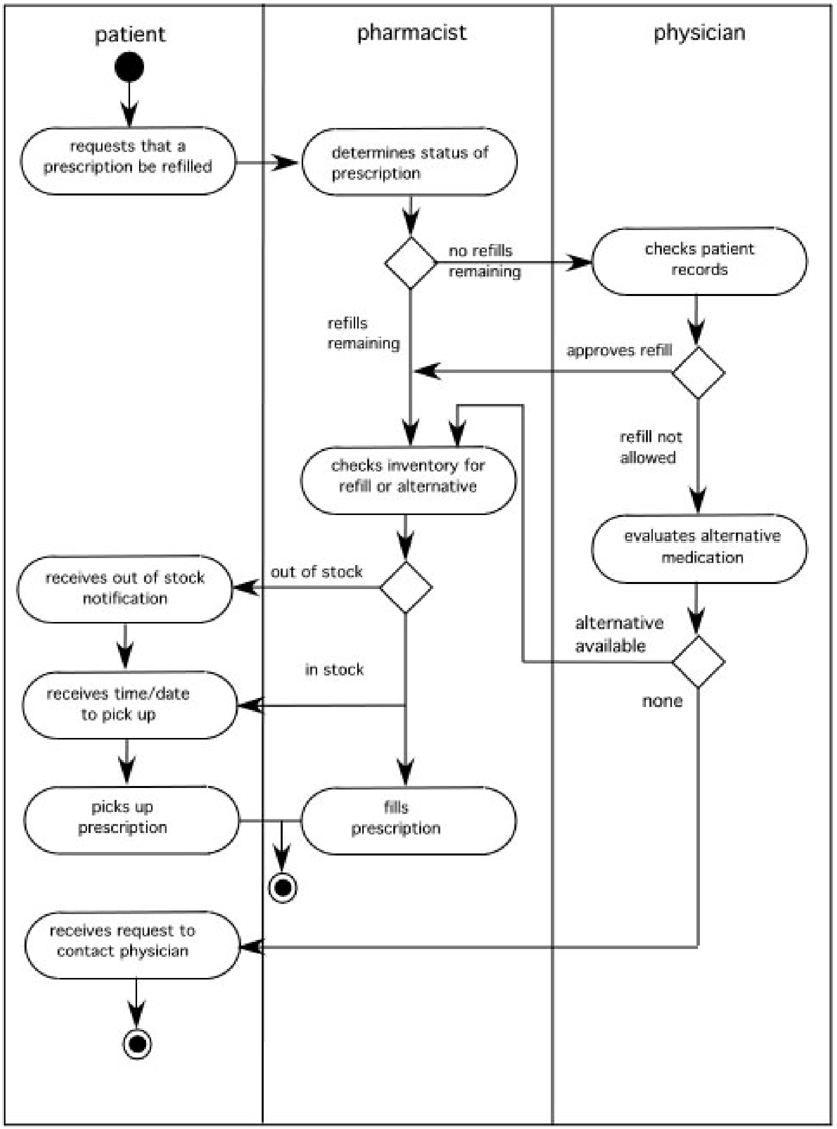
Elaborate the Design



Different Users in Different Roles

The swimlane diagram:

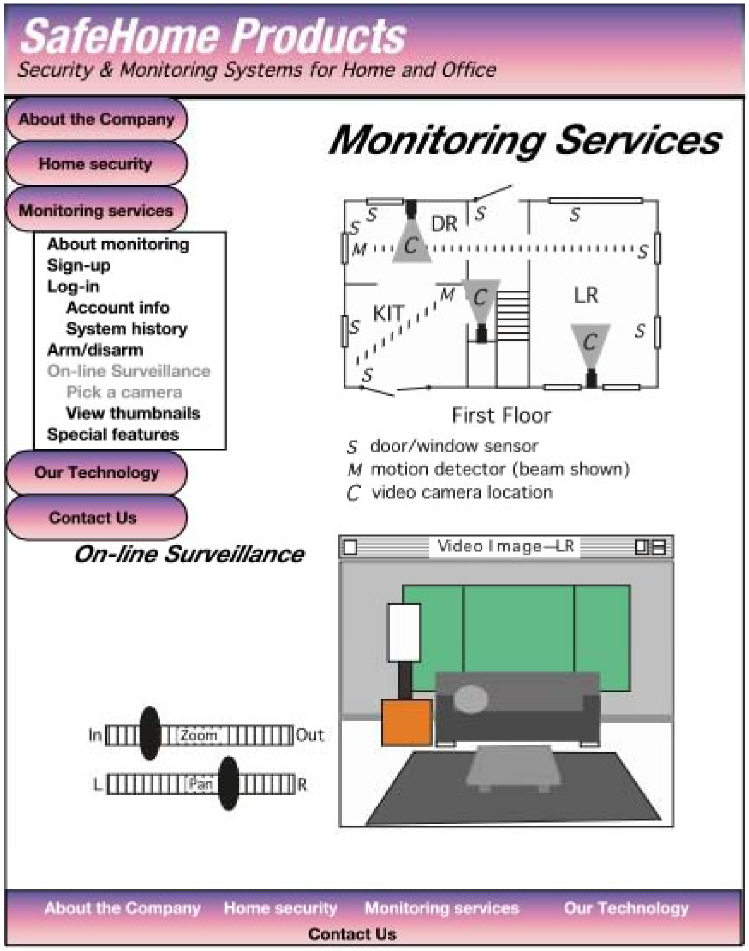
Captures workflows and shows interactions between different users


patient
pharmacist
physician
requests that a prescription be refilled
determines status of prescription
no refills remaining
checks patient records
refills remaining
approves refill
checks inventory for refill or alternative
refill not allowed
evaluates alternative medication
receives out of stock notification
out of stock
alternative available
in stock
none
receives time/date to pick up
picks up prescription
fills prescription
receives request to contact physician

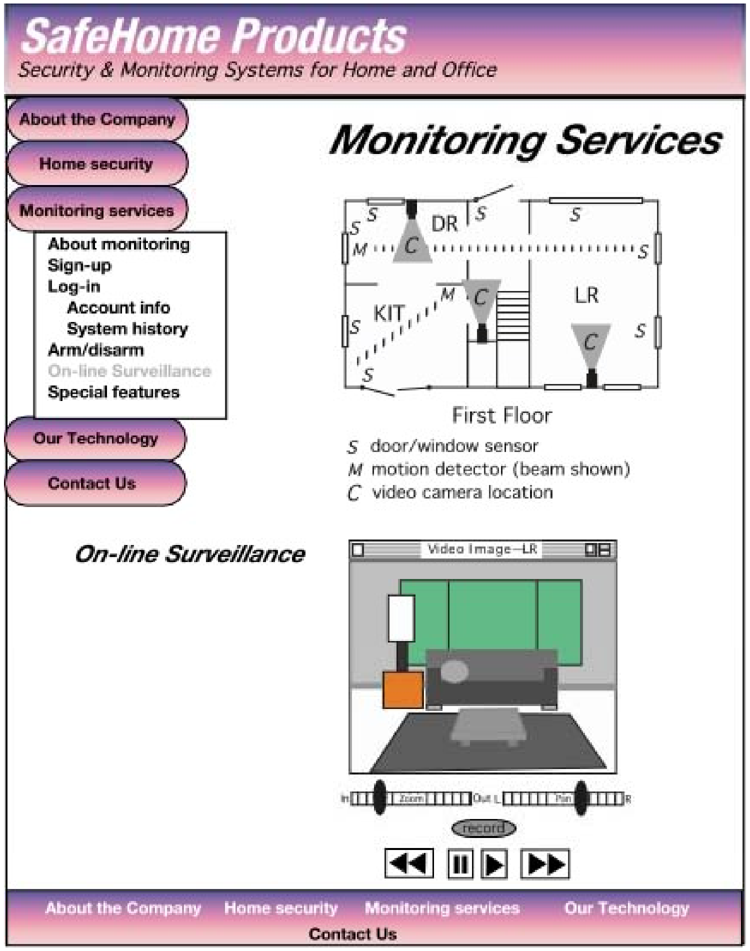
Translating Actions and Objects

- From the use case on pp. 213 - 214
  - *Accesses* the **SafeHome** system
  - *Enters* an **ID** and **Password** to allow remote access
  - *Displays* **FloorPlan** and **SensorLocations**
  - *Displays* **VideoCameraLocations** on floor plan
  - *Selects* **VideoCamera** for viewing
  - *Views* **VideoImages** (four frames per second)
  - *Pans* or *zooms* the **VideoCamera**
- Based on these actions and objects we create a design layout -->

Design Layout



Revising the Layout



SafeHome Products

Security & Monitoring Systems for Home and Office

- About the Company
- Home security
- Monitoring services
  - About monitoring
  - Sign-up
  - Log-in
    - Account info
    - System history
  - Arm/disarm
  - On-line Surveillance
  - Special features
- Our Technology
- Contact Us

Monitoring Services

First Floor

S door/window sensor
M motion detector (beam shown)
C video camera location

On-line Surveillance

About the Company Home security Monitoring services Our Technology
Contact Us

Aesthetic Design - I

- Don’t be afraid of white space.
- Emphasize content.
- Organize layout elements from top-left to bottom-right.
- Don’t extend your real estate with the scrolling bar.
- Consider resolution and browser window size when designing the layout.
- Design the layout for freedom of navigation.
- Don’t assume that the layout will be consistent across different display devices and browsers.
- If you use photos, make them small format with the option to enlarge.
- If you want a cohesive layout, look, and feel across all WebApp pages, use a cascading style sheet (CSS).

Usability

- Is the WebApp usable without continual help or instruction?
- Do the rules of interaction and navigation help a knowledgeable user work efficiently?
- Do interaction and navigation mechanisms become more flexible as users become more knowledgeable?
- Has the WebApp been tuned to the physical and social environment in which it will be used?
- Are users aware of the state of the WebApp? Do users know where they are at all times?
- Is the interface structured in a logical and consistent manner?
- Are interaction and navigation mechanisms, icons, and procedures consistent across the interface?
- Does the interaction anticipate errors and help users correct them?
- Is the interface tolerant of errors that are made?
- Is the interaction simple?

Other Design Issues

- Response time
- “Help” facilities
- Error handling
- Accessibility
- Internationalization