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DEPARTMENT OF INDUSTRIAL & INTERIOR DESIGN

A STUDY OF PRESENTATION PRODUCTS FOR
THE HiMEDIA SOHO ENVIRONMENT
OF THE 21ST CENTURY

BY

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To Ibrahim Ertan

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TABLE OF CONTENTS

page

ACKNOWLEDGMENTS	i
LIST OF ILLUSTRATIONS	v
LIST OF PHOTOGRAPHS.....	vii
GLOSSARY.....	viii

CHAPTER

1. INTRODUCTION.....	1
----------------------	---

PART 1. CONCEPT

CHAPTER

2. BACKGROUND.....	5
Presentation Products For HiMedia SOHO Environment of the 21st Century.....	5
Permanent Address (SOHO).....	6
Other Alternative Places For SOHO Owners.....	6
Rental Place (Hotelling Office)	7
Group Address (Stop-by Office)	7
Virtual Office (Work Anywhere)	8
HiMedia	9
Imaging Chain.....	9

Market Research and Image Boards Study.....	10
Presentation As an Information Sharing Process.....	14
Types of Presentation	15
Presenter and Audience.....	15
One-on-One Presentation.....	15
Small Group of Audience Presentation.....	15
Large Group of Audience Presentation.....	15
Time and Space.....	15
Live Presentation.....	15
Virtual Presentation.....	16

CHAPTER

3. CONCEPT DEVELOPMENT OF OPUS	17
Focus of OPUS.....	17
Composition of OPUS.....	18
Curator, Presentation Organizer.....	18
Exhibitor, Presentation Monitor.....	20
Projectionist, Audio Visual Projector.....	21
Archivist, Information Collecting Station	22
Application of OPUS	24
Art, Design and Architecture.....	25
Real Estate.....	26
Sales and Marketing.....	27
Education	28

PART 2. FINAL DESIGN

CHAPTER

4. DESIGN OF OPUS.....	31
General Objectives.....	31
User-friendly	32
Professional, Productive, Dynamic.....	32
High-tech but also High-touch.....	33
Aesthetically Pleasing and Sophisticated.....	33
Curator.....	33
Exhibitor.....	40
Family-look Aesthetic Features.....	44

CHAPTER	
5. CONCLUSION.....	46
APPENDIX	
MULTIMEDIA PRESENTATION.....	48
REFERENCES.....	50

LIST OF ILLUSTRATIONS

Figure	Page
1. Workplaces for a SOHO owner.....	5
2. Products for capturing information	11
3. Products for capturing information	11
4. Products for storing information.....	11
5. Products for managing information.....	12
6. Products for managing information.....	12
7. Products for sharing information.....	12
8. Products for sharing information.....	13
9. Products for sharing information.....	13
10. Hybrid products	13
11. Hybrid products	14
12. Digital Information Process System (DIPS).....	14
13. OPUS.....	18
14. Curator.....	19
15. Image capturing with Curator.....	19
16. Exhibitor	20
17. Projectionist.....	22

18. Archivist.....	23
19. SOHO.....	24
20. Digital cafe.....	25
21. Hotelling office, equipped small working place.....	25
22. Hotelling office, equipped presentation room.....	25
23. Outdoor and rented facilities.....	26
24. Clients in their automobile, real estate person at the SOHO.....	26
25. Client's place.	26
26. Airplane.....	27
27. Taxi cab.....	27
28. Hotel room	27
29. Instructor's SOHO	28
30. Hotelling classroom / SOHO / educational institution	28
31. Hotelling classroom / educational institution	28
32. Exhibitor with a group of audience	40
33. Exhibitor screen.....	44
34. Screen angle adjustment	44

LIST OF PHOTOGRAPHS

Number.....	Page
1. Final design of Exhibitor and Curator.....	30
2. Curator, power off position.....	35
3. Curator, stand by position.....	36
4. Curator, power on position.....	37
5. Rendering of Curator.....	39
6. Exhibitor, power off position.....	41
7. Exhibitor, stand by position.....	42
8. Rendering of Exhibitor.....	43

GLOSSARY

Archivist. An information collecting center which stores all individual files and software programs.

Audio information. Sound.

Capture products. Products which take a representative copy of a three-dimensional object or a two-dimensional work.

Curator. A presentation organizer which allows the user to operate Exhibitor and Projectionist interactively.

Digital Information Process System (DIPS). A system which digitally captures information from an information source, and then stores and manages it in order to share it with an audience.

Exhibitor. A presentation monitor for small group audiences up to 6 people.

Family-look products. A group of products which have similar features of appearance, design and concept.

HiMedia. A new term used by LG. Electronics Inc. referring to the cutting edge technology of the 21st. century.

Hotelling office. A working place rented for a limited working period, like a hotel room.

Hybrid products. Business products of the future which will combine multiple functions rather than having a single, major function such as to capture, store, manage or share.

Imaging chain. A complete process, from gathering, digitizing and editing images, to sharing this visual information.

Information Sharing Process (ISP). A presentation of information processed by DIPS.

Live presentation. The presenter performing in the same place with an audience group (conference, lecture, slide show, panel etc.).

Managing products. Products which evaluate, refine, manipulate and edit the captured and stored images.

OPUS (Office Presentation Universal System). A complete information sharing system which allows the user to present his/her digital works without any place limitation.

Projectionist. An audio-visual projector for a large audience.

Sharing products. Products provide edited images to present, transmit and share with other groups of people.

SOHO (Small Office Home Office). A new-age, alternative office described as a work space in the home environment.

Stop-by office. A space in a corporate or consultant company which is a temporary office of a SOHO owner.

Store products. Products save the captured image to be retrieved when needed.

Verbal information. Text.

Virtual office. A non-specific workspace such as a cafe, taxi cab, beach, airplane, airport or automobile, which is transforms into an office by portable electronic products. .

Virtual presentation. A presentation that is created through a DIPS and showed to the audience under any specific time and location requirement.

Visual information. Images, charts, illustrations.

CHAPTER 1

INTRODUCTION

Working style during the 1980's has been increasingly changing from routine hours of eight until five in a specific office, to flexible hours in mobile and home offices. HiMedia product technology and software developments such as multimedia, interactive media and the Internet will further change the style of next generation working places. Also, it is expected that an increase in portable products technology, economic benefits of mobile and home offices, non routine working schedules and comfortable working environments will cause an increment of home offices in the U.S. and Europe. According to Link Resources, a New York consulting firm, the increment of home-office workers is 5% a year.¹

The style of work in the future will provide more freedom, productivity and flexibility in working conditions and schedules for people who are able to do business by using HiMedia products. HiMedia products will allow the user to work anywhere such as in an Internet cafe, hotelling office, plane, airport, etc. This new style will be facilitated by advances in digital product design. I believe that the concept and the aesthetic of the products will evolve from a technical base to reflect more humanistic aspects.

I have created a concept design of HiMedia presentation products for new-age, alternative working environments of the 21st century. My concept,

¹ Michael J. Himowitz, "Setting up your home office," Fortune (July 1995): 124-136

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environment.

To complement my thesis project, a multimedia presentation was created to give a quick review to the audience at the thesis exhibition held in the Bevier Gallery, at the Rochester Institute of Technology. It provided an overview by means of a CD-ROM (see appendix). This interactive program was designed with Micromedia Director software and the product renderings were produced with Adobe Photoshop. It included three interactive sections and a title loop presentation of concept illustrations.

Research and concept development levels were completed at the Design Resource Center of Eastman Kodak Company during a summer internship program. White concept models, market scenario illustrations and product image boards were created in this period.

A prospective for future working styles and related digital products was explored by scenarios and appearance models. This thesis report will elaborate on their development. It is organized in two parts. The first part describes the concept development stage that was undertaken during the internship at Kodak. The second part elaborates on the design development stage that followed in the Industrial Design program at RIT. An appendix is attached to include the development of the multimedia presentation.

PART 1
CONCEPT

CHAPTER 2
BACKGROUND

**Presentation Products For HiMedia SOHO Environment of the 21st
Century**

The focus of this project is presentation products for professionals working from a Small Office Home Office (SOHO) in the next fifteen-year time period. The application of these products would extend to other new-age work places also. Working from home requires either virtual or live presentations to clients. My concept has targeted portability and usability without any space limitation to the user to present his/her work.

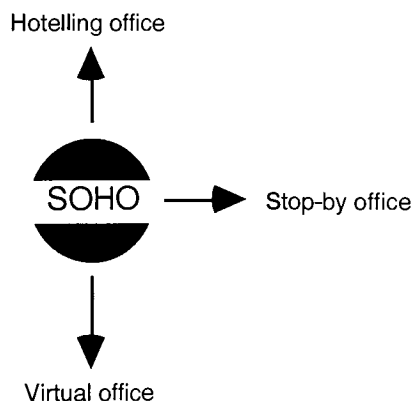


Figure 1. Workplaces for a SOHO owner

Professionals working from a home office will use SOHO as a central

working station and permanent address, while other alternative places such as hotelling, stop-by and virtual offices, will be locations to communicate with colleagues, clients and other professionals.

Permanent Address (SOHO)

SOHO, the acronym for a Small Office Home Office, is a new-age, alternative office described as a work space in the home environment. Advanced digital electronic products provide the user communication, information editing, managing and sharing as virtual presentations from this work space. This home office is the main address for all business activities. A SOHO owner communicates with other people either by connecting electronically from SOHO or meeting in other alternative places. This new working style is growing dramatically.

Other Alternative Places For SOHO Owners

Increasing expenses to start a business, new software facilities, user-friendly technology, more portable products, wireless connectivity and more professional management shape working environments and attitudes. New-age work places will be mostly designed as individual small working spaces in the home environment, rental spaces, shared stop-by offices and virtual offices (to work anyplace). Changing needs of workers, increasing cost of office rentals, developing Internet system and network, and advancing, portable product technology cause people to have this new working style. According to Jennifer Thiele Busch, the author of an article titled "Alternative Lifestyles," the most common new-age working type is telecommuting/virtual offices. Satellite offices come second, shared spaces, hotelling and free-address following. Helmutt, Obata & Kassabaum's (HOK) Facilities Consulting Group defines on-

site options of shared space, group address, team activity setting, free address and hotelling arrangements, all of which make modified use of traditional office real estate.²

Alternative work places out of SOHO are categorized in three types:

1. Rental place (hotelling office)
2. Group address (stop-by office)
3. Virtual office (digital cafe, airport, airplane, taxi, beach, etc.)

Rental Place (Hotelling Office)

A hotelling office is a working place rented for a limited working period, like a hotel room. This periodic work place is more economical and efficient compared to permanent, rented offices.

Two types of hotelling office organization are considered: reservation-required and non-reserved places. Reservation-required offices are set up by management depending on the request of the resident. All equipment, software, furniture arrangement and other needs are organized in advance. Non-reserved places are on a walk-in and do-it-yourself basis. Different sized spaces and portable furniture and equipment are picked up by the user. This system is sometimes also called "free-address."

Group Address (Stop-by Office)

The stop-by office is shared space in a corporate or consultant company. There is no individual, permanent office for the each employee. Only personal lockers and mail boxes belong to each person, and other places are shared for meetings and presentations. Employees, usually working in a team, stop by this office for a short time period either for a meeting or to pick up equipment from a

² Jennifer Thiele Busch, "Alternative Lifestyles, "Contract Design (March 1995):64-65

personal locker. Each employee works in virtual or home-office based style. Also, periodic, small work spaces are available for individual use if needed.

The stop-by office or group address has started to grow now. According to a 1995 survey by the International Facility Management Association, cubical and permanent wall arrangements are preferred to alternative space plans with flexible and open-plan office design, by 83% of companies.³

Virtual Office (Work Anywhere)

Virtual office involves specific space to work. With portable electronic products, people can work anywhere, a cafe, taxi cab, beach, airplane, airport or automobile could be a workspace. Virtual office is appropriate for people having a home office as their permanent workplace and working with teams in group address type offices.

It is of concern that social relationships at work will disappear as the number of home offices increases. However, metropolises such as New York, London and Tokyo, have recently seen digital cafes spread as social working places. These places allow people to access the Internet or work individually with their portable computers. Wendy Richmond, writing in *Communication Arts*, used the following napkin analogy to point out the advantages of digital cafes:

People have always used restaurants and cafes to conduct business. We often meet with a client or colleague outside the office where he or she is not bombarded with internal distractions. The atmosphere encourages brainstorming. How many times have you sketched on a napkin or a paper table cloth? The "napkin sketch" is particularly an icon, a symbol of a creative idea.⁴

The virtual office approach will also influence the design of transportation vehicles and stations to provide people short term working environments.

Small, individual office space at an airport, as well as special seat design in an

³ Joan O'C. Hamilton, Stephen Baker, Bill Vlasic, "The New Workplace," *Business Week*, April 29, 1996: 106-117

⁴ Wendy Richmond, "Digital Napkins," *Communication Arts* (1995): 133

airplane or taxi will be available for virtual office users.

HiMedia

HiMedia, a new term used by LG. Electronics Inc.⁵, refers to the cutting edge technology of the 21st. century. The company defines this term, used for concepts of digital products integrated with computer age media, as follows:

... [The] Coming age of [the] 21st century will be the HiMEDIA era. It is expected that the integration [of] media of [with] remote communication, education and entertainment will shift the lifestyle of human beings. HiMEDIA is the LG Electronics's [sic] brand name for various concepts of Multi-media, New media, Interactive media, and others. LG Electronics looks for the integration [of] computer, communication, consumer electronics, living systems through HiMEDIA which will initiate reconstruction of industries in the forth-coming 21st century.⁶

Imaging Chain

Imaging chain refers to a complete process, from gathering, digitizing, and editing images, to sharing this visual information. Research on the imaging chain at Kodak helped me to understand the tasks of digital business products and determine the focus of this project. The imaging chain has four functions, and all Kodak digital imaging products are categorized under these functions:

1. Capture
2. Store
3. Manage
4. Share

Capture products make a representative two-dimensional copy of a three-dimensional object or a two-dimensional work. This visual information might be also scanned from other sources such as a magazine, an image bank or an internet field. Electronic and digital cameras, document scanners, film scanners,

⁵ Goldstar Co., Ltd. has changed its name to **LG Electronics Inc.** from March 1, 1995

⁶ Goldstar Co., Ltd., Application manual of 1995 Goldstar Design Competition.

copiers, motion film analyzers, film recorders and mammography systems are some of the capturing products that Kodak produces (see figure 2,3).

Storing products save the captured image to be retrieved when needed. Various types of media exist to store and transfer the captured information. Photo CD, microfilm, optical media, digital disks and storage hardware are categorized under this second function of the imaging chain (see figure 4).

Managing products evaluate, refine, manipulate and edit the captured and stored images. Color image management systems and software, micro image terminals, image editing workstation systems and image creation kiosks are considered managing products (see figure 5,6).

Sharing products provide edited images to present, transmit and share with other groups of people. Duplicators, printers, publishing devices and projectors share final imaging with team partners, audiences and clients (see figure 7,8,9).

Market Research and Image Boards Study

Image boards, including collected images of today's business products, were created to categorize certain products - telecommunication devices such as fax machines, cellular phones, digital cameras, video cameras, pager, printers, scanners, etc. - as either information capturing, storing, managing, sharing or hybrid products. As a result of this study, it was determined that business products of the future will be mostly digital hybrid products. Rather than having a single major function such as to capture, store, manage or share, advanced technology devices will combine these functions. The market research predicted that these intelligent devices will process three different types of information: verbal (text), visual and audio. Also, portability will be a necessary feature, especially for SOHO owners and other alternative workplace users.



Figure 2. Products for capturing information

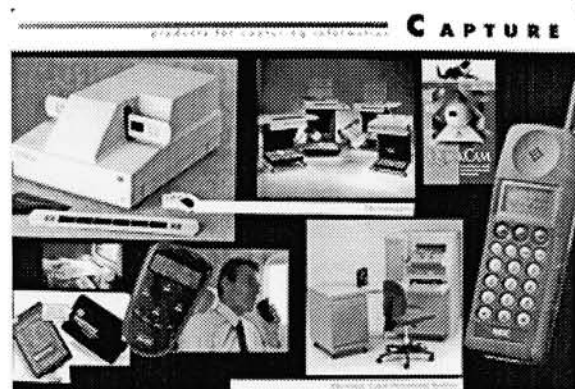


Figure 3. Products for capturing information



Figure 4. Products for storing information



Figure 5. Products for managing information



Figure 6. Products for managing information



Figure 7. Products for sharing information



Figure 8. Products for sharing information



Figure 9. Products for sharing information

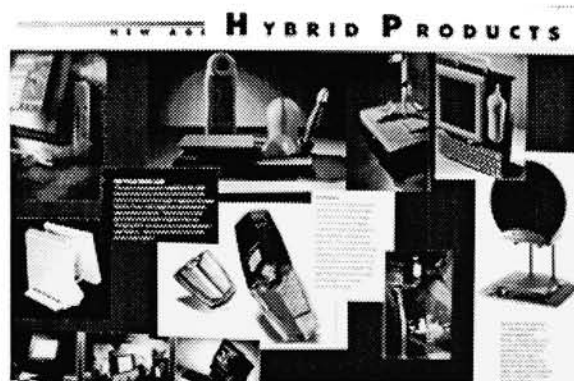


Figure 10. Hybrid products

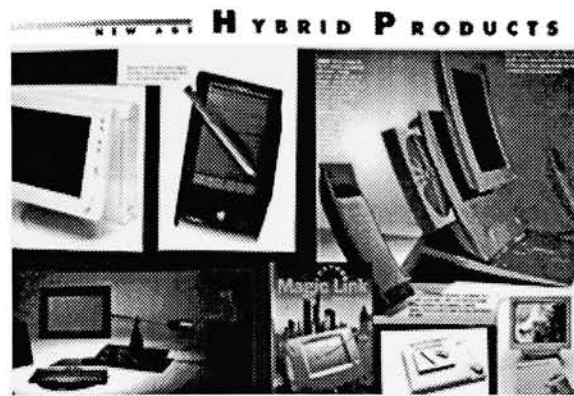


Figure 11. Hybrid products

Presentation As an Information Sharing Process

Understanding the imaging chain of Kodak and analyzing current market products helped me to explore the concept of HiMedia presentation products of the future. I have called the task of the future hybrid products "Digital Information Process System (DIPS)" (see figure 12). These multifunctional hybrid products digitally capture, store, manage and share the verbal (text), visual and audio information.

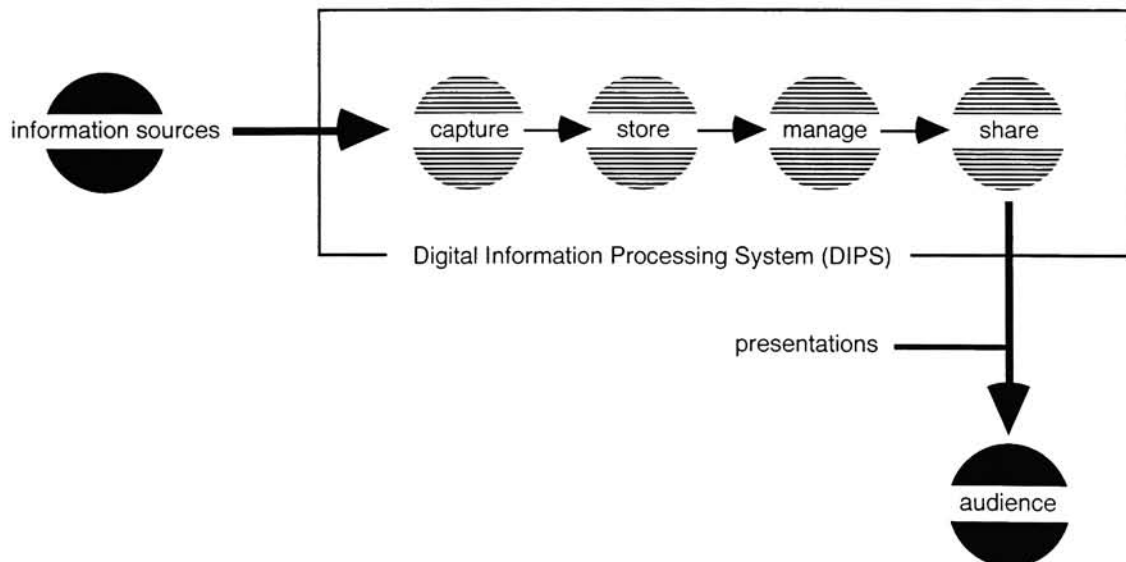


Figure 12. Digital Information Process System (DIPS)

The focus of the project has been narrowed down to an information sharing process and this major function of the project is specified as "presentation." Presentation is one component of the information sharing processes, because visual and/or audio data is manipulated and then transferred to groups of audience. Presentation, as an information process, is the last step of DIPS, as illustrated in figure 12.

Types of Presentation

Presentation is the last step of DIPS by which you can communicate the processed information to clients, audiences and colleagues. All information has to be prepared well for transfer to other people clearly and accurately. Presenter and audience, time and space are important elements that determine the types of presentations.

Presenter and Audience

1. One-on-one presentation

Individual teaching, meeting between two people.

2. Small group of audience presentation

An instructor lecturing in a classroom, or a staff meeting with up to 6 people.

3. Large group of audience presentation

An individual presenter or group of presenters for a large audience

Time and Space

1. Live presentation

The presenter performing in the same place with an audience.
(conference, lecture, slide show, panel etc.)

2. Virtual Presentation

a. Interactive virtual presentation: presenter and audience in different place / same time (phone conferencing, video conferencing, chatting at the Internet.)

b. Non-interactive virtual presentation: different place / different time presentation is stored and the audience is watching anytime later (TV, long distance education , video, movie, etc.)

The concept development and application of OPUS was based on these presentation types. The preceding categorization helped to determine functions as well as physical and technical features of presentation products. It was also helpful to define the needs of the user for an accurate design approach.

CHAPTER 3

CONCEPT DEVELOPMENT OF OPUS

The product trend of the future is projected as hybrid products according to the image board and imaging chain studies in chapter 2. OPUS (Office Presentation Universal System) is a digital hybrid product system where each component of the system has more than one function. The function of each component complements the others to create three different types of presentations.

Focus of OPUS

OPUS is designed for the needs of the new-age workplaces of the 21st century. The major function of this digital system is defined in the information sharing process as "presentation." It also allows the user to communicate, manage and store the data needed for presentations.

From a design perspective, I intended to create the form and details for each component independently according to its function. Added to this, I attempted to provide a family-look in the design of the system components. The general design concept, details and aesthetic goals were selected to emphasize the family look. This was explored in the early white models (figure 13) and then applied to the final design with colors.



Figure 13. OPUS

Composition of OPUS

This hybrid system has four digital components: Curator, Exhibitor, Projectionist and Archivist. The first three are designed as portable products which allow the user to make live and virtual presentations. Archivist is a non portable member of the system and is located at SOHO.

The main data storing station of the system, Archivist, is the center of the system. The second most important managing center, Curator, receives all data from Archivist by infrared signals, and transmits the information to the other two components. Exhibitor and Projectionist are used optionally depending on the type of the presentations and size of the audience.

Curator, Presentation Organizer

Curator, the second most important member of the system after Archivist, operates Exhibitor and Projectionist interactively to create presentations. Additionally, physical and technical features of Curator allow it to be used for individual working or communication anyplace. If the visual information needs to be viewed on a large scale screen, Curator can be used in combination with Exhibitor, which serves as a monitor in an available working environment. When

a larger image is needed depending on the size of audience, Projectionist serves as an audio visual projector. It is also operable interactively by Curator the same way as Exhibitor.

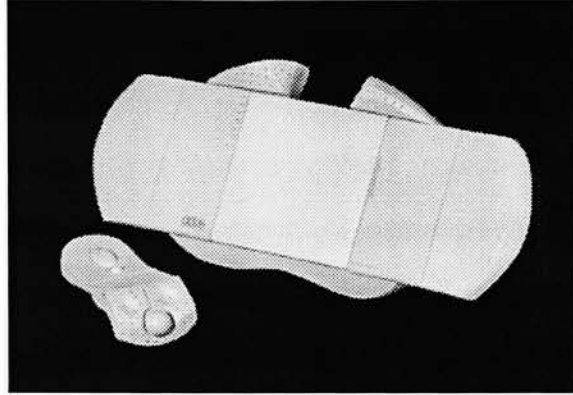


Figure 14. Curator

Curator is designed as a hybrid digital presentation organizer. Its major function is to manage, edit information and then operate other system components for presentations. The user is able to make two types of presentations: to small groups and to large audiences. Its digital, small size screen, shows simultaneously the same image being presented by Exhibitor or Projectionist. Using a touch-sensitive feature on the screen, one is able to edit simultaneously an image being presented.

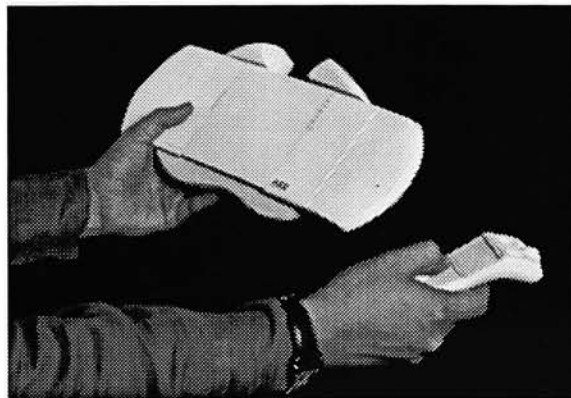


Figure 15. Image capturing with Curator

A secondary function of Curator is information capturing, storing and managing. It has an image-capture device which records visual information collected in the environment, magazines, etc. Captured images are stored to be manipulated for presentations. Moreover, as a part of the information capturing function of Curator, visual, verbal (text) and audio information can be gathered by such different ways as Internet network, video-phone and electronic mail.

Design goals of Curator were to achieve user friendly and reliable operation. Changing the size of the product was studied as an engineering challenge. In concept, Curator protects its sensitive components such as screen, image capture device and transmitters by closing itself. This feature also reduces size for transporting.

Exhibitor, Presentation Monitor

Exhibitor is designed as a presentation monitor for small group audience presentations. Its double sided imaging area allows the audience to sit in a circle and view from two different sides. During this type of presentation, the presenter is able to operate Exhibitor from a distance by monitoring the same

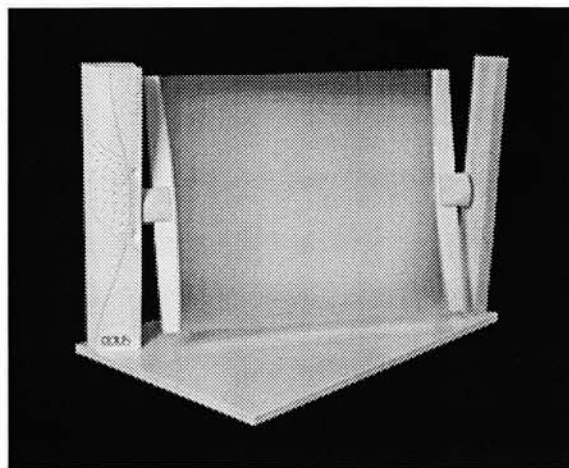


Figure 16. Exhibitor

image from Curator. Like the image, sound input and output are also available from both sides in equal quality.

As portability is the main challenge from the design perspective, the main feature of Exhibitor is adjustable size. When its flexible screen rolls into two semi-elliptical vertical columns standing on the sides and holding the screen, the columns meet together and lock. In this position, its size becomes appropriate to transport easily.

In the white concept model (see figure 6), the flexible screen is positioned horizontally. The rolls are positioned vertically and the speakers and microphone are placed on to these elliptical cylinders. The rounded speakers provide all around sound. In the final design of Exhibitor, the screen opens vertically (see figure 33).

A weight, placed in the bottom of the semi elliptical cylinders, adds stability. The panel on the bottom, seen in figure 16, is not a part of the design.

Projectionist, Audio Visual Projector

Projectionist, an audio-visual projector, provides a large imaging area and audio for presentations to a large audience. It projects an image, and the size of this image can be adjustable depending on the size of the audience, distance and space conditions. It is operated by Curator interactively. The image projected by Presenter can also be viewed on the screen of Curator simultaneously. The touch-sensitive screen of Curator allows the user to place the presentation graphics on the imaging area of Projectionist.

Projectionist has telescopic legs providing two options of usage: desktop and floor standing. Under any circumstance, the legs can be extended to find the appropriate imaging height for the audience. For transporting of Projectionist, the legs are retracted into tubes attached to the body.

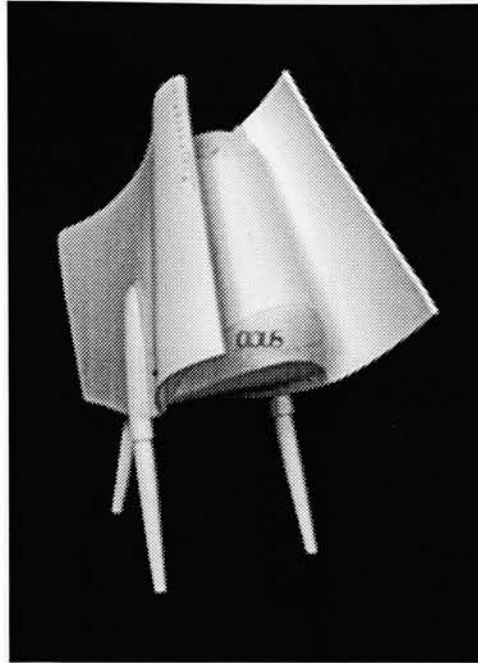


Figure 17. Projectionist

Projectionist's form comes from the metaphor of "radiating." For example, light waves come from a source and spread out as circles. If you imagine the top view of Projectionist, its front, curved surface represents the circular shape of light waves spreading out. The curved shapes of the sides also represent spreading of the waves.

The speakers are curved in the front. When the curved, thin speakers are opened, they send the sound equally in all directions. When speakers are closed, they protect the lens of Projector.

Archivist, Information Collecting Center

Archivist, an information collecting station, is a personal information bank able to be accessed from outside of SOHO. It is like a library located at SOHO, and it is the nonportable member of OPUS. Archivist stores personal files, data

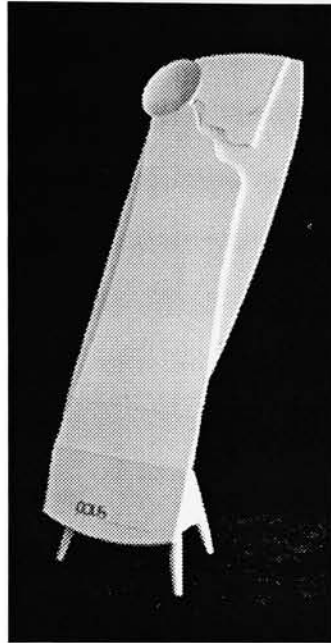


Figure 18. Archivist

and provides an access for Curator.

It transmits and receives data from Curator by infrared signals. In this way, Curator does not need a large memory capability to carry large memory files. However, it has to have an advanced technology information transmitting system.

Since Archivist is the main station of the system, the importance of its function is emphasized by sculptural design. It is designed with a furniture look, standing at the corner of the SOHO. The hemispherical part, placed on the left top side, is a transmitter. The curved path coming from the transmitter, leads to the control panel indicator screen. Transmitting is indicated on these screens by lighting and signaling. These physical features are created to emphasize that Archivist is an intelligent product of the future.

Application of OPUS

Scenarios were created to explore possible working environments and the usability of OPUS in these places in the next fifteen years. Four different occupations, possible presentations and alternative workplaces of the future are illustrated in these scenarios. Occupations are listed below:

1. Art, Design and Architecture,
2. Real Estate
3. Sale and Marketing
4. Education

Scenarios are based on the these occupation's business contacts and, the character and requirements of the work. They include individual working at the SOHO, the digital cafe, taxi, plane and during travel, making virtual and live presentations either from SOHO or in the hotelling office and collecting information in the outside environment. Also, all new-age working environments mentioned in chapter two are illustrated with possible working and living situations of the future.

Illustrations are available in CDRom, in full color and large scale (see appendix).

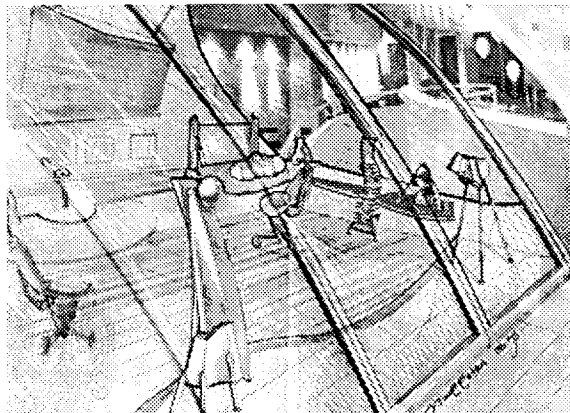


Figure 19. SOHO

Art, Design and Architecture

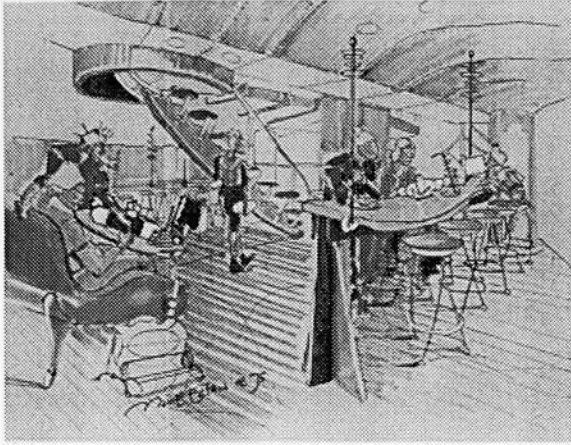


Figure 20. Digital cafe

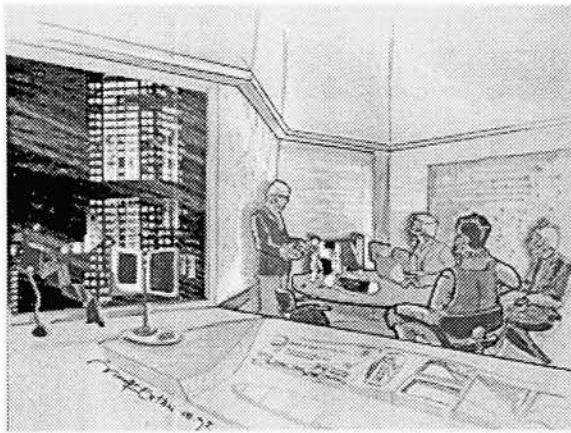


Figure 21. Hotelling office, equipped small working place

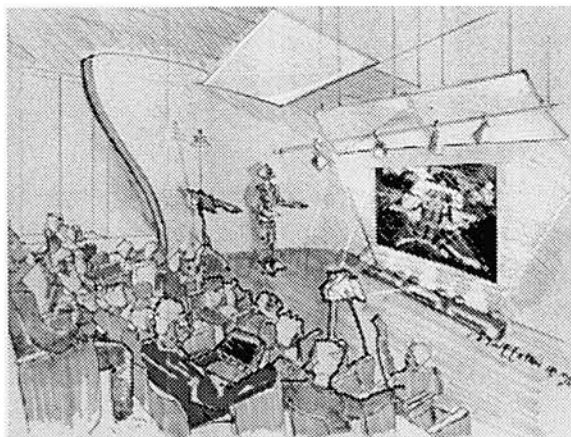


Figure 22. Hotelling office, equipped presentation room

Real Estate

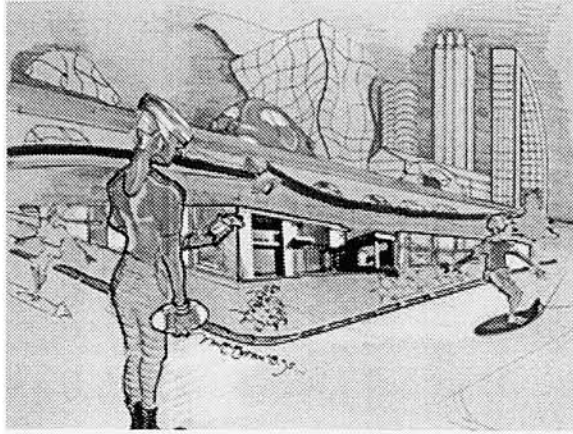


Figure 23. Outdoor and rented facilities

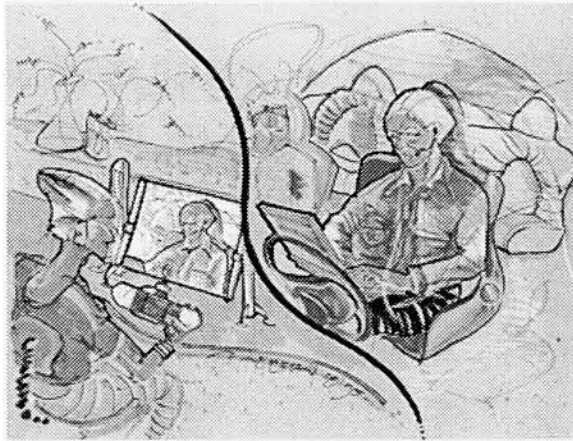


Figure 24. Clients in their automobile, real estate person at the SOHO

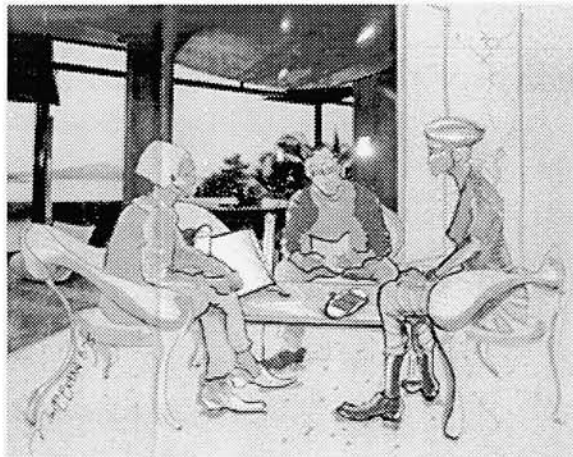


Figure 25. Client's place

Sales and Marketing

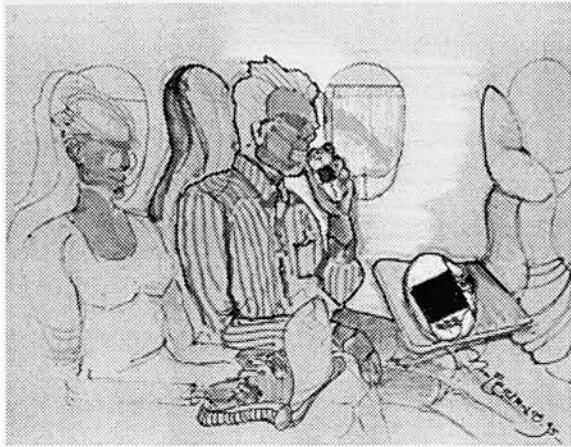


Figure 26. Airplane

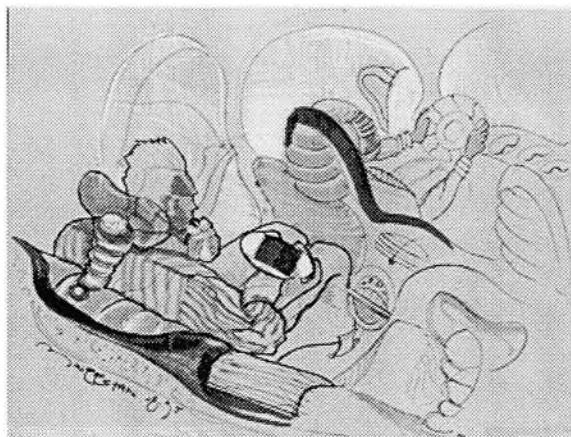


Figure 27. Taxi cab

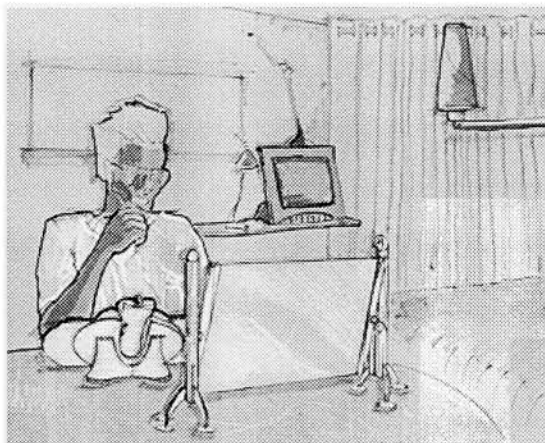


Figure 28. Hotel room

Education

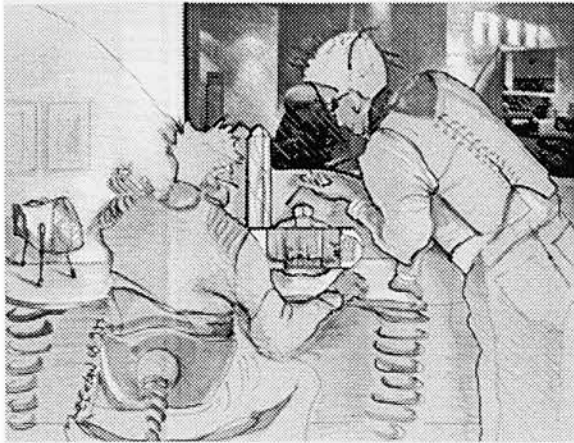


Figure 29. Instructor's SOHO

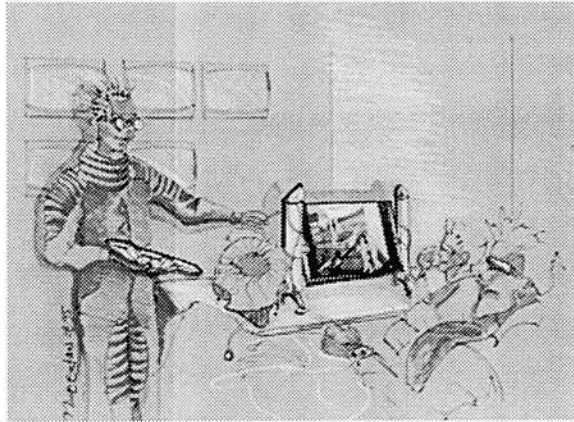


Figure 30. Hotelling classroom / SOHO / educational institution

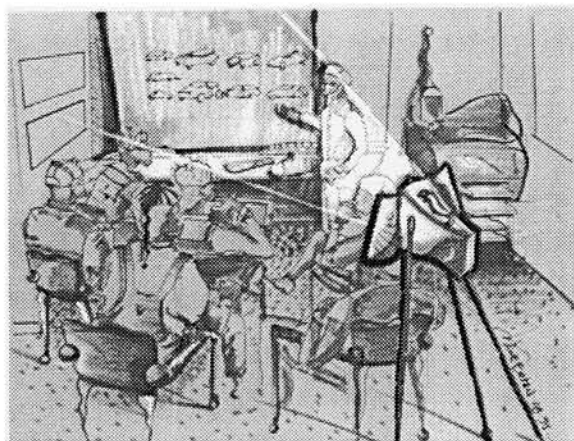


Figure 31. Hotelling classroom / educational institution

PART 2.
FINAL DESIGN



Photograph 1. Final design of Exhibitor and Curator

CHAPTER 4

DESIGN OF OPUS

Two components of OPUS were brought to the final design level. Curator and Exhibitor were chosen for their final design development. The reason for this decision was that these products are used constantly and with the highest priority for presentations. Curator is the keystone of the system for managing and operating presentations as well as its other secondary functions such as communication and storing data. Exhibitor is a supportive product for Curator. I believed that a final design study of these two key components of OPUS was important for the completion of this theses project.

Final models of both Curator and Exhibitor were built and rendered, orthographic drawings were created. These studies along with the concept studies were exhibited at the Bevier Gallery of RIT in May 1996.

General Objectives

Curator and Exhibitor are designed for the SOHO owner of the next fifteen-year time period. I focused on the working styles and the possible working environments of this period to determine the aesthetic goals. Conclusions from discussions of the scenario illustrations helped me to create the design objectives. The general design objectives were defined for both product function and appearance. Moreover, I intended to support these design

objectives with advanced technology features of the future. The physical and appearance objectives of Curator and Exhibitor are:

- To be user-friendly, reliable
- To be professional, productive, dynamic
- To be high-tech but also high-touch
- To be aesthetically pleasing, sophisticated

I explored the technical features and the design elements of these two components of OPUS in relation to these objectives.

User-friendly

The meaning of "user-friendly" is that a product has to be easily operable by the user without any confusion. Forms, colors, control buttons and graphics should guide the user accurately. The physical and the virtual operation must be understandable by the user. Appearance, physical features, and logical operation must give a sense of dependability to the user.

Professional, Productive, Dynamic

The objective of "professional" implies a design that provides productive and efficient operation. A professional design should not allow the user to be confused and make errors while operating the product.

The sophistication of the electronics, the sensitivity of the controls, and the inclusion of features such as light indicators and signals to provide communication between the product and the user, are all factors which contribute to a products' professional image. Dynamic forms also represent the sophistication and productivity which support the professional look in a design.

High-tech but also High-touch

High-tech is a term that represents the products of advanced technology. The combination of advanced methods of manufacturing, detail treatment, coloring, texturing and finishing will be different in the products of the future and look different than current ones. Advanced technology products usually appear unfamiliar to the user, and it takes time to become accustomed to these new products. High-tech but high-touch means that the design must be inviting even though it has a new look. Anthropometry and ergonomics are key factors that can help the user to interact with the new technology. Color, finishing, details and forms are design considerations that affect the user psychologically. If the design decisions are appropriate and work well, the user will interact comfortably with the product.

Aesthetically Pleasing and Sophisticated

This aesthetic goal especially targets professionals because they experience a greater variety of products compared to other users, and aesthetically pleasing products attract them. They have higher expectations from a product than others, and can accept new designs easily compared to other user groups. Aesthetically pleasing products are more desirable. Sophistication in the design, function and the operation of products provide productivity, dynamism and efficiency, which are priorities for a professional.

Curator

Curator is designed as a hand-held presentation organizer. Among all components of OPUS, it has the highest priority according to its task in the system. The physical features of Curator provide easy portability and flexibility while transporting and working. The adjustable size of Curator allows the user

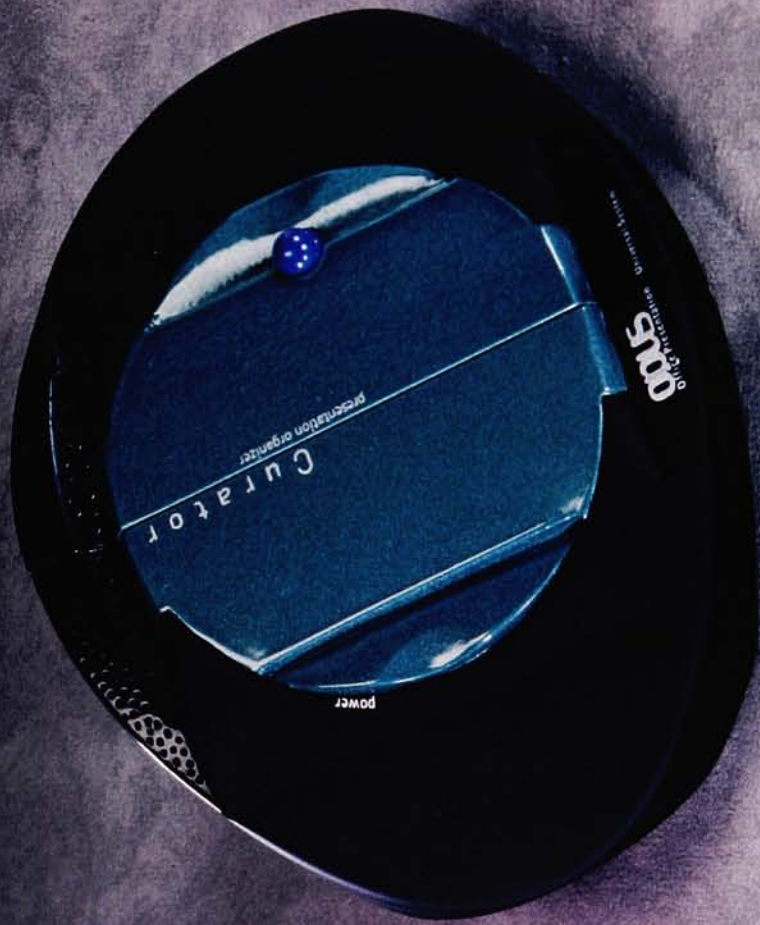
to carry it in a smaller size and to work with it in an appropriate larger size. When it opens, it expands to fit in one's lap. The finish underneath and the curve of the side sections are designed to fit the lap comfortably.

The elliptical shape of Curator is divided into two parts at the middle axis. Two semi-elliptical shapes slide automatically from the middle axis toward the sides when it is turned on. The screen appears and becomes available to work on. The other sensitive parts of Curator; the transmitter, and the lens, also become ready to use. When closed, its own body protects its sensitive parts. I have achieved the design objective of reliability by this feature. I was inspired by creatures in nature such as the turtle and the snail. The part of Curator one holds is fabricated out of rigid material so as not to be damaged easily. A soft, suede finish provides a good grip without showing finger prints.

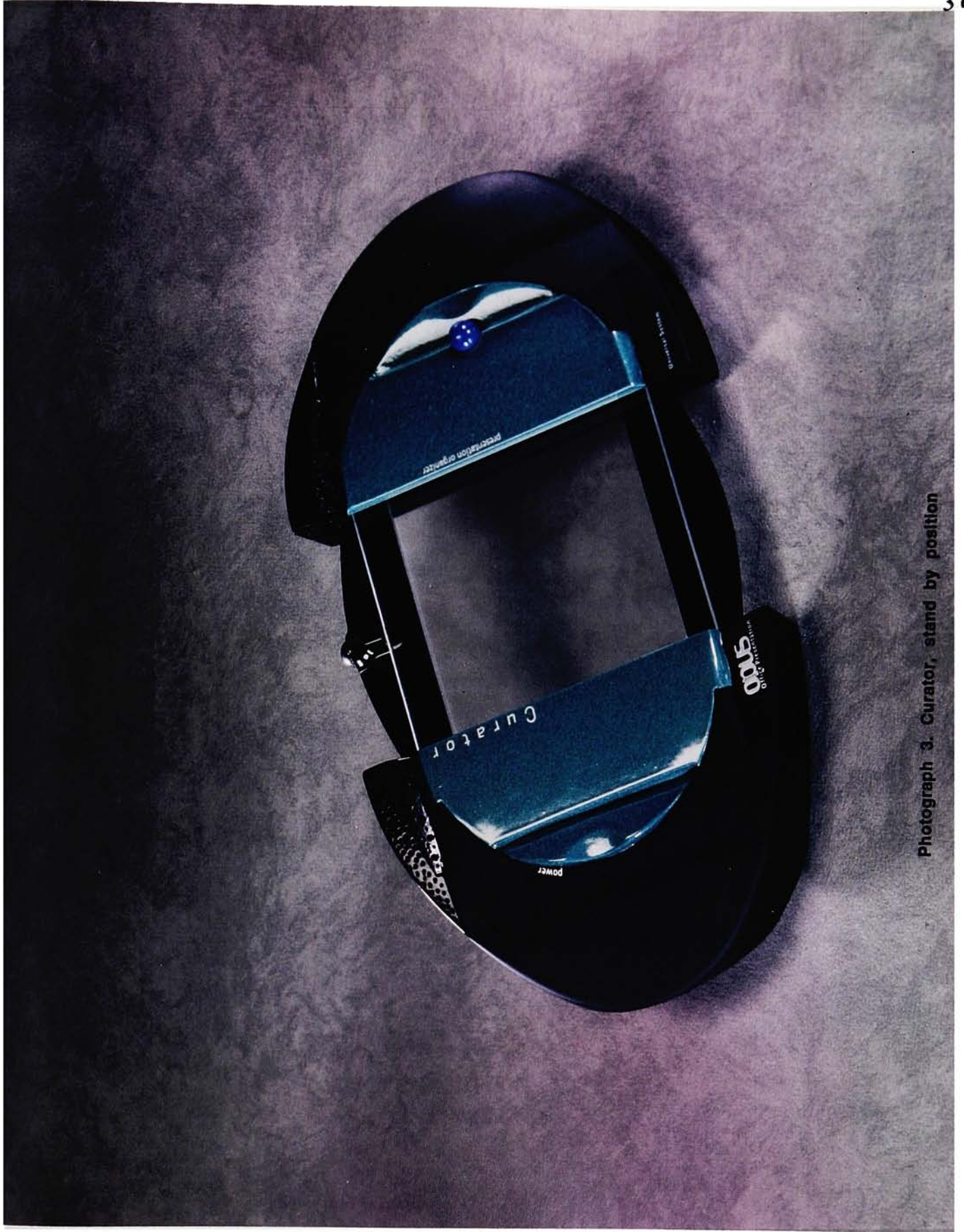
When Curator is in the open position, its screen has two positions: stand-by and active. The screen's color is clear, and one is able to see the working surface that indicates the stand-by position. In the active position, the desktop image appears, and it becomes ready to function. This user-friendly approach informs the user visually about the position of the product.

Advanced technology brings new functions and applications to the product design. High-tech design solutions simplify details and combine functions of detachable components to the main product. A voice recognition feature that will be more common in products of the future eliminates the keyboard. I believe that the keyboard will be an optional component, and a virtual keyboard will be employed if needed. The voice recognition function adds the capability of being operable by the user's voice. The user orders the functions by speaking to the product, and reads a text instead of typing. It dictates a text and converts sound to a text file.

I have applied the voice recognition function to the design and prioritized



Photograph 2. Curator, power off position



Photograph 3. Curator, stand by position



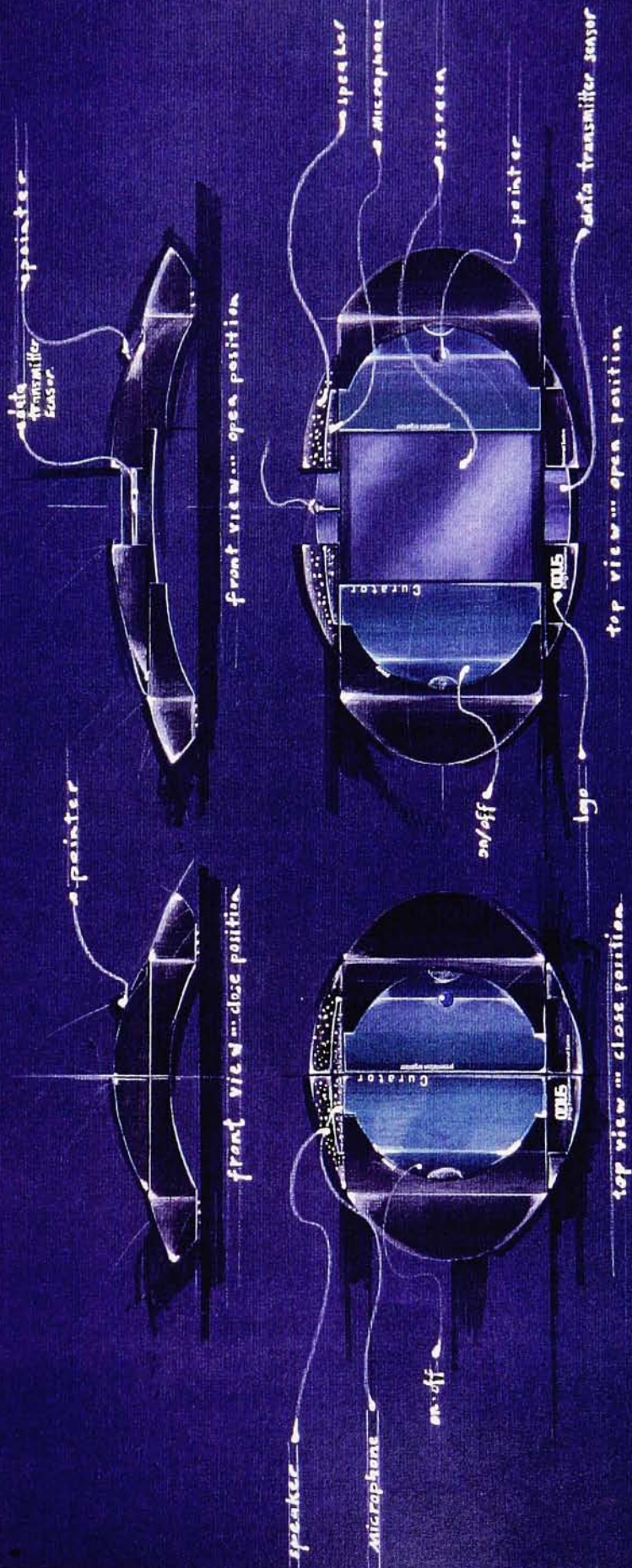
Photograph 4. Curator, power on position

the location of the sound in/out components. I located the speakers and microphone on the front edge of Curator, far away from where it is held. When Curator opens, speakers and microphone are also divided on the two semi-elliptical parts. The speakers provide sound balance and better quality. The form of the microphone slightly faces to the user to capture the sound.

The other purpose of Curator is information collecting for presentations. The user can gather visual information by using the image capturing function of Curator. A lens located on the front edge of the screen captures images, which are able to be viewed on the screen. This function of Curator was conceived as a detachable component in the early models (see figure 15). As a result of the advanced technology, some detachable products will be replaced with small, permanent components as a part of the main product. The combination of functions creates multifunctional devices called hybrid products. In the final design, the image capture function is resolved as a lens in the shape of a sphere. Like a human eye, it rotates in its housing, and is operable by a cursor located at the left side on the grip. It views the environment by moving Curator, and shows the images on the screen before capturing. In that way, the screen serves like a viewer of a camera.

The touch-sensitive and interactive screen allows the user to operate the presentations on the viewing area of Exhibitor and Projectionist. The printable feature of the screen allows one to sketch and take notes if one can not use the voice recognition feature or virtual keyboard. To accomplish this function, the two sliding, semi-elliptical parts were designed to be on top, flush with the screen. This same level surface allows the hand to print comfortably.

Data transmitters are located in the same place as the lens. Like the lens, they are also covered by the hard part. The sensors are located in the edge of a black, flat plate. It is coated glossy black to psychologically warn the user not to



scale 1:1

opus
Office Presentation Universal System

designed by **MINERTAN ... 1996**

Photograph 5. Rendering of Curator

touch it. Touching and leaving finger prints usually bothers people.

Exhibitor

Exhibitor is a portable monitor used for small group presentations. The group sitting around Exhibitor is able to view the image on the screen from both the front and rear sides. It is used when a larger imaging area is needed while working Curator.

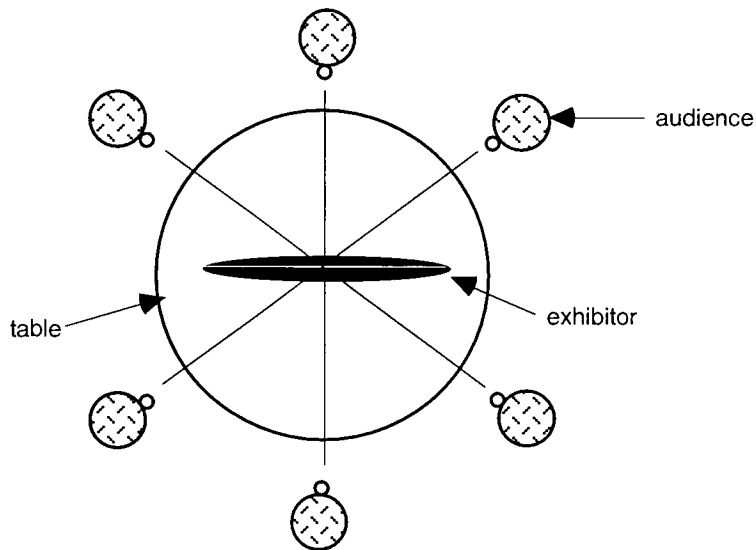
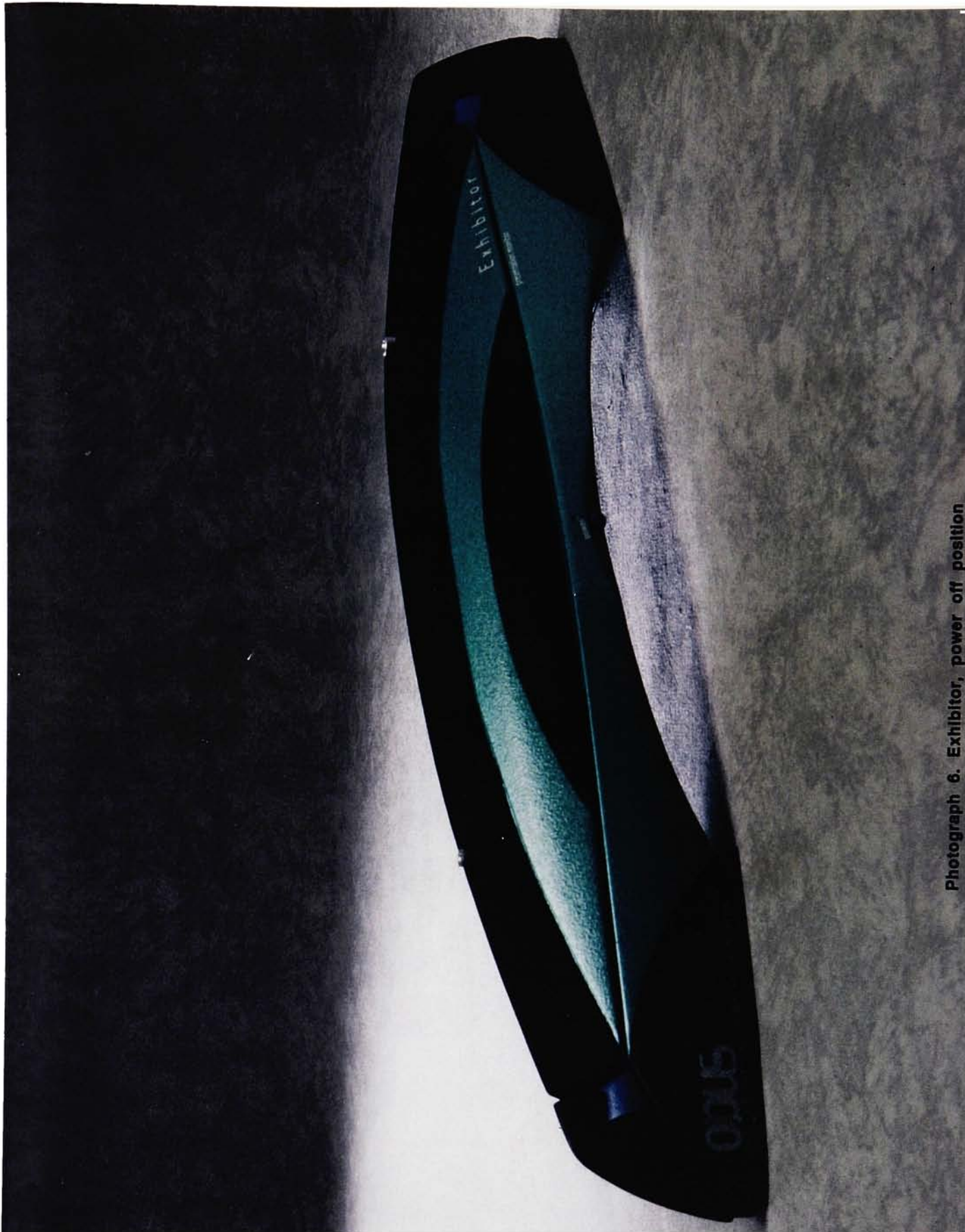
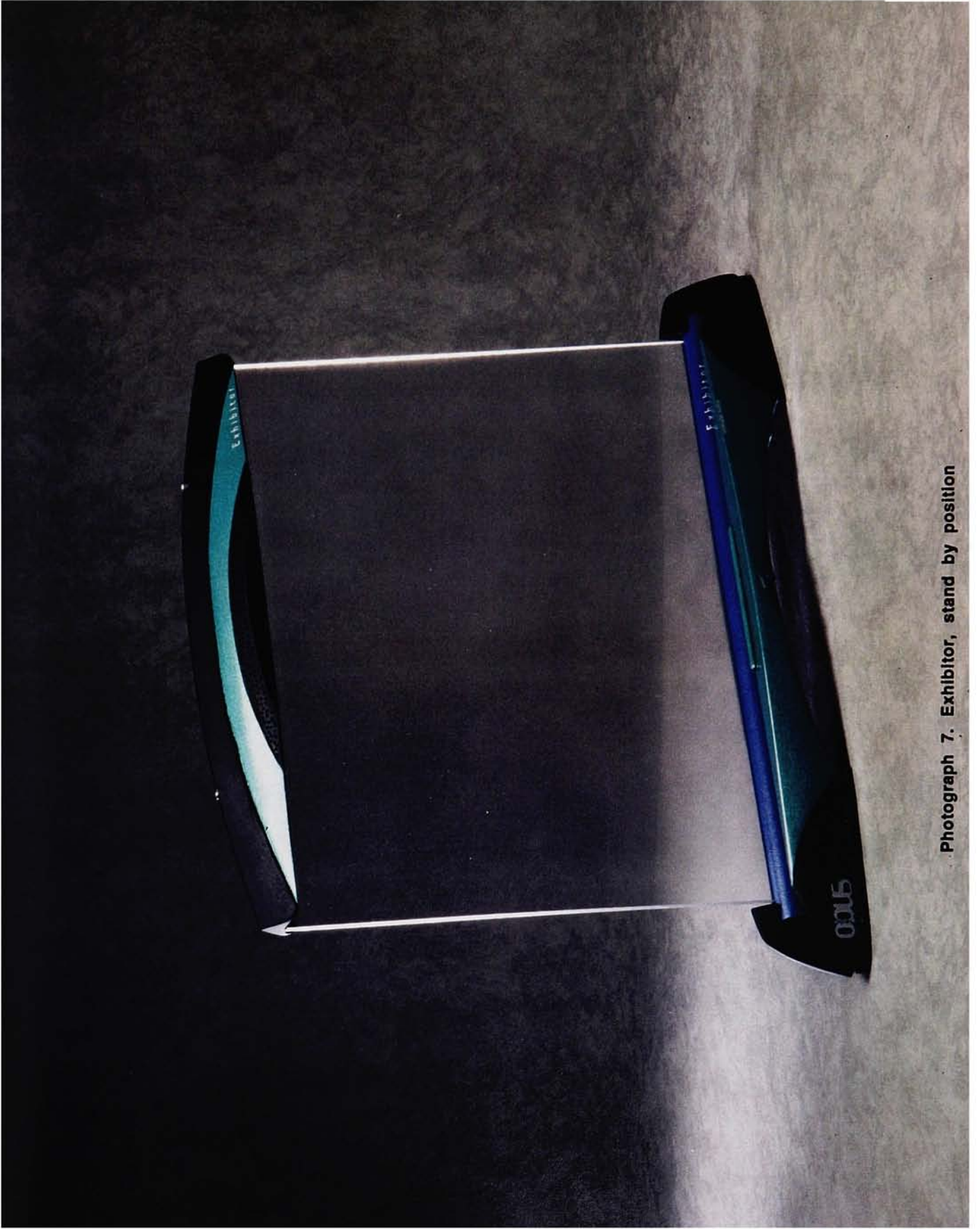


Figure 32. Exhibitor with a group of audience

Exhibitor has a flexible, digital screen which rolls into the bottom when the power is off (see figure 33). This provides small size and appropriate form for transportation of the product. This design solution is based on the design objectives: reliable and user-friendly. The screen is composed of two thin layers having a gap between. By filling this gap with air, it becomes rigid and stands. Air valves on the top part inflate the screen, and a motor on the bottom rolls it up. When I envisioned this concept of the screen, I was inspired by the party favor toy which is a paper tube that extends when you blow air into it.



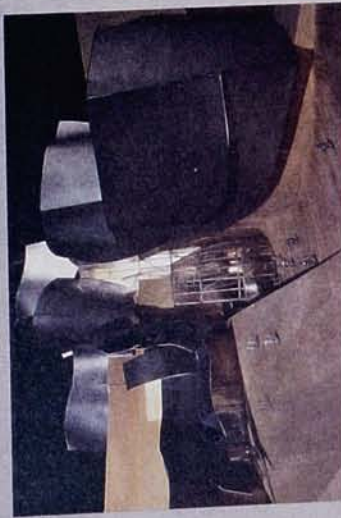
Photograph 6. Exhibitor, power off position



Photograph 7. Exhibitor, stand by position

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CE**

Galaxy came to fruition through the use of a...
 ... His computer-aided design...
 ... they have an effect on each other...
 ... No! Our...
 ... when you decide which color...
 ... and the end result is different.

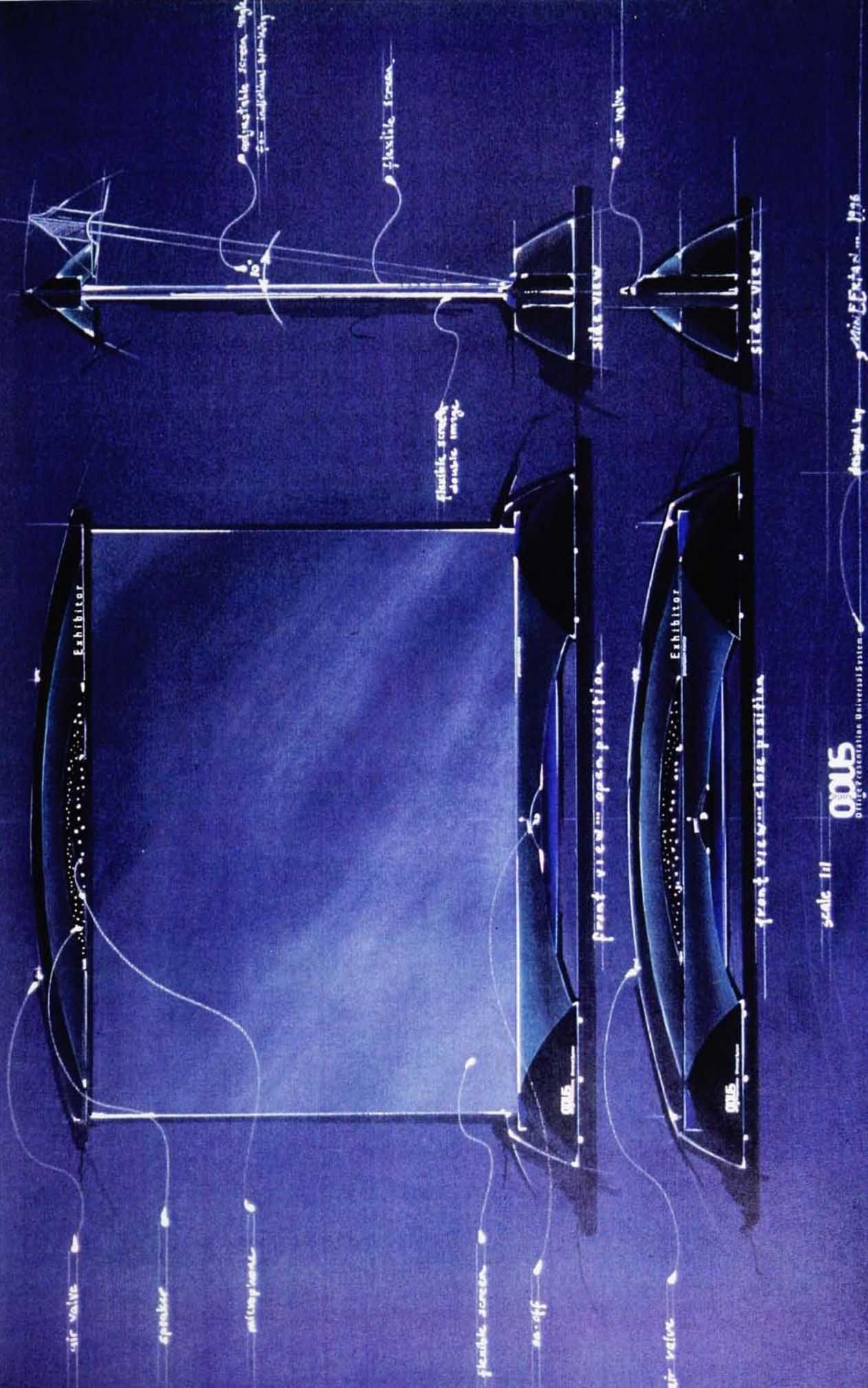


THE SUBSCRIPTION MUSEUM, 30 BAY, MAIN TECHNOLOGY TO OPUS IN 1992 IS CLARIC GENT.

opus
 THE PRESENTATION INTEGRAL SYSTEM

- Exhibitor**
- Presentation
- Content
- WorldNet
- TeleConference
- CM2
- Extra





scale 1:1
opus
 OFFICE OF INVENTION UNIVERSAL SYSTEM

Photograph 8. Rendering of Exhibitor

I have explored the concept "asymmetry in symmetry" in both final designs. Only colors and the power button differentiate two sides from each other. Also, the angle of the screen can be adjusted (see figure 34).

The touch-sensitive feature of Curator's screen and the communication interface between Exhibitor and Curator, allow the user to display and interact with the same image on both their screens. The presenter does not have to sit close to Exhibitor to operate it. Virtual controls allow him/her to operate remotely.

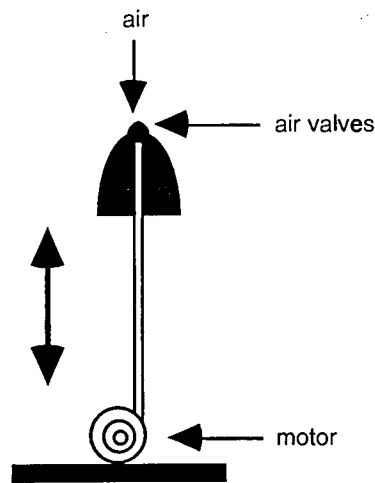


Figure 33. Exhibitor screen

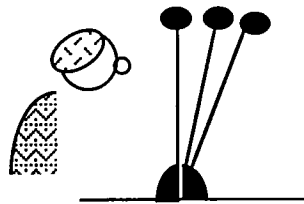


Figure. 34 Screen angle adjustment

Family-look Aesthetic Features

The final designs of Exhibitor and Curator have similar features that indicate these two products are from same system - like family members. I have

matched the designs in details, colors, finish, graphics and the arrangement of the parts.

In reference to color selection, I intended to apply a professional-looking appearance through a color combination. According to my market research, most of current business products have gray or beige series of colors. Development of coding and paint technology could provide a larger range of color variety. In the future designers will have more color choices in product design. The black and the green were chosen as representatives of the product colors for the future. My vision is that the combination of black and green provides a professional-looking appearance in contrast to the common colors of current business products. Glossy and flat black colors were used for different purposes. A glossy green was used as well, particularly to represent the location of sensitive parts. In both designs, the parts that the user interacts with and touches are flat black. Psychologically, flat color surfaces are not perceived as intimidating to touch and hold . The other parts that should not be touched such as the speakers, microphone, lens and transmitter are painted glossy black.

Textures on the speakers and the microphone are designed with randomly spaced holes of different sizes. This detail was applied in both components to create visual similarities.

The graphics were applied in silver color and placed near the separation of the moving parts. When the parts open, the name of the product and its definition separate from each other. For example, "Curator" separates from "presentation organizer" when the semi-elliptical parts slide to the sides. It is the same in Exhibitor - when the screen is raised, the words "Exhibitor" and "presentation organizer " separate. These details create family-look products when they all come together.

CHAPTER 5

CONCLUSION

Alternative working places will continue to increase as a result of advanced technology opportunities. Increasing flexibility of life styles will reflect on the working style as explored in this thesis. Most of the controls will be virtual; therefore, little detail and few buttons will appear on the case design. Sophisticated color, and texture will guide the user, who will have more experience in using the products of high-technology by this time.

This theses project has especially attracted the attention of professionals who are involved with active corporate and consultant workers, and have noticed their needs for the near future. Most of them with whom I talked, agree with the efficiency, flexibility and the productivity of alternative working places. The scenarios allowed them to imagine the future and the usability of OPUS in the specific environments. Those who are currently working part time from their home office, supported the idea and applications of OPUS based on their experience and needs. The productivity and the efficiency of these new-age products would be available for a wide range of professionals as illustrated in the scenarios. They also agree that future SOHO and presentation products will be more sophisticated as a result of high-technology.

I tried to explore this vision of the future as closely as possible to the

reality of today and trends which provide clues to the future. The workability of this concept depends on the technological developments in digital, computer, internet and multimedia technology. The speed and the high quality of information transmission, along with material and manufacturing developments, will someday convert this concept from futuristic to realistic design.

APPENDIX

MULTIMEDIA PRESENTATION

An interactive multimedia presentation was designed to support the exhibition. I intended to emphasize the importance of interactive multimedia in the 21st century by using it in my thesis presentation. A CD-ROM of the presentation is attached to this report.

The presentation uses animations featuring the moving parts of the two final designs. This digital animation explains features of the design which were not evident in the prototype models. The combination of models and the animation provides a visual understanding of the design. The presentation is divided into four sections:

- Title Loop
- Background
- Animation of Curator and Exhibitor
- Scenarios

The title loop is like a screen saver with background music. The purpose is to attract attention. To interact with the presentation, one can select the icon of main menu.

From the main menu, there is access to three sections and a quit choice which leads to the references page. If someone quits, it returns to the title loop. In the main menu are three icons representing each section. To quit any section, the

audience goes to the main menu. It was planned that way so as not to skip any other section.

Each chapter is independent. Only the first and the second section has a link between them by which one can call up the animations without going through the main menu. There is only one way to review the scenario illustrations by linking from the main menu.

The background section is a movie which presents the components of the OPUS with their names. The final design of Curator and Exhibitor is also shown as a developed design in the system. By selecting the final design image, one could call up the animation section.

The animation part of the presentation explores the working method of the products. By clicking on the power button, Curator and Exhibitor will start to open, get a desktop image and close. Sound effects and desktop image transitions are included for both animations of the products and to give the sense of the future.

The last section has the scenario illustrations with the verbal information on the same page. Designed as a linear sequence, it allows the user to read and move to the next or the previous page.

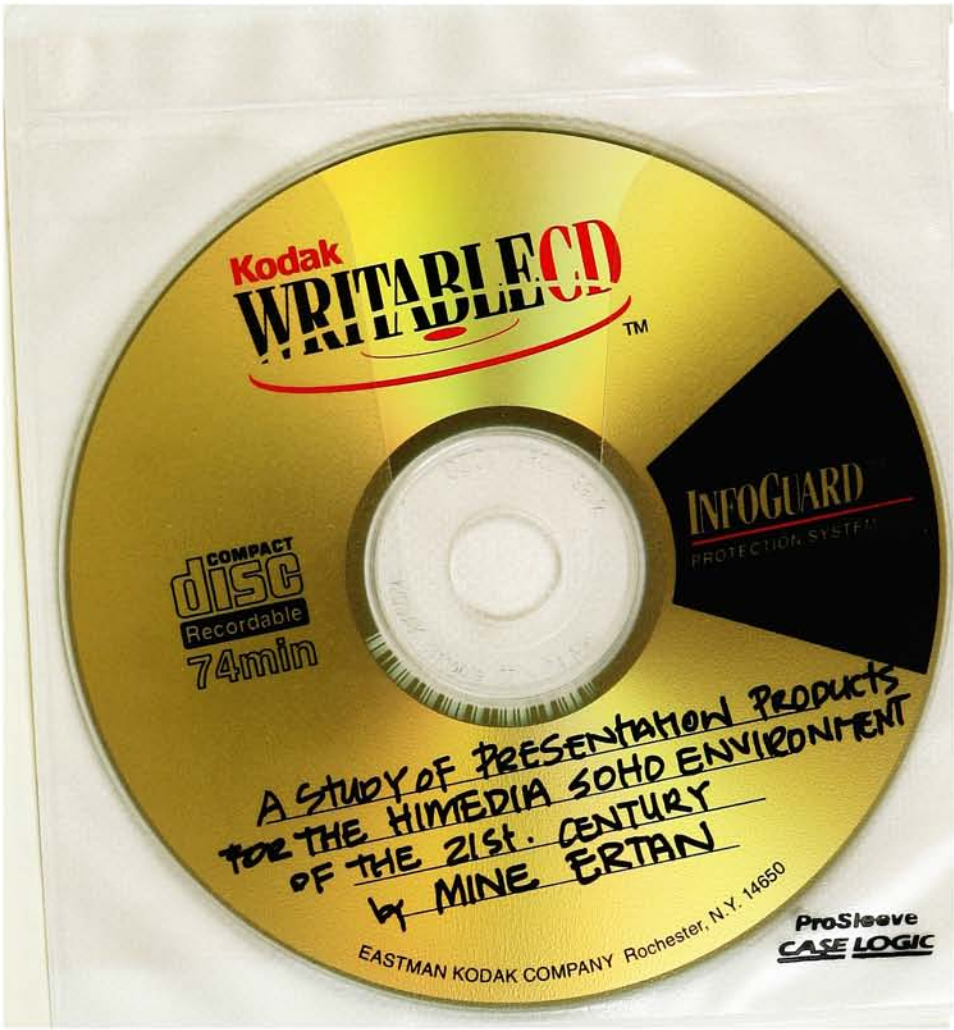
This digital interactive program was created with the software called Micromedia Director 4.0. The background of the illustrations section was created in Adobe Photoshop and transferred to the Director file. The product renderings for the animation section were rendered in Adobe Photoshop by Andy Lee, graduate student in my program. I created the animation in Director for the Curator and Exhibitor.

I used the capability of digital information sharing technology to explore the product features virtually. I believe that such digital and virtual presentations will take a much more important place in the 21st century. At that time, a product such as OPUS might be used for these presentations.

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FOR THE HIMEDIA SOHO ENVIRONMENT
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ProSleeve
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