3.3 REQUIREMENTS GATHERING

3.3.1 Traditional Methods

3.3.1.1 Interviews

The results of the interviews with healthcare providers have remained consistent. This has led us to the rightful conclusion. They are willing to try a new system that provides the ability of the multiple systems that they are currently using. The outline below is the list of interview questions and some typical responses.

1. What is the process that you do to order a medical device? What type of system do you utilize: a paper form system, phone system, or web-based or a combination?

   Response from Dr. Thimmel: Catalog and phone system. When ordering the device we follow the supplier's code system that is for that specific profession. This code is also used by the insurance company. This is a universal code. **This is the same for the majority interviewed. Only two were found to be using web-based systems.**

2. How often are items ordered?

   Typical Response: We do inventory once a week and order stock as needed.

3. When ordering devices do you ship directly to a patient or your office?

   Response: They are shipped directly to the office.

   They can only ship directly to the office never to the patient!

4. Do you rely on a single vendor or is there a company/website that supplies many vendors' products?

   Typical Response: We use a supplier that contracts with many vendors.

5. How often do you purchase/prescribe devices outside your specialty?

   Typical Response: We purchase these devices about every 2 to 3 months.

   This was the average for the healthcare providers interviewed.

6. Do you perform the ordering or would one your assistants be performing the tasks?

   Typical Response: The assistant does the ordering.

Insurance Process

7. How are the insurance companies involved? What is the process of interaction between you and the insurance company?

   Typical Response: We bill the insurance company and let the company handle the expenses.

8. Are there times that products are purchased that are not covered under insurance?

   Typical Response: Depends because insurance companies vary.

9. How strict is the insurance company about purchasing products?

Typical Response: Varies on the Insurance company therefore it is important to find out if the insurance company will cover the device/aid before ordering it. This way, we can inform our patient of any probable expense they may have to cover and let them decide if they want to proceed.

Billing/Payment Process

10. Do you have an account with the vendor and the billing is handled directly or is it through (personal or business) credit cards?

     Typical Response: We have an account with the supplier. If the insurance company will cover the expense, we bill the company. If not, the patient's credit card is charged or the patient pays in cash.

Feedback for TO-BE System

11. Do they find the use of a web-based purchasing tool useful?

     Typical Response: This office has just begun venturing into the possibility of using a web based online system.

3.3.2 VORD Methods

3.3.2.1 Brainstorming

Website Design

No Browser Preference

Email Nofitcation

Credit Card Transaction

Price Management

Scalable

Template Design

RSS News Feed

RSS Syndication

Secure Authentication

User Friendly

User Comments

Product Listing

Forum

Information Privacy

Product Reviews

Product Images/Info

Expandability To All Medical Fields

Ad Impression/ Click Reporting

Platform Independent

Categorization

Expandable

- Expandability to All Medical Fields

- Template Design

- Scalable
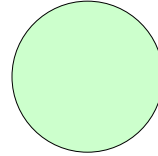
Convenience

- Website Design

- User Friendly

- Email Notification
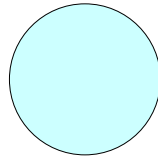
Security

- Secure Authentication

- Information Privacy
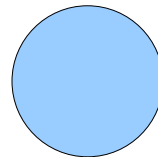
Efficiency

- Platform Independent

- No Browser Preference
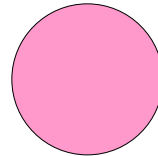
- Price Management

- Ad Impression/Click Reporting
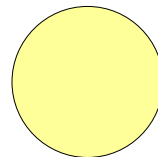
Content

- Product Listing

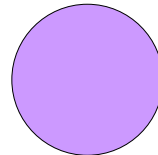- Product Images/Information

- RSS News Feed

- RSS Syndication
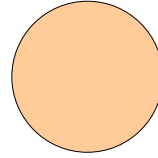
Interactive

- User Comments

- Forums

- Product Reviews

Other

- Credit Card Transaction

3.3.2.2 Quantitative Method ($100 TEST)

	Security	Convenience	Content	Efficiency	Expandable	Interactive	Adaptability	
Healthcare Provider	30	20	20	15	5	10	0	100
Webmaster	5	15	0	20	20	0	40	100
System Administrator	30	10	0	10	25	0	25	100
ABS Executive	15	30	15	30	15	5	20	100
Investors	10	15	5	35	15	5	15	100
Device Manufactures	20	15	35	10	10	10	0	100
	110	105	75	120	90	30	100	

Table 8

Ranking of Properties

1. Efficiency

2. Security

3. Convenience

4. Adaptability

5. Expandable

6. Content

7. Interactive

3.3.2.3 JAD Session

A JAD (Joint Application Design) session is a powerful tool that we utilized in the information gathering stage to quicken the process while maintaining accuracy. Additionally, it allowed the developers to decipher the expectations of the system which we set out to construct.

We performed the JAD sessions in the initial stages of the semester in order to begin with the development process as soon as possible. It was essential that we began the process quickly to ensure the completion of all the expected tools involved in the system. In the first JAD session we had already felt that we made more progress than what we had hoped to accomplish with this technique. We then constructed prototypes with this information and we received optimistic feedback from the executives when presenting them. The first JAD session proved to be a successful adventure and we were inclined to perform another JAD session to discuss the idea of going with another methodology of development and design of the system.

Facilitator:

- Roger Cubicciotti

Executive Member:

- Connie Zhou

Development Members:

- Nolan Castillo
- Vincent Mustacchio
- Dariusz Bystrowski
- Monis Talib

- Max Das

- Alex Korczynski

As a result of the JAD sessions we have identified the most crucial requirements of the system and this had allowed our development team to design some prototypes. The topics that were touched on during the JAD session:

- Template (Edit and Delete controls for the Webmaster)

- Shopping Cart

- Database Interface

- Login

- Restricted access

- Dynamic Menu

- Advertisement Manager

    § Record Impressions

    § Record Clicks

- News Feeder

- Programming Languages

    § XHTML 1.0

    § MySQL

    § PHP

- Design (Appealing yet professional)

- Convenience

- Security

From the JAD session we discussed the concepts that the executives had for the

system, the potential problems of implementation of certain concepts and identified

certain situations that were not considered, and from all our interaction developed a solid

foundation.

3.3.2.4 Prototyping

To reap the benefits of the initial JAD session our team acted to develop four
proposals of the front-end design adhering to the information we gathered. During our
next meeting we presented the four prototypes to confirm a path toward our final design.
The corporate members identified with one design in particular, citing an appealing color
scheme and layout. Alternations were suggested and discussed and from this we were
able to produce an upgraded version accordingly.

The crossroad of our design process came when our group opted for a totally
redesigned system. However before dismissing out then current design and completely
adopting the new version we constructed a prototype and in a subsequent meeting
consulted the corporate members of which path they preferred. The latter was chosen
and we then once again began a refinement process updating the system with the
necessary utilities (news feeder, forums, etc.). Upon completion of each utility we
performed a presentation to gather feedback. Additions were suggested and complied
with accordingly. The construction conceded various prototypes that were enhanced to
achieve the final system. We found prototyping to be a very powerful tool in the design
and requirement gathering process.

Here
are the first
four original
prototypes
presented in
the first
meeting:
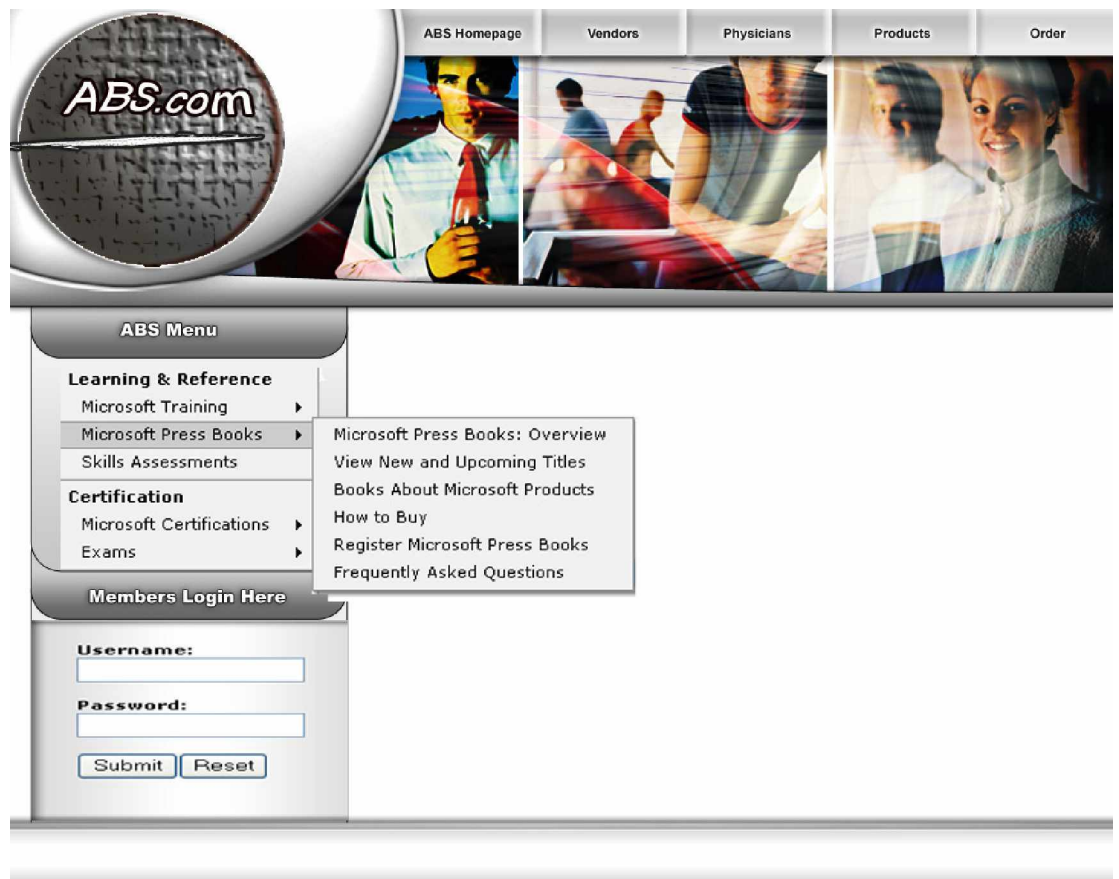
Figure 13

Prototype 1

Cited to be insufficient with the desires of the corporate image

Figure 14

Prototype 2

Cited to be
stronger than
the first
variation;
however, it
was still
consider to be
a lesser of the
four.

Figure 15

Prototype 3

Cited to be more professional and visually ascetic but the fourth variation was considered to be the preferable design.
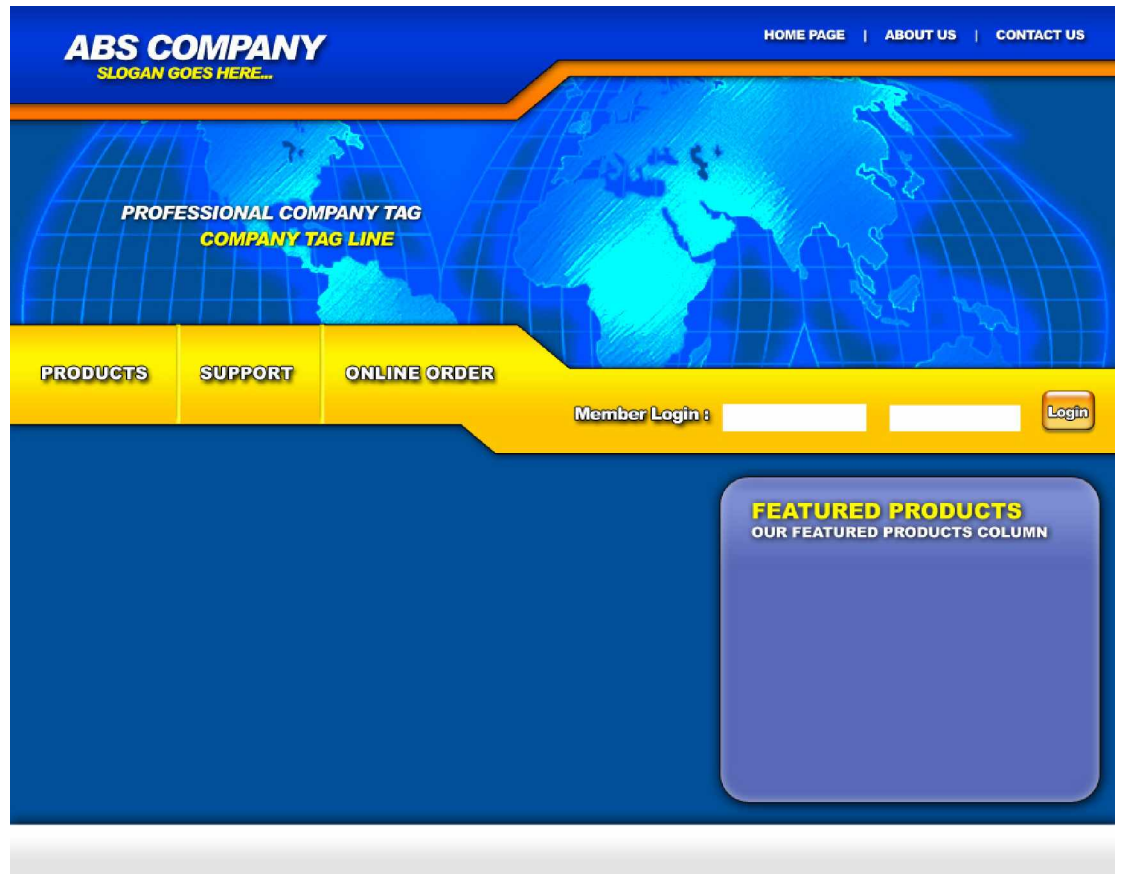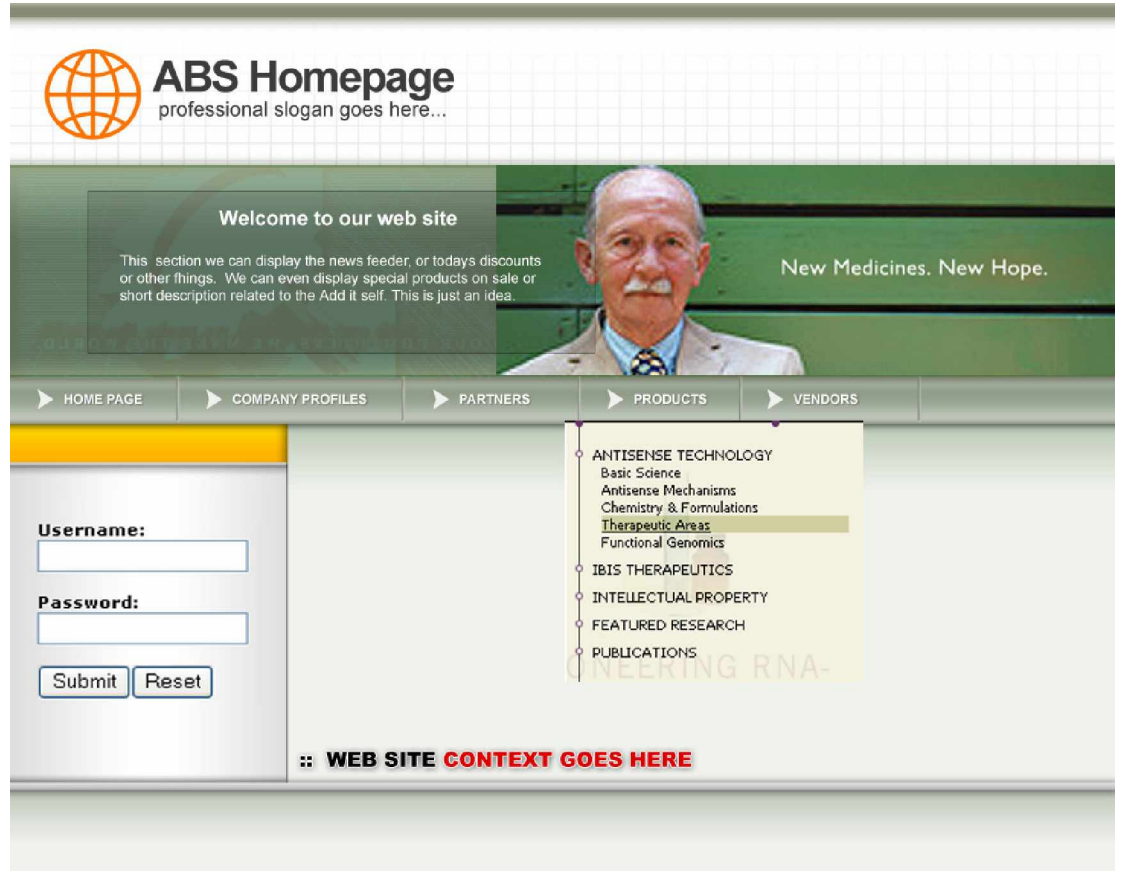
Figure 16

Prototype 4

Cited to be
outstanding.
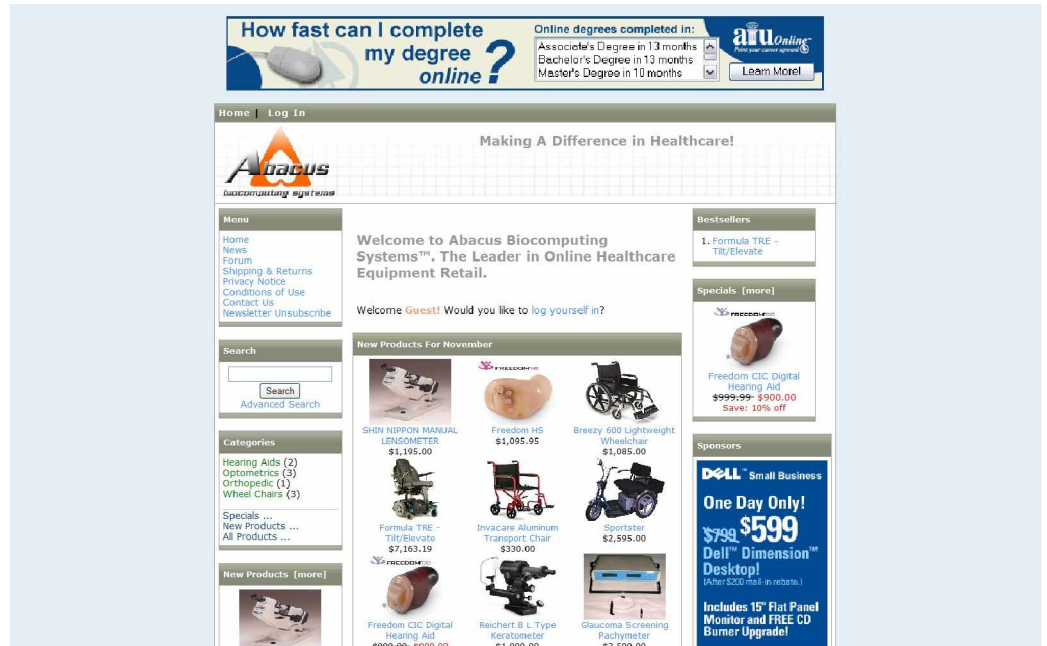Thought to be
professional
and gives the
desired effect

The last prototype was further developed and enhanced until it reached the stage of the current system. At this stage we took the initiative to create a logo that would best identify with the image ABS is trying to convey. We developed several prototypes and the current logo was selected as the representative mark of ABS. All further prototypes of the system contain this logo.   Here are some transitional versions of our system:

Figure 17

This is the home
site of an in-
between system.

Figure 18

This is the News
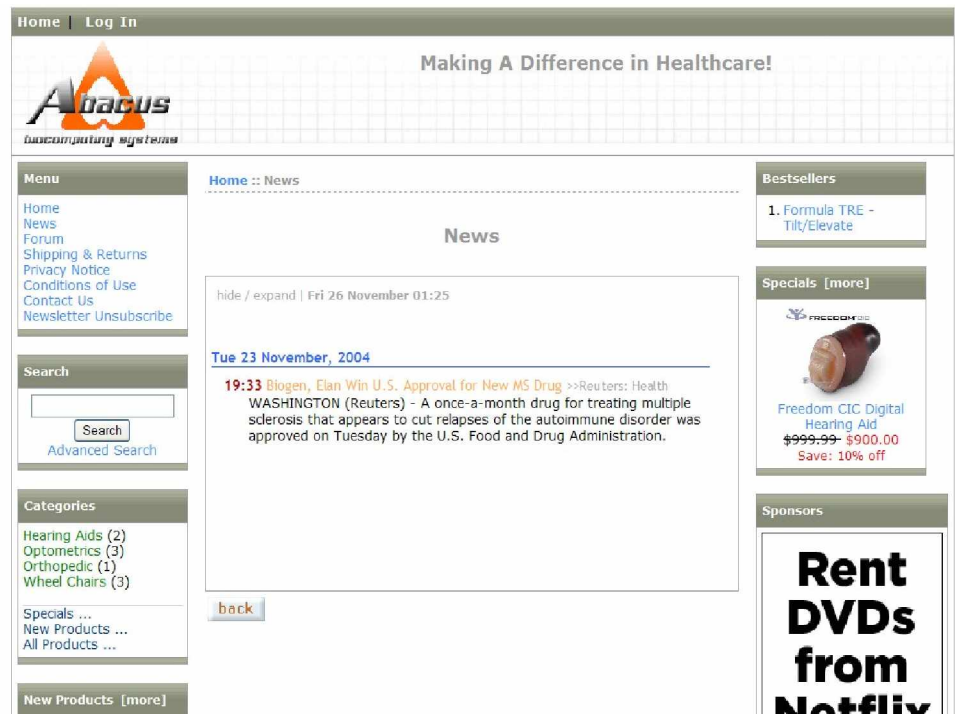Feeder feature that
we implemented
in the system.

Figure 19

Figure 20

This is the
Forum feature
that we
implemented in
the system.

3.4 USE CASES

Actor: Patient

1. Healthcare Provider's Office: The patient visits the healthcare provider where he/she receives a diagnosis for the aliment.

Actor: Healthcare Provider

1. Healthcare Provider's Office: Produces a diagnosis for the aliment of the patient.

2. Phone System: Healthcare providers interact with the supplier through the phone system. He/She will place an order for the medical devices they need. The transaction is paid from the healthcare provider personally.

   - Will receive the bill from the supplier.

3. Insurance Company: Healthcare provider sends the bill received to their insurance company and the insurance will examine it.

   - Will receive information on what percentage of reimbursement will be provided for the devices.

Actor: Supplier

1. Phone System: Supplier will interact with the healthcare provider. An order is placed and the medical devices needed are located. The bill is mailed to the customer and the order is shipped to the office shortly after.

2. Restock with Devices: Contact the device manufacture and request for a certain amount of their devices.

   - Will receive a bill for the devices that they ordered.

Actor: Device Manufacture

1. Ship their devices to the Manufacturer.

Actor: Insurance Company

1. Reimbursement request. The insurance company will receive the list of medical devices that the healthcare provider purchased.

    - Fully reimbursement granted.

    - Non or partial reimbursement granted.

3.4.1 Use Case Diagrams

3.4.1.1 AS-IS System

Figure 21

3.4.1.2 TO-BE System

Figure 22