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The address of record for Customer Number 23879 is:

BRIAN M BERLINER, ESQ
O'MELVENY & MYERS, LLP
400 SOUTH HOPE STREET
LOS ANGELES, CA 90071-2899

CUSTOMER NO. 23879

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Date: September 13, 2005

W. Liddell
Wilburn Liddell, Jr.

PROVISIONAL APPLICATION COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION under 37 CFR 1.53(b)(2).

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INVENTOR(s)/APPLICANT(s)							
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BAKHASH		EDDIE				2 Columbus Avenue, #32A, New York, NY 10023	
TITLE OF THE INVENTION (280 characters max)							
SYSTEM AND METHOD FOR PROVIDING THREE DIMENSIONAL GRAPHIC USER INTERFACE							
CORRESPONDENCE ADDRESS							
O'MELVENY & MYERS LLP 400 South Hope Street Los Angeles				Telephone: (213) 430-6000 Attn: BRIAN M. BERLINER			
STATE		CA		ZIP CODE		90071-2899	
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METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT							
☒ Applicant claims small entity status. See 37 CFR 1.27.							
☒ One check is enclosed to cover the filing fees/						FILING FEE AMOUNT(S)	
☒ The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number:						50-0639	
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The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.☐ Yes, the name of the U.S. Government agency and the Government contract number are: _____

Respectfully submitted,

SIGNATURE: _____

Date: September 13, 2005

TYPED OR PRINTED NAME: BRIAN M. BERLINER

REGISTRATION NO. 34,549
(if appropriate)☐ Additional inventors are being named on separately numbered sheets attached hereto

SYSTEM AND METHOD FOR PROVIDING THREE DIMENSIONAL GRAPHICAL USER INTERFACE

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BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention is directed toward creating a three dimensional ("3D") interactive computing interface and sorting interface comprised of information from real time and/or static sources, including, but not limited to, meta search results from the web and/or information from APIs, webservices, search engines, application programs, networks, and/or files on the end user's desktop in a unique interactive 3D interface. The 3D interface is advantageous in that it increases space on a computer desktop, eliminates the need to constantly open and close programs or hide and reveal them each time they are needed, takes advantage of dormant computing time, reduces mouse-clicks and/or offers a more natural alternative to accessing programs and documents than the traditional folders-within-folders storage system.

2. Description of Related Art

The present invention provides a graphical user interface (referred to herein as "SpaceTime") that takes a user from one computing place to another while creating the

illusion of infinite space in three dimension ("3D"). By capturing the output of the user's traditional two dimensional desktop, SpaceTime stages this output in a seamlessly 3D space by plotting the windows or other graphical representations of programs in 3D. In one embodiment of the present invention, SpaceTime anticipates what the user may seek next (for example, the next webpage in a search result), eliminates dormant computing time, and puts the user in a reduced-click computing environment by automatically plotting the new computing experience while visually recording the old. Because SpaceTime creates the illusion of infinite space in 3D, it can create a visual history of the user's computing session, whereby the user can visit past visual computing events (or a snapshot in time) by simply navigating to previously recorded states. Accordingly, SpaceTime is a historical visual chronology of the user's computing session, whereby the user can name the computer experience they are currently having through their position (or viewpoint) in a 3D space and revisit it by recalling the name or title at a later time.

Currently, people use computers by inputting information into the computer to achieve a given output. Often this can be a series of tedious steps (mouse clicks and keyboard inputs) to run applications and documents and navigate to get information one needs. To get to new computing experiences, people often have to close their current applications and documents or hide them and then mine through folders within folders to find them again at a later date. People do this because their desktop is finite and users redo things over and over again. This wastes time by (i) requiring many mouse-clicks to open and close documents, (ii) requiring one to remember all the combinations of programs and documents one might need for a given purpose and (iii) requiring one to create elaborate hierarchical folder systems to aid in the process of storing and recalling applications and documents. This is primarily due to the limited space the end user has on their desktop.

SpaceTime automates computing by remembering where the user left off last - visually - such that the next time the user requires the same series of inputs to achieve that same given output, SpaceTime will navigate the user through a 3D space that is the

visual history of where the user last left off. Since SpaceTime takes advantage of seemingly unlimited space, applications and documents need not be closed, hidden or filed. They are staged and can permanently exist visually open where they are and how the user left them last. SpaceTime does this by allowing the user to record everything they ever did, visually, and letting them revisit it through unlimited space. Should the user require a new computing experience, they simply create more space and plot new applications and documents. Should the user require an old computing experience, SpaceTime changes the graphical output of the screen to visually represent what they saw during the old computing experience (e.g., data at a particular viewpoint). This way, SpaceTime lets one travel back (visually) in computing time.

BRIEF DESCRIPTION OF THE EXHIBITS

Exhibit A illustrates one embodiment of the present invention;

Exhibit B illustrates another embodiment of the present invention;

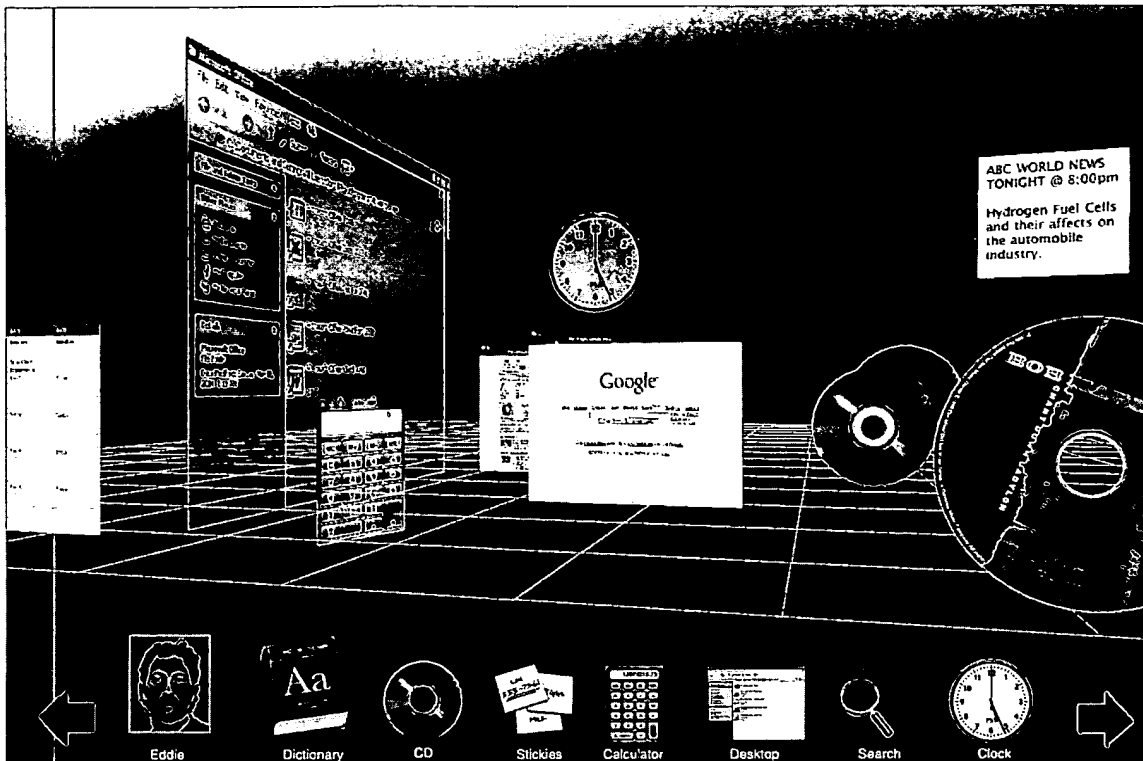
Exhibit C illustrates alternate embodiments of the Compass, as discussed and depicted herein;

Exhibit D illustrates screen shots from a system that operates in accordance with one embodiment of the present invention, including screen shots of (1) an introduction, (2) links-in plotted vertically to a linking page (e.g., first phase of visual gestalt), (3) links-out plotted vertically above (e.g., second phase of gestalt building), (4) numerous links-in and links-out plotted for 3D gestalt, (5) numerous viewpoints graphically marking gestalt, (6) text entry into input interface, (7) start scene, (8) first visual stack of results, (9) close up of first search result, (10) user recording viewpoint from zoom view, (11) first search engine result page, (12) graphic representation of viewpoint in 3D space, (13) elevated view of several viewpoint graphic representations, (14) user clicking link-in icon for a given web page in SpaceTime, (15) SpaceTime running on a cellphone, (16) a particular gestalt/template for plotting link-in and link-out (e.g., 3D space within a 3D space), (17) about SpaceTime, (18) downloading SpaceTime, (19) a table of contents (page 1 of 2), and (20) a table of contents (page 2 of 2); and

Figure E illustrates one method of providing a 3D graphical interface in accordance with one embodiment of the present invention.

SUMMARY OF THE INVENTION

5 The present invention provides a graphical user interface ("SpaceTime") that uses the two dimensional ("2D") display of a user's computer to display three dimensional ("3D") objects in a simulated real-time 3D immersive Cartesian space. The program may run, for example, in conjunction with Internet Explorer, other web browsers or stand alone applications. SpaceTime allows the user to create a 3D space on their computer
10 or the web. Through special Helper Applications (e.g., represented by interactive icons within the 3D space), SpaceTime allows the user to locate data, applications, files created by applications, desktop windows, HTML pages and 3D applications, and facilitates or invites the graphical output of these files and programs in their interactive 3D space. In general, the present invention displays graphics from the user's 2D finite
15 desktop on 3D infinite space while retaining the functionality of the 2D programs and documents. Users will be able to use these files and applications, without restrictions, within 3D spaces.



In a preferred embodiment of the present invention, the Helper Applications are adapted to display the output of files and programs within windows (e.g., within the 3D spaces). In an alternate embodiment of the present invention, the Helper Applications are adapted to display information via customized interfaces whose graphical designs look like the real world objects they seek to represent. For example, a user may run a Helper Application for a music file. After clicking on the icon for the Helper Application, SpaceTime will prompt the user to locate the music file on either their local computer, networked computer or world wide web. The Helper Application will then draw the interface for the music file, preferably in the form of a compact disk, in the 3D space. The user can then interact with the graphical representation of the music file (e.g., the graphical representation of a CD) to run and play the music file.

In one embodiment of the present invention, SpaceTime allows the user to create one or multiple 3D spaces on-the-fly to facilitate the graphical output of files and applications. For example, the user may have the option of linking multiple 3D spaces

together, thereby creating a network of 3D spaces. Regardless of where the files or applications are located (e.g., within the same folder, subfolder, a different computer, within the network, a different network, across the internet, etc.), the user will have full access to the file through it's native program, or to the website through the default browser. In this way, SpaceTime allows the output of disparate computer programs to visually converge in one expandable, changeable 3D space.

Within the 3D immersive space that SpaceTime creates, the user's viewpoint can be changed. SpaceTime defines a viewpoint as a specific location or perspective in the local coordinate system (3D space) from which the user may view the scene or file. As such, an interface called a Compass is used to help the user name and map viewpoints and navigate the viewpoints in a 3D space. The Compass can be used to (i) record the user's current viewpoint at any time while immersed in the 3D space, (ii) assign one or multiple names to the recorded viewpoint, and/or (iii) store the names of viewpoint(s) as one name in a collection of names in a relational database. The names constitute a map of the 3D space as well as a method to navigate the map. The Compass may also serve as the user interface to the relational database of stored names/viewpoints. The Compass may have drop down menus, wherein each menu is a record (in the relational database) that stores the name(s) and/or fields of viewpoints assigned by the user. The Compass may be expandable to facilitate an infinite array of menus or records, thereby creating a table or group of records.

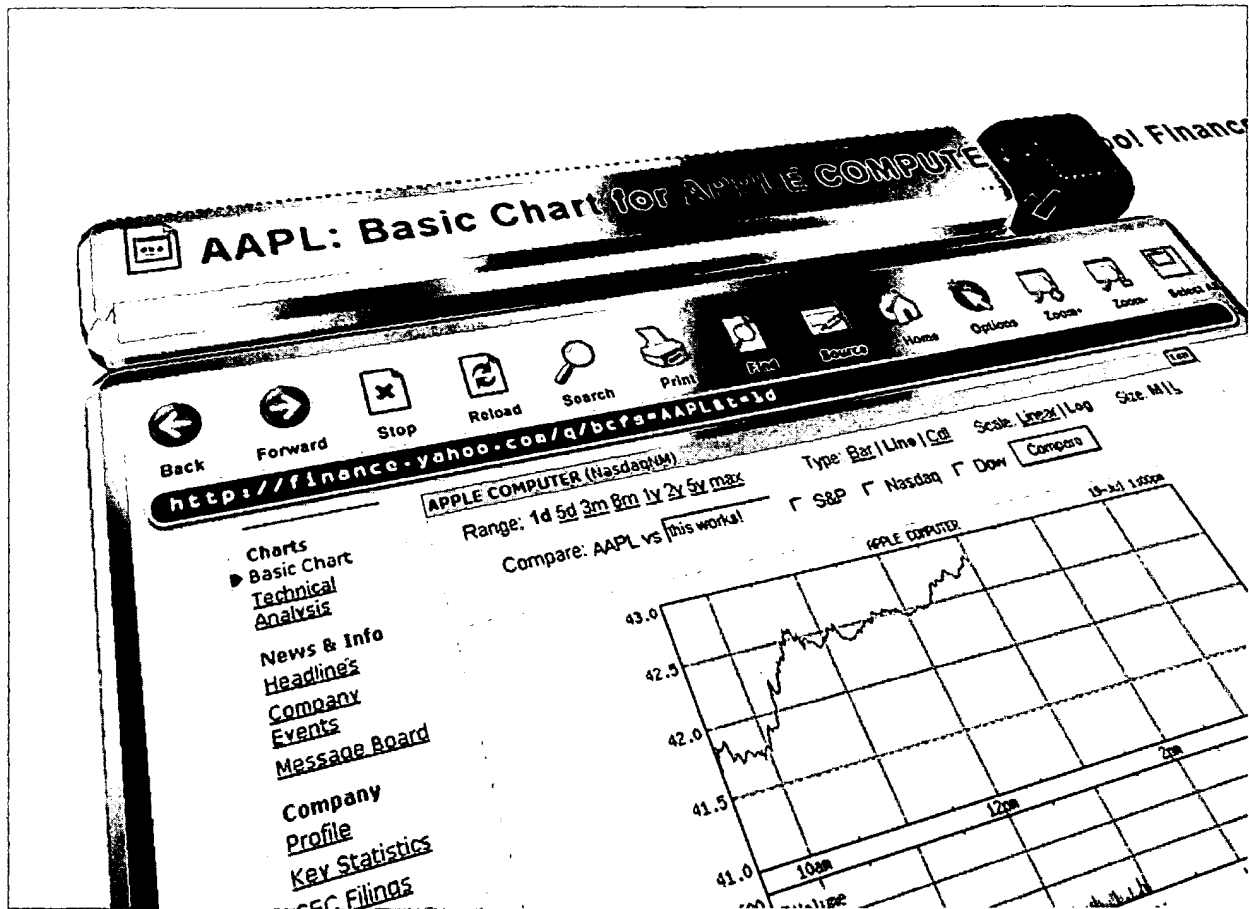
The naming of stored viewpoints can exist as a single name in one menu in the Compass or as a combination of multiple names in multiple menus. In one embodiment of the present invention, each viewpoint is associated with only one name in each menu. This way, the user can select multiple names in multiple menus to create meaningful combinations of names that dynamically retrieve stored viewpoints based on the relationship of names selected. The user can edit the menus of the compass, thereby adding or removing categories or expanding the menus. All of this may happen in real-time, as the user authors and interacts with their 3D scene(s). The user may also be able to combine two or more disparate Compass interfaces, thereby creating a

larger virtual map and navigation system to one or more 3D spaces. A named viewpoint in the Compass can link to a viewpoint in the current scene, a viewpoint in another 3D file on the local desktop, or a viewpoint in another 3D file hosted on the world wide web. This way, the Compass creates a means of navigation that creates
5 abstraction between viewpoints in any given files (e.g., local desktop files, files on the web, etc.).

In one embodiment of the present invention, SpaceTime is further adapted to generate custom 2D maps of stored viewpoints and their names for specific menu items in the Compass. Specifically, SpaceTime creates 3D icons for each viewpoint named
10 and created via the Compass and plots them into the 3D space with the respective names assigned to them as signposts, allowing the user to map all of the viewpoints for a 3D space and draw lines among the viewpoints to see relationships among disparate viewpoints.

15 I. INTERACTIVITY IN 3D & SELECTIVE REDRAWING OF 2D IN 3D

In accordance with one embodiment of the present invention, SpaceTime provides full functionality and interactivity of the 2D display of a user's computer (including the selective and isolated capturing of graphical windows, desktops, HTML pages, and general program outputs) redrawn into a novel simulated real-time 3D
20 immersive Cartesian space, whereby the 2D graphics are drawn or mapped onto 3D objects. While immersed in this 3D space, the user can see their 2D computer display that was captured and redrawn and fully interact with it, creating an entirely new way of computing. While interacting with their mapped or redrawn 2D display, the user can change their perspective or viewpoint (as defined as a location or visual perspective in
25 the local coordinate system or 3D space) by moving closer to it, away from it, changing their angle or both.

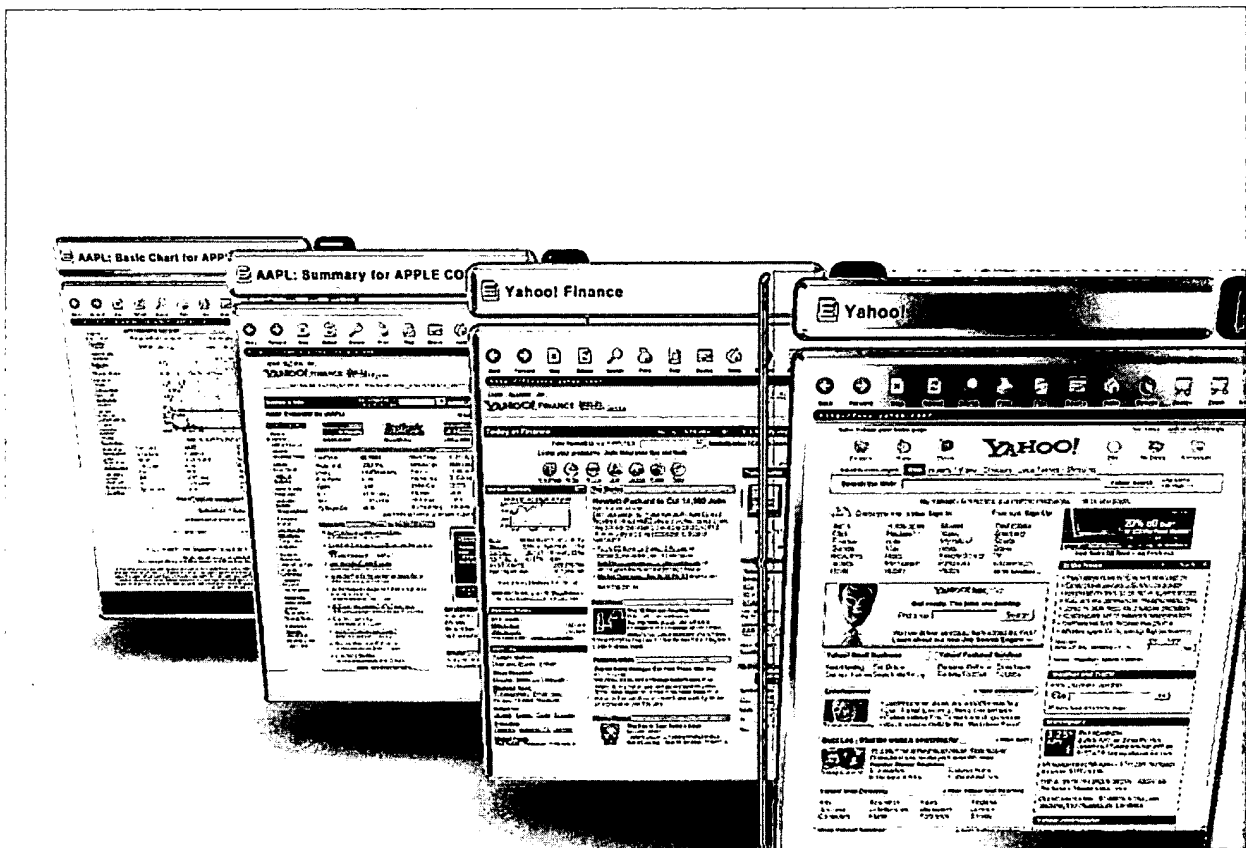


5 The 3D objects that are being drawn onto (or next to) can collectively represent a
 theme or backdrop for the content that is redrawn, such as a house, library or even
 neighborhood. For example, electronic music files may be mapped onto 3D pictures of
 CDs or Records, electronic videos files may be mapped onto televisions or movie
 screens, etc. The redrawing of 2D computer screens onto interactive 3D objects
 increases the visual computing space and allows the user to organize the computer
 output onto objects or near objects whose 3D visual construct may represent the real
 10 world object the computer output is associated with.

II. CREATING A VISUAL COMPUTING HISTORY USING 3D

In accordance with one embodiment of the present invention, SpaceTime is
 adapted to create a visual computing history, whereby normal changes to a 2D

computer display output are drawn or mapped onto new 3D objects, rather than replace the current output or 2D display once a change is made. For example, as the user browses the internet by interacting with a two dimensional output mapped onto a three dimensional object, pages that the user would normally hyperlink to by clicking a link would replace the 2D computer display. SpaceTime, however, is adapted to create an entirely new 3D object whose surface is mapped with the new display content that would normally replace the original 2D interactive page.

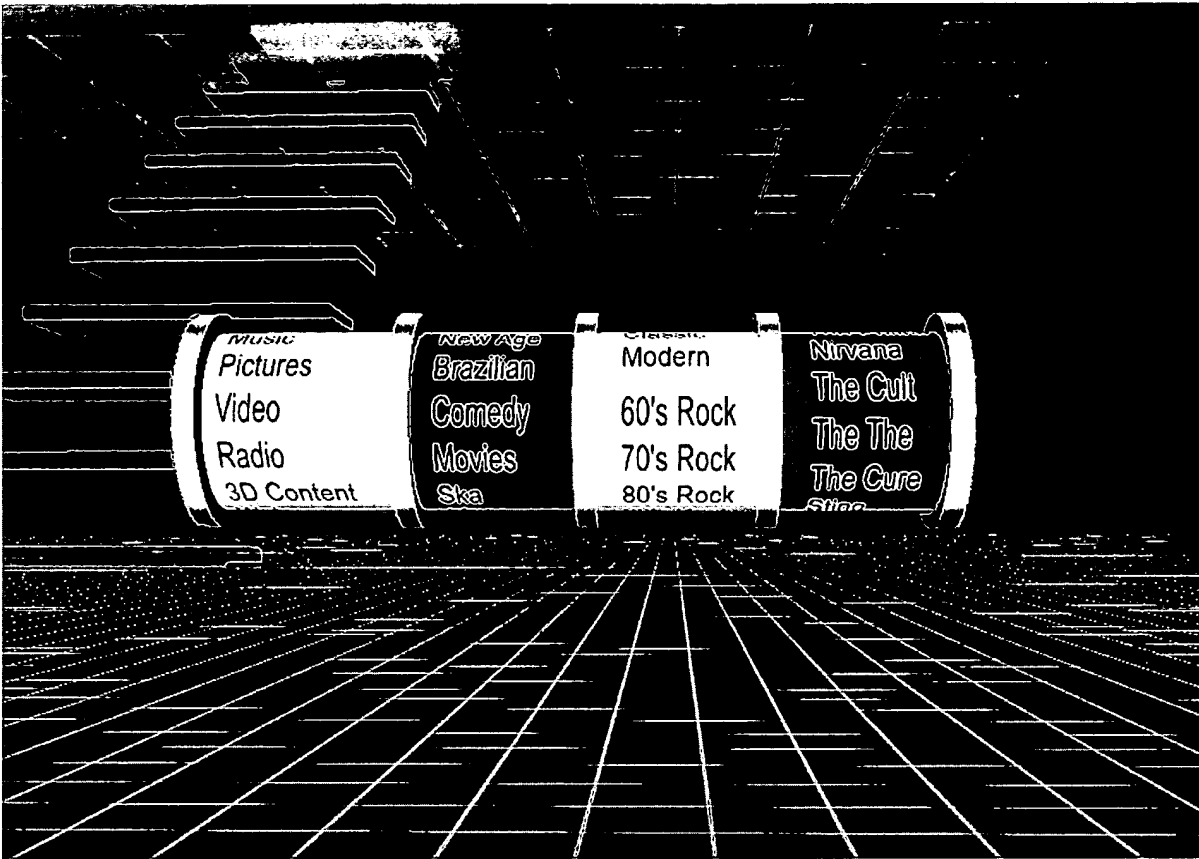


By storing and archiving the date and time of each new graphical iteration, the user creates a visual chronology of their computing session. The programmatic access that is responsible for a "past" graphical iteration would also be archived. For example, in the case of viewing a second HTML page that one hyperlinked to, the previous URL would be saved. This way, a user could always look back at what the computer previously displayed before it output the current view and interact and function with a

previously saved computing state as represented graphically. This process of capturing visually the computing history in 3D can continue on indefinitely, whereby the 3D visual space can be saved, archived and revisited.

5 **III. AN INTERFACE FOR NAMING, STORING & RE-VISITING VIEWPOINTS OF 3D SPACES ACROSS DISPARATE FILES**

10 In accordance with one embodiment of the present invention, a Compass application is provided. The user is allowed to click at least one button on the Compass (while immersed in a three dimensional interactive space) and assign one or multiple names to a viewpoint (as defined as a location or visual perspective in the local coordinate system or three dimensional space). The user may then view the three dimensional image associated with the viewpoint and save this viewpoint (or visual perspective) along with its corresponding name in a file whose content or data can be accessed by the Compass. In one embodiment of the present invention, the Compass
15 acts as an electronic combination lock, whereby the combination or sequence of one or multiple names assigned by the user and added to the dials of the Compass identify the stored location.



For example, consider the situation whereby a user is immersed in a 3D interactive space showing 3D objects of compact discs from The Beatles. To view the current viewpoint, the user could assign multiple names such as MUSIC, ROCK, FOREIGN, BRITISH INVASION whereby each name would occupy one space on one of many dials of the graphical user interface. By turning the dials to the names MUSIC, ROCK, FOREIGN, BRITISH INVASION the program would initiate a change of viewpoint to the 3D interactive space showing the 3D objects of compact discs from The Beatles. The use of the interface feature for naming, storing and re-visiting viewpoints in a 3D space is universal and can be applied to a local file of a 3D space on the user's computer, a networked file or a file on the world wide web. Alternate Compass applications are illustrated in Exhibit C.

IV. **AN INTERFACE FOR VISITING STORED VIEWPOINTS OF 3D SPACES
ACROSS DISPARATE FILES ONE AT A TIME OR EN MESSE**

In accordance with one embodiment of the present invention, the user is able to access stored viewpoints on a graphical interface called a Compass, which may serve as an electronic combination lock. In this embodiment, the Compass will open (or visually visit) a stored viewpoint when its dials are turned through a predetermined sequence of positions identified on the dials' face by the appropriate names assigned to each dial. Therefore, the Compass can be used to connect a series of viewpoints together and visually visit a series of connected stored viewpoints.

V. **CREATING NEW 3D SPACES FROM EXISTING ONES AND LINKING THEM
TOGETHER WITH A PORTAL BUTTON**

In accordance with one embodiment of the present invention, the user is immersed in a 3D space and adapted to click one button called "new space" to create another file for a completely new 3D interactive space, whereby the new 3D interactive space is accessible from the current space by clicking a 3D object or "portal button." The "portal button," which electronically links the new space to the current one, may be represented by a picture of a viewpoint or visual perspective of the new space. By clicking the "new space" button, SpaceTime will automatically create the "portal button" within the current space that links to the "new space." Furthermore, SpaceTime may also allow the user to concurrently assign one or multiple names to the "new space," as described under "AN INTERFACE FOR NAMING, STORING & REVISITING VIEWPOINTS OF 3D SPACES ACROSS DISPARATE FILES," and add these name(s) to the Compass.

VI. **CREATING HTML TABLE OF CONTENT PAGES FOR NEWLY CREATED 3D
SPACES ON-THE-FLY AND PUBLISHING TO A WWW SERVER**

Should a user create a new space, as described previously within this document under "CREATING NEW 3D SPACES FROM EXISTING ONES AND LINKING THEM TOGETHER WITH A PORTAL BUTTON," SpaceTime may be adapted to automatically

create a "table of contents page" by writing an HTML page that describes the new space, the names assigned to the new space via the Compass, and pictures of the new space through snapshots of different viewpoints or visual perspectives of the 3D file. All this information may be assembled into an HTML file that will be automatically published or sent by file transfer protocol (FTP) to one or many world wide web servers for promotion as to be found and crawled by the many search engines that traverse the world wide web. One purpose of creating these HTML "table of content pages" for newly created 3D spaces on-the-fly and publishing them to the world wide web is so that they can be used as portal pages, whereby a user could (i) search the world wide web using keywords, (ii) find a "table of contents page" whose subject corresponds to the keywords, and (iii) hyperlink the end user from a 2D "table of contents page" to a 3D interactive space whose subject matter corresponds to the "table of contents page." For example, the HTML "table of contents page" may contain (i) the name of the new space as the title of the HTML page, (ii) meta tags whose names would be taken from the names assigned to viewpoints of the Compass interface, as described in the section titled "AN INTERFACE FOR NAMING, STORING & RE-VISITING VIEWPOINTS OF 3D SPACES ACROSS DISPARATE FILES," (iii) a raster image or picture of the original viewpoint or visual perspective of the new space, (iv) a list of all hyperlinks found within the new space, (v) a description of the scene, (vi) the author of the scene, (vii) remote desktop connection settings and/or (viii) URLs to the desktops for all remote desktop connection links shown within the new space, as described in the section called "ACCESSING ONE OR MULTIPLE REMOTE DESKTOP CONNECTIONS THROUGH 3D OBJECTS IN A 3D SPACE."

VII. HELPER APPLICATIONS IN A 3D SPACE THAT HELP CAPTURE FILES, APPLICATIONS, COMPUTER OUTPUT & AUTOMATE REPETITIVE TASKS

In accordance with one embodiment of the present invention, the display of 3D on a computer screen may involve a runtime execution model that "plays" a previously programmed 3D space like a tape-recording in a window or web browser as a one-way

broadcast medium. The programming of this 3D space is accomplished by hand coding a program or using an "editor" which prepares a file for the "player." In one embodiment of the present invention, the Helper Applications can be accessed from the "player" (while an end user is using and immersed within a 3D space) through a graphical user interface of interactive icons that facilitate the display output of a file or functionality of a program within windows within a 3D space. In an alternate embodiment of the present invention, each Helper Application is adapted to display information via a customized 3D interface whose graphical design and construct resembles the real world object it seeks to represent. For example, one may run a Helper Application for a music file. After clicking on the icon for the Helper Application, SpaceTime may prompt the user to locate the music file on either their local computer, networked computer or world wide web. The Helper Application may then draw the interface for the music file in the 3D space. The user can then interact with the graphical representation of the music file (e.g., a graphical representation of a CD) to run and play the music file.

Regardless of where the file or application displayed in SpaceTime is located (e.g., within the same folder, subfolder, a different computer, within the network, a different network, across the internet, etc.), the user has full access to the file through it's native program, or to the website through the default browser. In this way, SpaceTime allows the output of disparate computer programs to visually converge into one expandable, changeable 3D space. SpaceTime may also prompt the user to search or scan folders and subfolders in the local computer, network computers, web servers or the internet for any files of a given kind or criteria and display their output as windows or customized 3D real world object icons en masse in the 3D space via the Helper Application. This way, the user can use this feature selectively to choose only one file or automatically to choose all the files available to them.

VIII. THE REPRESENTATION OF A COLLECTION OF HELPER APPLICATIONS THROUGH ANIMATED 3D ICONS ON A DOCK

In accordance with one embodiment of the present invention, the user is able to

access Helper Applications, as described under "HELPER APPLICATIONS IN A 3D SPACE THAT HELP CAPTURE FILES, APPLICATIONS, COMPUTER OUTPUT & AUTOMATE REPETITIVE TASKS," while immersed in a 3D interactive scene, by clicking on icons located on a task bar at the base of the screen. By clicking on these animated 3D icons, the icons may duplicate themselves or animate themselves into the 3D scene and provide the beginning of functionality as 3D graphical objects for the tasks at hand for which the icon was initially clicked. For example, under "CREATING NEW 3D SPACES FROM EXISTING ONES AND LINKING THEM TOGETHER WITH A PORTAL BUTTON," the icon on the task bar to initiate this Helper Application may be of an open doorway. Once the 3D open doorway icon on the task bar is clicked, a picture of a viewpoint or visual perspective of the new space may be animated from the task bar into the scene. If this picture were to be clicked from within the 3D scene, it would act as a doorway that would hyperlink the user from the current scene to another scene.

IX. THE ADDITION OF GEOMETRY TO A 3D SPACE ON-THE-FLY TO FURTHER ORGANIZE AND DEFINE IT

In one embodiment of the present invention, the display of 3D on a computer screen may involve a runtime execution model that "plays" a previously programmed 3D space like a tape-recording in a window or web browser as a one-way broadcast medium. The programming of this 3D space is accomplished by hand coding a program or using an "editor" which prepares a file for the "player." A Helper Application for geometry can be accessed from the "player" (while an end user is using and immersed within a 3D space) through a graphical user interface of interactive icons that facilitate the display or input of 2D and 3D objects into the 3D scene based on a user interface of geometrical objects (cube, spheres, cones) or real world objects (room, desk, building, stairs, CD rack). This addition of geometry into the 3D scene on-the-fly helps give meaning to an otherwise endless connection of 3D spaces for which users can fill their output with. SpaceTime may further include a special Search and Browse application to locate 3D geometry files. The user may use the Search and Browse

application, for example, to search for geometry files in (or beyond) folders and subfolders located on the local computer, network computers, web servers or the world wide web.

5 X. **THE ADDITION OF AUDIO, SOUND AND MUSIC FILES TO A 3D SPACE ON-
THE-FLY TO NARRATE IT**

10 In one embodiment of the present invention, the display of 3D on a computer screen may involve a runtime execution model that "plays" a previously programmed 3D space like a tape-recording in a window or web browser as a one-way broadcast medium. The programming of this 3D space is accomplished by hand coding a program or using an "editor" which prepares a file for the "player." A Helper Application for audio, sound and music can be accessed from the "player" (while an end user is using and immersed within a 3D space) through a graphical user interface of interactive icons that provide pre-recorded audio, sound and music and may also facilitate the recording of sound through a microphone connected to the computer and inserted into the 3D scene through an icon (e.g., of a speaker, etc.) on-the-fly as a way to label (or narrate) the scene and record thoughts next to objects in the scene to further give them meaning. The user may further use the Search and Browse application, for example, to search for audio, sound, or music files in (or beyond) folders and subfolders on the local computer, network computers, web servers or the world wide web.

XI. **THE ADDITION OF PICTURES, ANIMATIONS, MOVIES AND VIDEO INTO A
3D SPACE ON-THE-FLY**

25 In one embodiment of the present invention, the display of 3D on a computer screen may involve a runtime execution model that "plays" a previously programmed 3D space like a tape-recording in a window or web browser as a one-way broadcast medium. The programming of this 3D space is accomplished by hand coding a program or using an "editor" which prepares a file for the "player." A Helper Application for pictures, animations, movies and video can be accessed from the "player" (while a user is using and immersed within a 3D space) through a graphical user interface of

interactive icons that help locate such pictures, animations, movies and video and insert such media into the 3D scene on-the-fly at the end user's behest. The user may further use the Search and Browse application, for example to search for pictures, animations, movies and video files in (or beyond) folders and subfolders on the local computer,
5 network computers, web servers or the world wide web.

XII. THE ADDITION OF REAL-TIME TEXT INTO A 3D SPACE TO LABEL IT

In one embodiment of the present invention, the display of 3D on a computer screen may involve a runtime execution model that "plays" a previously programmed 3D
10 space like a tape-recording in a window or web browser as a one-way broadcast medium. The programming of this 3D space is accomplished by hand coding a program or using an "editor" which prepares a file for the "player." A Helper Application for text that can be accessed from the "player" (while a user is using and immersed within a 3D space) through a graphical user interface of interactive icons that facilitate
15 the display or output of 2D and 3D text into the scene on-the-fly as a way to label objects in the scene and write down thoughts next to objects in the scene to further give them meaning.

XIII. THE ADDITION OF REAL-TIME PAINT BRUSH INTO A 3D SPACE TO DECORATE IT

In one embodiment of the present invention, the display of 3D on a computer screen may involve a runtime execution model that "plays" a previously programmed 3D space like a tape-recording in a window or web browser as a one-way broadcast medium. The programming of this 3D space is accomplished by hand coding a
25 program or using an "editor" which prepares a file for the "player." A Helper Application for a paintbrush (or other drawing application) that can be accessed from the "player" (while a user is using and immersed within a 3D space) through a graphical user interface of interactive icons that facilitate the display or output of 2D and 3D free formed lines and drawings based on mouse events painted into the scene on-the-fly as

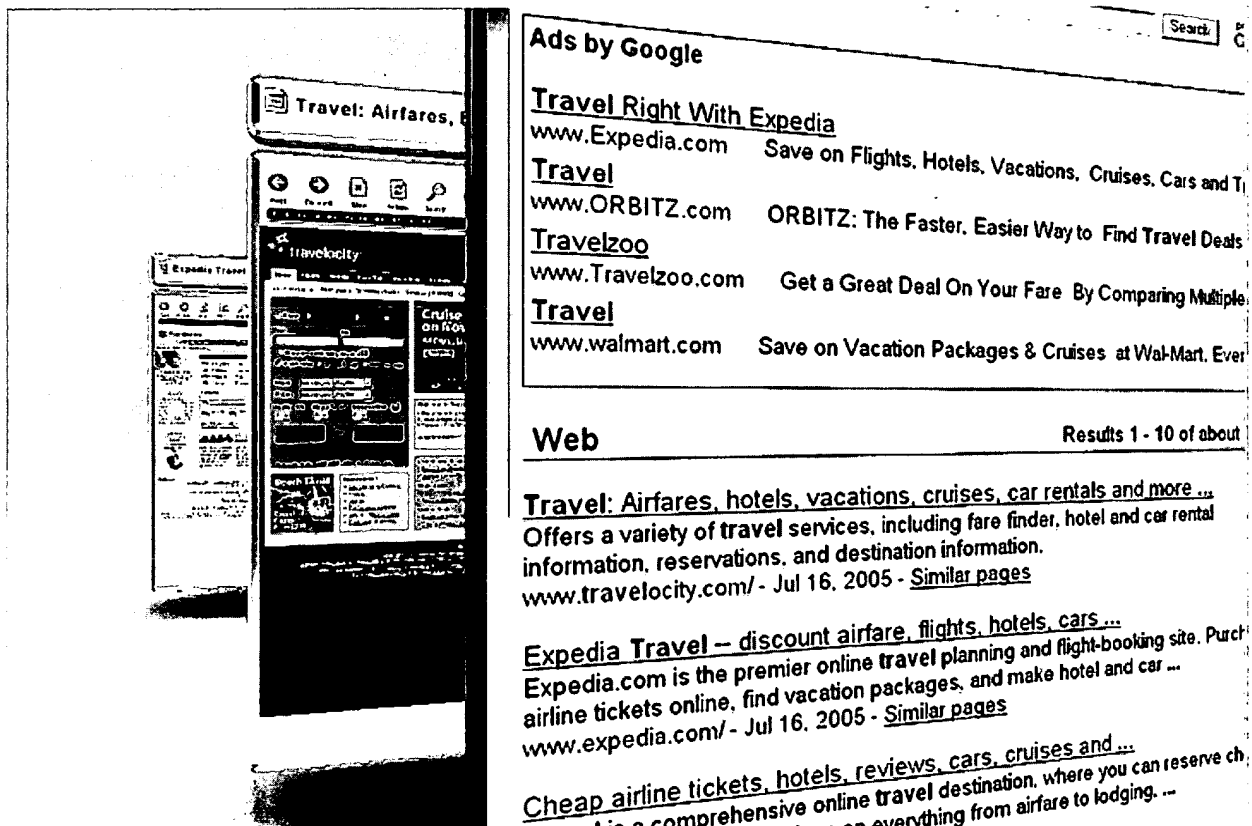
a way to decorate objects in the scene or create drawings next to objects to further give them meaning.

XIV. CREATING A 3D OUTPUT OF HYPERLINKS VIA INTERACTIVE META SEARCH RESULTS FROM SEARCH ENGINES' OUTPUT

In one embodiment of the present invention, the display of 3D on a computer screen may involve a runtime execution model that "plays" a previously programmed 3D space like a tape-recording in a window or web browser as a one-way broadcast medium. The programming of this 3D space is accomplished by hand coding a program or using an "editor" which prepares a file for the "player." Once an end user is viewing a 3D space or scene on their computer through a "player" on either their web browser or stand alone application, a Search application can be used to input a search term or search terms.



SpaceTime will then conduct a world wide web search using these search terms in at least one search engine (Google, MSN, Yahoo!) by opening one 2D HTML page drawn into a window or other object into the 3D scene for each of the search engines to display the output of the HTML page for each search. SpaceTime may then parse the search results found in each HTML page and identify each hyperlink that the search engine returned to the end user as a search result. Once identified, SpaceTime may then open one new window in the 3D space (behind the search results page) for at least one hyperlink found on the search results page that would display the webpage found at the URL for the Hyperlink (e.g., next set of search results, a particular search results, a particular advertisement, etc.).



In one embodiment of the present invention, SpaceTime may do this for each hyperlink found on the search results page en masse for one or more search engines,

and tile them in space. This plotting of search results into a 3D scene is beneficial to consumers as it expands the visual computing space one has available for both web searches and internet browsing.

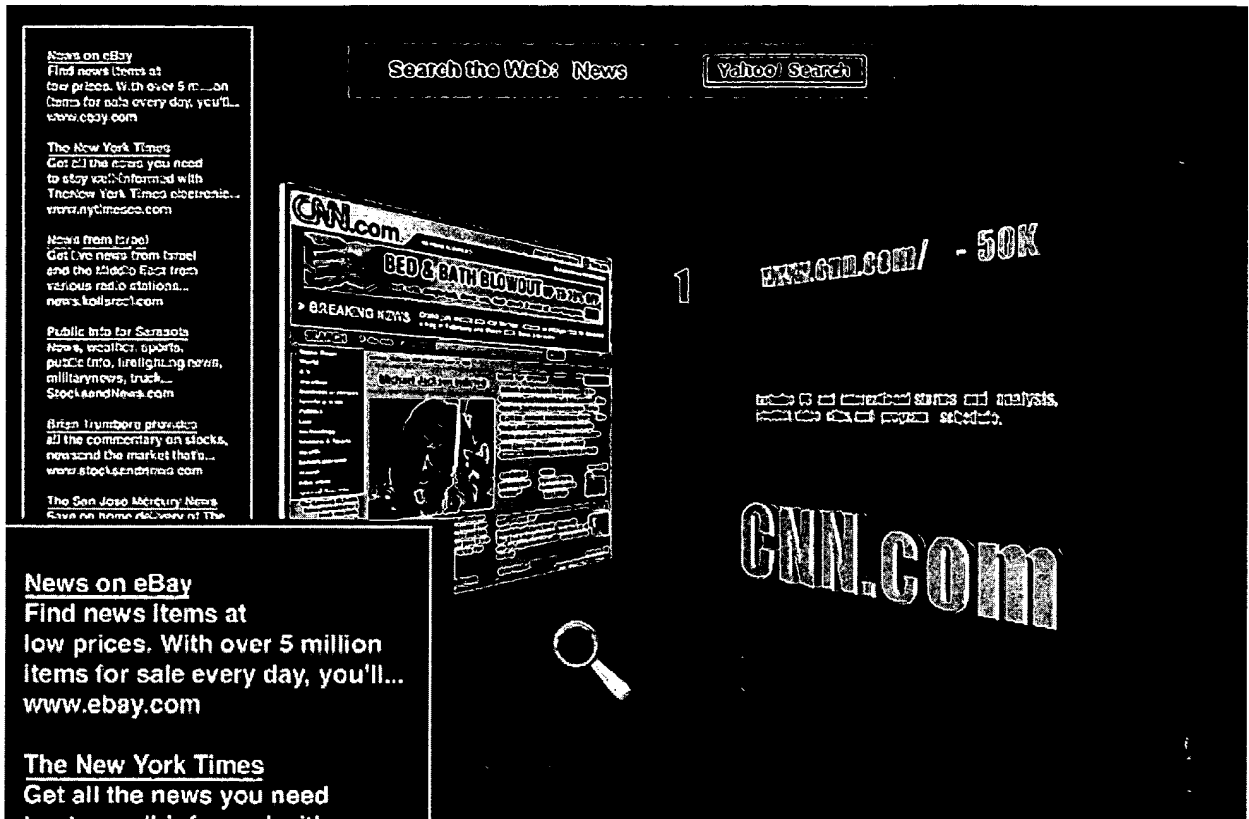
5 In another embodiment of the present invention, SpaceTime makes use of dormant computing time while the end user is connected to a network. For example, most users will conduct a search, scan the page and click one link. Once they realize that the link they clicked was insufficient, they will click the back button on their browser, scan the page again, and click another link. The time the consumer is scanning the page, clicking one link, reading the page at the new link and returning back to the
10 original search results page is dormant computing time where the computer is connected to the world wide web and able to download all (or portions of) the hyperlink pages found on the original search results page, continuously, and draw these results into the 3D scene. SpaceTime allows users to systematically visit a viewpoint that shows each search results page one at a time for easy viewing. The graphical user
15 interface will have options for saving the current search results into a file and post the name of the search, name of the hyperlink, URL, date/time and/or source onto the Compass, as described in "AN INTERFACE FOR NAMING, STORING & RE-VISITING VIEWPOINTS OF 3D SPACES ACROSS DISPARATE FILES."

20 Using this same seemingly unlimited 3D visual space, SpaceTime may allow the user to automatically parse any open or active web page to (i) determine which HTML pages are link to it, (ii) determine which HTML pages it links to, and (iii) plot these pages as groups or clusters. There may further be a visual grouping or cluster of pages drawn in a 3D space that link to any given active web page. In this way, the user can determine in one glance at a given viewpoint of a clustering of web pages in the 3D
25 space which pages to click that either link to their active page or from their active page. In addition, the user may be able to visually expand this network of web pages by choosing any active web page in any cluster drawn in the 3D space and creating a new cluster of web pages that this active page links to or by creating a new cluster of web pages that is linked to this active page. In this way, SpaceTime creates a visual gestalt

of the world wide web at the behest of the user.

XV. DELIVERING ADVERTISEMENTS BASED ON USER INPUT IN A 3D SPACE

5 In accordance with one embodiment of the present invention, the display of 3D
on a computer screen may involve a runtime execution model that "plays" a previously
programmed 3D space like a tape-recording in a window or web browser as a one-way
broadcast medium. The programming of this 3D space is accomplished by hand coding
a program or using an "editor" which prepares a file for the "player." Once an end user
is viewing a 3D space or scene on their computer through a "player" on either their web
10 browser or stand alone application, SpaceTime may deliver textual, audio, video,
multimedia, web advertisements and/or 3D advertisements whose presentation is
automatically incorporated into the programming that is responsible for the current view
of 3D. This way, based on user inputs that help define the subject or context for which
they are either searching or computing, SpaceTime may deliver one or a combination of
15 advertisements (e.g., advertisements previously mentioned into the 3D space, etc.).



XVI. ADVANTAGES OVER AND DIFFERENCES FROM EXISTING SYSTEMS

The present invention provides many advantages over the prior art, including, but not limited to, increased space on the user's desktop, eliminating the need to constantly open and close programs or hide and reveal them each time the user needs them, utilizing dormant computing time to download and/or display information, reducing mouse-clicks and offering a more natural alternative to accessing programs and documents than the traditional folders-within-folders storage system. The present invention also improves the web browser and desktop experience by offering a novel 3D graphical user interface.

XVII. USES

The present invention can be used in a number of applications, including, but not limited to, search engines, desktops, visual music download services, shopping malls, collaborative space for shared documents, collaborative space for video conferencing, 5 tool for publishing web pages, virtual networked computer system, interface for cable TV sets or multimedia PCs, computing interface for large flat panel displays, forum for educational training and visualization, and email visualization programs, just to name a few

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PTO-1556

(5/87)

SpaceTime

Purpose

CREATING A 3D INTERACTIVE COMPUTING INTERFACE AND
SORTING INTERFACE COMPRISED OF INFORMATION FROM
REAL TIME AND STATIC SOURCES INCLUDING META SEARCH

RESULTS FROM THE WEB, INFORMATION FROM APIs,
WEBSERVICES, SEARCH ENGINES' OUTPUT, APPLICATION
PROGRAMS' OUTPUT, A NETWORK AND THE FILES ON THE END
USER'S DESKTOP IN A UNIQUE INTERACTIVE 3-D INTERFACE.

Definitions Regarding Purpose

- Meta Search - A search of searches. A query is submitted to more than one search engine or directory, and results are reported from all the engines, possibly after removal of duplicates and sorting.
- API - Is any interface that enables one program to use facilities provided by another, whether by calling that program, or by being called by it. At a higher level still, an API is a set of functionality delivered by a programming system, and as such the mix of APIs in a particular system tells you what that system can do.
- Web - A network of servers linked together by a common protocol, allowing access to millions of hypertext resources. It is also known as WWW, W3 and the World Wide Web.
- Web Services - A standard means of interoperating between different software applications, running on a variety of platforms and/or frameworks, over the Internet. It is software that runs over a network and provides information services based on XML standards that are accessed through a URI (Universal Resource Identifier) address and an XML defined information interface.
- Real Time - A transmission or data processing mode in which the data is entered in an interactive session where an application can respond fast enough to affect later data input.

Create 3-D Cartesian Space Mapped onto 2-D Desktop

- SpaceTime is a program which creates a unique Graphical User Interface (GUI) that uses the two dimensional display of an end user's computer to display information (e.g. web pages and other information mapped onto 3D objects) in a simulated real-time 3-D immersive Cartesian space. The program runs within either Internet Explorer, other web browsers or as a stand alone application compatible with the local operating system.

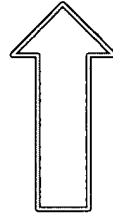
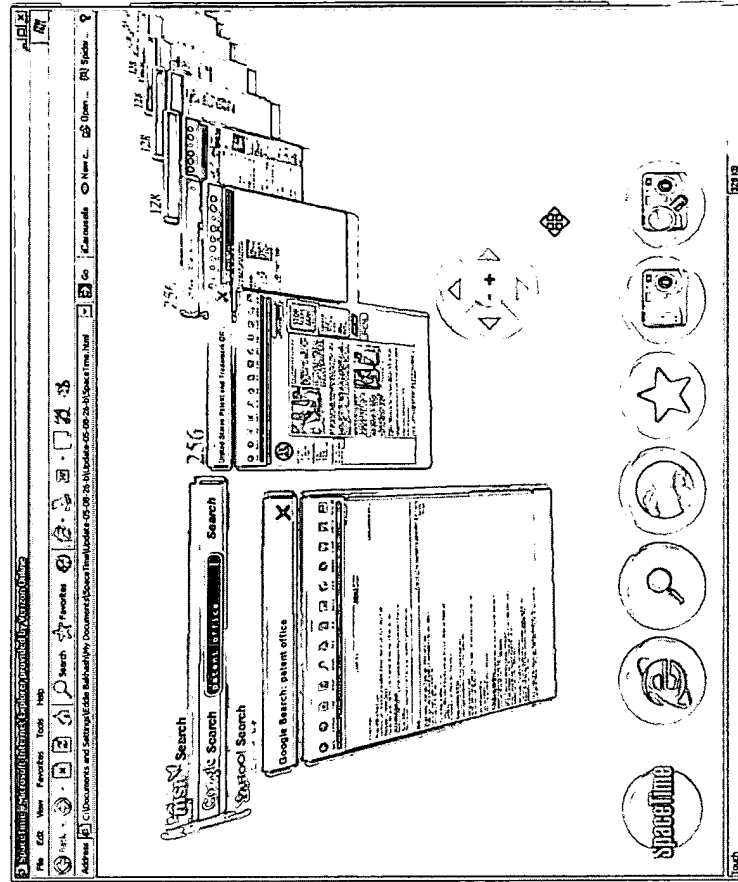


Figure 1 – Shows the program running in a Window on an end user's 2-D desktop. As one can see, the program creates the appearance of a 3-D space within a 2-D Window on the Desktop of Computer.



The program will utilize a ubiquitous interactive and Immersive 3D rendering browser which will process 3D drawing instructions based on higher level language code (the program) written in the drawing language native to the browser.

Creating a Simulated 3-D Cartesian Space within a 2-D Window

- The program creates what seems to be an infinite simulated 3-D Cartesian space within the two dimensional display or Window of an end user's computer by abiding by the visual rule of perspective whereby geometry or objects that are supposed to be closer to oneself appear larger concerning their spatial attribute and objects or geometry that are further away appear smaller.

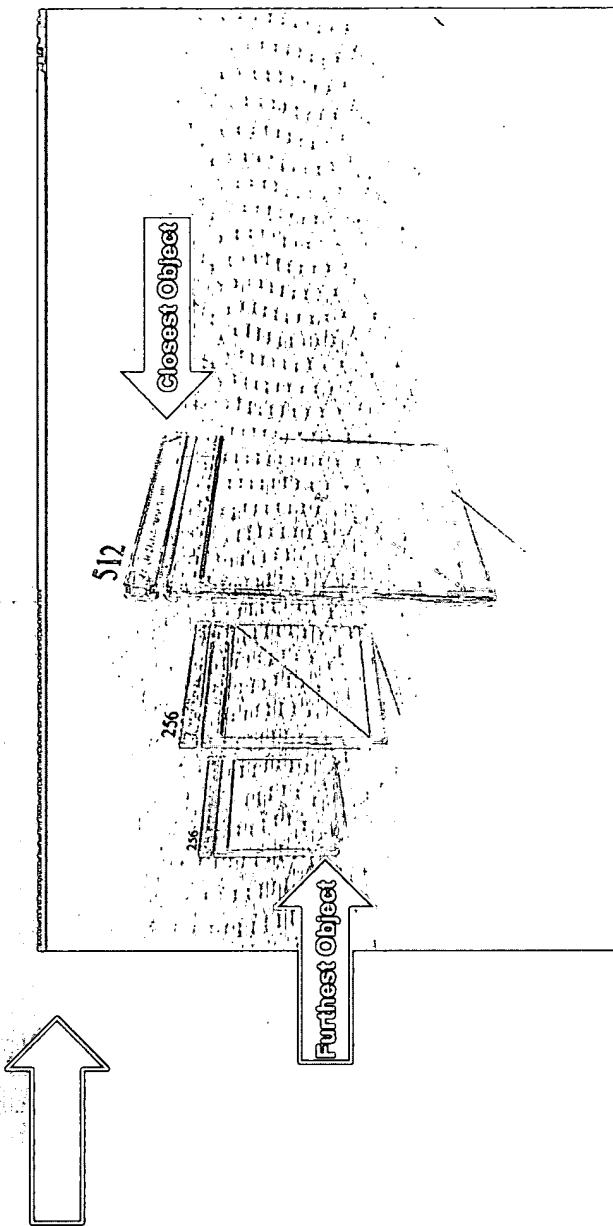


Figure 2 – The program simulates a 3-D space within a 2-D window by redrawing objects in the space relative to one another as determined by their perceived distance from the viewer. Objects that are supposed to be further away are smaller whereas objects that are supposed to be closer are larger.

Create a 3-D Interactive and Immersive Cartesian Space within 2-D Window

- The program creates interactivity of the simulated real-time 3-D Immersive Cartesian space. While immersed in this 3D space the program will take instructions from the user processed by the event handler presented by the Graphical User Interface initiated controls that can change their perspective or viewpoint (as defined as a location or visual perspective in the local coordinate system or three dimensional space) by moving closer to it, away from it, changing their angle or both. Once the program receives user initiated input to change the visual perspective of the scene, the program will re-draw the scene to reflect the user initiated input as well as changes to the visual perspective.

Figure 3, 4, 5 - Shows the output of the program running in a Window after the end user changed their perspective in the simulated 3-D Interactive Cartesian space from Front View to Side View to Top View.

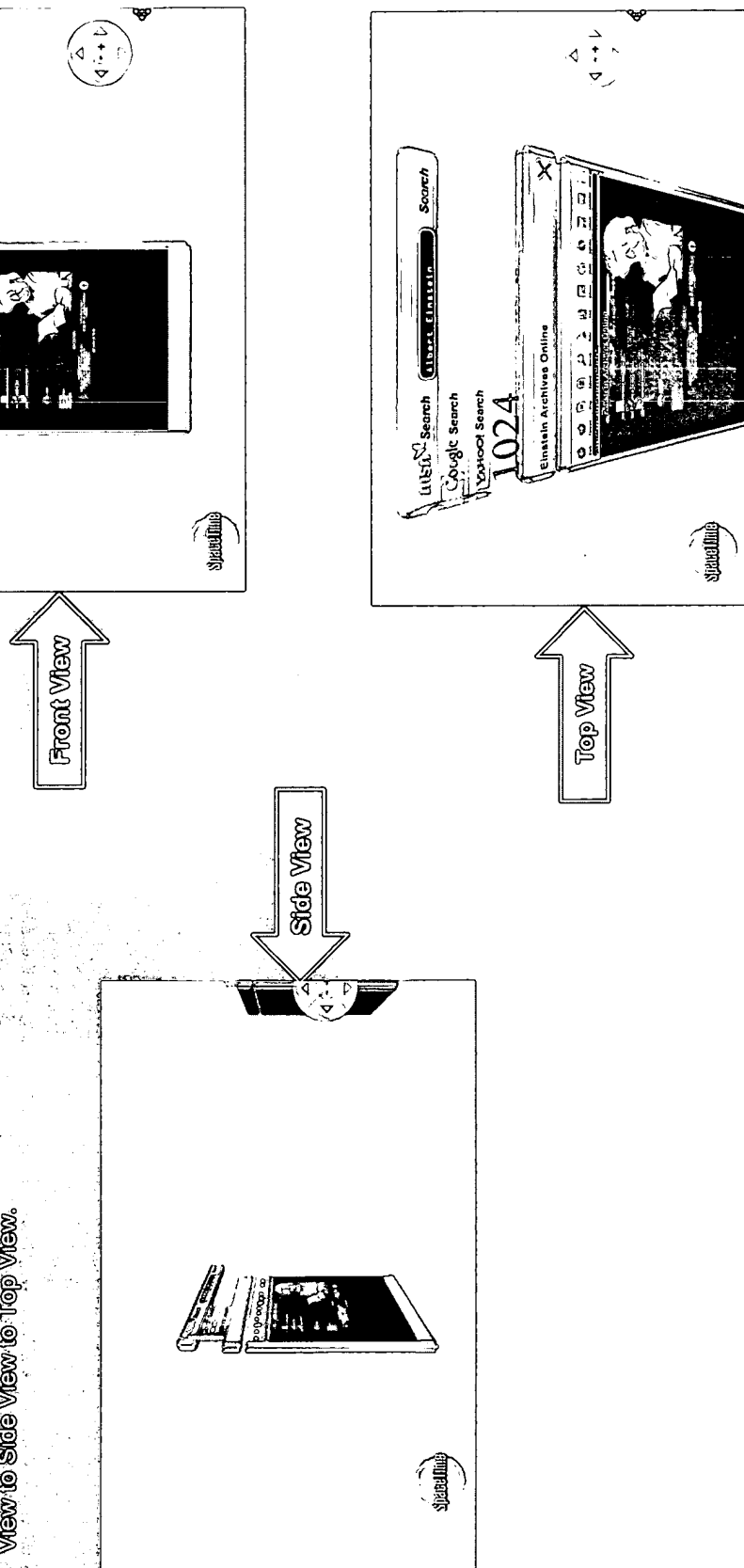


Figure 6 – The program recalculates

The shapes and sizes of objects or

geometry in the scene/3D Cartesian

Space to reflect the location or

visual perspective of the end user in

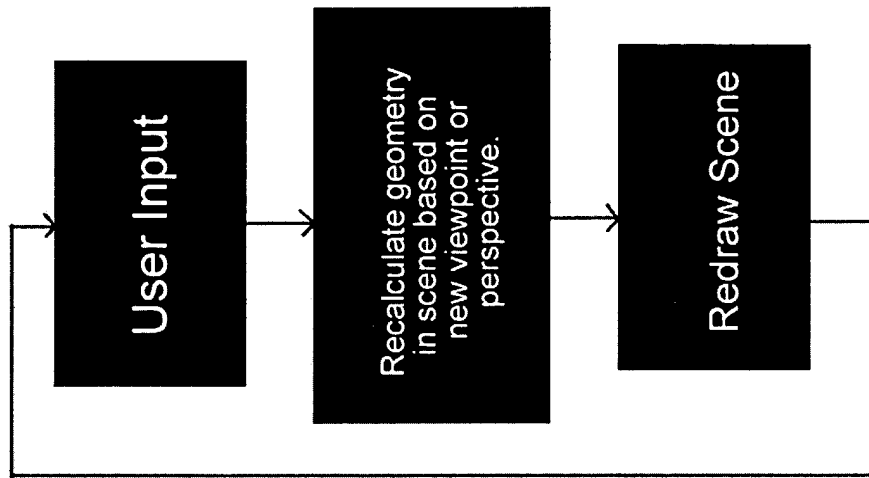
The local coordinate system. In order

To achieve a realistic real time experience,

The program will redraw the scene in

A cyclical fashion.

Cyclical Redrawing of 3-D Cartesian Space
Based on User Input to Reflect Changes
In Viewpoints and Perspective.

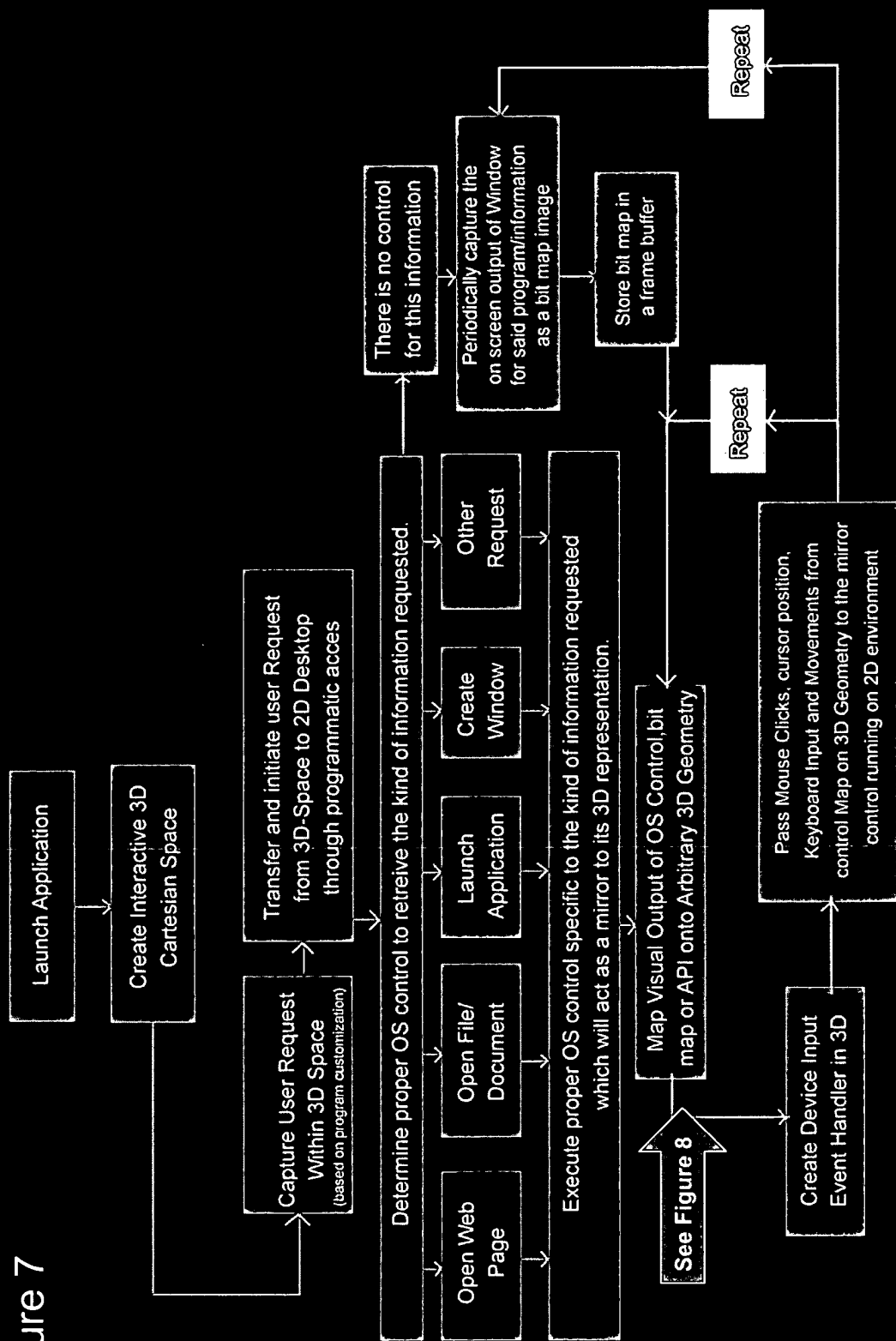


INTERACTIVE COMPOSITE TEXTURE MAPPING OF OS CONTROLS OR OTHER OS OUTPUTS INTO INFINITELY IMMERSIVE INTERACTIVE 3D CARTESIAN SPACE TO FACILITATE SEARCH, SORT AND BROWSING GUI SYSTEM OF INFORMATION (e.g., web pages, applications, documents, etc...)

- Regardless of the kind of information brought into the program whether it be web pages, pictures, desktop screens, pdf files, etc... or the method by which the information is accessed by the program whether it be through APIs, Meta Search, or web services, or the programmatic access by which it is delivered (controls, windows, desktops, images, VNC) it is critical that the program bring the information into the simulated 3-D interactive Cartesian space in such a manner that the information being brought in is fully interactive and functional and appears no different from the original way the program functions when it was not in the 3-D Cartesian space. In the case of certain information (such as web pages) this requires utilizing a special control from the operating system such that the information being dealt with functions properly in the 3-D Space. This is because, web pages, unlike pictures that the end user simply view, require interactivity.
- Accordingly, in the world of computing, a CONTROL is defined as an object that enables user interaction or input, often to initiate action, display information or set values. For example, in order for a web page on the World Wide Web to function properly in the operating system in a typical Window on the 2-D desktop of an end user's computer, the language of that web page (html) must be read by an operating system CONTROL in order for the web page in question to be displayed and function properly. One such particular control used by the Windows Operating Systems is called a Web Browser control that deals with web pages as well as typical desktop windows. In one embodiment of the present invention, all Windows controls are visualized using a 2-D paradigm. The name of one such control is called MSHHTML for rendering HTML on the Windows desktop within a window.
- It is for this reason that we have created INTERACTIVE 3D COMPOSITE TEXTURE MAPPING to act as the visual bridge of information from an operating system's 2-D display, in this example the programmatic access for which the 2-D is being displayed utilizes a control (and all the information a control is capable of displaying) into the 3-D interactive Cartesian Space such that it is fully functional from any viewpoint that the end user realizes based on their continued input. Please refer to "Interactivity and Persistency Diagram."
- As such, the program delivers full functionality and interactivity of the two dimensional display of an end user's computer (including the selective and isolated capturing of graphical windows, desktops, html pages, and general program outputs or any information a control can display or non-control item) redrawn into a novel simulated real-time 3-D Immersive Cartesian space whereby the two dimensional graphics are drawn or "mapped onto three dimensional objects". While immersed in this 3D space end users can see their two dimensional computer display components that were captured and redrawn and fully interact with them; creating an entirely new way of computing. While interacting with their mapped or redrawn two dimensional displays, end users can change their perspective or viewpoint (as defined as a location or visual perspective in the local coordinate system or three dimensional space) by moving closer to it, away from it, changing their angle or both.
-

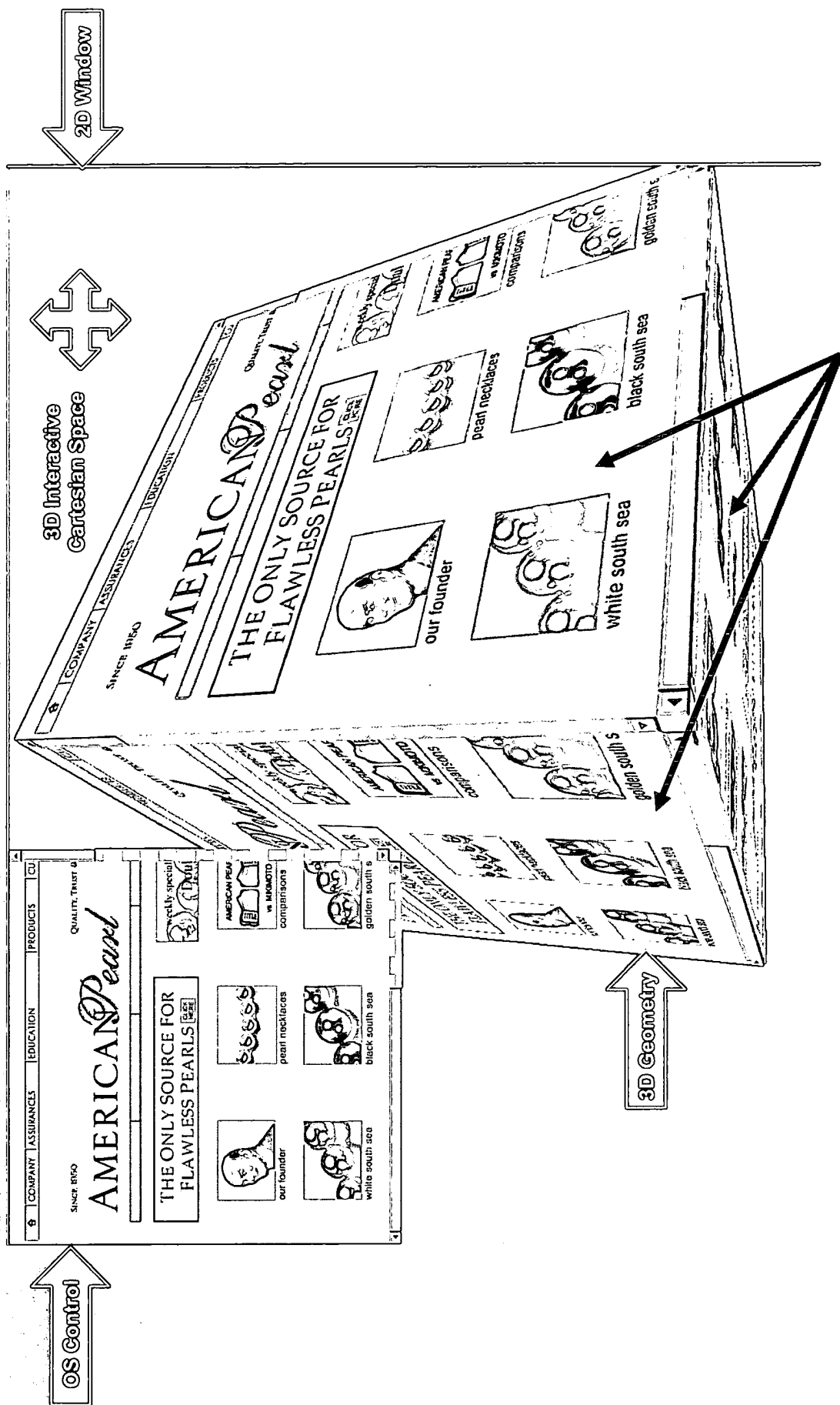
INTERACTIVITY AND PERSISTENCY DIAGRAM

Figure 7



Example of OS web browser control Mirror Drawn Off Screen and Counterpart Mapped Onto Object in 3D Cartesian Space

Figure 8



Map of Visual Output of OS Control texture mapped onto 3D Geometry

CREATING A 3D OUTPUT OF WEB PAGES FROM HYPERLINKS VIA INTERACTIVE META SEARCH RESULTS FROM SEARCH ENGINES' OUTPUT

- Once an end user is within their 3D space we propose a graphical user interface INPUT INTERFACE within the 3D scene that allows the end user to input a search term or combination of search terms.
- Our program will conduct a world wide web search using these search terms in the search system or website of the end user's choice by opening one 2D HTML page of the homepage of the search engine that the end user chooses to search, drawn off screen through the operating system's web browser control. Our program will then enter the search term into the off screen text input field of the search engine's homepage, emulate a carriage return, retrieve the search results and parse the search results found in each HTML page and identify each hyperlink that the search engine returned to the end user as a search result and store this in an array. Once identified, our program will open one new web page or window in the 3D space (behind the search results page) for each element of this array or hyperlink found on the search system's results page that would display the webpage found at the URL for the given Hyperlink.

Figure 9

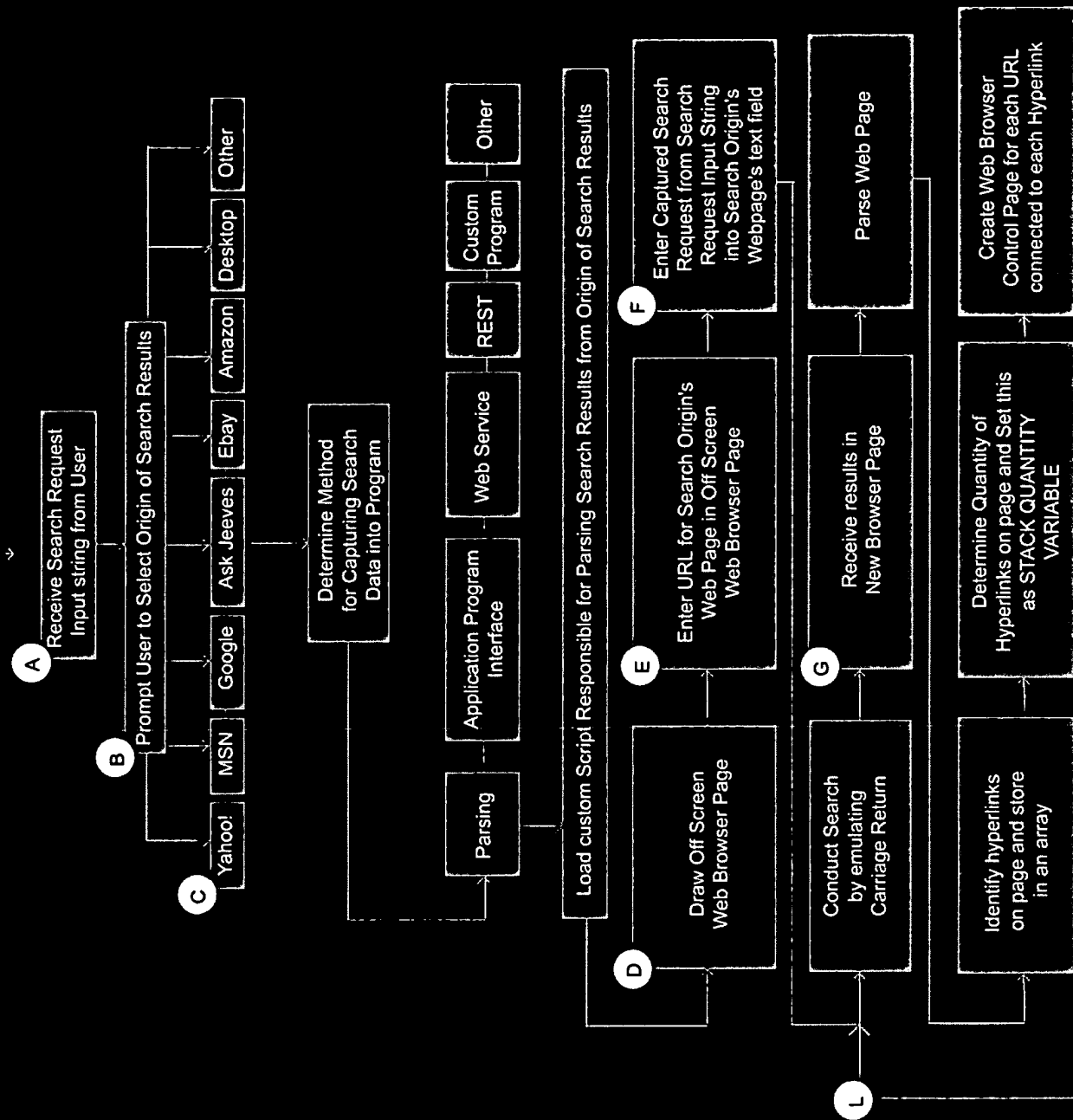


Figure 9 continued

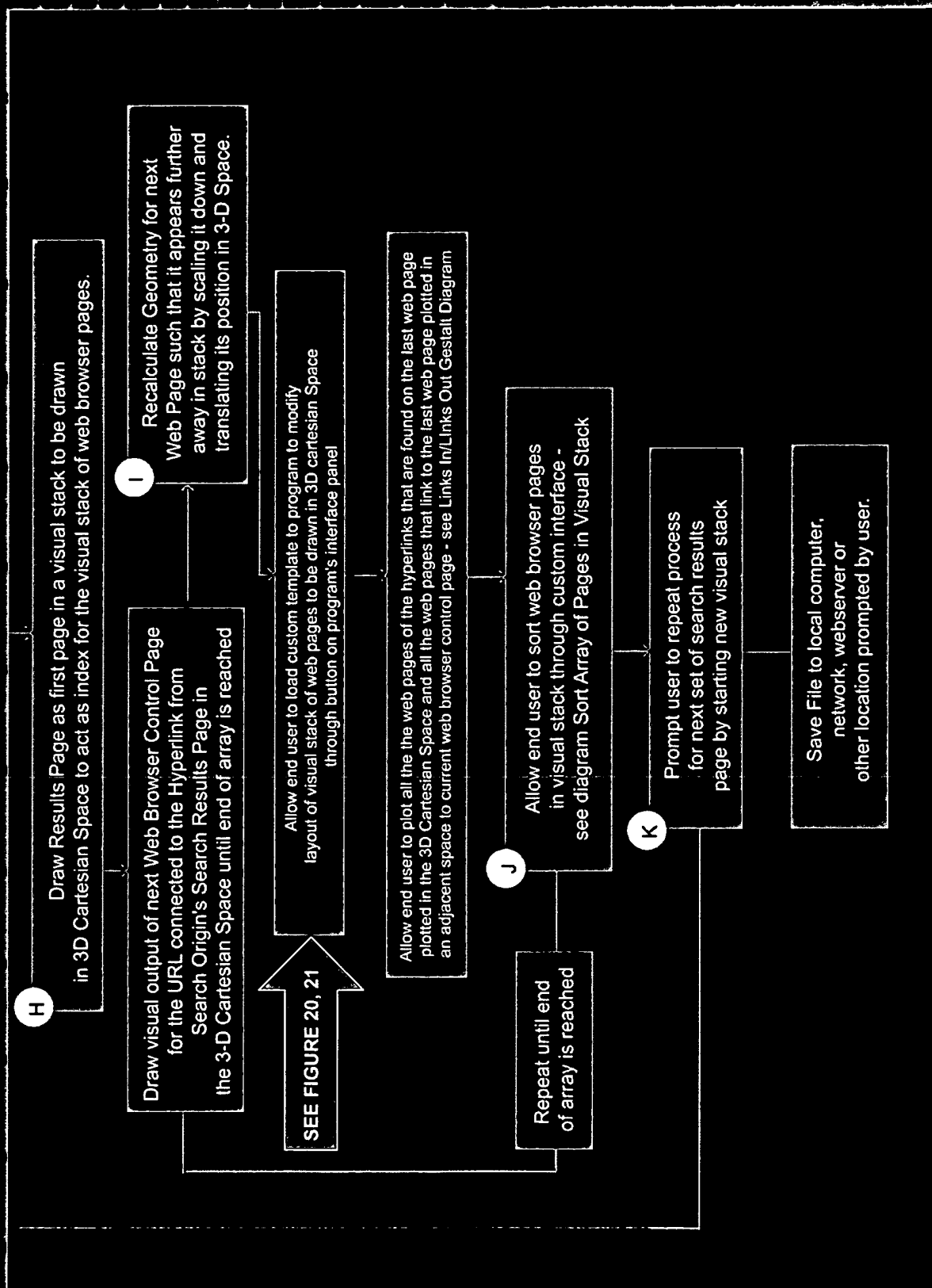


Figure 9 – Item A

- Receive search request input string from user.

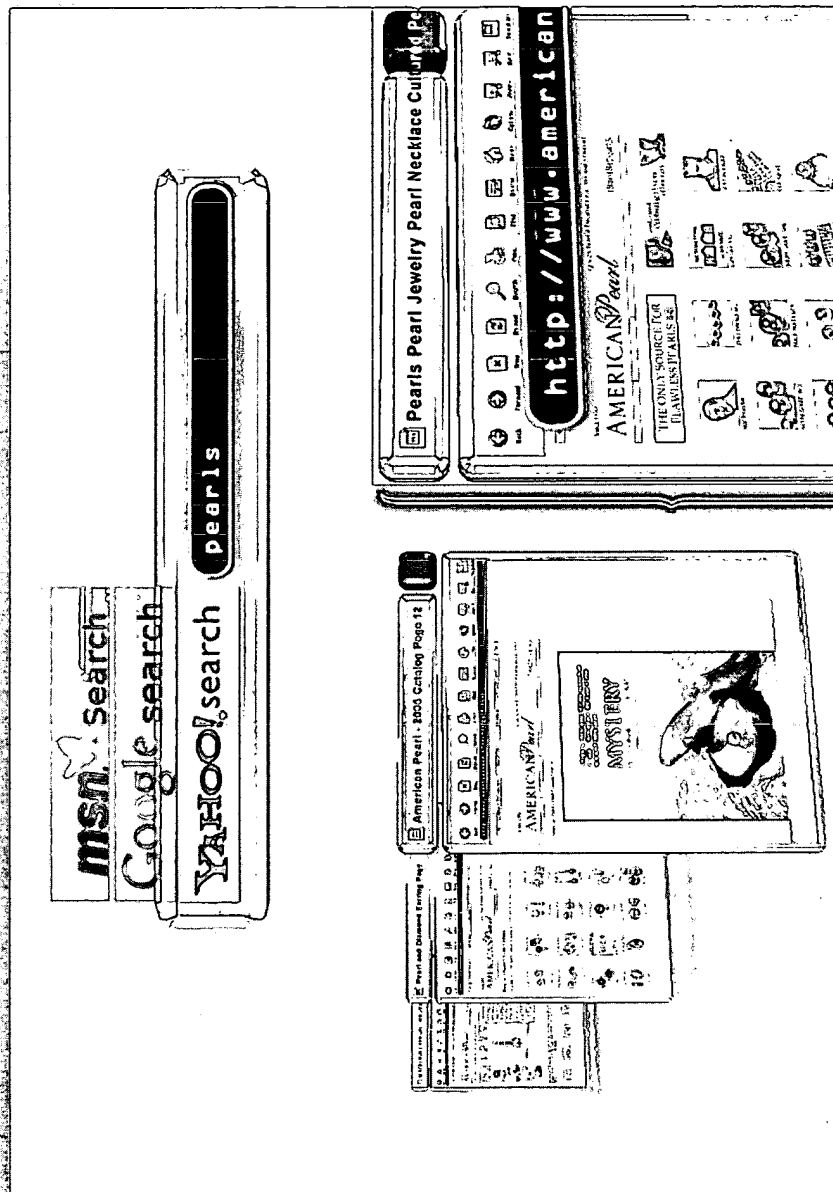


Figure 9 – Item B

- Prompt end user to select origin of search result.

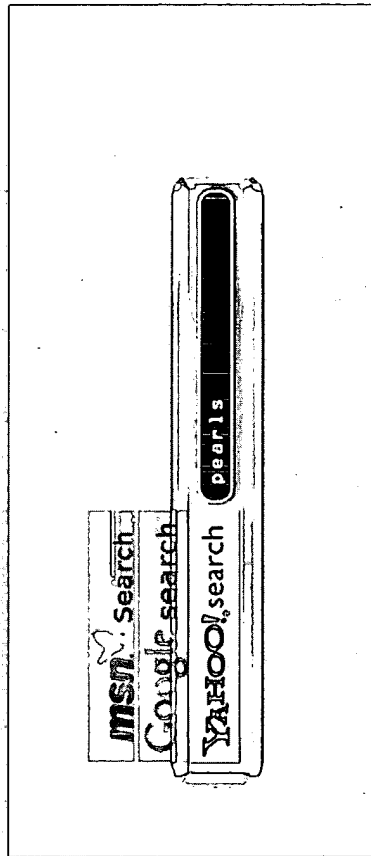


Figure 9 – Item D, E and F

- The program must open the URL of the home page for the given search system, e.g. in this case <http://www.google.com> OFF SCREEN for each search phrase entered into the INPUT INTERFACE and transfer the keyword phrase to this search page as a staging area and emulate the CARRIAGE RETURN.

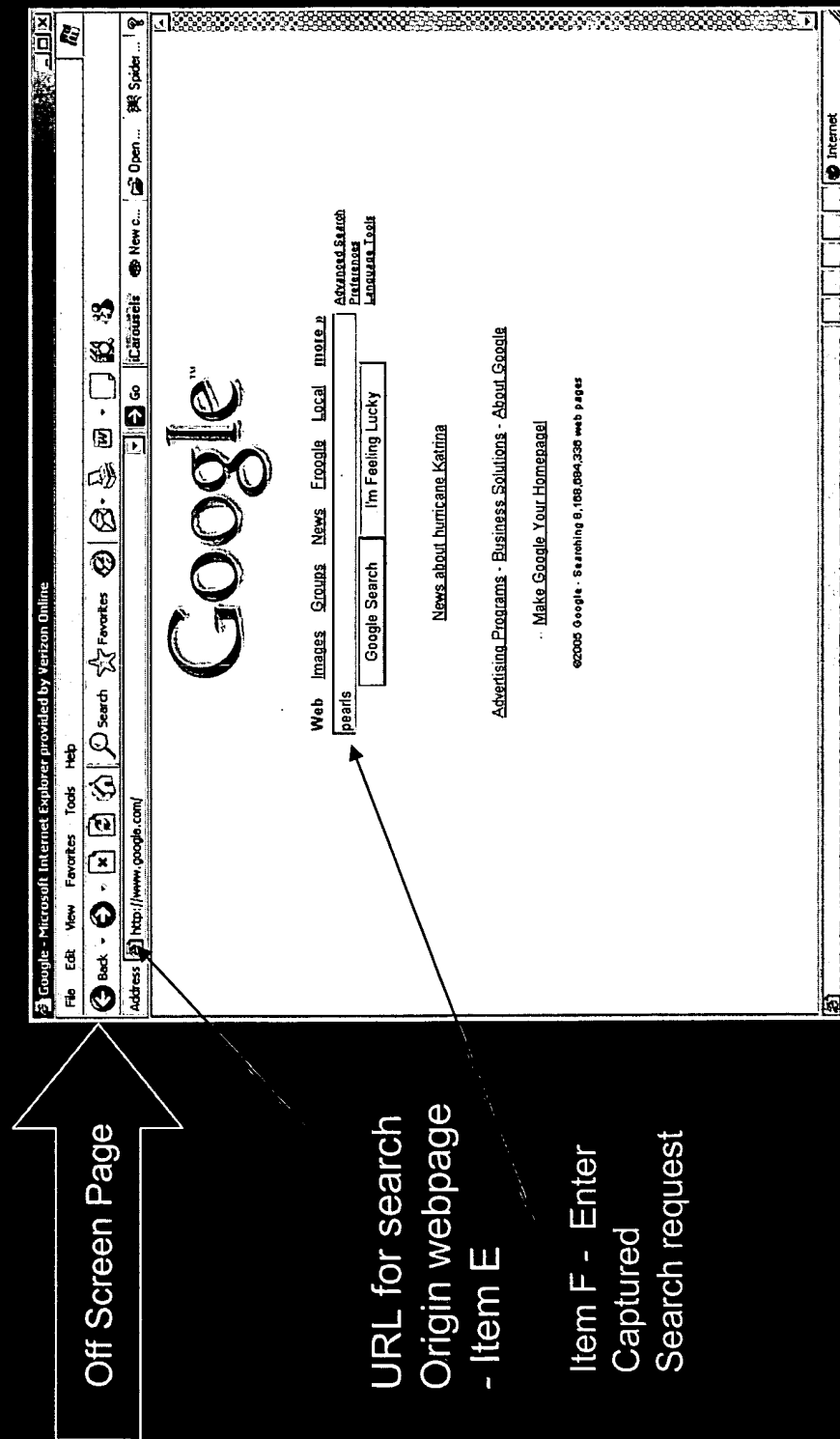


Figure 9 – Item G

- After the program enters the keyword phrase and emulates the carriage return off screen, a web page with the new search results will replace the window as shown to the right.

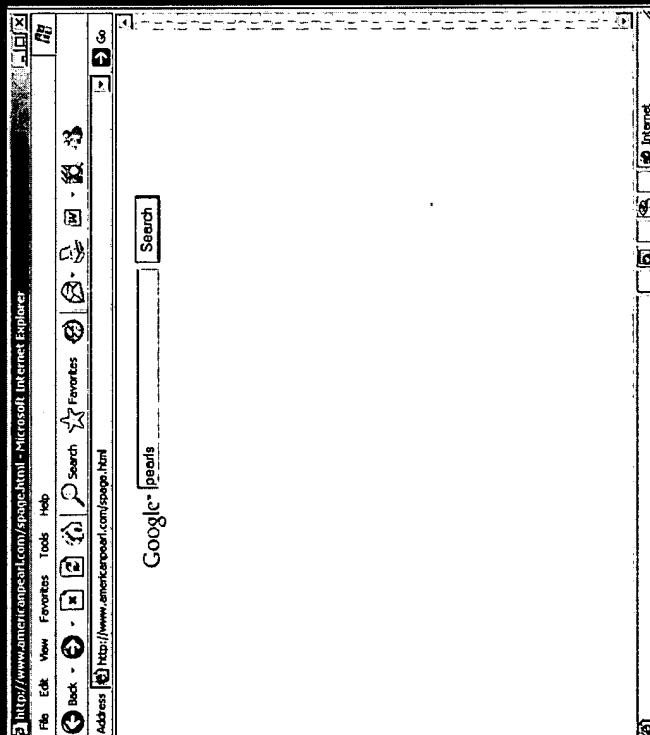
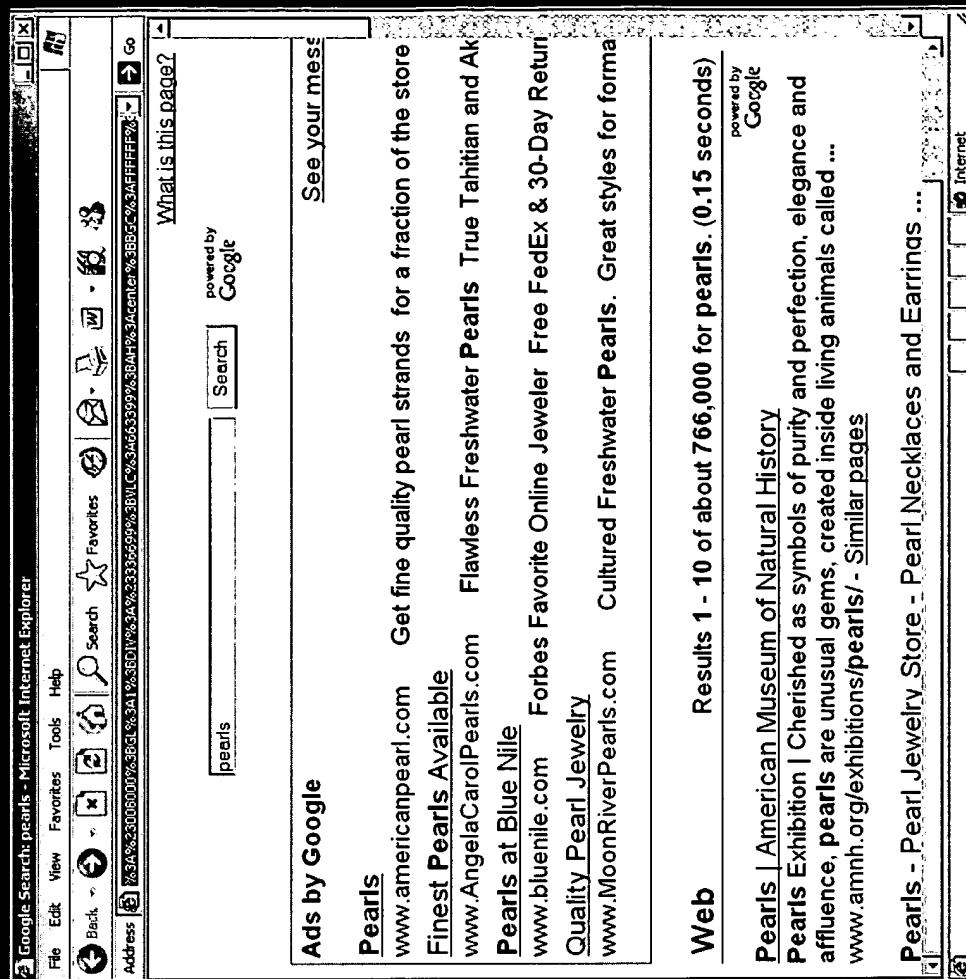
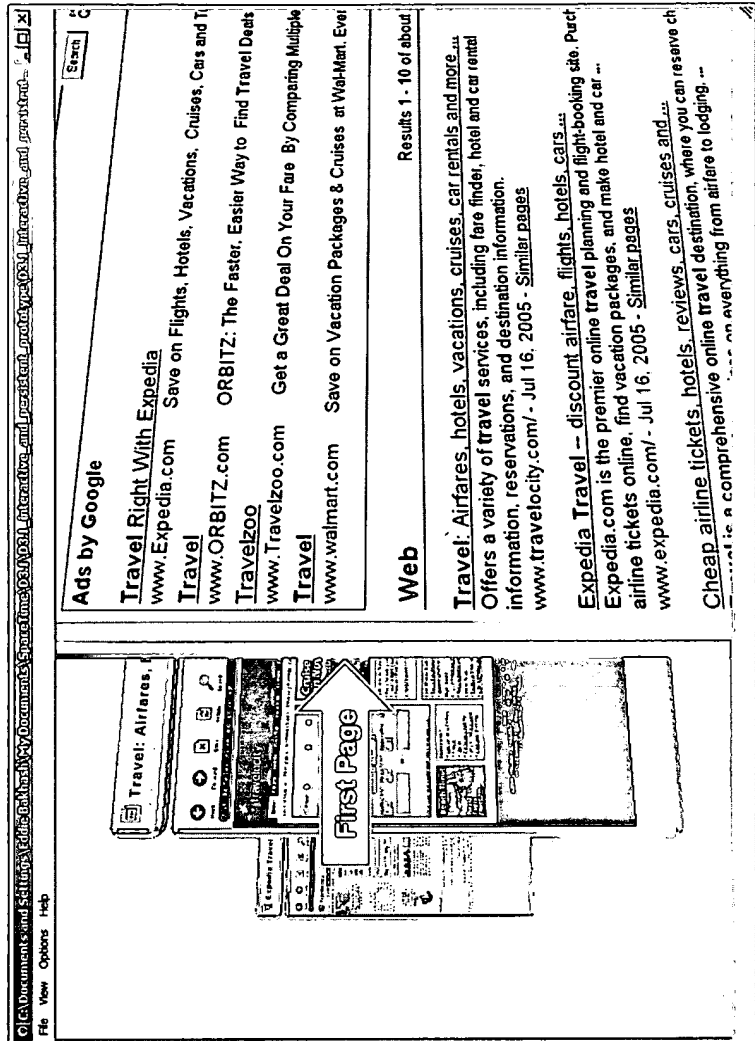


Figure 9 continued – Item H

- This Search result is first page in a sequence of web pages that the program should plot into the 3D Space from the off screen search previously conducted.



First Viewpoint is Search Results

- The search results page should be the first viewpoint that the program binds to right after the end user enters a keyword search into the INPUT INTERFACE as this serves as an index page of the web pages for the search results plotted in this example.

© C:\Documents and Settings\Eddie Bakhash\My Documents\SpaceTime\ID3.1\Interactive and persistent_prototype\ID3.1_Interactive_and_persistent_prototype\Update... [Icons]

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[See your message here...](#)

Web

Results 1 - 10 of about 70,500,000 for travel. (0.07 seconds)
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Binding Viewpoints to Web Results

- If an end user clicks any of the web page hyperlinks which are below the Ads By Google, the program will trigger a viewpoint to the web page for that hyperlink that the program previously plotted into the 3D Cartesian space.

O:\Documents and Settings\Eddie Bakhash\My Documents\SpaceTime\03.1\Interactive_and_persistent_prototype\Update... [X]

File Edit Options Help

Ads by Google

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Travel
www.ORBITZ.com ORBITZ: The Faster, Easier Way to Find Travel Deals!

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Travel
www.walmart.com Save on Vacation Packages & Cruises at Wal-Mart. Every Day Low Prices.

Web

Results 1 - 10 of about 70,600,000 for travel. (0.07 seconds)
powered by Google

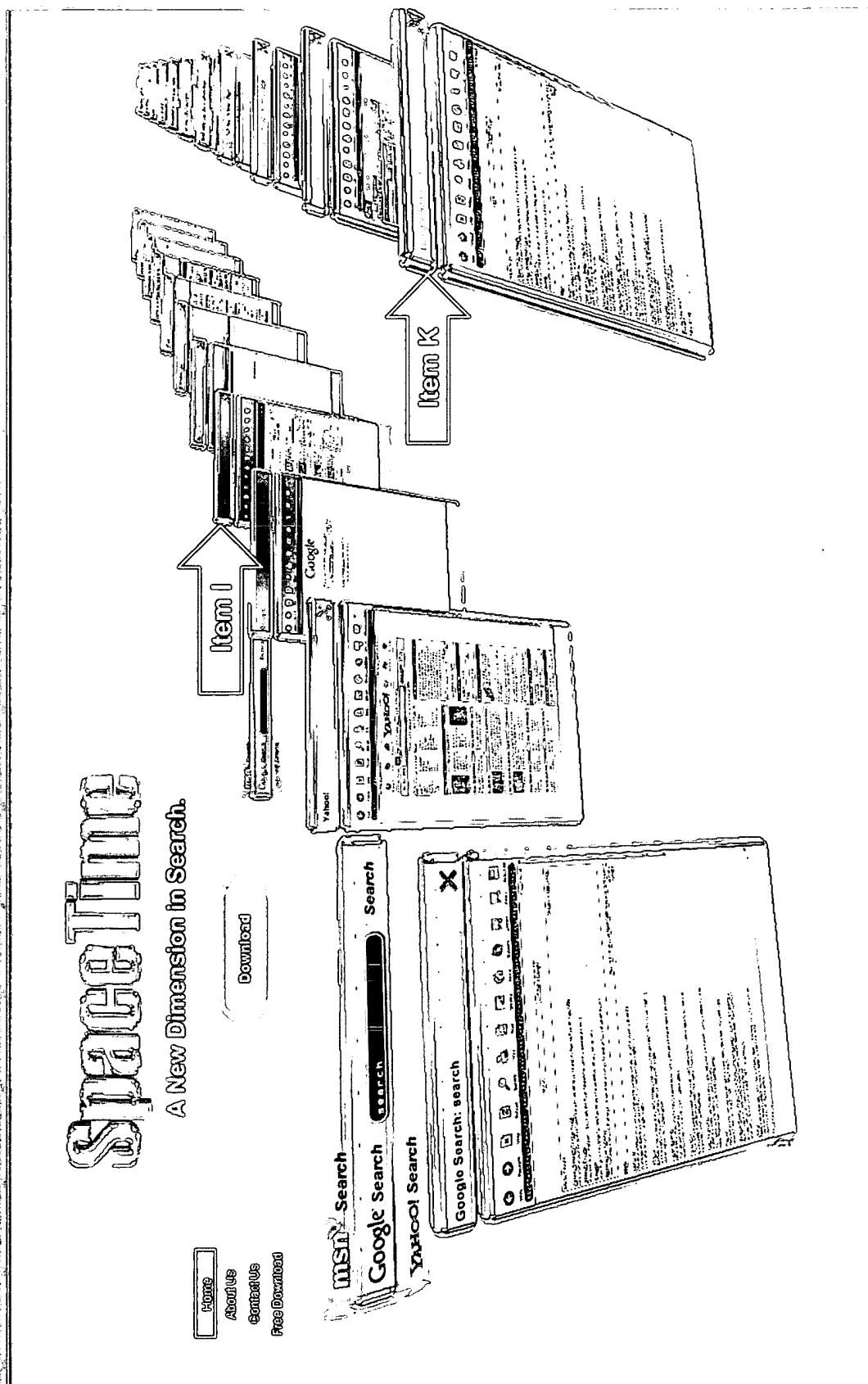
Travel: Airfares, hotels, vacations, cruises, car rentals and more ...
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Figure 9 continued - Item I and K



New Search

- If the end user conducts a new search, the program must open a new browser window with the URL of the search system of their choice OFF SCREEN for each search phrase entered into the INPUT INTERFACE and transfer the keyword phrase to this search page as a staging area and emulate the CARRIAGE RETURN. Once the search results appear, they can be brought into the program again. However, each new search results much have its own browser window drawn off screen and then brought back into the 3D Cartesian Space.

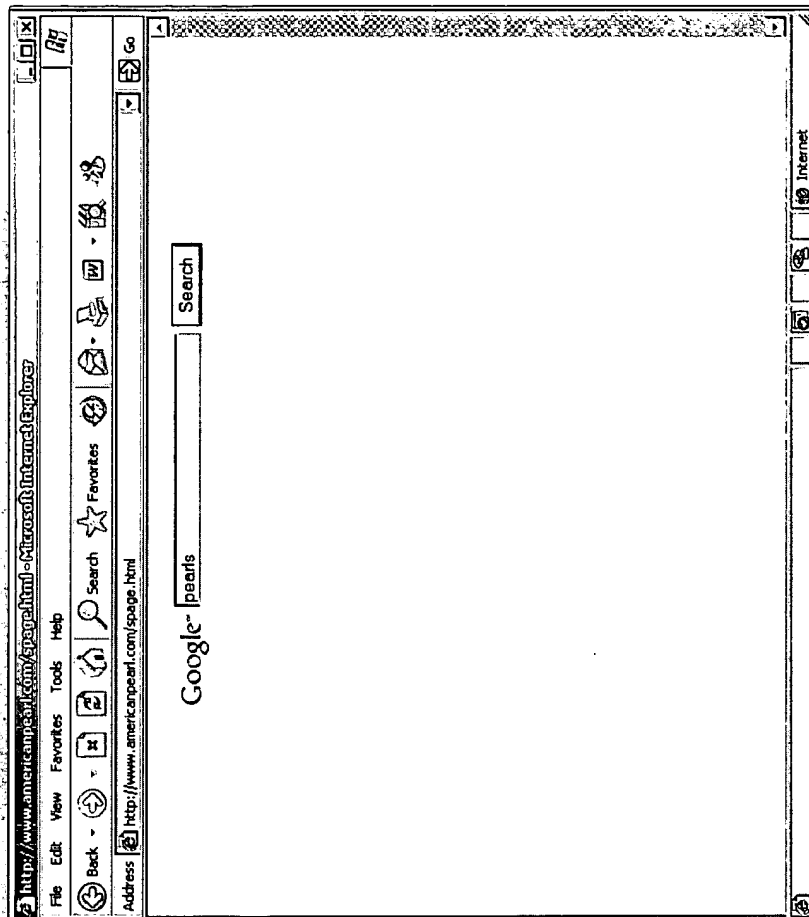
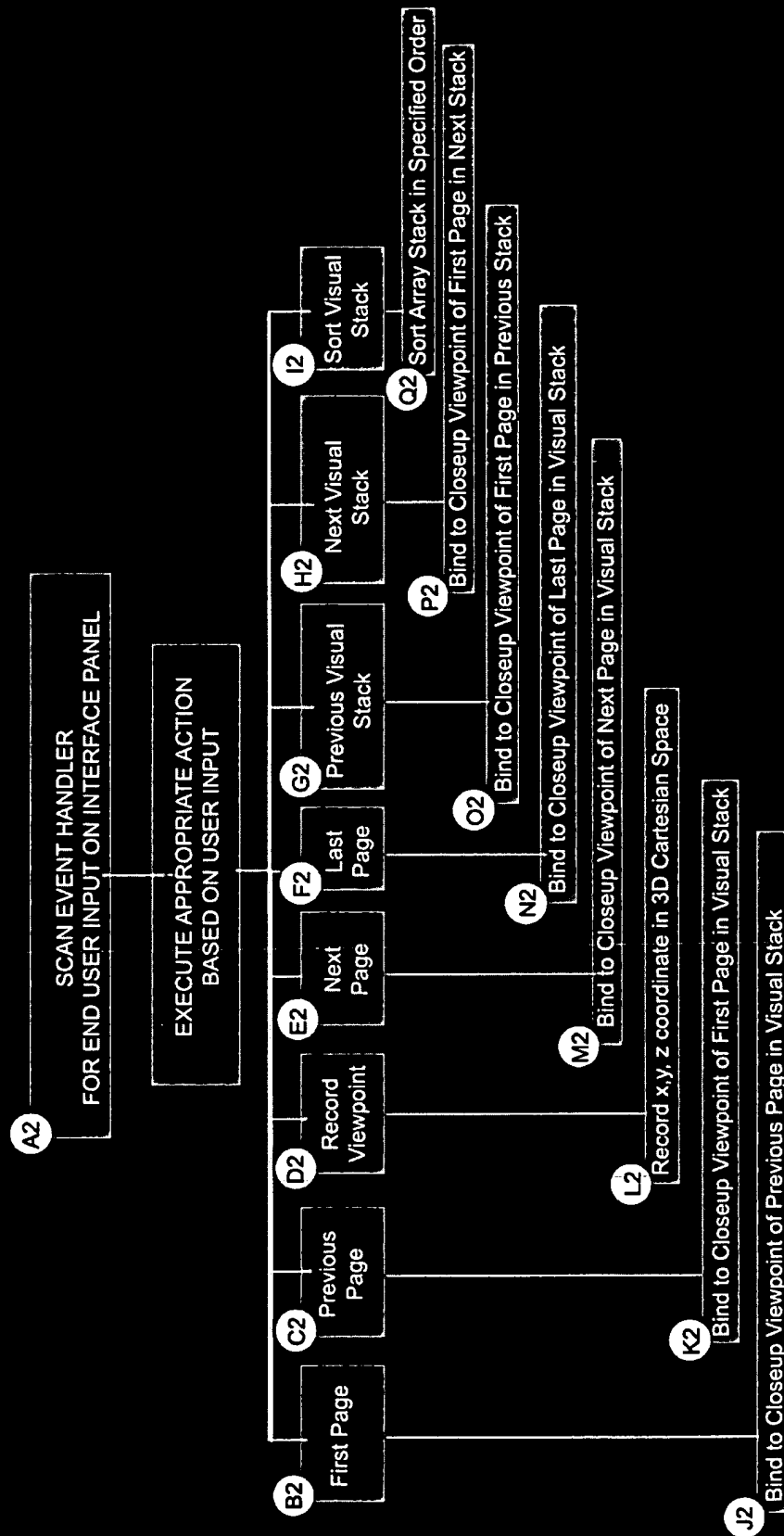


Diagram for Item J – Sort Array of Pages In Visual Stack

Figure 10



Prototype Screen Shot for Figure 10

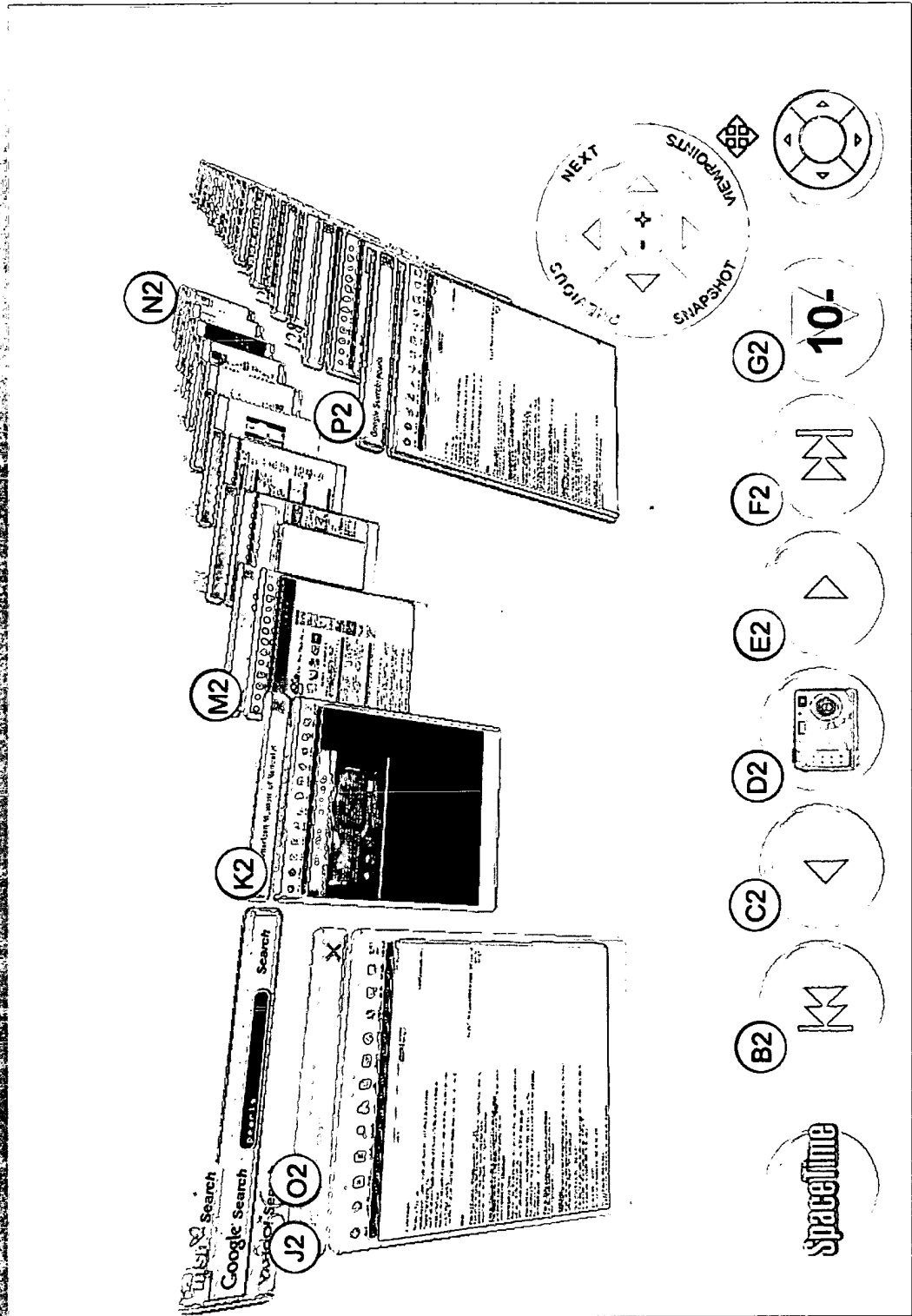


Diagram for Item J Part II – Sort Array of Pages in Visual Stack

Figure 11

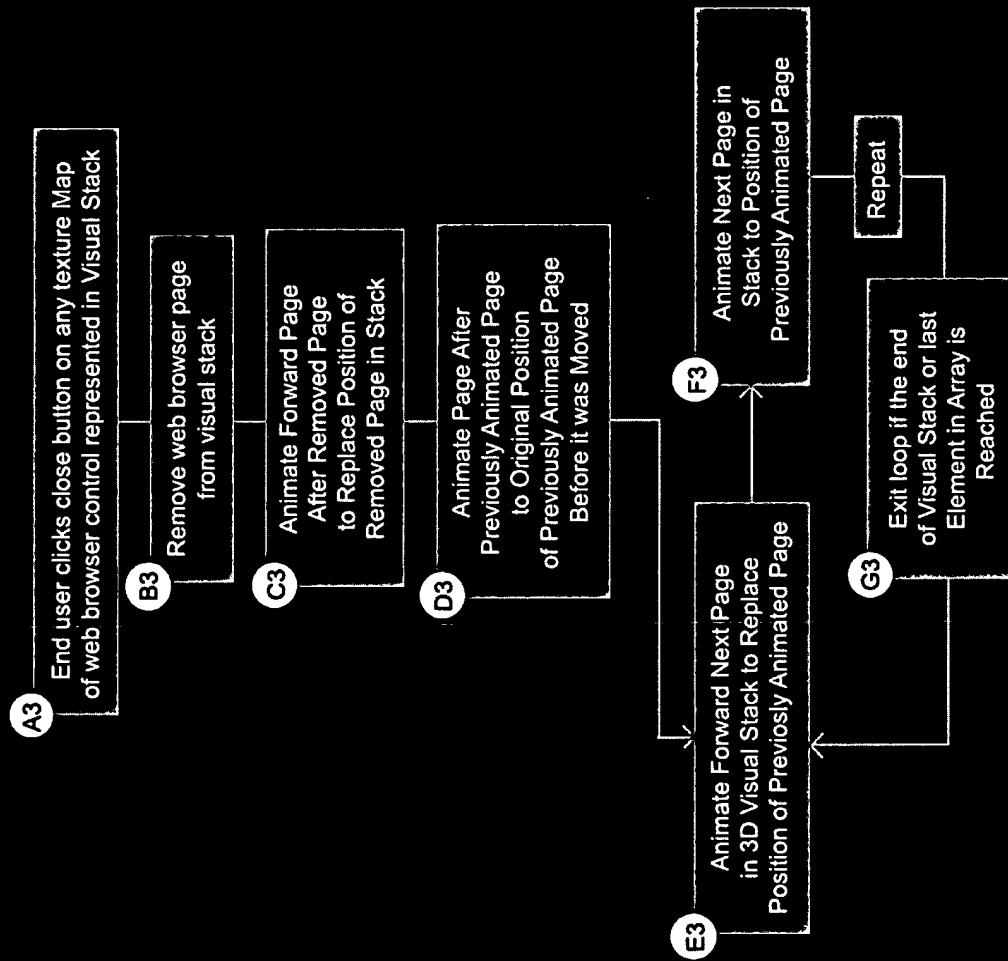


Figure 11 - B3

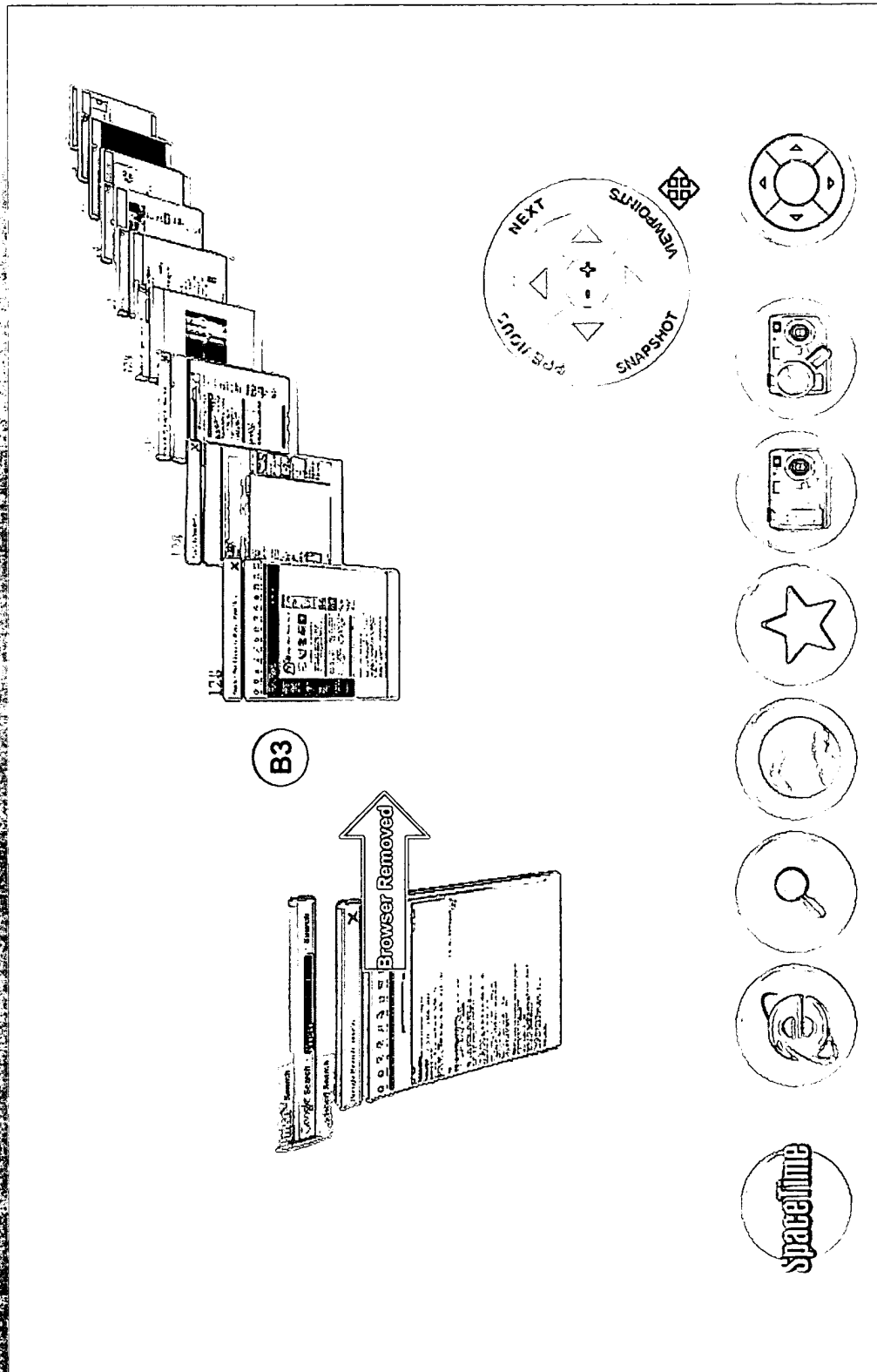
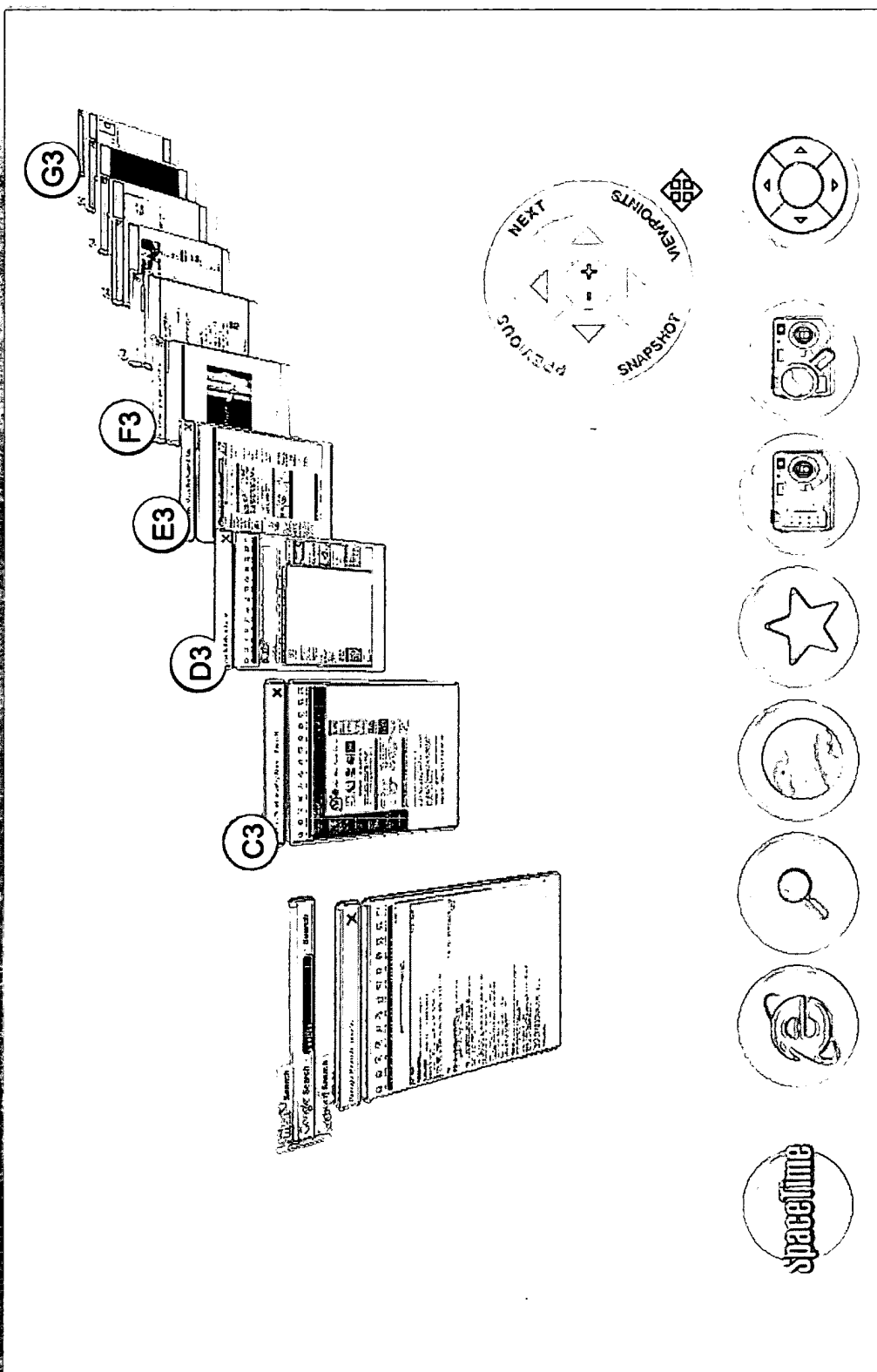


Figure 11 - C3



Links In/Links Out Logic

Step 1

Should the user request, the program will allow the end user to plot all of the web pages for all of the hyperlinks that LINK TO any given page and LINK OUT of any given page within the 3D space .

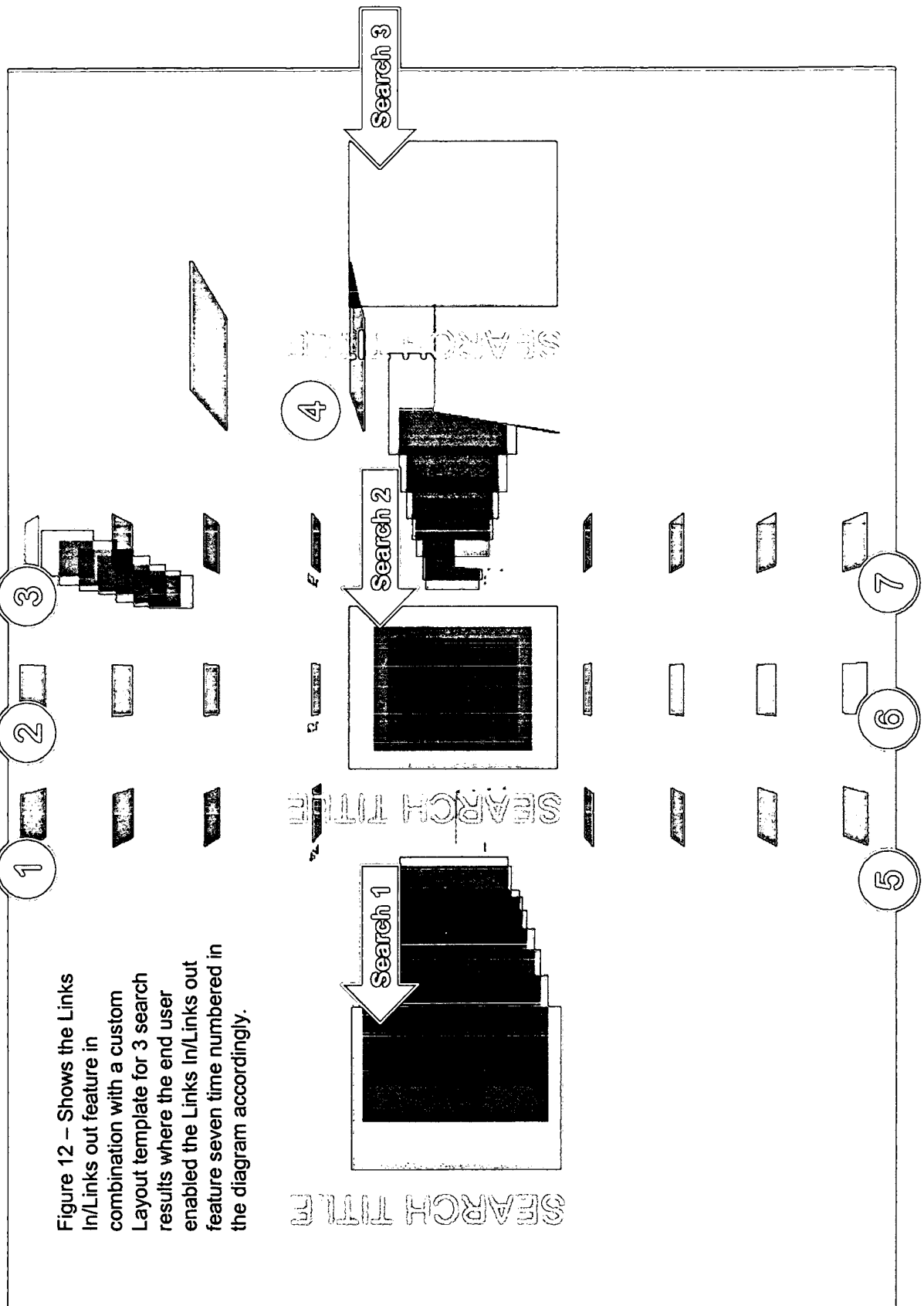
Step 2

The end user identifies a web page for which they will plot the web pages of the hyperlinks that LINK TO any given page and LINK OUT of any given page show in slide Links In/Links Out Gestalt Part III as the yellow page or SWITCH PAGE.

Step 3

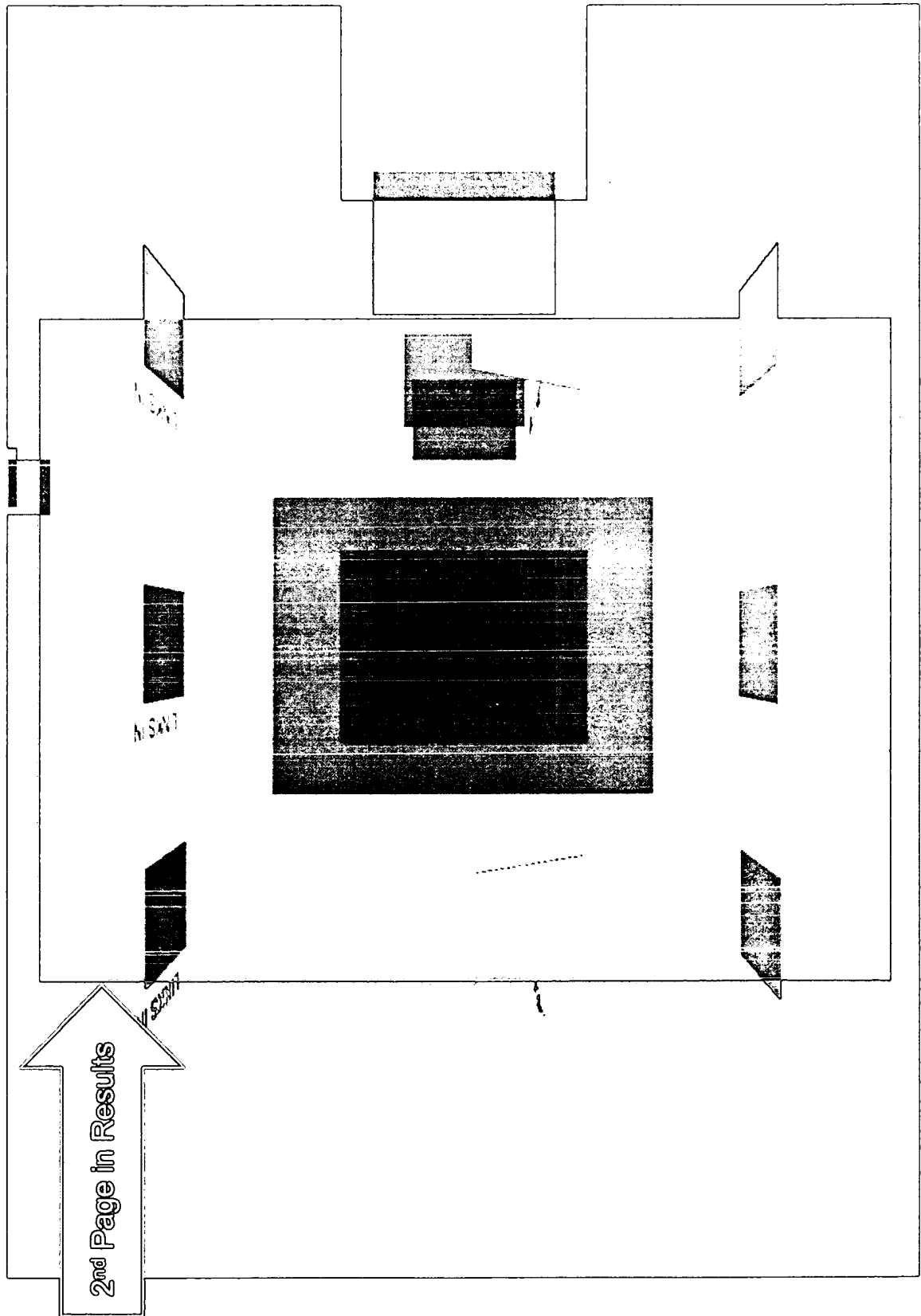
The Viewpoint of the end user's perspective is rotated 90 degrees backwards such that the Links Out pages for any given web page can be plotted in a new space perpendicular to the visual stack and 90 degrees backwards/180 degrees counter-clockwise such that the Links In pages for any given web page can be plotted in a new space perpendicular to the visual stack.

Links In/Links Out Gestalt Part I



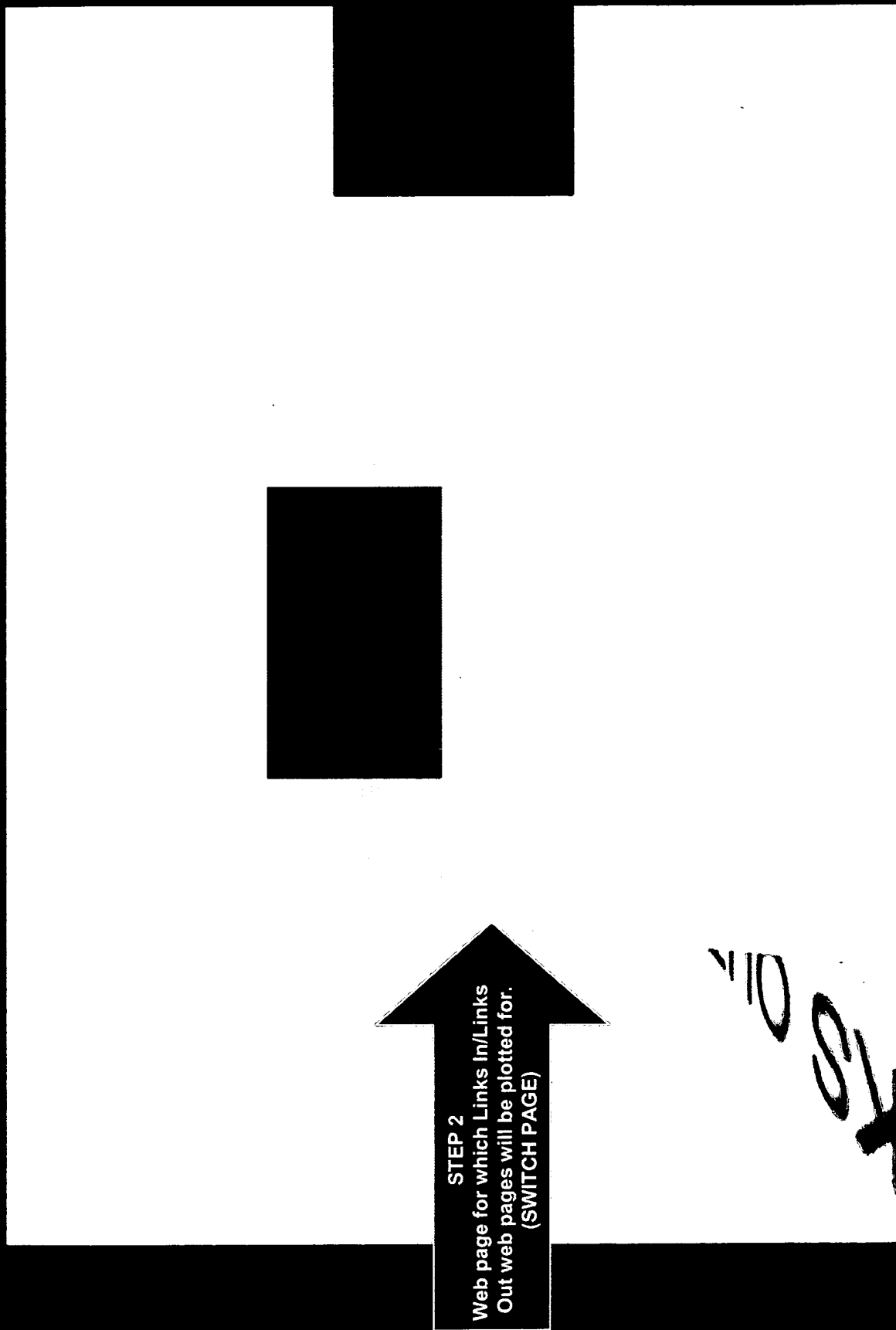
Links In/Links Out Gestalt Part II

Figure 13



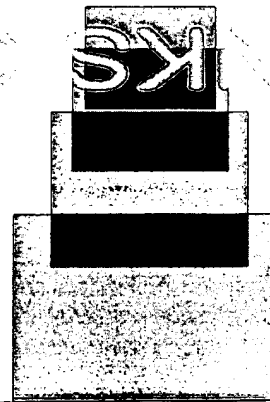
Links In/Links Out Gestalt Part III

Figure 14



Links In/Links Out Gestalt Part IV

Figure 15 - Below one can see the viewpoint of the end user's perspective after their viewpoint was rotated 90 degrees backwards such that the Links Out pages for any given web page can be plotted in a new space perpendicular to the position of the original visual stack.



Step 3

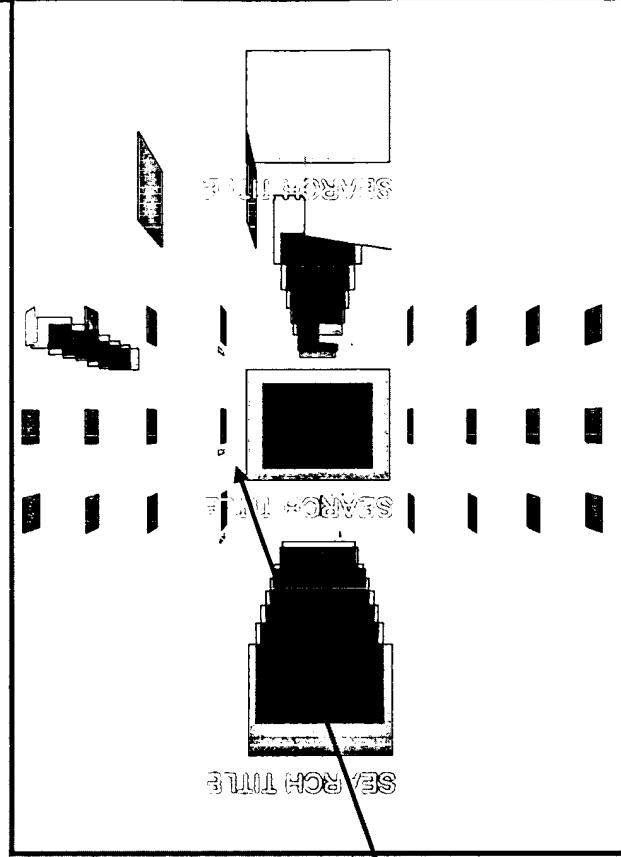
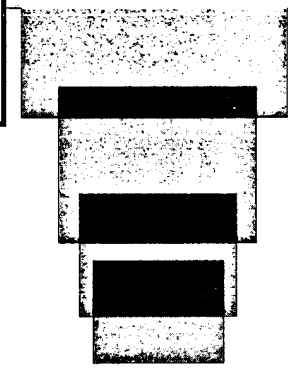


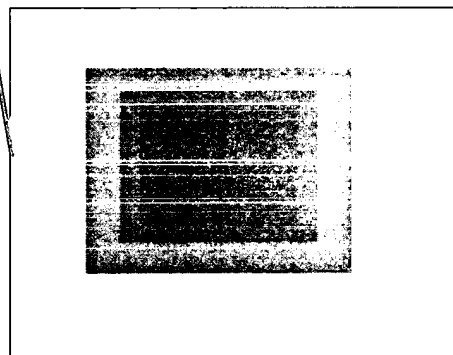
Figure 16 - Above one can see the viewpoint of the end user's perspective before their viewpoint was rotated 90 degrees backwards such that the Links Out pages for any given web page are plotted perpendicular to the original visual stack. The arrow above marks the area in Figure 16 from which Figure 15 was drawn.



Links In/Links Out Gestalt Part V

Figure 17 – Below one can see the viewpoint of the end user's perspective after their viewpoint was rotated 90 degrees backwards/180 degrees counter-clockwise such that the Links in pages for any given web page can be plotted in a new space perpendicular to the position of the original visual stack.

LINKS



Step 3

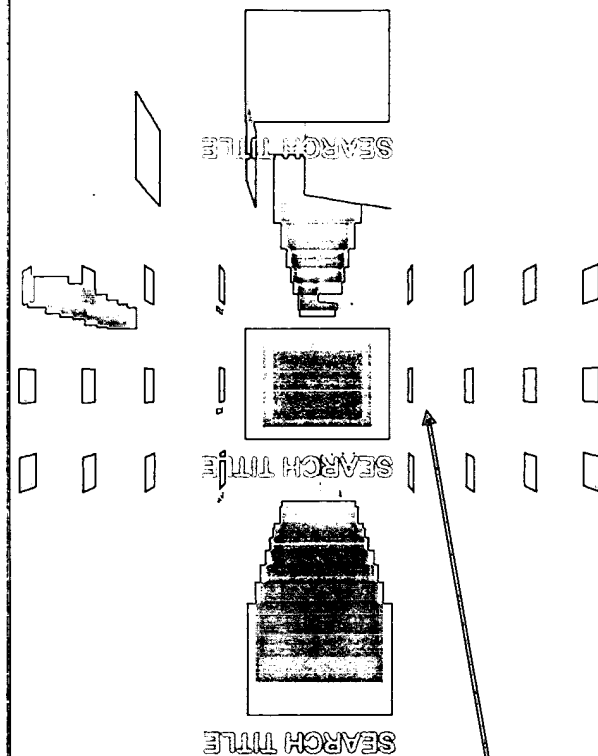
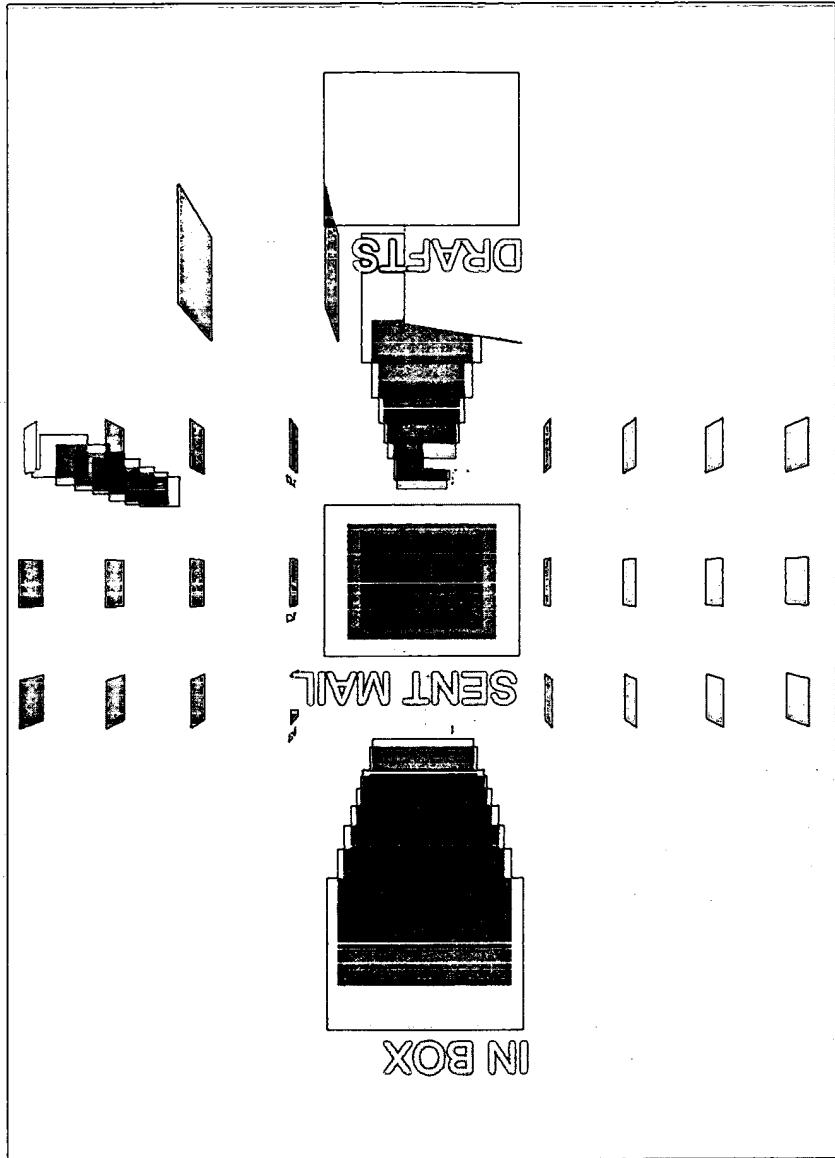


Figure 18 – Above one can see the viewpoint of the end user's perspective before their viewpoint was rotated 90 degrees backwards, 180 degrees counter-clockwise such that the Links in pages for any given web page are plotted perpendicular to the original visual stack. The arrow above marks the area in Figure 17 from which Figure 18 was drawn.

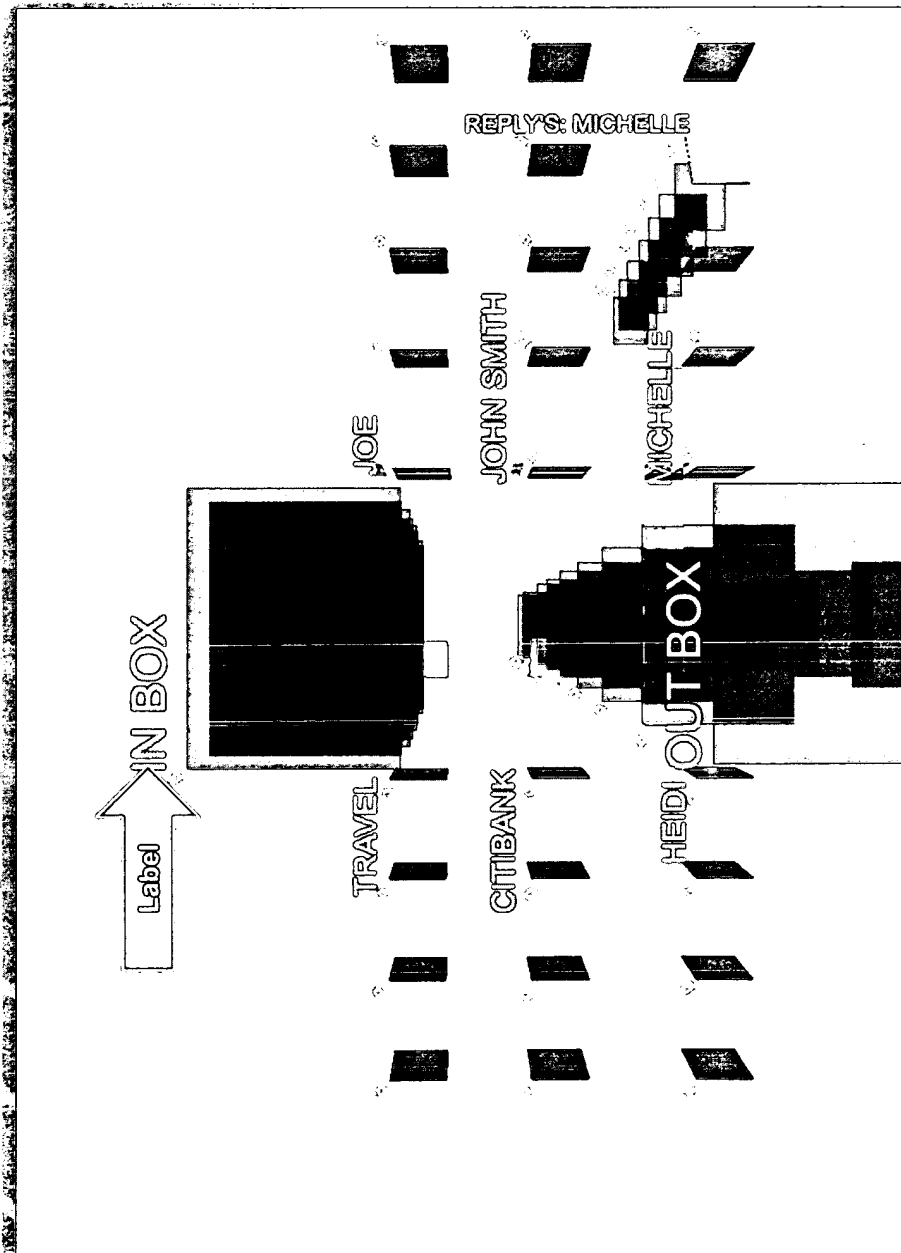
Loading Custom Email Template for Program Search

The display engine of the program outputs the elements found within the 3D Cartesian Space based on the ability to load custom templates for specific applications. For example, in Figure 20 below, one can see the Links In/Links Out gestalt adapted to display the output of an email program



Loading Custom Email Matrix Template or other Template for Program Search Part II

Figure 20

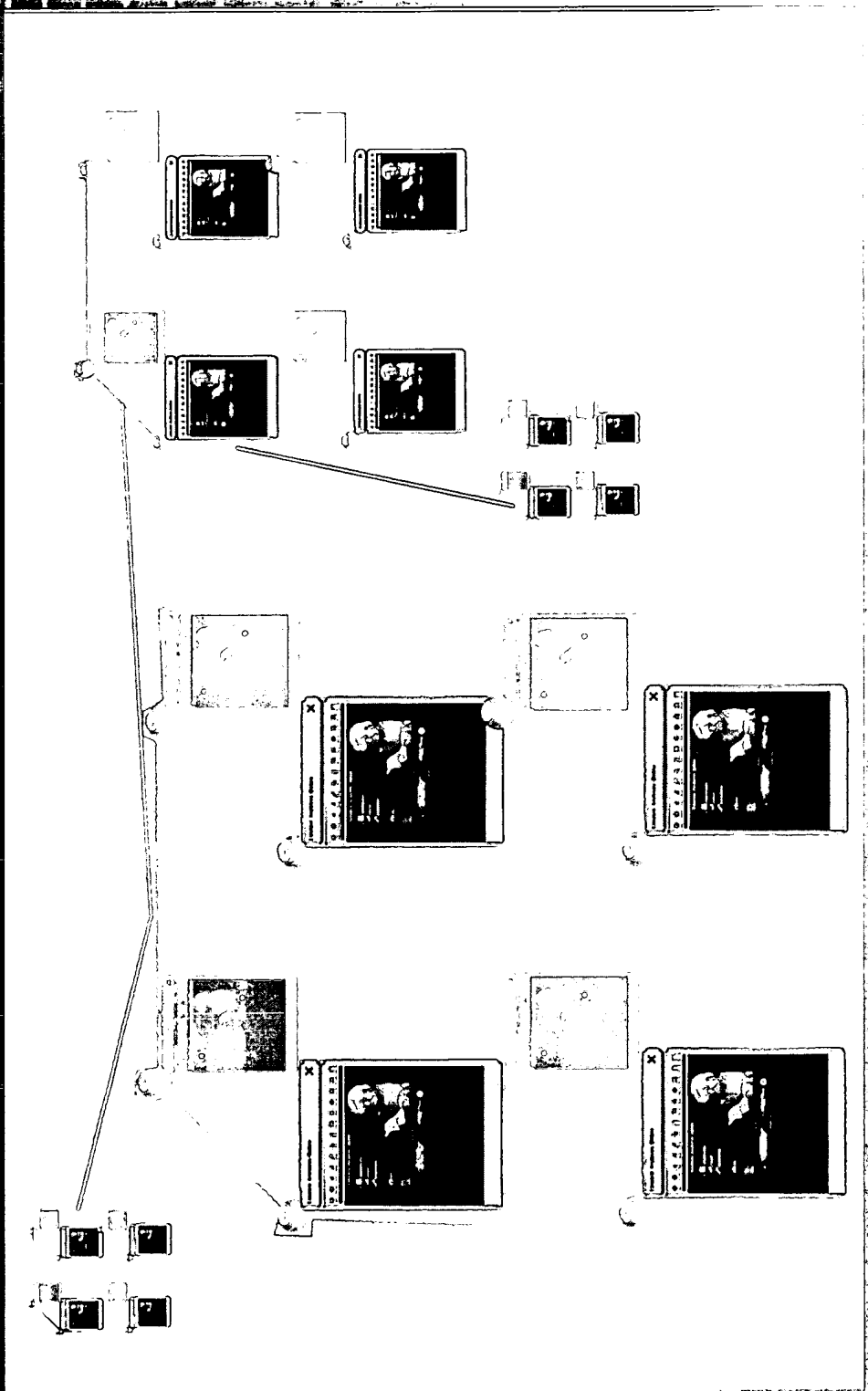


The labels drawn in the 3D Cartesian Space, their positions and angles for Links In/Links Out can be customized to display any titles which correspond to the kind of data presented. Each coordinate or position in the 3D Cartesian space for plotting the information displayed in visual stacks and Links In/Links Out, represented by the red dots in the scene, are variables that can be amended within a custom template that is compatible with the program alter the look of the gestalt in the 3D Cartesian Space. This is accomplished by using xml encoded data in the template that utilizes the extensible nature of the program. The program can handle multiple templates at once through template files and switch between different themes on-the-fly at the request of the end user through their input from the interface panel.

Loading Cube/Cluster Template for Program Search

Here is an example of a 3D Cartesian Space, where the positions of visual stacks, Links In, Links Out were customized by a template to display the sample web pages presented. Each coordinate or position in the 3D Cartesian space displayed in the visual stacks and Links-In/Links-Out represented by the blue dots in the scene, are variables that were amended by a custom template that is compatible with the program to alter the look of the gestalt in the 3D Cartesian Space. This is accomplished by using xml encoded data in the template file that utilizes the extensible nature of the program. Each cube/cluster can be rotated to sort through the pages in the cluster. Links In and Links Out are represented by line segments that connect each cluster. Clusters that have variable numbers of pages to display that are different than the 8 pointed cube shown in the figure below can have custom geometry drawn to properly represent each the quantity of pages in each cluster.

Figure 21



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SpaceTime

The Future of Computing

Imagine a 3D common space that can visually display the output of any computer or web page and can run on any computer. Imagine an environment where information is bridged and flows seamlessly in 3D among this output, without discrimination, without propriety sharable in a new way, creating a new extensible computing PARADIGM. No matter where you are, you can always visit where you left off last, remotely. Imagine an environment where information now takes on a 3D form where one is only limited by the 3D geometry they can paint and the information they use to paint it. Imagine SpaceTime.

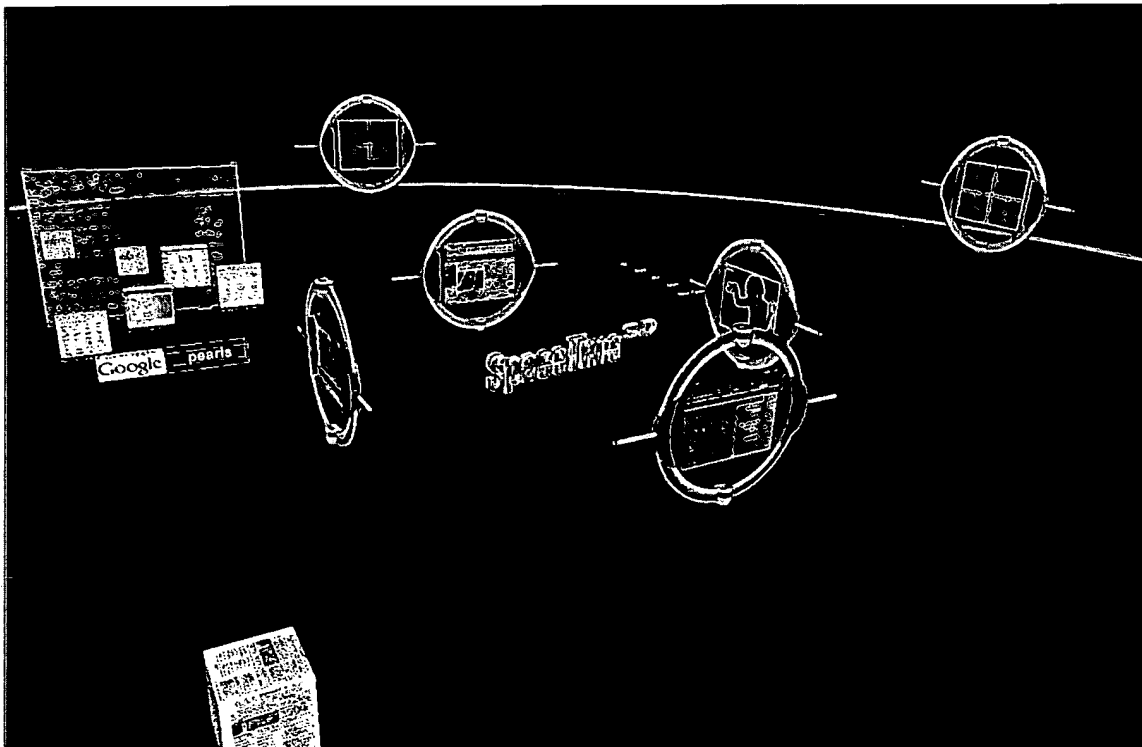
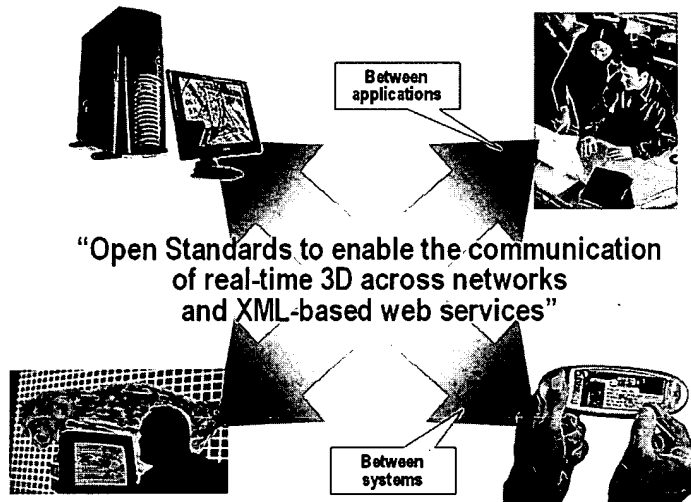


Figure 1 – Here one can see the SpaceTime launch area where an end user has access to web pages, search engines, virtual desktops, advertisements and more in a new computing paradigm available through their explorer browser. Please visit <http://www.SpaceTime.com> to view this on the World Wide Web.

1. Description of the Business Concept and the Business

SpaceTime is a consumer Web Browser hosted Active X control (the player), that is downloaded to a consumer's computer by visiting the website SpaceTime.COM or any web pages created in SpaceTime that have populated the Web through our marketing and promotion. The program will incorporate (1) SpaceTime's X3D player into an end user's current web browser that loads 3D scenes and provides user-level navigation, (2) a new address bar below the web browser's usual address bar for entering in names of 3D spaces created by SpaceTime, archived in our own one Gigabyte private servers (3) a simple, user-friendly graphics editor for self-authoring 3D content and 3D text into newly created scenes in the language of X3D so people can easily store their "stuff" (4) remote-access technology that will web-enable an end user's desktop to remotely appear and function in a 3D world (5) a 3D front-end to existing web services, particularly SEARCH ENGINES, that will allow web content to be displayed into SpaceTime's environment through the X3D XML enabled file format and (6) newly created 3D content that takes advantage of this new medium to make SpaceTime more useful.

Communicating 3D is our Vital Role



A consumer can simply visit our website and begin computing in 3D, initiating searches whose results fill into a 3D graphical space. Or open a window showing the application sitting on a computer elsewhere. Or browse through the World Wide Web's 3D content, organized in a new meaningful way. SpaceTime is concerned with allowing the end user to create meaningful 3D scenes on-the-fly, combining pictures, sound, HTML pages, applications, search results, desktops and other 3D assets without the end-user requiring special programming skills or being put through lengthy procedures, and delivering these scenes (through our server) to any computer running SpaceTime. As such, this application will create a new common denominator or computing environment that will allow the output of computers to visually converge. In a sense, the application SpaceTime will have both the functionality of a client and server. A client for the information it is viewing, and a server for the new files or scenes it creates on-the-fly. One will be able to compile and execute SpaceTime on any computer, creating a truly out-of-the-box common desktop environment in 3D, where the underlying hardware doesn't matter. As long as SpaceTime is doing its work, creating a visual virtual network, consumers will always choose SpaceTime and the space they worked on last, to continue computing.

2. Opportunity and Strategy

Within the last decade, one cannot help but determine that the computer industry has seen an explosive growth in sales and usage. This change is no doubt due to the Internet and the World Wide Web. Together, they have completely changed the way people work, communicate, socialize and shop. In fact, it is estimated that there are hundreds of millions of people in the world who own a personal computer and hundreds of millions of people who access the Internet. This presents an incredible opportunity for a software product that can complement one's personal computer and enhance their use of the Internet and Web. Few would debate that the advent of a visual graphical user interface (GUI), Windows for PCs and HTML for the Web, was also integral to the explosive growth of the personal computer and the World Wide Web as they made PCs easier to use and easily understood. The graphical user interface was a natural evolution from the command line interface. At SpaceTime, INC., we believe that a 3D virtual computing environment hosted on the Web, coupled with a client and server model built in that exploits new content through easy self authoring that can offer another opportunity for high growth within the industry.

With the Internet and the Web, whose web pages give them meaning, special software (HTML editors) and skills are required, along with constant trial and error to build meaningful pages, content or websites. Because of this time-consuming effort, the construction of such Web pages and sites are usually expensive and confined to skilled companies rather than end users. An entire industry exists of companies that build websites to solve this problem. The programming barriers to entry are high. Every person probably knows someone who zealously started a personal website and abandoned it for lack of time or know-how. The verdict is this: the creations of meaningful, aesthetically pleasing websites cost tens of thousands if not millions to design and build and are therefore prohibitive. As such, the Web never emerged as an intuitive, organizational storage medium for personal computer users to expand their desktops into. After all, the World Wide Web would be so much richer if people had an easy way to publish content to it.

Personal computers, the Internet, the Web and Web Browsers, through their client and server functionality, allow for the storage and distribution of any kind of media: text, graphics, sound, video, animation, multimedia; making it a powerful medium. Most computers, televisions, PDAs, cellular phones and other electronic devices can or soon will be able to access the Internet and any information stored on any server as well.

Yet the Web is used only as a way to access other people or companies' published information that was created at great cost with much planning. Whereas an end user's local computer desktop is used as a way to store and access their own personal information, on-the-fly. This is because the backbones of the Web, HTML pages, create a major barrier to entry for most end users seeking to store, format, and share and retrieve their own personal information. In addition, Web pages and their HTML code are a static medium making them difficult to modify without going through great efforts. HTML is not a dynamic environment that allows for the authoring or modification of its HTML pages, on-the-fly, as an end user inputs or alters existing information. No company has created a consumer-friendly editor that works the same way a PC desktop works. It is within this concept that gives the concept for SpaceTime validity and the competitive advantage it needs, a brief window of opportunity, to succeed. In a sense, today's web surfer only has the ability to **read**. We would like to empower Web surfers with the ability to **write**—all the information they can gather in one 3D space, name it, save it, share it and access it from anywhere.

In essence, this will be computing convergence as SpaceTime will be able to identify a hyperlink from a web document or a number from a financial service's web page and reuse it in a new 3D data structure in SpaceTime. The ability to pull apart data from other sources, and re-apply this data into new meaningful ways will offer a new convergence in computing. Consumers will never have to open a file again or close a file. In 3D, space is unlimited. One simply needs the address of this picture, song or saved scene and they can move to it with broadcast quality effects. This is a critical component of SpaceTime as it will usher in the incredible visual effects that X3D can offer through the Web. Not only can one view information in 3D, but one can visually travel through different perspectives. This is important as it brings movie style effects or broadcast quality effects that people have learned love so much through television and film.

The concept for this application program is timely and needed as evidenced by the fact that end users are constantly finding ways to store, transport and reuse their information, applications and operating systems at other locations other than their desktop computer, or for other purposes. People email files they would like to share with other people. People burn information onto CDs and take them to new locations where they plan on using them. People lug laptops around that have the applications or files they need to run. But what if someone could simply launch SpaceTime from any computer and visit a 3D scene, through their web browser, that has the information, applications or desktop they need? In this way, SpaceTime will add value to the end user by eliminating the maintenance and housekeeping needed to have one's applications and information readily available when and where they need it. Because of the advent of X3D, the 3D extensible markup language, SpaceTime can now take information from other web services and feed them into a 3D virtual environment. X3D is extensible, which allows components to be added to it to extend functionality for vertical market applications. Since X3D is newly finished, it has yet to revolutionize the way the Web works.

The opportunity to build SpaceTime could not be more opportune as the historical technologies that brought fourth the **graphical** (html) and **connective**(tcp/ip) nature of the World Wide Web have recently been updated, using open standards, to support 3D graphics by the Web 3D Consortium in collaboration with its many sponsor organizations and the Naval Postgraduate School. Here is an overview of how the paradigm can shift into 3D visualization:

	2D PARADIGM	3D PARADIGM
Era	Old	New
Browser Markup Language	HTML and XML	X3D and XML
Content Creation	Static Web Pages	Self Authoring Scenes
Graphics Display	2D Raster Images	3D Intelligent Objects
Description of Computing Environment	Separation Between Desktop and Web	Confluence of Desktop And Web in 3D
Time Period	1994 to 2005	2006 and On...

The technology for visualizing 3D graphics on windows compatible personal computers is being spearheaded by the Web 3D Consortium. Through the development and refinement of their X3D extensible 3D graphics display language (based on VRML) and Xj3D graphics display engine, they are offering an open source standard system for programming and displaying of 3D graphics that is sure to become the standard for the Web within the personal computer industry; especially for Windows compatible operating systems.

All if this technology will hit the market very soon. These standards are being registered with the ISO (International Standards Organization) and supported by the government through the Naval Postgraduate School, giving them even more validity. The largest companies in the computer industry are beginning to offer 3D effects within and around their software and operating systems (Microsoft's Longhorn and Sun's Lookinglass) for aesthetic purposes only. However, all of this display technology is proprietary and being implemented on an extremely conservative basis for visual effects only. 3D technology does not have a killer application. SpaceTime, can be this killer Application to bring 3D into the hands of every consumer through the Web.

The Web 3D Consortium, backed by government efforts, is a very important forum for the creation and evolution of 3D functionality through the Web. It is through their efforts that the building blocks for 3D functionality are building and evolving. The point here is that there is a tremendous amount of power backing the push to 3D. Many members of the Web 3D Consortium are also involved with creating systems or editors, some text-based and some graphics-based, for creating meaningful 3D content or worlds as they are known. However, these editors require a technical know-how of the X3D 3D graphics display

language or the nomenclature for 3D graphics creation. This can slow down the deployment of 3D to the Web, even though the technology is here. What SpaceTime aims to accomplish is to put a user-friendly 3D playing device as well as a user-friendly 3D editing device into the hands of consumers and empower them with the ability to create meaningful, functional aesthetically pleasing content. However, our 3D editor will be extremely simplistic and user friendly. This way, consumers will be encouraged to create scenes on-the-fly, with their text, graphics, video, sound and desktop components appearing in 3D.

SpaceTime will put the visual power of a movie studio and the information on the Web into the hands of your web browser in 3D where one can navigate and create personalized content with the ease of use of a video game.

Rather than having to sit with a manual learning to create worlds in 3D, with SpaceTime, consumers will be able to author scenes, draw objects, bind information to these objects and save them on a server within seconds or they can load one of thousands of 3D templates or 3D objects from a plethora of subjects into their scene. Then, they can invite people to view and share this information (see figure 2). We strongly believe that the aesthetic appeal, movie-like flying effects and visual freedom of unlimited space offered by 3D graphics will cause consumers to migrate to SpaceTime as a platform or environment for computing. This, coupled with the ability for consumers to self-author meaningful scenes easily, that combine the output of the PC desktop with the Web in 3D, is the definition of the opportunity at hand. In addition, because the world of 3D computing and visualization is new to the average PC consumer, this offers an incredible opportunity to create the new 3D computing PARADIGM that can be the standard 3D programming environment for which consumers associate with 3D. In addition, SpaceTime plans on offering an advanced X3D editor as an advanced feature within the program. Our software breakthrough here that SpaceTime will accomplish will be to merge a 3D graphics editor and graphics player into a real-time-editor/player. In other words, an end user will be able to edit and add content to their 3D scenes in the player mode. This feature of SpaceTime is critical to making the program extremely user friendly.

Concerning the opportunity on the Web, many of the pages on the World Wide Web are fluff, built as doorways or bait-and-switch pages to get consumers to purchase some product or service; diminishing the quality of search. As much time as people spend getting the information they need on the Web, they spend wasting time, sifting through all of the hay on the Web to get to the needle in the haystack. When a search engine returns a query, consumers are so impressed that it took a fraction of a second to do so. However, right next to this number where the stopwatch reveals the search time is an astronomical number showing that there are hundreds of thousands of additional results waiting to be viewed. If you are looking for certain information, how good can you feel knowing that you have only viewed eight or nine of the sites on the first few pages because you have given up? How good can a search result really be if it returned a million pages for one search term? We all know that a fraction of those million pages are not relevant. In the world of 3D, there are numerous opportunities to transcend this heap of information using visual effects to aid in the determination of data being sought after. If a consumer is looking for magazine articles on houses, it is difficult to do this using a search engine. One can type in houses. But a search engine will not understand how to search for the nature of the information or where it originated from. A 3D search engine can visually display the kind of information that is being searched by visually tagging the information or dressing it up with graphics that indicates what it is. For example, using a visual search, web pages are shown on Billboards in SpaceTime. As such, one could border these Billboards with frames whose design can indicate what it is. For example, one could border a search results page that are links to PDF files with the graphics of a book cover so one knows this is not an html page, but a PDF file. An e-commerce site could be bordered with an awning or cash register indicating that it is a store.

3. Target Market and Projections

Today, the personal computer industry has witnessed a high growth trend composed of consumers who use computers and the Web as a way to do just about everything they did before they used computers. From telephony, banking, mail, research, shopping, education, entertainment and working. This group of consumers is the primary market for which SpaceTime is marketing its consumer application.

There are many companies that define the industry, from hardware and software makers to service providers that supply the computers and programs that make all this happen. Particularly, it is the companies that are or supply ISPs, search engines, web browsers, operating systems, programs and utilities whose application logic bring forth a new computing environment that subscribes to TCP/IP for connectivity and HTML (on the front end) as medium and interface. Each day that passes, the companies that define the industry take on features of each other as a way to grow. We believe a time will come where the products and services of these companies will need a new medium to expand into, an ultimate destination, that is visually more appealing, visually extensible in its functionality, and networkable. In essence, the application program SpaceTime will be a hybrid of the following: (1) an operating system in the way it allows an end user thin client access to other desktops (2) the World Wide Web in the way it allows an end user to create 3D scenes composed of their "stuff" and serve these scenes out over the Web and (3) the next generation graphical user interface as it tries to define new meaningful graphical systems to take advantage of a new 3D computing environment that binds graphics with text, among other things. This 3D "next generation" graphical user interface is a perfect compliment to the MTV generation who grew up in front of their televisions as it offers better presentation of information and higher retention rates.

In essence, SpaceTime will be positioned as an ultimate visual and organizational destination for personal computer users who are looking for a way, or application program, to have all of their information and resources converge. We plan on reaching these consumers quickly by offering SpaceTime FREE of charge. This will insure rapid deployment of the product. The Internet offers a full array of options to distribute compelling software at no charge. Once consumers are drawn to using SpaceTime, we will offer upgrades with advanced features for a nominal charge. In addition, SpaceTime will offer other resources down the road such as increased server storage and 3D email. A certain portion of every consumer's screen will be assigned an area for advertising and text links which will be sold based on standard industry advertising models, once SpaceTime is established as an advertising medium that can be quantified. We will also introduce a new level of broadcast quality advertisements to SpaceTime, called **Genie Ads**, that will play selectively within a SpaceTime session.

During the aforementioned high growth trend in personal computing, consumers were drawn to their PCs for the services such as telephony, banking, mail, research, shopping, education, and entertainment. During this growth phase, the companies that offered these services had to re-tool to insure they offered the necessary products and services their customer's expected to utilize in this new Web medium. Mostly, this translated into making sure an organization's resources were available through the Web. In this same vain, these same organizations will need to re-tool their web services into a 3D environment. SpaceTime chooses to be the catalyst for this as it will employ the open standards developed by the Web3d Consortium into an extensible platform or 3D computing environment. As end users add to or modify their 3D work environments, the source code for their scenes (X3D code) will change and save on our servers, similar to the way web authoring programs write HTML code for the pages end users create using their application's interfaces. This is what is meant by real time editing in the player mode.

4. Competitive Advantages

SpaceTime is interested in sewing together the newly available 3D rendering know-how to develop meaningful, intuitive systems for the display of existing information and the creation of new information. These visual systems combined with remote access technology, we believe, will create a computing environment that adds to the existing operating systems, web browsers and applications. SpaceTime will allow end users to pull apart information from web pages and re-use them, in 3D, in meaningful visual data structures. SpaceTime will allow the results of search engines to stream into a 3D space with broadcast quality effects. In a sense, SpaceTime has no competition as it complements existing products.

If you had to define our competitive advantages, they would be:

- (1) **Ahead In Technology** – The SpaceTime team members are at the leading edge of open source 3D technology for windows desktops. Each team member brings with him tens of thousands of programming hours. Programming hours that have solved the intricacies of ingenuity required

to sew the existing 3D technologies (X3D Graphics Editor, X3D Player Engine, X3D Design) into a viable product. It would require too much time to implement the know-how and software code that we have banked. From writing the code for a full graphics editor that outputs in X3D to fine tuning an X3D graphics engine that works with Internet Explorer. All of this work has been accomplished. It would be difficult to find another group who is more able to deploy a 3D service such as SpaceTime to market as quickly. We believe we have a 2 year lead on any competition.

- (2) **Unique Combination of Talent** – The developers of SpaceTime are the key pioneers in the effort to create an open standard for 3D graphics display on personal computers through X3D and the Web3D Consortium. As such, their know-how and expertise will be applied to the development of new standards for PCs and SpaceTime simultaneously. This way, SpaceTime will be at the cutting edge of a technology, X3D and Xj3D, that is sure to be the next generation of HTML and Browser for 3D visualization. Our team can implement new features and standards into an application before or at the same time the new feature is realized.
- (3) **Operational Excellence** – Our company will be the first to create a new 3D computing paradigm that (a) allows the information from web services to visually stream into a 3D space (b) pull apart this static information and assemble it in a dynamic three dimensional meaningful way and (c) save these 3D scenes, on-the-fly, for future access.
- (4) **Proprietary Technology** – The SpaceTime Active X control with its built in 3D graphics player and simple authoring tool for X3D will allow a computer user to play any 3D graphics in their browser (X3D or VRML97). However, SpaceTime is going to add functionality to any X3D scene (3D Search, 3D Cells, 3D Matrix, 3D Tables, 3D Billboards, 3D Templates, Word Streaming etc...) that goes beyond simply playing a graphics file written in X3D. As such, our Active X control or application is going to (1) add code to the X3D files our program stores and (2) interpret this code before displaying. This "extra code" is going to be the binary proprietary component that adds this functionality to a 3D world that goes beyond the open source specifications for X3D. In a sense, this added code will bring X3D to life. Any company can offer an X3D player and an X3D world. However, being the first to market with a user friendly, simple to use 3D authoring tool that works on-the-fly through a web browser that adds functionality to 3D scenes will allow us to own the lion's share of the market. In other words, people will have to visit SpaceTime.com to enjoy all of the features we offer as other players will not be able to interpret the added components. We anticipate that end users will bring their other X3D code to SpaceTime as an easy way to add functionality and usability to it.
- (5) **First to Create Content** – SpaceTime will hire a team of 3D graphic artists and create new compelling 3D content for consumer use. The whole point of 3D is to get existing information into the hands of people in a new way--in many instances a way that is not possible in the 2D paradigm—and have them take action on this. We will focus on areas of general consumer interest such as finance, news and entertainment so our efforts are well received.

In summation, SpaceTime will create a visual and communicational bridge among the output of the different operations that it is visually serving, regardless of whether or not the applications or operating systems that created them are available locally. This point, although subtle, can send a surge through the computer and Web industry. Most computers today only store information in either an ASCII or binary file, with the exception of JAVA which uses Bytecode. Binary files are only viewable by the application, player, plug-in or helper application that created the file. Binary applications, to reach their existing form, must be compiled by computer-specific compilers as they create distinct executable binary code for each computer they choose to run on. In both instances, the information within them is often encrypted and not accessible by any other operating systems or application. This way, software companies achieve control and a competitive advantage by putting a lock on their applications, operating systems and the data files they create. Because propriety is a software company's reason for being, and competitive advantage, they would never forgo this in order to give chance to an application such as SpaceTime that takes the primary focus away from their product. SpaceTime's potential competitors will only change their computing paradigm after a competing product has proven itself profitable. By this time, the application and concept can be successfully deployed.

5. The Industry and The Company and Its Products

The vast majority of people that use computers use them locally, at home or work, to run an application or utility that they need to accomplish a given task; word processing, spreadsheet, custom application. Consumers also use their computers to connect to the Internet. The vast majority of consumers that visit the World Wide Web primarily visit (in order of rank) Yahoo!, MSN, Google, Microsoft, Ebay, Amazon etc... The vast majority of people that visit Yahoo! And MSN, do so for their free email. In fact, 40% of the people that visit Yahoo! Use it for email. 65% of people that visit MSN use it for their free email. The rest of the time, people visit these top three websites to conduct a search or use another one of their services. In essence, people are sitting in front of their computer, emailing people, and searching the web; getting answers to those questions they are thinking about and purchasing things.

6. The Industry

At the current moment in time, the personal computer industry and the World Wide Web of the Information Technology Sector are on a strong comeback. People realize that computers and the technologies that they offer are paramount in normal day-to-day life. The stocks and bonds that represent ownership in IT companies may vacillate while the demand for products and service in the IT industry steadily increase at an increasing rate.

As different technologies appear, consumers and businesses alike often find themselves in a situation where they have to retool in order to stay current with the latest technologies. When new technologies show themselves, change often follows. Where there is change, there is opportunity.

We feel that that the Information Technology sector is converging. Operating Systems such as Microsoft Windows XP blur the difference between the desktop and the Web as the Microsoft Foundation Classes for Internet Explorer and your Windows XP desktop are one in the same in appearance and functionality. An end user can do a Web search from the address bar of the window that displays the contents of their hard drive and vice versa. Computers can play a full suite of multimedia. Flat panel televisions are shipping with operating systems built in that take on the functionality of a PC. Yahoo! web enables basic applications and services that once were native to applications found on the desktop. Google is trying to take away market share from Yahoo! and MSN by offering email. There are a plethora of other pertinent examples as well. However, as the personal computer and Web mature all of the companies that make up the personal computer and Web industries are competing with each other by taking on features of the other. This is where the opportunity exists. Particularly, the opportunity to bring 3D graphics to PCs and exploit the benefits 3D graphics have in, not just gaming, but computing. There is an opportunity to create a new 3D computing paradigm where information, Web services, applications and searches can converge in a 3D environment. Therefore, SpaceTime is targeting its software service as a new product for an existing customer and market base. In essence, SpaceTime has limited competition as its product compliments the existing products and services within the industry offering a new way for the output of these products and services to be displayed.

7. The Company and The Concept

Today, the vast majority of consumers who use computers and the Web, visit either Yahoo!, MSN or Google and then visit their free email account. In other words, consumers are primarily using their personal computers and the Web to communicate. Next, consumers use the search engines to find the information they need at that moment, to satisfy their current thoughts or to purchase the things they need to have. This is the landscape of the current version of the World Wide Web that we know of today. However, this landscape is constantly changing and will continue to do so. The World Wide Web of three years from today may have no resemblance to today's web. As technology improves, consumers will demand and expect more.

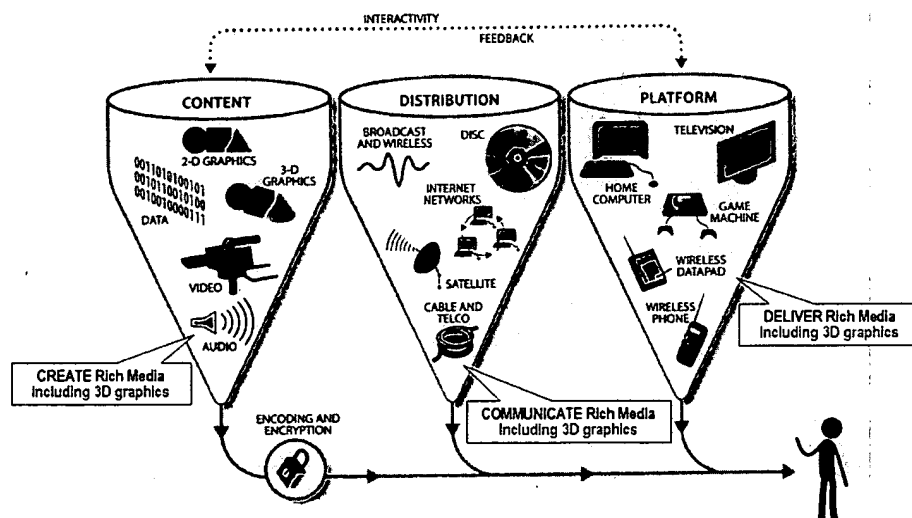
Today, consumers primarily use words, entering them into search engines, to retrieve the information they need on the Web. These words, if found on web pages, direct consumers to where they need to go or satisfy them by answering their questions. During this process, one hopes that the word they have found on that particular page is hopefully a word on a page that is a part of many other pages whose Website is applicable to the subject at hand. However, people primarily think in images and thoughts. In fact words are simply descriptions of images and thoughts. People turn on their computers and begin the process for hunting down the information they need, translating their thoughts or images into words. Many consumers do this elaborate repetitive task over and over each day. But what if a consumer could turn on their computer, double click internet explorer and enter in their SpaceTime address, a three word naming schema (for example, x: personal, y: email, z: friends) and a 3D scene would appear, leaving them where they left off last. Why not fly through the information you are looking for conducting visual searches by moving through information. Or perhaps a teenager, who doesn't have the skills to create their own website, but is anxious to share information through their computer could create a 3D scene showing pictures, web pages, animations and show all of his friends through the Web.

8. An Idea Whose Time Has Come

The Information Technology race has been going onward for quite some time now. The world has stood by to witness as the personal computer has changed our lives. Most recently, one cannot help but determine that it is the progression of the Windows GUI from the command line interface coupled with TCP/IP and the Web that made computers extremely accessible, friendly and usable, particularly through the Internet. The products have evolved, as well as the players who created them.

From the manufacturers of the PLATFORMs that process information, to the creators of the CONTENT that runs on these PLATFORMs to the way this information is DISTRIBUTED, one cannot help but determine that 3D is soon to be a part of the future.

Making 3D a Part of Rich Media



The question is what must follow? We strongly believe that the industry will see another sweeping change in the way information is stored, displayed, manipulated and connected on a visual basis. We believe this change will eventually happen naturally. Microsoft, Sun, Yahoo!, Google and others will eventually incorporate 3D into their presentations. However, they would never change their current systems. They would simply offer media that compliments it until another company proved to be profitable or threatening. In addition, they would never create a system that allows consumers to self-author their own scenes, as this is not their business. This creates a tremendous opportunity to the first mover: **the first mover's**

advantage. The playing field is open to the first company that says “this is how 3D will happen on the Web”. SpaceTime, INC. would like to usher in this change and seize this opportunity by defining the way information will be handled in the hands of consumers, in this new three-dimensional world, giving new meaning and relevance to its information and empowering PC users with the tools to create 3D.

9. The Product and Services

SpaceTime will give consumers a 3D computing area, with one gigabyte of storage for 3D worlds, 3D email and other services. SpaceTime will generate revenues from two primary sources: (1) Advertisements and (2) Customer Subscriptions.

10. Advertising

Once SpaceTime has an established user base, we will be able to sell strategic advertisements as consumers compute in SpaceTime. We plan on selling advertisements on a CPC (Cost Per Click) basis as well as a CPM (Cost Per Thousand Impressions) basis. We also plan on introducing two new advertising categories (1) Cost Per Time (CPT) and (2) Genie Ads. Cost Per Time will be a way to describe an advertising product for sale where SpaceTime charges advertisers based on how long an end user (duration of time logged in) stays within a 3D world where there Billboard Advertisements are. After all, in a 3D world, pages don't appear and disappear, you simply move around them. Each SpaceTime user will initiate their session by visiting a 3D area that will be customized for them. This basic starting point for computing in a 3D world in SpaceTime is known as a LaunchPad. Surrounding the LaunchPad will be:

(1) **Four billboards** with Ads being sold on a CPT (Cost Per Time) basis. The thinking here is that computing in a 3D world, centered around a central area where products and services can originate from, requires end users to hover around a specific area. Unlike web pages whose owners charge advertisers on a cost per click (CPC) basis or cost per thousand impressions (CPM) basis, the CPT advertising product takes into account that end users will “hang around” a specific area, computing in 3D. As such, there is an opportunity to charge advertisers for more than a fleeting impression or a click. The current rate most of the larger search engines and ISPs charge for banner advertisements in their main page or shopping portals is approximately \$20 per thousand impressions. This costs about 2 cents per impression. Estimating that an average consumer could visit 1 pages in a minute (seeing 1 banner advertisement), we can extrapolate that in a 3D world the “going rate” that an end user hovers around a specific area where a billboard ad may appear would be 2 cents per minute. Thus, the introductory Cost Per Time advertising model would be 2 cents per minute.

(2) **Text Links** which will be placed in strategic locations near SpaceTime services; particularly next to the LaunchPad, Billboards, 3DMail and 3DSearch that will bring users to a web page in the 3D world where they can see the URL for the link that they clicked. SpaceTime plans on being distributor for advertisements from **Yahoo's Overture** and **Google's Adwords**. Depending on our customer base and reach, we will be able to sell this space appropriately. The “market price” for CPC advertising can be anywhere from 20 cents per click to \$2 per click depending on the search word or category. Each location in a SpaceTime computing area will have a combination of three special keywords that name it. In fact, the syntax for naming any location in a 3D world that an end user creates will have an x, y and z coordinate. This is how consumers will store and access their scenes from their server space. Except SpaceTime will allow an end user to assign three keywords to their scene. For example, someone may create a scene in a 3D world where they place web pages of the “stuff” that has to do with their wedding. This scene may contain a few web pages, some pictures, some music, a few search results etc... They may give the x,y and z coordinate of this scene the names x: personal, y: wedding and z: dresses. This scene could, for example, contain the web pages of some dress designers, photographs of particular dresses she likes, sizing information (text), search results of places to shop, a list of people invited and a layout of attendees to the wedding. The SpaceTime server software will be able scan the x,y and z keywords consumers assign to this scene that they have stored and deploy the appropriate text link advertisement in around this area.

(3) **Genie Ads** will be 3D objects that strategically appear in a 3D space similar to the methodology used to deploy text links. For example, if an end user does a 3DSearch or visits an area whose name or keywords relate to the subject at hand, SpaceTime will deploy a 3D object that will play itself in the 3D world and then disappear. These Genies will be the most expensive advertisements we offer.

11. Subscriptions

Once consumers begin to use SpaceTime, they are going to require additional media, storage and application logic that goes beyond the basic product to enhance and make their scenes more productive. We plan on offering end users:

- (1) **Additional Storage Space** – Priced on a per gigabyte rate. The creation and storage of intricate 3D worlds can be memory intensive. As such, we feel that consumers would pay extra for this storage space.
- (2) **3D Templates** – One of the benefits of SpaceTime will be its ability to incorporate all of the features of the most popular software products consumers use (word processor, spreadsheet, web browsing, web searching, picture storage, music playing) in a simple user friendly way in 3D. The construction of meaningful scenes will be effortless. For example, we may offer a Template for a 3D Calendar. However, having the features of all of these software products together is an extremely powerful tool, but time consuming to create. SpaceTime will offer 3D Templates whose graphics objects, layouts and composition will lend themselves to more powerful computing. Of course, many 3D Templates will be available.
- (3) **Objects and Scenery** – In order to “dress up” a 3D world, consumers will have the option of placing raster images and 3D images (objects in and around their scenes).

12. A Look at a New Way of Computing on the Web

In order for SpaceTime to work, it will have to do a lot of things together that are perfectly synchronized. As an example, in its infancy Yahoo! was a directory for the Web that used the Web and the technology it offered to create itself. It was simply a yellow pages for the World Wide Web that moved to market first. It also had to add a search feature to navigate through the Directory categories it created. It had to create advertisements to sustain its business and earn the revenues it needed to purchase up-and-coming Web services that, if not purchased, could end up competing with it. The point here is that when you look at Yahoo! today, you think it is a search engine or directory. But in fact, Yahoo! is 100 different things happening independently from each other in concert. Similar to this model, SpaceTime must do several things together in concert to be successful.

It must:

- (1) Allow people to self author 3D spaces easily with their “stuff” in it, save it, and access it from anywhere.
- (2) Offer enough new intriguing 3D content for new users to bother with 3D and SpaceTime.
- (3) Allow existing web services to spill into 3D like search and email.
- (4) Expand the existing interfaces used in 2D, to more fully take advantage of 3D through a new computing paradigm that will be the backbone of “self authoring” in SpaceTime.
- (5) Create a system or platform for 3D files or scenes to seamlessly interconnect.

- (6) Gather all the existing 3D content already created and gather it together in a meaningful 3D directory where end users could access it.

Once 3D emerges on the Web, it is not enough to think that the usual 2D graphics interface will be enough to be the interface into 3D. Even a search engine will not be enough of a front end to handle the power of 3D. There must be an organized efficient way to do this. We believe that SpaceTime is this way. What if Yahoo!, Google and MSN begin to introduce 3D scenes into their services as a new way to complement them? The only way people will be able to access these disparate 3D scenes, whatever they do, is to add the address to favorites, or do a search in Yahoo! The problem here is that 3D, unlike 2D, is unlimited in its presentation capability. Search results from a search engine is not enough of an interface to bridge the world of 3D. The concept of opening a file and closing a file is needed because in a 2D world, space is limited. In a 3D world, files do not need to be opened or closed. They are simply there, and you visit them. Even a search engine simply finds words that exist on pages anywhere. But imagine a day where everything that is on the Web now, is there in 3D. People won't be bothered with flat, static pages. Search will be dwarfed. People experience scenes (that have the information they need) that have the production quality of film, the interactivity of gaming and the intelligence of a powerful application programs. Eventually, all of the content out there will have to emerge into 3D. However, this is a laborious task. It is not unlike the production of a feature film. Not everyone can do it, not everyone has access to the equipment, not everyone can afford it. However, everyone would want to watch it. But in order for it to work as an industry, you have to have a movie for everyone. This is where content plays an important role.

13. The Benefit and Need to Consumers

SpaceTime will initially expand the two dimensional (a) desktop, (b) application and (c) web browser into a common 3D area offering broadcast quality effects, now only seen in gaming and television. These "effects" will dramatically improve communication and retention and save people a tremendous amount of time. Please visit www.SpaceTime.com to view this production value personally, as it would be impossible to describe in words how these effects happen. By allowing consumers to put 3D objects (that are a window into other information) that are native to SpaceTime into their 3D worlds and customize them, our company will deliver the needed convergence that has been long awaited in the computer industry. In addition, SpaceTime will allow existing web services, such as search, to be visualized in a 3D area delivering increased visualization and understanding. Some of the objects our software will allow consumers to place in 3D worlds follow:

- (1) **VNC Desktop** – Full access to any computer at any remote location shown in a 3D arena.

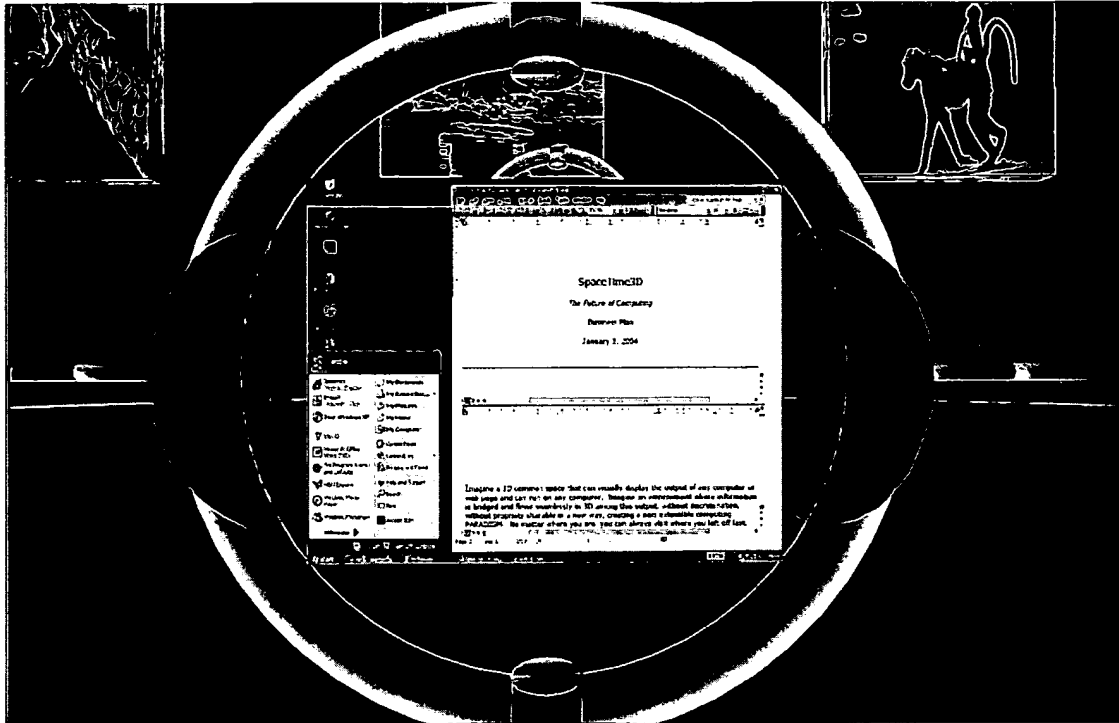


Figure 2 – This viewpoint shows the virtual desktop of an IBM ThinkPad T41p running Windows XP as a client within SpaceTime that is running on another computer as an Active X control within the Internet Explorer web browser. The VNC desktop is fully functional. In the background, the end user has inserted a 3D Table that is currently storing and showing pictures of animals from their photo album.

- (2) **Cell** – Similar to a cell in a spreadsheet that can hold information (text, number, picture etc...) and communicate this information to other cells. For example, a consumer will be able to pull data from a web page and assign the information to a cell.
- (3) **Table** – A collection of Cells working together with the functionality of a spreadsheet.
- (4) **Matrix** – A collection of Tables extending into the z axis. A 3D table.
- (5) **3DText** – The ability word process in 3D, taking notes, jotting down ideas, organizing these ideas in meaningful ways that accommodate the limitlessness of 3D.
- (6) **ViewPoints** – The ability to choreograph a story by using RECORD and PLAY features borrowed from the video industry. A consumer will be able to assemble a 3D layout, press RECORD, fly through the scene with meaning and purpose and save this ViewPoint. This is extremely helpful for visually searching through data and for educational purposes.
- (7) **Word Streaming** – Binding 3DText to 3D objects and flying through them. This improves presentation, retention and emphasis far beyond what is available using text documents or even flash. Using word streaming, one can word process in 3D, binding their text or information to one object or a series of objects where the presentation and orientation gives the text or information enhanced meaning. One can use the RECORD, PLAY and VIEWPOINT functions of SpaceTime to script meaningful montages that can be played. This is not unlike the open credits for a feature film.

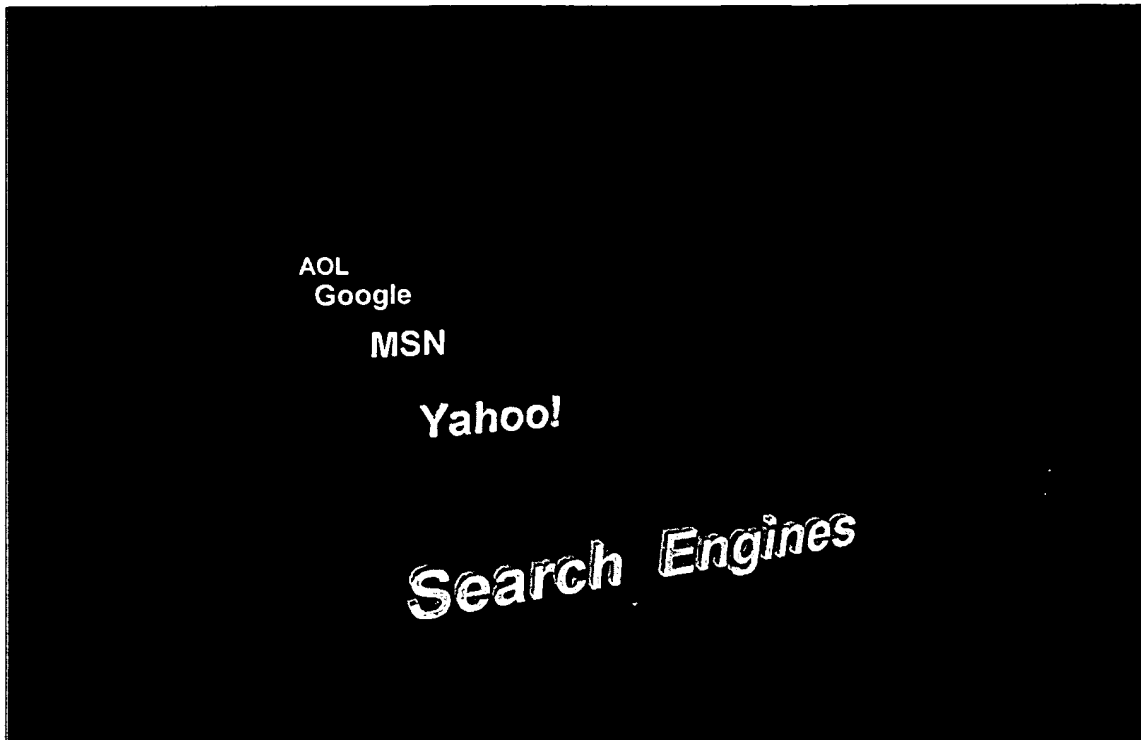


Figure 5 – Above, one can see the start of a 3D tree diagram where text has been bound to the nodes of a line segment representing the top search engines and ISPs on the World Wide Web. A Consumer could extend any of these nodes to accommodate more information, creating a tree diagram or any other shape. This is an aesthetically appealing way to store textual information in 3D while giving it meaning. One could then “fly through” their diagram or word stream based on the viewpoints they created. We feel that this is the equivalent of a “list” in 3D with the presentation effects of a feature film.

- (8) **3DSearch** – Allowing information from a search engine, database or other web page to be displayed or converted into a 3D template (that one can customize and change) using the extensible feature of X3D.

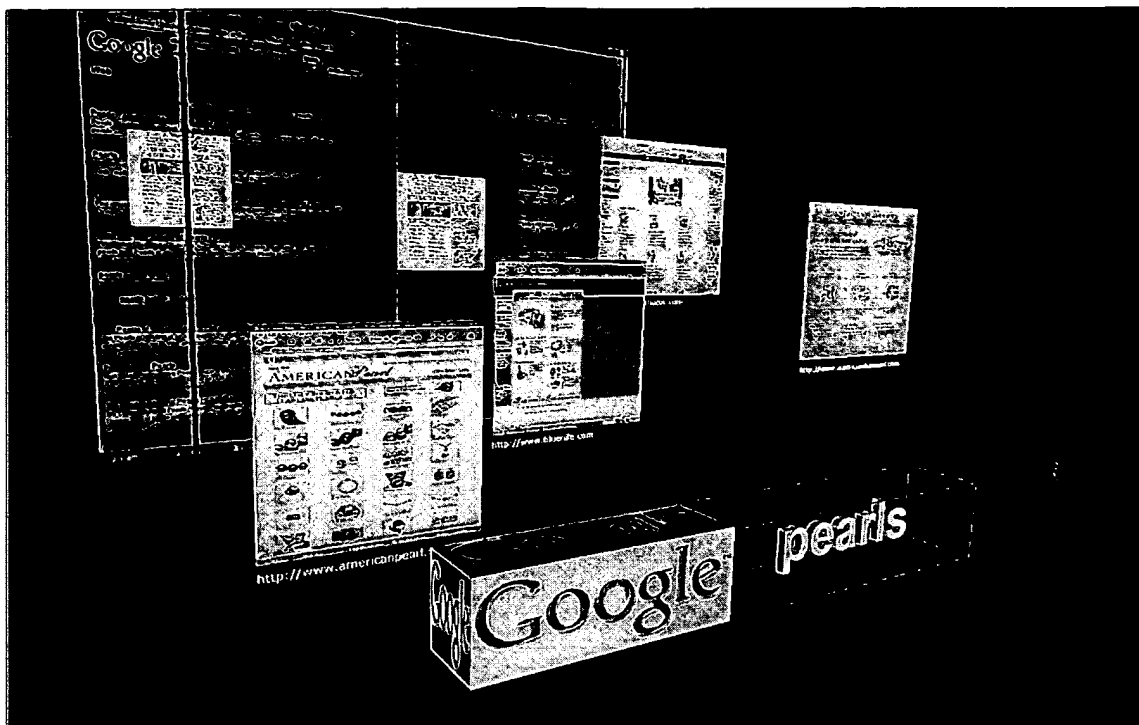


Figure 3 – Using the services of 3D Search, SpaceTime will be able to take the results from a search engine using the search engine query language and display their results in a 3D virtual scene; adding more meaning and relevancy to limited keyword searches. This is one of dozens of 3D templates or interfaces for search that we can have available. From figure 3, one can see that an end user typed in a search for “pearls”. SpaceTime returned the search results in 3D with the actual Google page the information was taken from displayed in the backdrop as a reference. This version of 3DSearch is one of many templates that can be added into SpaceTime. The benefit in 3D is that this new environment can take advantage of the down time experienced in 2D. In a 2D world when someone clicked on a link that resulted from a search engine, the time they spend reading the page, once loaded, could be spent clicking another link and download that. But how do you tell your browser to load the next page in a search result while your busy reading the first page? In SpaceTime, after the first page from the search results is loaded, all of the other pages follow automatically. This saves a tremendous amount of time.

- (9) **3DCreation-** This function takes a 2D web page, displays it in SpaceTime and converts it into 3D so the pictures, text links, buttons and fields can now have volume and depth and be re-used in the new 3D paradigm that SpaceTime will create. Consumers will be able to pull off a text link, or other part of a web page and put it somewhere else, bringing with it the same functionality it has on the web page.
- (10) **3D Template-** Similar to taking all of the components that can make up a Web page (text, graphics, buttons etc...) A 3D Template is the 3D equivalent of putting together all of the 3D components indicative to SpaceTime (table, cells, cube, floor, etc...) and putting together a theme where the 3D components work together to bring functionality to the desired theme. This is an extremely powerful tool since it combines the functionality of the web, 3D word processor, 3D spreadsheet, music, video, desktop into a forum that can be dressed up with broadcast quality visual effects.

All of these objects will be able to sit next to each other in a 3D world and work together to build meaningful gestalts for consumers. Typically, consumers perform tasks on their computer, only to have them disappear once they move on to another task. SpaceTime offers the ability to “save a computing moment in time” name it and access it again from anywhere. Knowing that one can fill this “moment in time” with all of their “stuff” (pictures, music, web pages, searches, desktop, etc...) in 3D and allow the objects to communicate with each other is a powerful tool that will benefit any computer user.

14. Virtual Network Computing In 3D

The concept of accessing the desktop of another computer or remote access computing through TCP/IP or the Internet is not new. However, the concept of computing in a 3D environment, where a consumer has access to worlds in 3D, video, music and their DESKTOP is novel. Development and tuning of remote access software has been ongoing for many years, and arguably the most well known (free) implementation of this is VNC, or Virtual Network Computing. VNC is well documented and easily incorporated into any application program. SpaceTime will offer VNC functionality in its ActiveX control to allow people to access any computer's desktop from any remote location in a 2D window, in SpaceTime's scenes.

VNC, initially developed at AT&T was the archetype for the current version of open source VNC. This simple remote control software allows a user to view and interact with a computer (Server) by installing and executing a program (Viewer) on another computer. The beauty of VNC is that it offers abstraction between two disparate platforms allowing the output of a computer running operating system X to be viewed on a computer with operating system Y. It will run on most known operating systems and requires very little computing power. VNC has two components, the server and the viewer. The VNC server allows other computers to connect with your computer remotely, and the VNC viewer connects with the server and must be installed on the client machines. The viewer authenticates with the server using a session password, which is set when the VNC server is launched. The programming team at VNC is eager to work with other software application developers such as SpaceTime, Inc. to assist in embedding VNC functionality into other applications at no charge. VNC will be a key component of the SpaceTime application as it will have both the server and viewer within one common application.

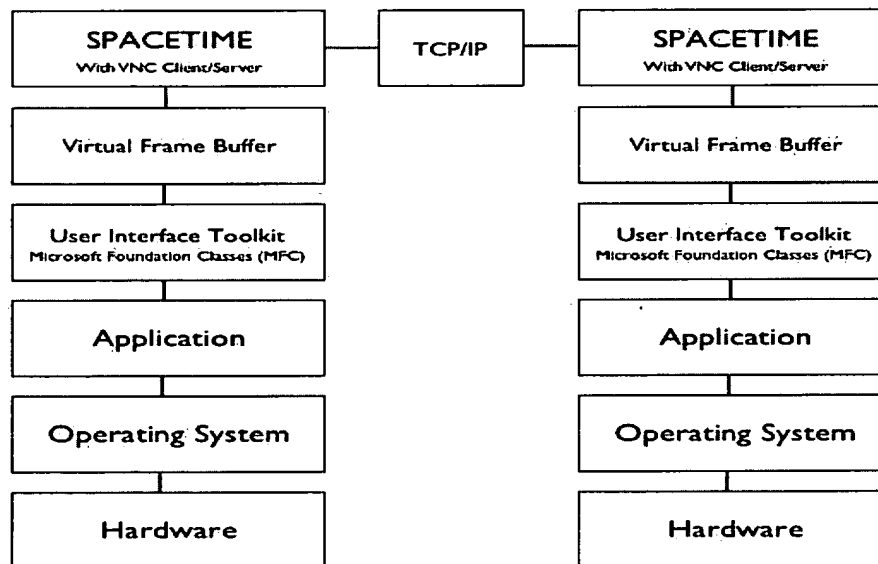


Figure 1 — SPACETIME, with the VNC client embedded within it, acts as a thin client by receiving the intercepted graphics pipeline or the virtual frame buffer of the computer that is being served using TCP/IP. SPACETIME, with the VNC server embedded within it, acts as a server for the desktop of the computer that is being served.

Under VNC, the entire working environment of your computer is brought over the wire to wherever you are currently sitting, eliminating the need for synchronizing files between laptops and desktops. Whether you are working away from home or office, or simply allowing users to access their data from any web enabled location it doesn't matter. Current remote desktop software does have some drawbacks. The most major of which is the simple fact that the current technology does not allow for lag-free control of a

computer over a remote connection. [This will diminish as Internet throughput improves] Invariably the computing experience will be slower using remote control software than it would be if the user were seated in front of the actual machine. This is the case because of the time it takes to transfer each move of the mouse and keystroke over a standard 10/100 network connection, and to return the results. The slower the connection (or farther away the computers), the less responsive it will be.

Because VNC connections are shareware yet not secure, they allow an opportunity for a third party such as SpaceTime, Inc. to utilize this technology and encrypt it, making it usable in business settings where data must be protected.

Technologies do exist that offer similar features to some of the features of SpaceTime. But rather than offering competition to SpaceTime, these technologies offer open source code that can be embedded into SpaceTime that will dramatically cut down development time.

15. The Actual Product

The primary purpose of SpaceTime is to introduce a new three-dimensional computing environment to consumers that's easy to use and powerful. We are offering people 3D space and the ability to fill this space with their stuff, accessible over the Web from anywhere. We plan on incorporating many of the features of a professional 3D graphics editor with the same ease of use a consumer associates with browsing the World Wide Web. This way, consumers will be able to harness the power of 3D by creating 3D Scenes that they can customize with television-style broadcast-quality graphics and text. The aesthetic appeal of this new way of computing, we feel, will cause a natural migration of consumers from traditional 2D pages run by ISPs, Search Engines and Portals to us. People will be able to save their Scenes on SpaceTime's servers and access them from any Web Browser by visiting our website. More importantly, we feel this will create a mania to create "cool" 3D scenes that people will want to share with their friends and colleagues.

SpaceTime will have many features. Among its most important features will be the following:

- (1) 3D Search - The ability to type in searches and have results from the leading search engines fill into a 3D Space with 3D lettering or a display algorithm selected based on the kind of search.
- (2) Creation of 3D Objects
- (3) 3D Word Processor & Spreadsheet
- (4) Remote Access to Desktop elsewhere, visualized in a 3D world
- (5) A 3D Chat Room
- (6) 3D Mail

This is one way in which SpaceTime may work.

The end user visits the website www.spacetime.com. Web browser hosted Active X control is invisibly deployed to the local machine that delivers the full functionality of SpaceTime to the consumer; particularly the client and the player. The process to begin computing in 3D is effortless, without any barriers such as registration or special downloads. All of this happens automatically behind the scenes.

Once downloaded to a consumer's PC, SpaceTime adds an amendment to the toolbar, adding a series of input fields directly below the "address bar" that compliments the natural Internet Explorer browser with the following fields, usable the same way the address bar is used:

- (1) **SpaceTime**—The field where end users can enter in the name of their SpaceTime or world that they create that is hosted on SpaceTime's Servers. The name of the SpaceTime references the X3D data file that contains all of the graphical information for all of the possible X, Y and Z coordinates allotted to the current file. The default SpaceTime is automatically named Myspace. Myspace will consist of a personal 3D area featuring a LaunchPad to services such:

- (a) 3D Search,
- (b) Remote Access,
- (c) Advertisements,
- (d) 3D Word Processor,
- (e) 3D Chat,
- (f) 3D Email,
- (g) Stock Ticker and A
- (h) simple graphics editor for adding geometry to the SpaceTime
- (i) Information Editor allowing consumers to bind information to geometry.

Consumers will be able to add to this LaunchPad or introductory world by utilizing the commands under the **CREATE** Menu.

- (2) **X position**—The horizontal position in SpaceTime
- (3) **Y Position**— The vertical position in SpaceTime
- (4) **Z Position**—The time position in SpaceTime
- (5) **ViewPoint**—One specific X, Y and Z view point in SpaceTime or a series of connected X, Y and Z view points within SpaceTime that has been given a name, that is stored on the SpaceTime server. A consumer can simply type in a name in the ViewPoint field as if they would type in a URL. Once they hit return, the X3D file is downloaded from the SpaceTime server into the local browser showing the graphical information at that specific X, Y and Z coordinate in the X3D file.

The SpaceTime Active X control download will include an X3D player that will be compatible with any Web browser, particularly Internet Explorer. This Active X control will allow 3D graphics to play in the same browser window that displays the usual web pages. As long as a consumer visits SpaceTime.com, they will automatically be able to view and author 3D graphics within the browser of their Internet Explorer.

Below the SpaceTime address bar will be a menu bar with the following titles and functions in their drop down menus:

File	Edit	Create	ViewPoint	Transform	3D Text	Help
New	Cut	Object	Take A Picture	Web Page to 3D	Insert	Play Tutorial
Open	Copy	Link	Record	Create Chat	Font	Search
Close	Paste	Import Object	Stop	Room	Size	Glossary
Save	Object	Desktop	Play	Load Geography	Color	
Save As	View Source	LaunchPad	Fast Forward		Texture	
Log Out	Editor	3D Search Field	Rewind			

Connect	Advanced Editor	Word Stream	Link
Upload	Select	Matrix	Map
Access	Select All	Geography	Compass
	Keyboard	Avatar	
		Object	
		Billboard	
		Floor	
		Cube	
		Sphere	
		Table	
		Wall	
		Mirror	

FILE

The file menu will contain the commands that relate to uploading, amending and downloading SpaceTime scenes from our servers.

New – Create a new file hosted on the SpaceTime server with a new name that contains the basic X3D source code for the LaunchPad or introductory SpaceTime interface. If a file is already open, New will open an additional window.

Open – Open a file that has already been created and hosted on the SpaceTime server using the client/server functionality of the Active X control and Internet Explorer.

Close – Close the current SpaceTime scene.

Save – Save the newly made changes to the current SpaceTime scene by updating the server that hosts the file.

Save As – Save the current SpaceTime scene using a new name, without altering the old scene.

Log Out – Close all the current SpaceTime scenes, allowing another end user to Log On.

Connect – This feature will allow an end user to adjoin two SpaceTime worlds together. Simply select “Connect”, enter in the name of the other SpaceTime or scene and the SpaceTime server will temporarily create one file or scene of the two scenes. This visual connection will also be reflected in the SpaceTime map.

Upload – Load a 3D scene or world to the SpaceTime server and give it a name.

Access-Access another virtual world from a file type other than X3D to play in SpaceTime.

EDIT

The Edit menu will contain all of the commands that will allow an end user to copy, edit, manipulate and paste the 3D objects in a SpaceTime scene.

Cut – Once selected, Cut will remove the portion(s) of the selected SpaceTime scene and place them in memory.

Copy – Once selected, Copy will duplicate the portion(s) of the selected SpaceTime scene and place them in memory.

Paste – Will insert the portion(s) of the selected SpaceTime scene in memory into the current scene.

Object – This will open the selected object or objects in a new pop-up window and allow end users to alter the object's properties, depending on what kind of object it is. For example, if you click on a Billboard, you can alter the length, width, height, border, color, size etc... Edit/Object will reveal the SIMPLE EDITOR.

View Source – This will reveal the X3D source code for the current scene in a pop up window. End users will be able to alter the source code and update the content for this and have it automatically updated on the SpaceTime servers.

Editor – This will open the SIMPLE EDITOR in a pop up window. End users will be able to use the abridged, easy to use, 3D creation tools to drop items into the current 3D Scene and have them automatically saved on the SpaceTime server.

Advanced Editor – This will open the ADVANCED EDITOR of

Select – Identify and highlight the object for future editing.

Select All – Identify and highlight multiple objects for future editing.

Keyboard – Selecting this function will allow an end user to alter the keys that control the current navigation in this 3D world.

CREATE

The CREATE menu item will allow an end user to add 3D geometric objects to their scenes and attach functionality to these objects. These objects will have been initially designed by SpaceTime and have a very specific look, feel and functionality that will add and complement the theme of SpaceTime. However, end users will be able to alter these objects, create new objects and add new objects to the CREATE menu. In fact, we predict that one day people will swap and sell objects.

Object – An object can be an array of geometric shapes that define an open 3D black space that is the beginning of a new scene. These objects are placed in strategic locations to give the end user specific meaning, customizing the scene for them. The ability to create 3D objects that have functional value in a new computing paradigm that we are trying to create, coupled with visual design that complements the function is an invaluable combination in trying to create a new 3D computing paradigm.

Billboard – A flat, rectangular or square geometry, usually taking form along the plane of the y axis in a 3D scene, where an end user can post or attach any array of information including web pages, pictures, desktops, chat monitor, a number or word.

Floor – A flat, rectangular or square geometry, usually taking form along the plane of the x axis in a 3D scene, that an end user can use as a grid or mapping system, to define an area, organize text, word streams, pictures, cells, billboards or other objects in a visually meaningful way.

Cube – As its name implies, end users will be able to draw cubes of varying shapes and sizes and bind pictures, web pages or desktops to any of the inside or outside six faces of a cube. Cubes can stand alone or be joined together to create aesthetically meaningful scenes.

Sphere – As its name implies, a round 3D shape that is either solid, transparent, wire or pictured that can jump to another area if clicked or contain a meaningful world within it. Multiple spheres can exist, orbiting around a central point, where each sphere is grouped together based on a common denominator.

Mirror - As its name implies, a mirror is a visual reflection of another scene or x, y and z coordinate that is visible and applicable to any object. Simply attach or paint a Mirror to a billboard, sphere or other object and the end user will be able to view another viewpoint from their current viewpoint and actually move into it.

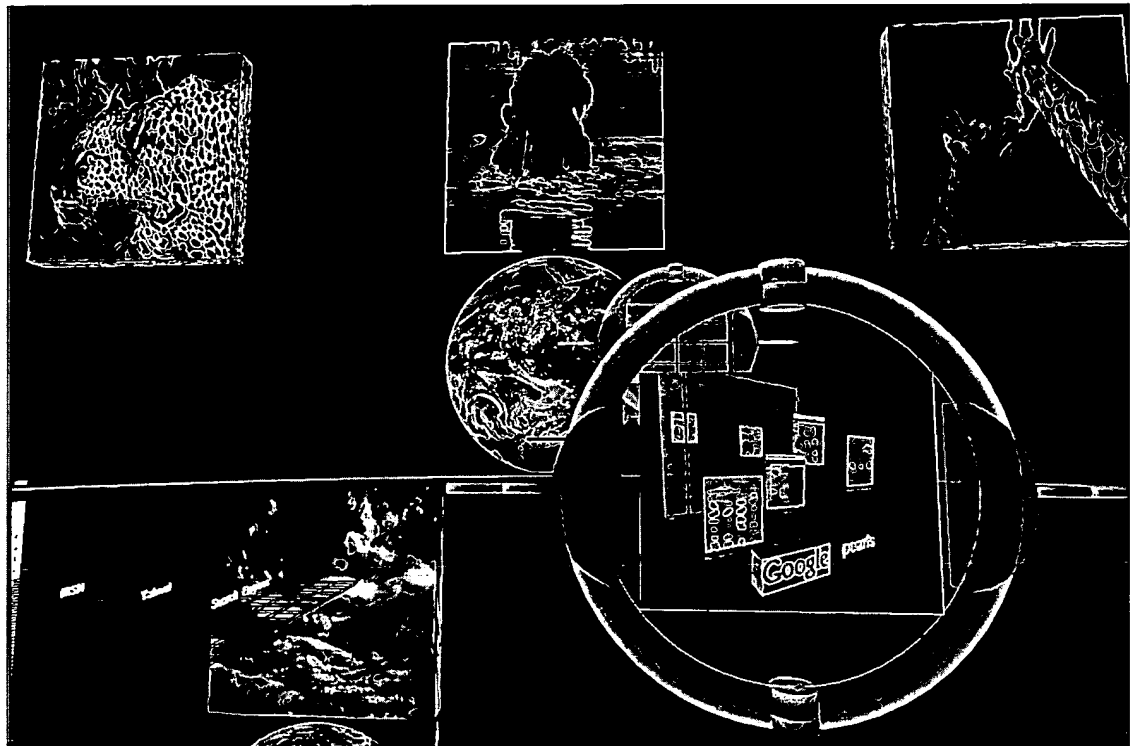


Figure 5 – Here, once can see a scene created within SpaceTime where the end user has attached a mirror to a billboard showing another viewpoint within SpaceTime. In this case, the viewpoint is of another area within SpaceTime where a 3D search was conducted in Google. From here, the user can actually fly into the mirror to enter a new location.

SpaceTime must allow new data structures to be made under the Create command. Since all of this information will be served over the net, and stored on our servers, there will be a definitive system for referencing this data. Kind of like a cell in Excel. People should be able to get the address of someone else's data cell (as long as they have made it public) or graphics cell or music cell and have it feed into their own scene. We will also have a common library of information, graphics, music, video, templates etc, with a naming syntax where people could just publish this info into their scene in an extensible way. For example, The New York Times may create a world with a data cell that is called "nytimes:weather:ny". By copying this SpaceTime object address into another scene through a cell, the SpaceTime server will know where to grab that piece of data from and display it. Imagine an area called SpaceTime/personal/addresses/eddie. Anyone in the world could be given this address, like a website, and view the name, address, city, state and zip of Eddie in the 3D template that it fills. It is actually stored on our servers, it was created by an end user, and it is accessible from anywhere instantly. That's power.

After all, information in your palm is in your palm, unless you dock it with your desktop. The information in your cell phone cannot easily connect to your palm. Even if it could, chances are it would be a headache. And chances are, if you are in Aruba on vacation, you don't have your palm with you. But if you have internet access, you could access SpaceTime.com/personal/addresses/eddie, you could access the information or templates you create from anywhere.

16. SpaceTime and 3D Search

In order to make SpaceTime useful as a way to display information from web services or databases in the scenes that we create, we must add a component to our software resources that allow us to do this. As such, we have enlisted 3D Search as the utility to accomplish this task.

3D Search is a joint research project of SpaceTime's founders. Together, these teams have developed 3D SEARCH. From their website: 3D SEARCH is a high-level XML-based language extending virtual reality standards such as VRML and X3D with dynamical modeling capabilities. The dynamic modeling technique enables the development of dynamic database-driven virtual reality applications by building parameterized models (templates) of virtual scenes that constitute the application, and dynamic generation of the instances of virtual scenes based on the models, data retrieved from a database, current values of model parameters, query provided by a user, user privileges or preferences.

The language allows one to customize the virtual world generation process, enables selection of the virtual world contents and provides means of accessing data stored in database systems or files. The data retrieved from a database can influence the process of creation of the final virtual scene resulting in modification of its structure, contents, and appearance.

An important advantage of 3D SEARCH is the use programming concepts known from imperative programming languages like loops, conditional statements, variables, and expressions. Furthermore, 3D SEARCH allows for use of object-oriented concepts like classes, inheritance, and class instances. This further simplifies the code of virtual scene models and allows code reuse by building libraries of frequently used classes. Use of 3D SEARCH makes the process of programming virtual reality simple yet powerful, proving level of flexibility not accessible for other solutions.

- The 3D SEARCH system is an intermediary system in between a user searching documents on the Web and indexing search engines. Its goal is to provide a user with a 3D visualization of a search result conforming user query. The visualization environment is selected according specific methods. The 3D SEARCH system provides 2D/3D interfaces which helps user to interact with a system and 3D scene.
- In the 3D SEARCH system a user submits queries which may be expressed by the use of textual data (e.g., keywords) and/or by interaction with visual objects composing a virtual scene that represents web search result. Queries are translated by the 3D SEARCH system to conform the search engine query language and sent to a cooperating indexing search engine. In response, the search engine sends back the search result to the 3D SEARCH system that visualize it as a 3D virtual scene. The visualization engine of the 3D SEARCH system uses a set of interfaces to automatically generate virtual scenes and to create necessary user interfaces.
- The 3D SEARCH can be characterized by the following advantages:
- it is possible to obtain a global view of the entire search result in a classified form, instead of just a few documents that are claimed to be the most relevant. A user may visualize the same search result in many ways to better understand the nature of the obtained information. Then – in an interactive process – the user may refine his/her query and apply an appropriate visualization method, eventually finding required documents;
- the 3D Search system is built on top of an indexing search engine. As opposed to directories, indexing search engines have a higher number of stored URLs, thus the search capabilities are significantly bigger;

- visualization of the documents relevancy may be performed in multiple dimensions, i.e. each document found can be ranked using several criteria; in the 3D result visualization scene each record can be represented by a glyph, where each attribute corresponds to one of the relevancy factors;
- a user can near freely assign search result parameters to model attributes easily influencing the visualization method to present more important features in more prominent way;
- the search results can be presented on different level of details;
- some tendencies in the search results can be immediately perceived (e.g., that all documents found are in the same domain, or have size bigger than NN bytes);
- model switching – a user can switch from one model to another to visualize different aspects of the search results of the same query.
- the 3D Search system does not require specialized software to be installed on the client machine. It works with standard VRML plug-ins.

17. Entry and Growth Strategy

SpaceTime will experience an easy entry into the marketplace as we will be offering consumers a compelling new way of computing for FREE. Our product is highly innovative and extremely easy to use. Because our product will be an Active X control, it will be effortless for consumers to use SpaceTime as the product will automatically install itself into the browser of the computer being used without having to do a thing. We plan on promoting our product by creating 3D web pages with specialized content and promoting them through the World Wide Web using the classic search engine promotion tools. Once consumers type in a search through conventional search engines, and click a SpaceTime web pages they will automatically be in one of our 3D worlds whose content will be specifically tailored to the title of the page. We feel that this is an extremely powerful way to promote our product. Once we promote 3D pages into search engines, practically overnight, 3D search can infiltrate the marketplace as a phenomenon.

18. The Name

Borrowing its name and concept after the key discovery of The Special Theory of Relativity, SpaceTime will mimic the concept that space and time are not disparate, they are one. Events are actions that exist within space and time together, not one or the other. As the events or graphical output of the kernel, programs and utilities fill a three-dimensional graphical computer space visually, they will be marked by the space they fill and the distance or time one must experience to get from one point to another (visually), creating a unique addressing system that will create a HISTORY for a new 3-D desktop that can be archived in a file. Each scene in SpaceTime will have three names to reference it representing the x,y and z coordinates of time. The notion of the passage of time is critical in human thinking as it allows us to distinguish events between the past, present and future. In the world of computing, the concept of a history or a past, present or future does not exist. Past computing events are lost as they are wiped out of memory or as an end user rushes to access and modify their next piece of information. But what if an end user could visit a past scene, a visual snapshot of computing time, or share this information with another end user by simply entering in the name of the x, y and z coordinates.

19. Other Inventory

SpaceTime will host other assets such as VRML, MAYA, MATHEMATICA and ATMOSPHERE. SpaceTime will remove the wall and create visual transparency between text, graphics, buttons and windows displayed in any computer space by allowing the user to relocate these objects, like building blocks in a new visual SpaceTime and put this information to work, anew, using new customizable data structures.

20. Marketing Plan

SpaceTime will offer consumers a compelling 3D computing environment that will bring broadcast-quality effects, in 3D, to their desktop through the Web. Most importantly, consumers will have the ability to fill these 3D spaces with video, music, Web pages, search results and other information. This new way of representing data will improve comprehension and retention. This is our strongest competitive advantage. Our company plans on building a customer base of one million consumers within our third year of operations and ten million consumers within our fourth year of operations. SpaceTime plans on offering the following services and features:

- (1) 3D Email
- (2) Remote access to your desktop via Web in 3D
- (3) 3D Search, supplied from other search engines
- (4) 3D Build Tools
- (5) 3D Directory for 3D Web Pages as well as 2D Web Pages

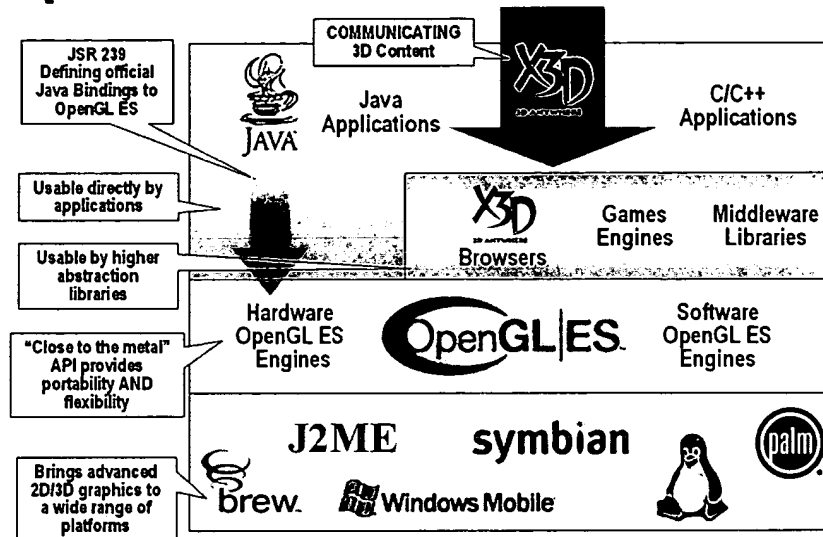
21. SpaceTime and Windows XP

With Microsoft's Windows operating system controlling 93.8%* of the personal desktop computing market, focusing on a Windows compatible plug-in for SpaceTime and its remote access software is important for marketability. Windows XP includes many built-in remote desktop software features as well. XP Pro features Remote Desktop server software which allows one to utilize their computer through the internet using a computer running a version of Windows 95 or newer. With the Windows XP Remote Access software running side-by-side with the local applications, one can only cut and paste text from one document to another as the clipboard memory is shared. The sharing of information is extremely limited.

SpaceTime will transcend the simple two-dimensional window that appears remotely in either VNC or XP Pro Remote Desktop. Rather than focusing on only one server appearing on the client computer, SpaceTime will allow multiple servers to appear on the client computer. In addition, it will offer new electronic bridges among this information beyond the simply cut and paste.

SpaceTime will be a software product ideally poised for rapid market growth appealing to consumers who want to collect and organize their data (music, movies, photos, documents, applications, web pages etc) and access this data from any remote point on any kind of hardware. In addition, consumers will share the scenes or spaces they create with people allowing the concept to spread. Today, consumers need a unique product for each type of data they access. SpaceTime will appeal to consumers of (1) personal computers, (2) smart televisions, (3) personal digital assistants (4) cellular telephones, (5) MP3 players and (6) video game boxes that have access to the Web. As time passes, each one of these product categories in the personal computer/electronics industry is witnessing a convergence by taking on features of the other with two common denominators. Many of them are putting networking capabilities into their equipment. SpaceTime will be the portable program that can run on any of these devices, where the output of one device can be viewed alongside the output of any other device in this common three-dimensional space. The fact that all of the major operating systems from cellular telephones to PCs can play X3D because they utilize OpenGL or OpenGL ES on mobile devices, will mean that SpaceTime can play anywhere.

OpenGL ES – Central to Mobile 3D



Over time all sorts of consumer products will connect to one another and the Internet using Linux, says Kunio Nakamura, president of Matsushita, the world's largest consumer electronics company. We will be able to use mobile phones to control the TV set, he predicts (Forbes, February 2, 2004).

22. Proprietary Issues

The purpose of X3D, the language SpaceTime will conform to, was to create an open source 3D object description language that is extensible and works within any Internet Web browser. The purpose of Xj3D is to offer a software toolkit written in Java to act as the player that facilitates the playing of X3D files on any browser that developers can incorporate into their programs. All of the scenes or 3D worlds that SpaceTime allows consumers to create will be written in X3D. However, SpaceTime will extend the functionality of X3D by adding special functionality native to SpaceTime to the scenes that people create. This additional information will be stored in binary along with the X3D description language that is stored on our servers. This way, once our product is fully deployed as a utility and creation tool for consumers, we will create propriety and have a lock on the market for this added value we bring to 3D. Consumers will be able to view basic 3D scenes created by SpaceTime, but not their full functionality.

23. The X3D Player and OpenGL

OpenGL is the premier environment for developing portable, interactive 2D and 3D graphics applications. Consumers will be able to visit a Web page on the World Wide Web that has been written for 3D using X3D and have the "X3D Player" automatically downloaded to their machines. In seconds, they will be in a new 3D computing Paradigm.

Since its introduction in 1992, OpenGL has become the industry's most widely used and supported 2D and 3D graphics application programming interface (API), bringing thousands of applications to a wide variety of computer platforms. OpenGL fosters innovation and speeds application development by incorporating a broad set of rendering, texture mapping, special effects, and other powerful visualization functions. Developers can leverage the power of OpenGL across all popular desktop and workstation platforms, ensuring wide application deployment.

With the OpenGL Architecture Review Board guiding the specifications for development with wide industry support, OpenGL has become a true industry standard. Most importantly all OpenGL applications produce consistent visual display results on any OpenGL API-Compliant hardware regardless of the

operating system or windowing system. OpenGL ships standard with every PC which account for over 95% of the personal computer marketplace. OpenGL is most certainly callable from C++, the choice programming language of SpaceTime. In addition, software developers are free from licensing requirements. Use of the OpenGL is free

24. SpaceTime's use of X3D and HTML

HTML is the markup language whose code describes the pages that appear on the Web. Special authoring software or HTML editors are needed to create the arrangement of text, graphics and other media that appear on a Web page. HTML pages must be previewed, tested and uploaded using special FTP software to a Web server before they can be accessed. This construction phase for the building of HTML Web pages is a great barrier for productivity. Streamlining this creation process, in an intuitive 3D way, can create an explosion of new content and media similar to the way the World Wide Web became the fastest growing part of the Internet; especially now that X3D is extensible. Today, using X3D, it is possible stream web services into a 3D environment. SpaceTime, through its ActiveX control, will have the functionality of traditional browsers in the way it displays HTML or a 2D Web page in a 3D world. Only this time, SpaceTime will create a dynamic authoring environment for text, graphics and other media within 3D as it will truly streamline the creation of content. Instead of HTML pages, users will create X3D scenes where special graphics editors will be eliminated as the whole process will be intuitive. End user's will be able to grab hyperlinks, images, sound, video and text out of Web pages, seamlessly, and distribute them in a 3D space or "paint them" or bind them to objects they create.

SpaceTime and File Types

Within the world of computing, there are many different kinds of programs that run on disparate platforms and hence the files they create. As such, SpaceTime will allow these programs and files to appear whenever and however one chooses. In addition, within the world of the Internet, there are enumerable file types that are available that do anything from show pictures, play music, play video, run programs etc. These files make up the experience the end user has during their computing. The handling of files is critical to SpaceTime, as this program will allow the user to accept these files, execute them and manage them in a new visual paradigm that SpaceTime produces.

In order to do this, SpaceTime must have plug-in modules or special helper applications to insure the program can read both ASCII files and binary files that are specific to the applications that created them. For many file types, obtaining plug-in modules will not be difficult. In the cases where SpaceTime will be unable to have a plug-in or helper application, SpaceTime can create a VIEW into any application on any platform by acting as a CLIENT for an application being SERVED through TCP/IP (using the free VNC Viewer as a plug in on the CLIENT computer). It is in the way that SpaceTime does this, creating a bridge between proprietary programs and the files they create into a common virtual environment accessible from anywhere and practically any device that makes SpaceTime valuable. Of course, SpaceTime must be operating on both machines to do this. The CLIENT computer must have the VNC Viewer and SERVER computer must have the VNC Server. The SpaceTime software will have both CLIENT and SERVER VNC built into it. In this way, the application, file, or operating system is irrelevant as long as the end user can access it, modify it and use it. SpaceTime will create a much-needed abstraction between hardware, operating systems, and software. With SpaceTime, the end user needn't be concerned with the computer they are operating on or its operating system.

35. Glossary

X3D - X3D is a powerful and extensible open file format standard for 3D visual effects, behavioral modeling and interaction. It provides an XML-encoded scene graph and a language-neutral Scene Authoring Interface (SAI). The XML encoding enables 3D to be incorporated into web services architectures and distributed environments, and facilitates moving 3D data between applications. The Scene Authoring Interface allows real time 3D content and controls to be easily integrated into a broad range of web and non-web applications.

X3D Features at a Glance

- **XML Integrated:** the key to integration with:
 - *Web Services*
 - *Distributed Networks*
 - *Cross-platform, inter-application file and data transfer*
- **Componentized:** allows lightweight core 3D runtime delivery engine
- **Extensible:** allows components to be added to extend functionality for vertical market applications and services
- **Profiled:** standardized sets of extensions to meet specific application needs
- **Evolutionary:** easy to update and preserve VRML97 content as X3D
- **Broadcast/Embedded Application Ready:** from mobile phones to supercomputers
- **Real-Time:** graphics are high quality, real-time, interactive, and include audio and video as well as 3D data.
- **Well-Specified:** makes it easier to build conformant, consistent and bug-free implementations

X3D Supports

- **3D graphics** - Polygonal geometry, parametric geometry, hierarchical transformations, lighting, materials and multi-pass/multi-stage texture mapping
- **2D graphics** - Spatialized text; 2D vector graphics; 2D/3D compositing
- **Animation** - Timers and interpolators to drive continuous animations; humanoid animation and morphing
- **Spatialized audio and video** - Audiovisual sources mapped onto geometry in the scene
- **User interaction** - Mouse-based picking and dragging; keyboard input
- **Navigation** - Cameras; user movement within the 3D scene; collision, proximity and visibility detection
- **User-defined objects** - Ability to extend built-in browser functionality by creating user-defined data types
- **Scripting** - Ability to dynamically change the scene via programming and scripting languages
- **Networking** - Ability to compose a single X3D scene out of assets located on a network; hyperlinking of objects to other scenes or assets located on the World Wide Web
- **Physical simulation** - Humanoid animation; geospatial datasets; integration with Distributed Interactive Simulation (DIS) protocols

MySpace – The name of the SpaceTime or 3D world that is automatically created when a consumer visits the Web address www.SpaceTime.com.

3D SEARCH is a high-level XML-based language extending virtual reality standards such as VRML and X3D with dynamical modeling capabilities. The dynamic modeling technique enables the development of dynamic database-driven virtual reality applications by building parameterized models (templates) of virtual scenes that constitute the application, and dynamic generation of the instances of virtual scenes based on the models, data retrieved from a database, current values of model parameters, query provided by a user, user privileges or preferences. The language allows to customize the virtual world generation process, enables selection of the virtual world contents and provides means of accessing data stored in database systems or files. The data retrieved from a database can influence the process of creation of the final virtual scene resulting in modification of its structure, contents, and appearance. An important advantage of 3D SEARCH is the use programming concepts known from imperative programming languages like loops, conditional statements, variables, and expressions. Furthermore, 3D SEARCH allows for use of object-oriented concepts like classes, inheritance, and class instances. This further simplifies the code of virtual scene models and allows code reuse by building libraries of frequently used classes. Use of 3D SEARCH makes the process of programming virtual reality simple yet powerful, proving level of flexibility not accessible for other solutions.

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SpaceTime - Compass

3D Content

Task Bar

Maps

SpaceTimes

Geography

Desktop

Viewpoints

Searches

Browsers

Pictures

Music

Text

- ☒  **Favorites**
- ☒  Definitions
- ☒  Email Addresses
- ☒  Links
- ☒  Must See
- ☒  Today - Sept 3 2005
- ☒  Not Important
- ☒  Pictures
- ☐ My Account
- ☐ My Web Space
- ☐ Online Support
- ☐ Verizon Central

Name

New Folder

New Folder...

Delete

Fly To

Open

SpaceTime - Compass

3D Content

Task Bar

Maps

SpaceTimes

Geography

Desktop

Viewpoints

Searches

Browsers

Pictures

Music

Text



Today



google (www.google.com) : Pearls



Google



adsense - Google Search



pearls - Google Search



How do I create URL channels?



Google AdSense



Google AdSense



Google AdSense - Program Policies

Name

<http://www.google.com/adsense.html>

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Task Bar

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SpaceTimes

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Desktop

Viewpoints

Searches

Browsers

Pictures

Music

Text



Today



Yahoo!



Yahoo! Mail



Yahoo! Finance



Google AdSense



Google AdSense



Google AdSense - Program Policies

Name

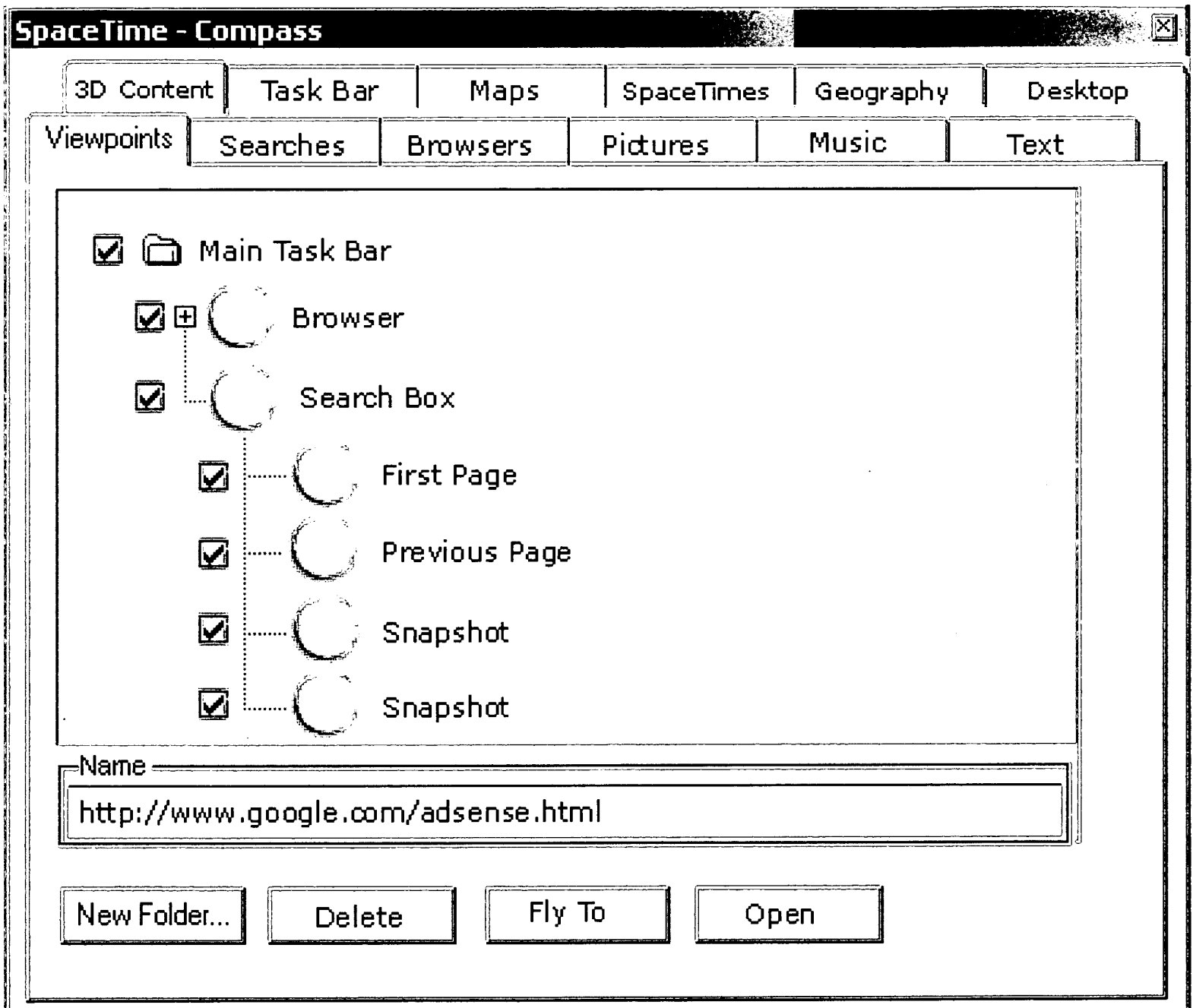
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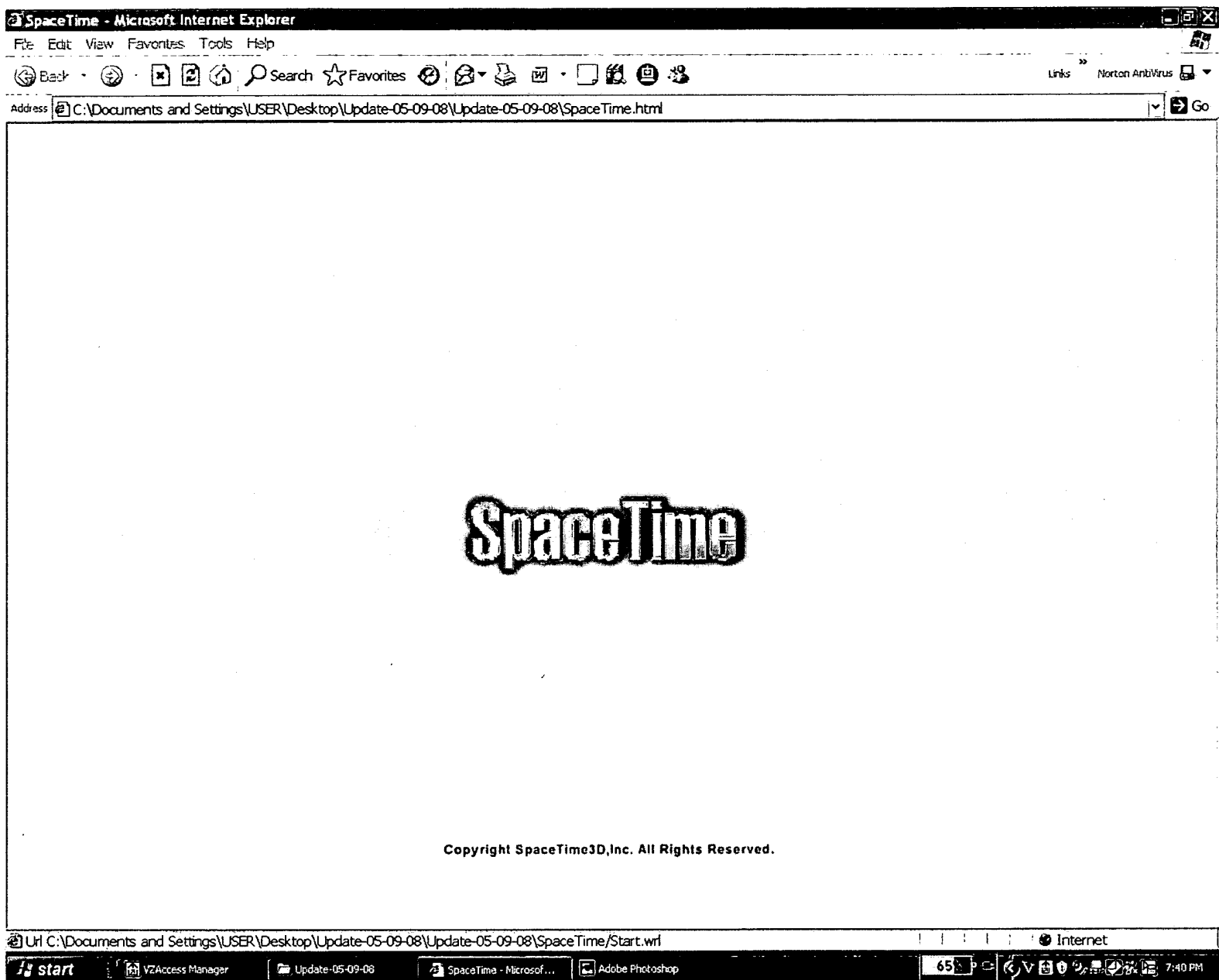
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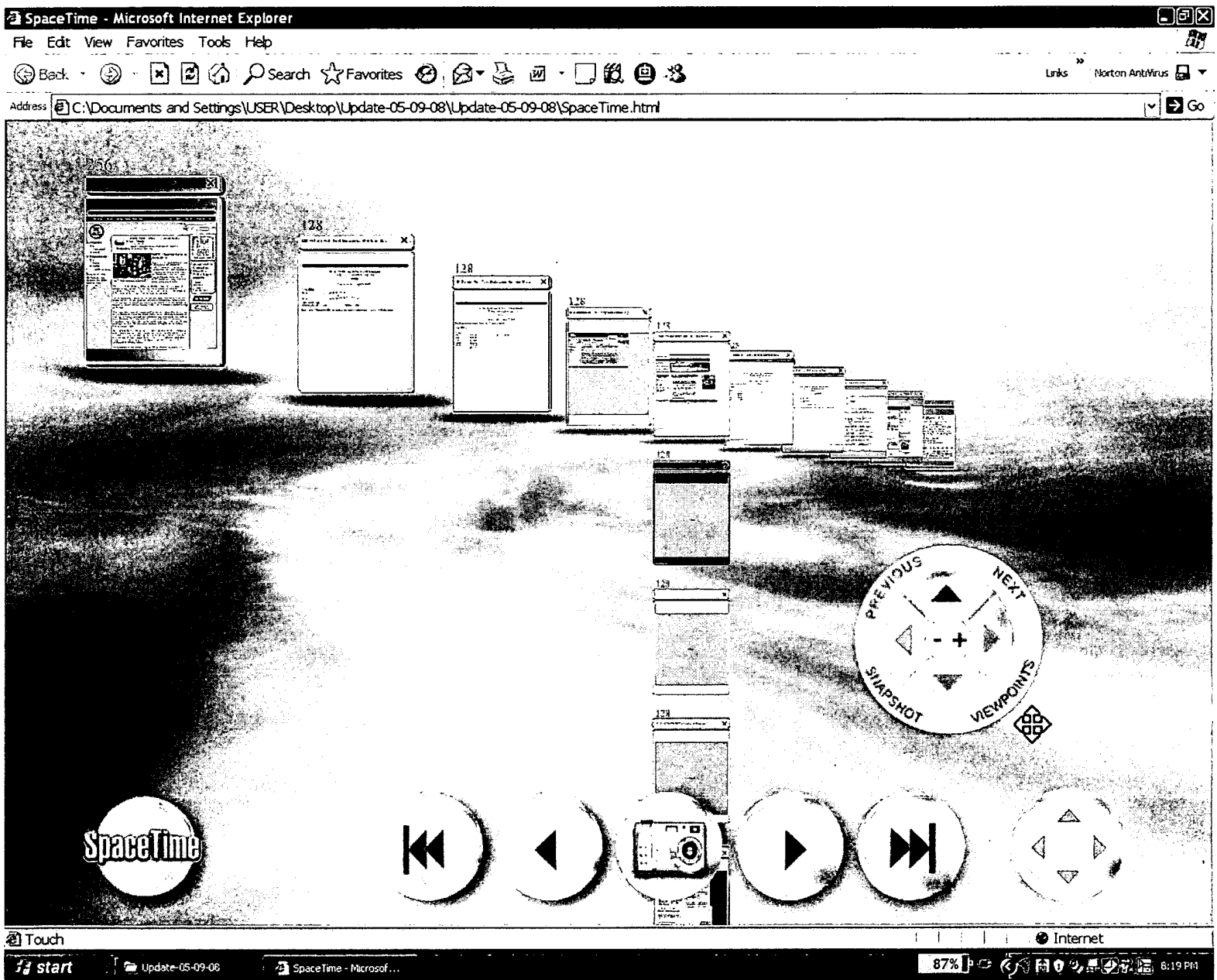
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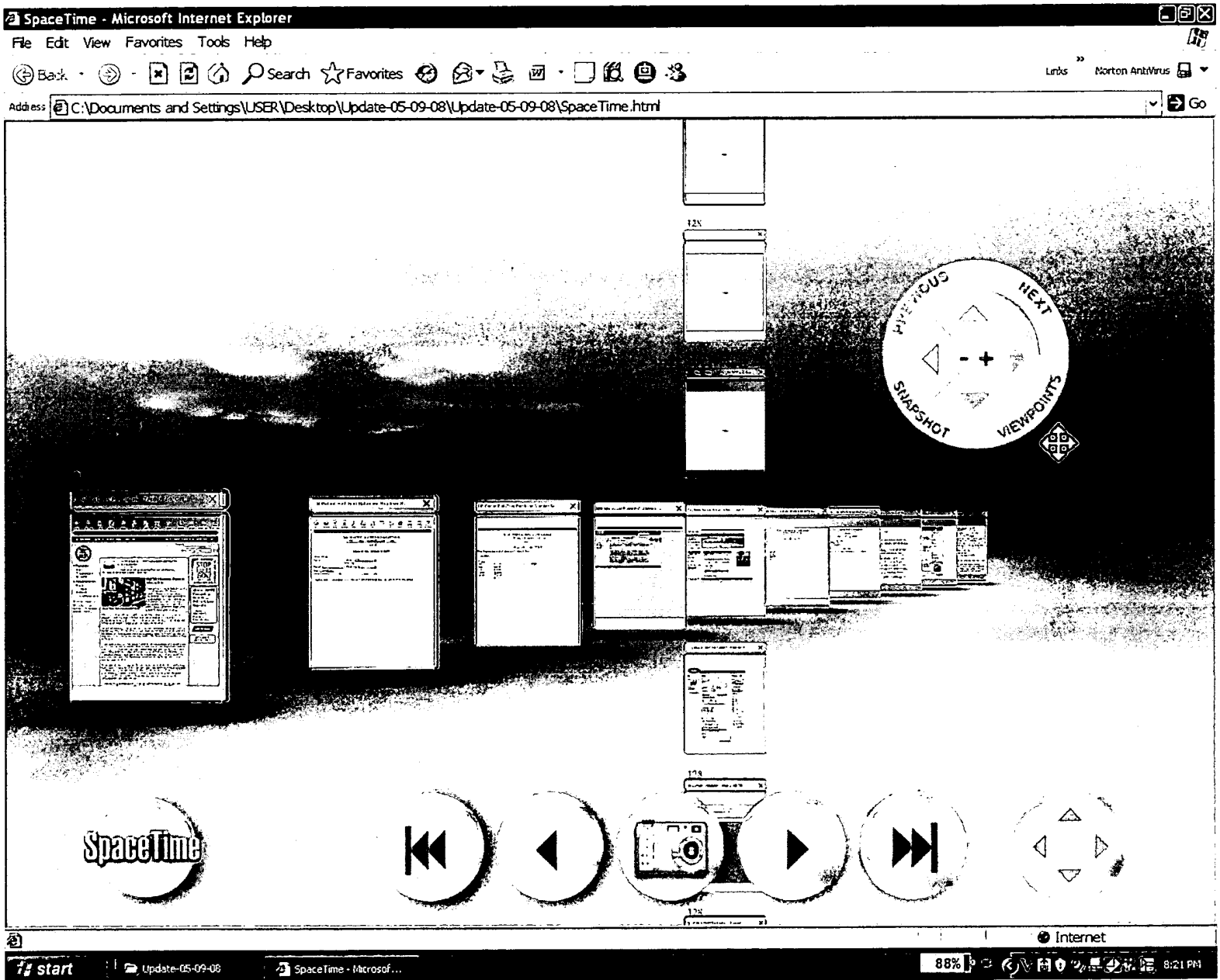
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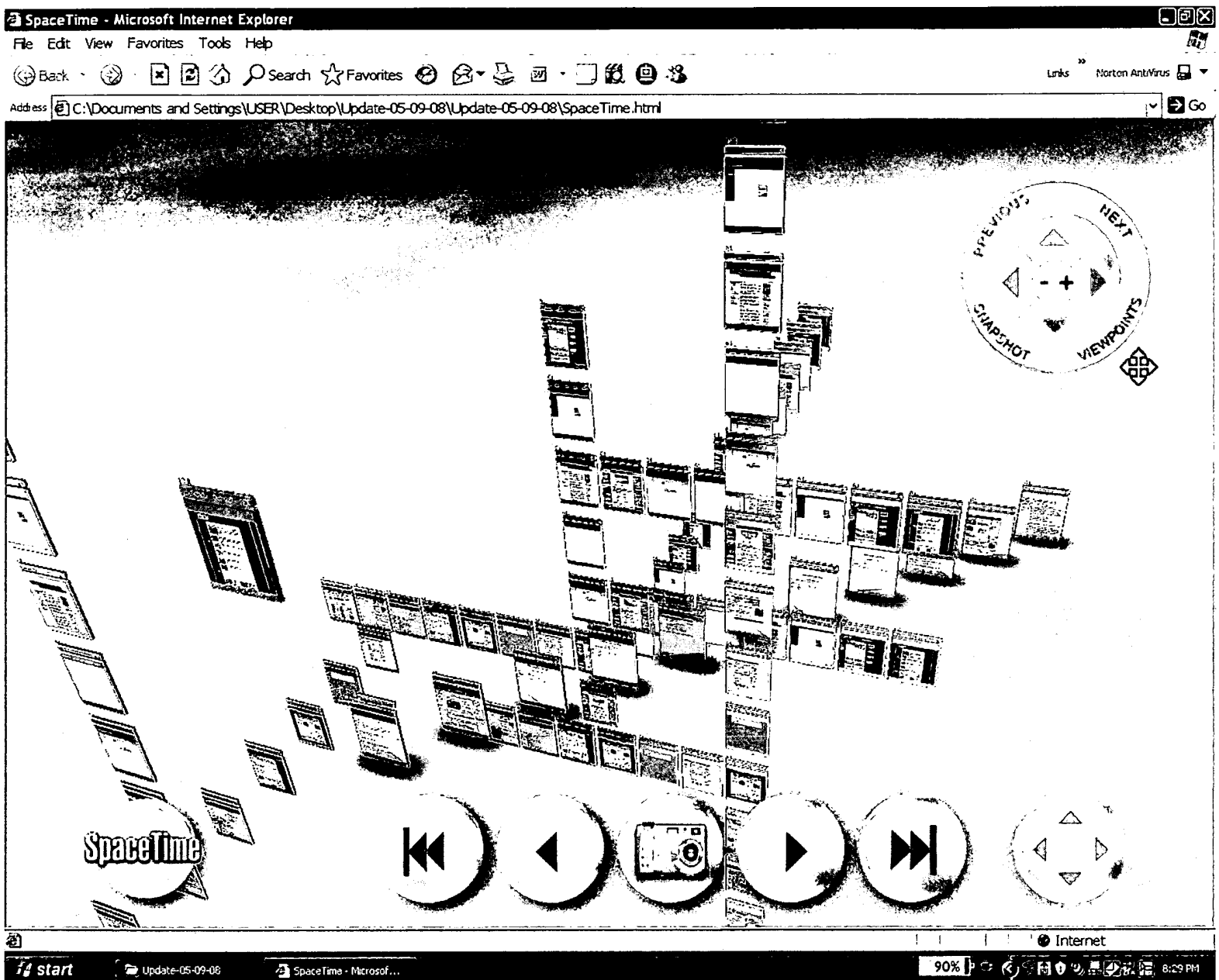


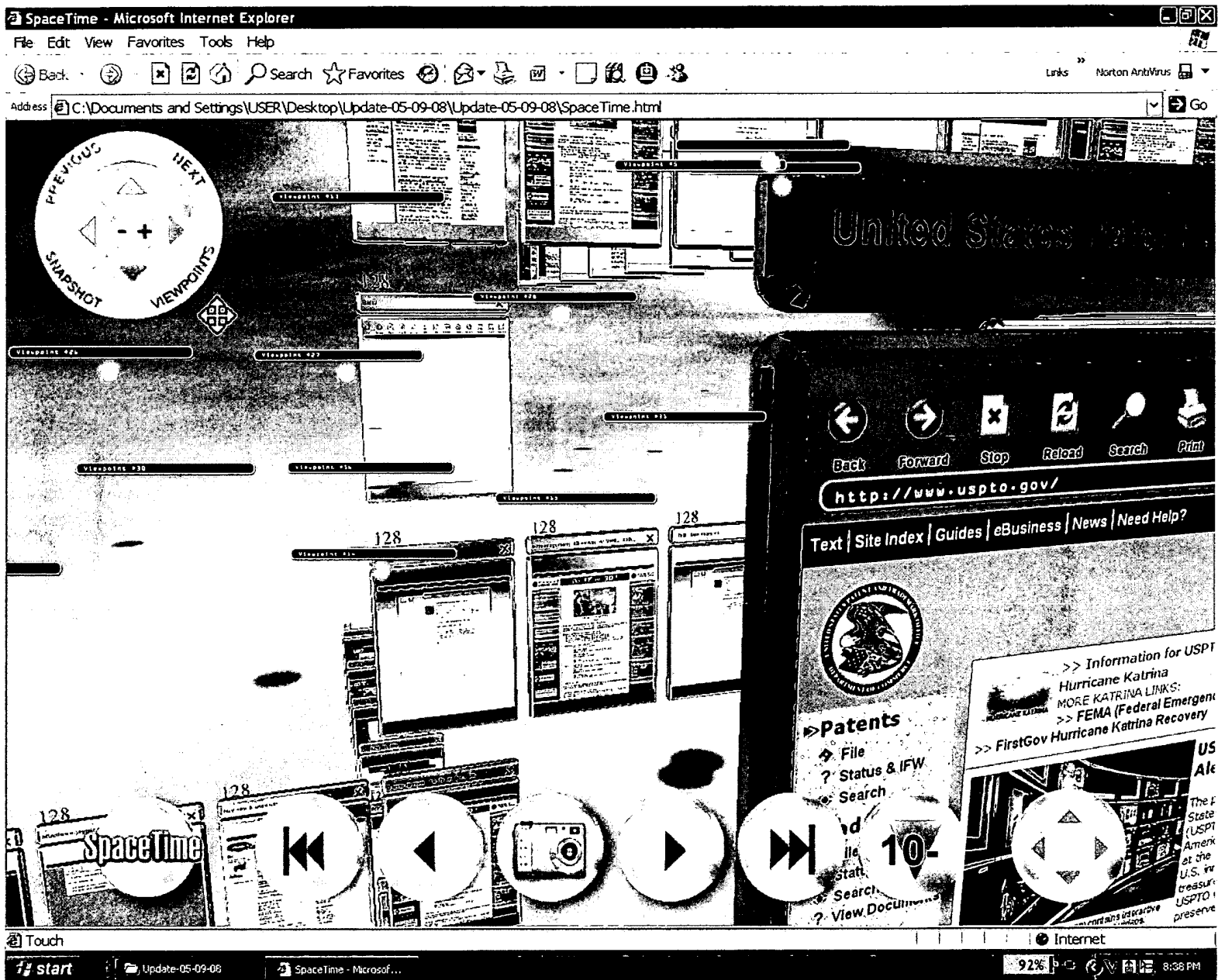


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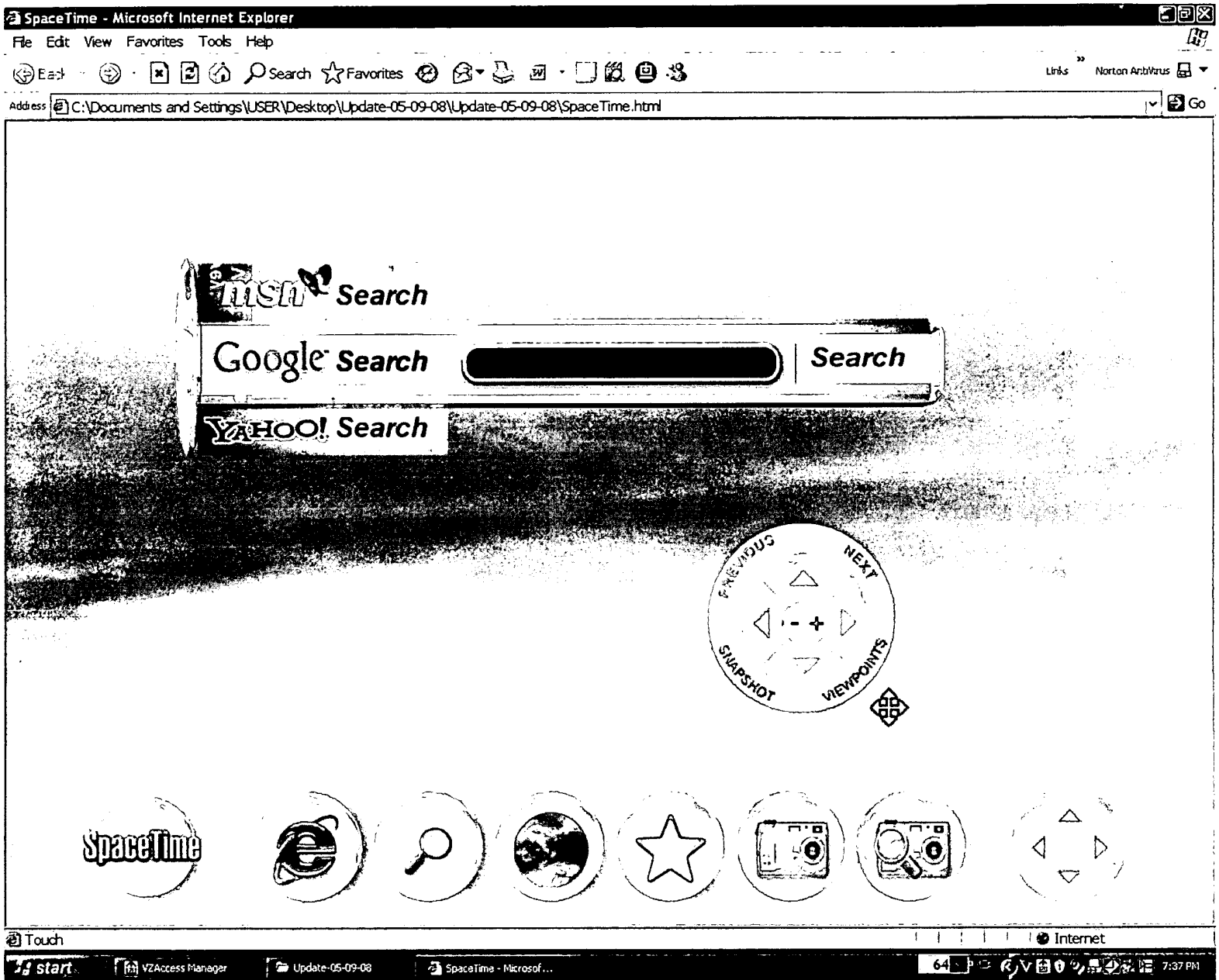


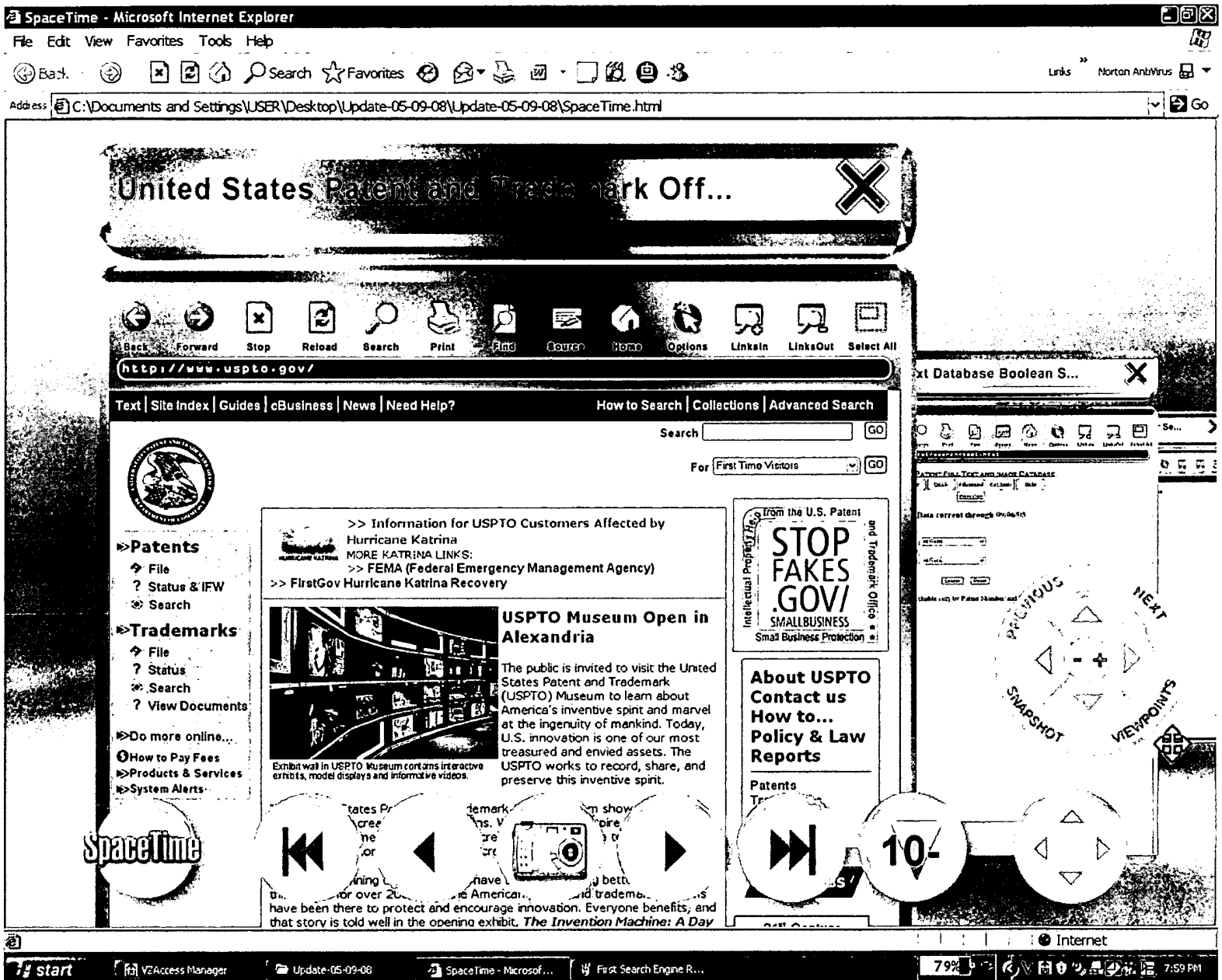


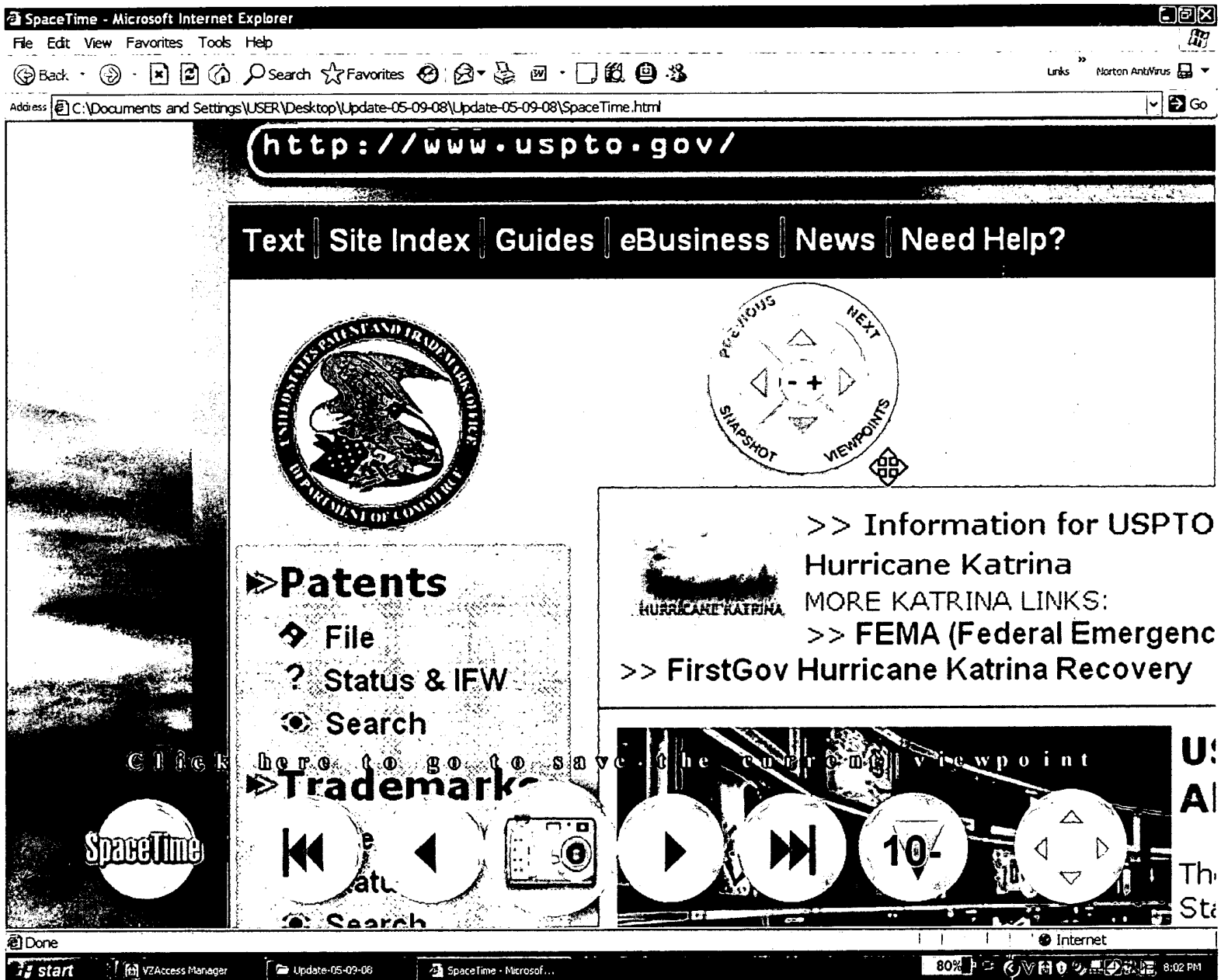












SpaceTime - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Reload Search Print Find Source Name Options Window Help
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1024

States Patent and Trademark Off...

Back Forward Stop Reload Search Print Find Source Name Options Window Help
<http://www.uspto.gov/>

Viewpoint #1

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NEXT
+ -
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VIEWPOINTS

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The public is invited to visit the United States Patent and Trademark (USPTO) Museum to learn about America's inventive spirit and marvel at the ingenuity of mankind. Today, U.S. innovation is one of our most treasured and envied assets. The USPTO works to record, share, and preserve this inventive spirit.

Exhibit wall in USPTO Museum contains interactive exhibits, model displays and informative videos.

"The United States Patent and Trademark Office Museum showcases the innovation and creativity of Americans. We hope it will inspire a new generation of Americans to explore, create, and contribute to the nation's progress."

The museum's visitors will realize that they take advantage of inventions and rely on trademarks every day of their lives without ever stopping to think of...

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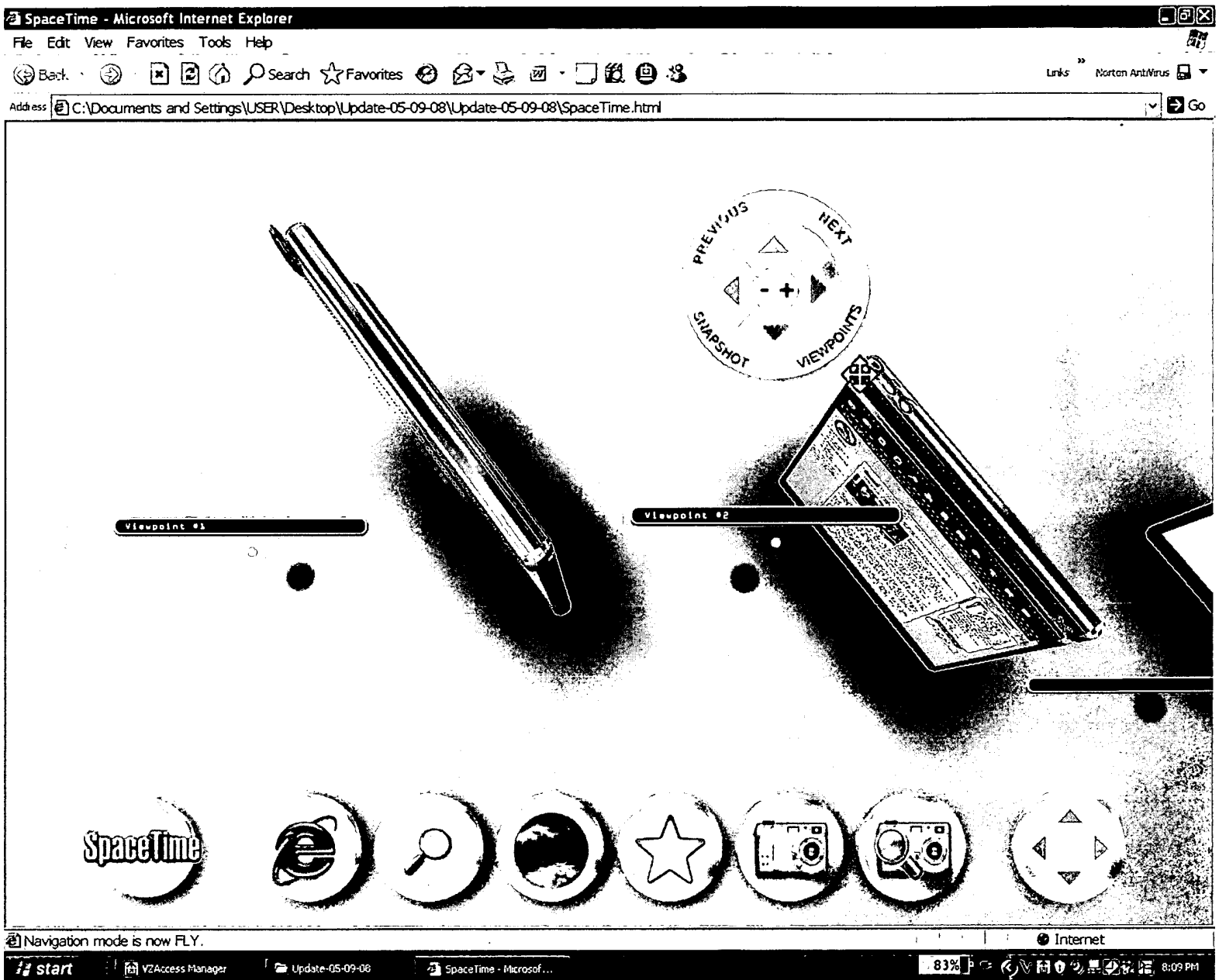
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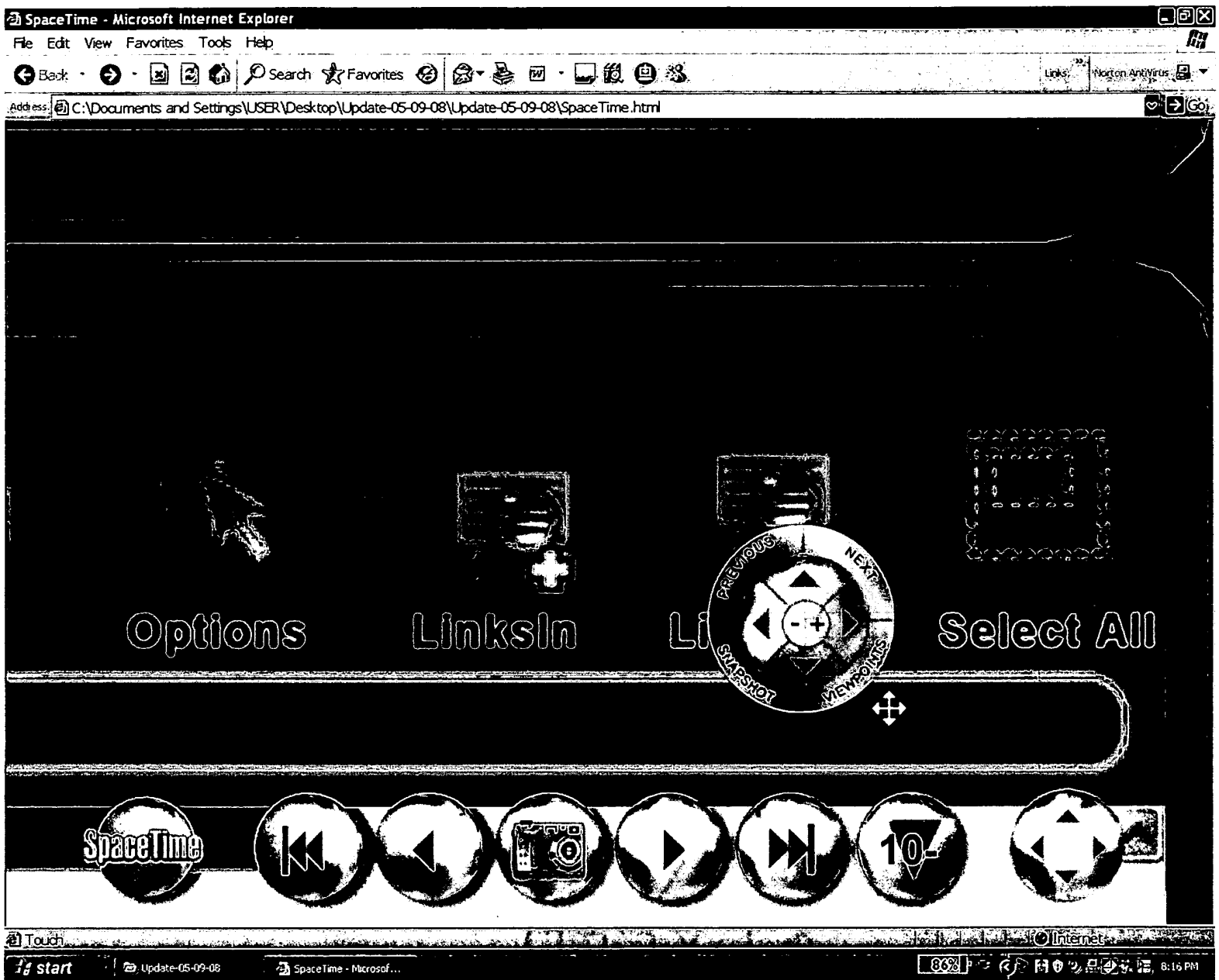
USPTO JOBS

21st Century Strategic Plan

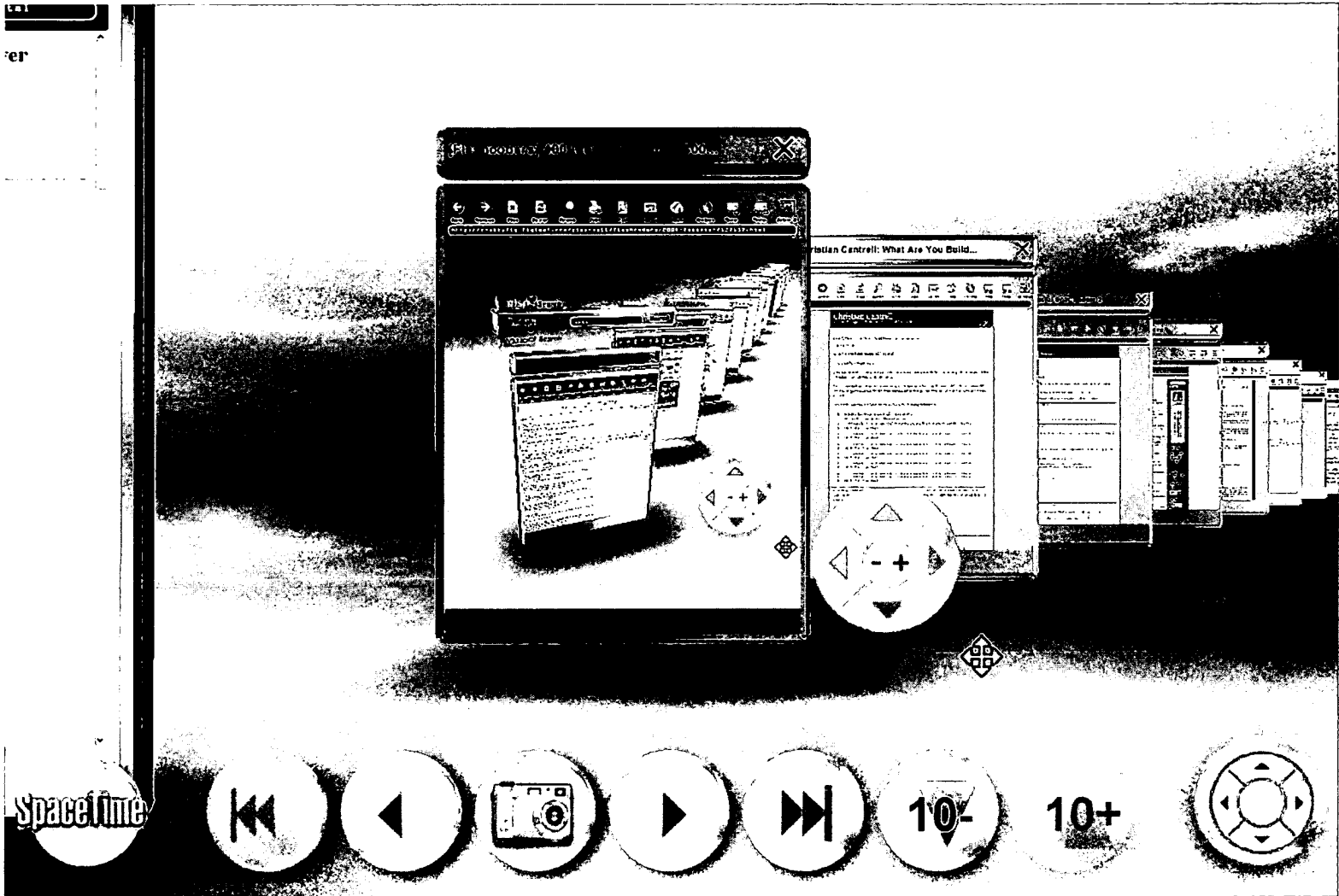
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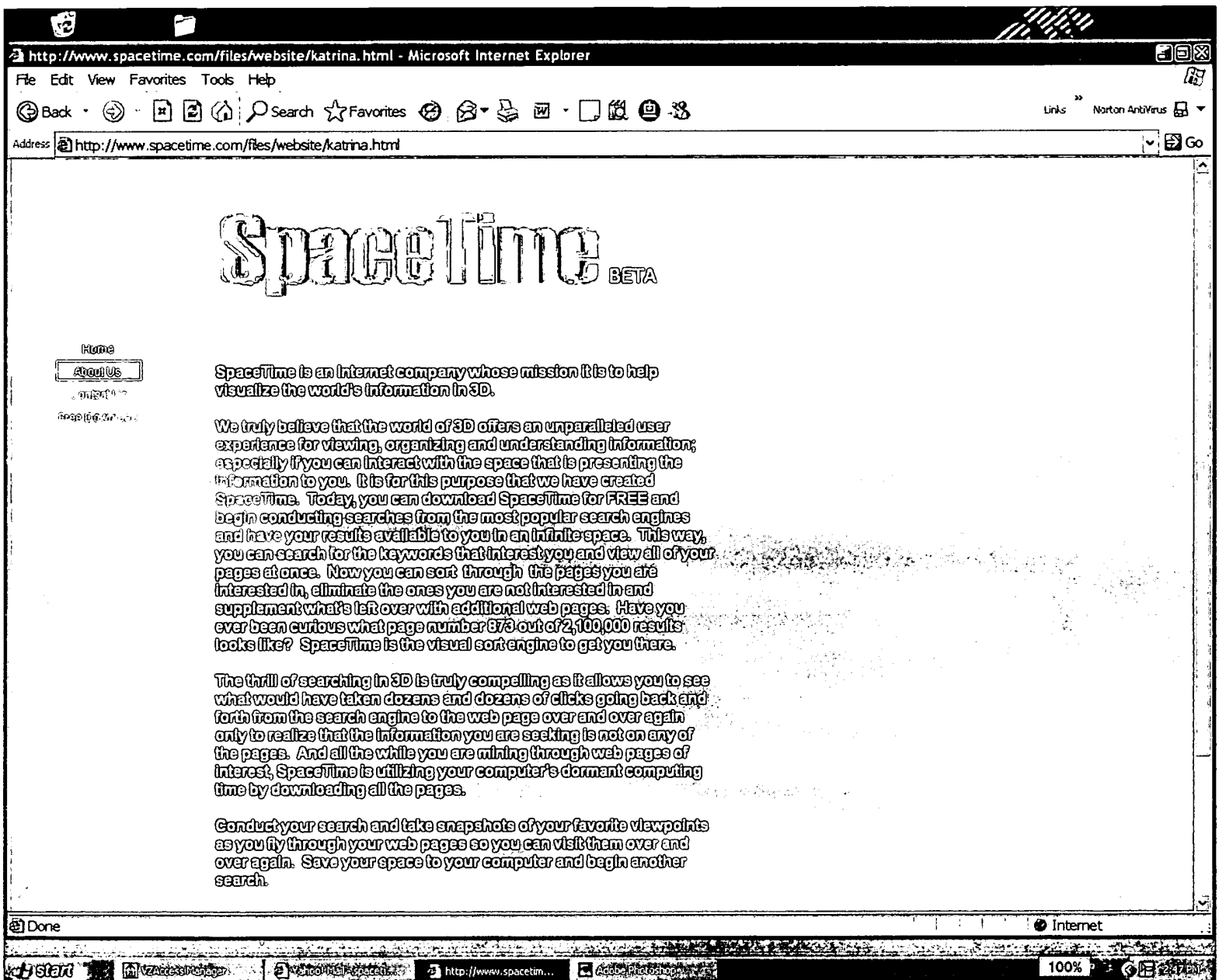
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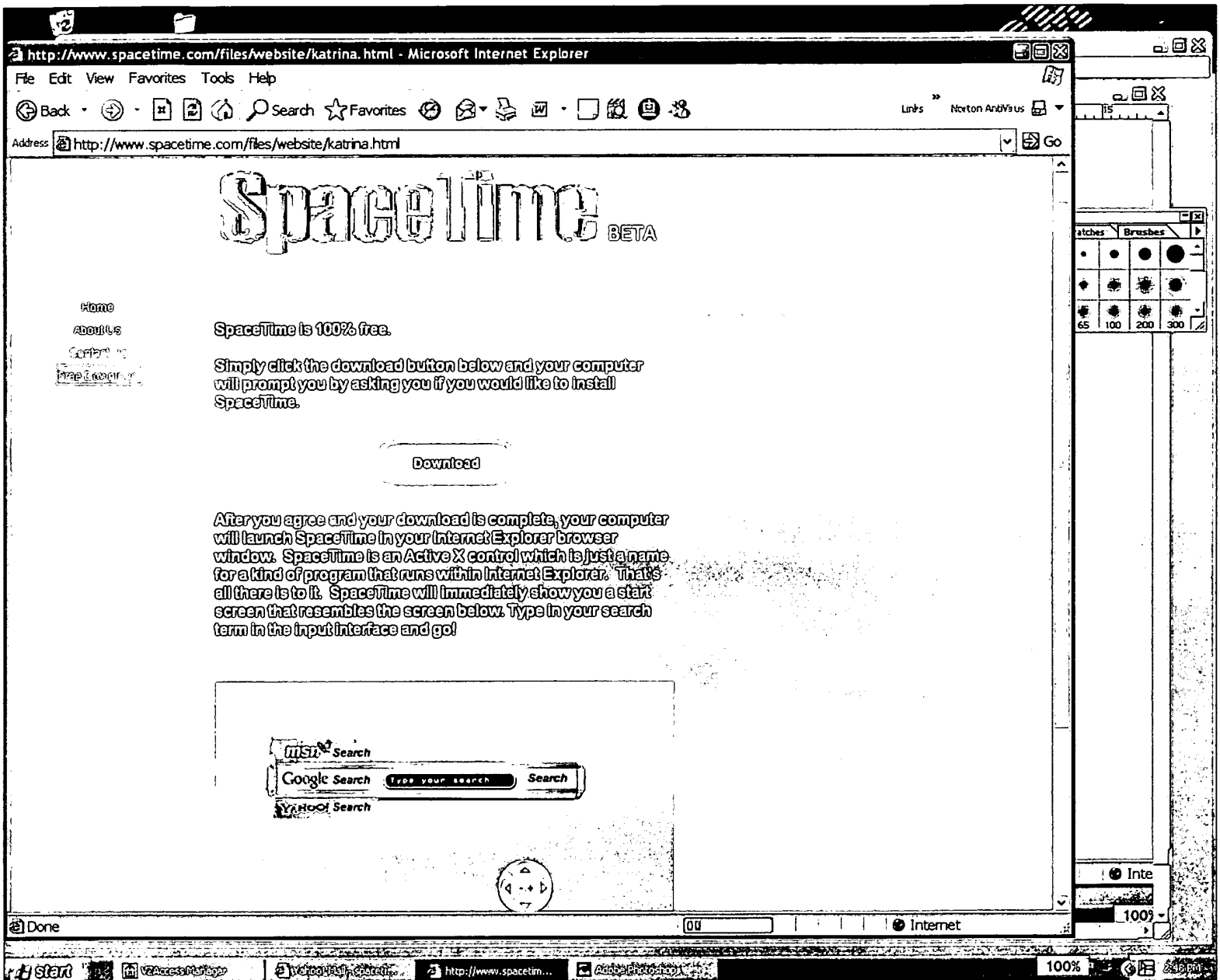


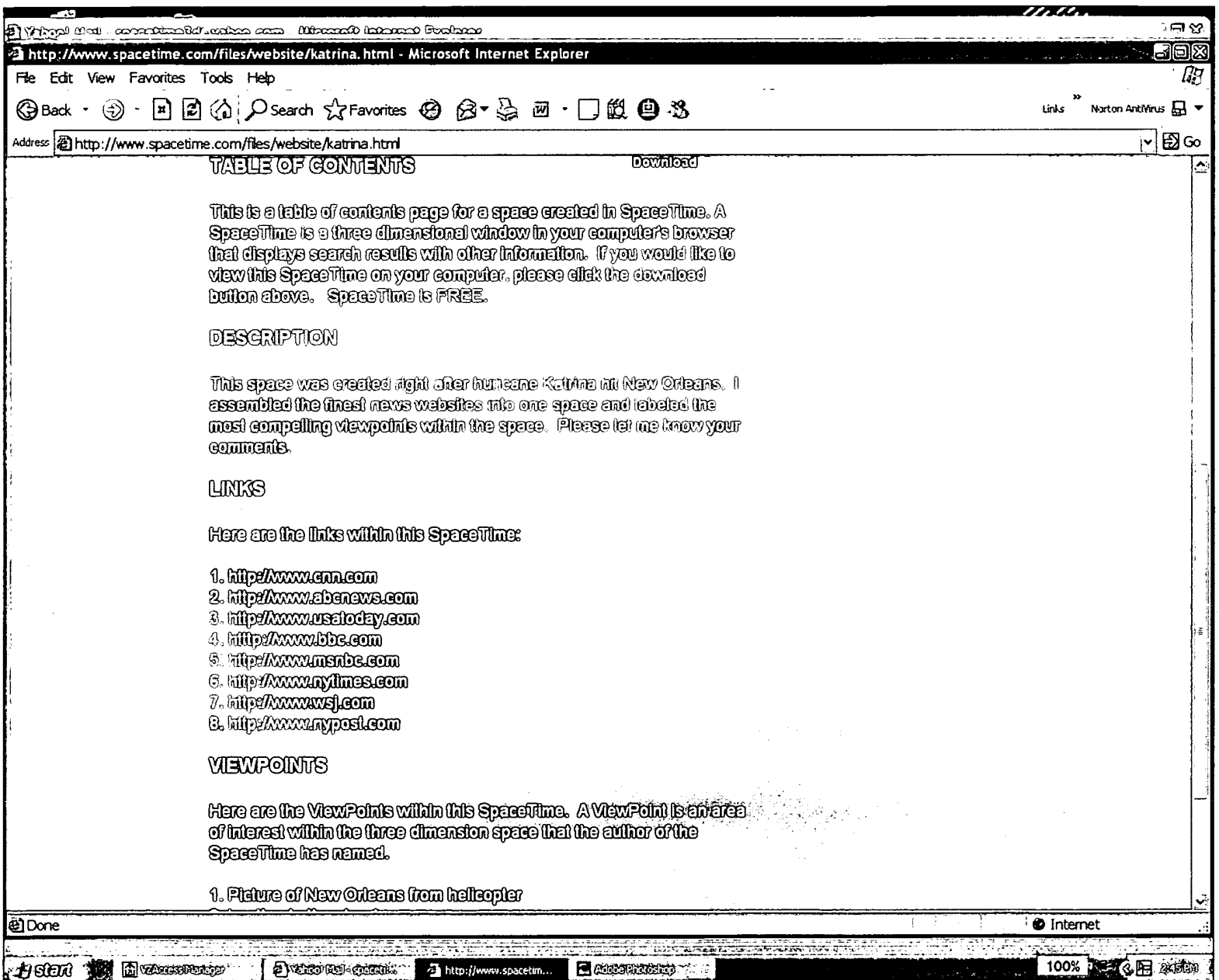














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