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Spatial Presentation on the Internet

Introduction

Practical assumptions

Basic approaches

State of the Art technology

Future & applications

Conclusion

Showcase

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Recent development in the field of the spatial presentation on the Internet offers new dimension for providing three-dimensional information on the Web. The VRML become standard in 1997. However, until recent improvement of the graphic capabilities of personal computers and growing throughput of the Internet infrastructure, only few application of the spatial presentation on the Web was available. This fast growing field of various applications is supported by few basic technologies, which are under constant development. Technology such as panoramic images, web 3D objects and 3D scene for the Web are basic classification under which different developers intensively build they specific approach. This field is also interesting to education because visual aspects of the subject presented, to the architecture as presentation tool, and also as collaboration tool for the Internet.

Some of the recent authors works from educational to commercial that are using these technologies are elaborated. From virtual building, furniture presentation and interactive design to the merchandise tools and assembling assistant for Swatch AG, Swiss are presented in this work.

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Introduction

Since start of the Internet 10 years ago:

- _ Images
- _ Compression - JPG, GIF
- _ Basic animation - GIF's
- _ Sound

- _ Virtual Reality Markup Language - VRML 97

- _ Video and animation

- _ Web 3D (1999)

- _ Extensible 3D - X3D (2001)

... streamed 3D data formats

Although is VRML used in architectural field for demonstration, practical and professional usage was oriented on more realistic, but not always real 3D technology like Apple Quick time VR objects and scenes.



VRML become standard in 1997. but wider acceptance wasn't come as expected!

Facts for rising popularity of Web3D

- _ 459 millions users of the Internet
- _ total traffic on the Internet doubled in a year
- _ Internet2 - security, safer and reliable communication

- _ development of entertainment industry and game development - overcome required performances for Web 3D contents

- _ graphical and overall performances - more then adequate for three-dimensional spatial manipulation
- _ recent research in processor development - could result even better performances in years that come

- _ start of the extensive use of e-commerce
- _ Businesses to business and business to client's solutions - need 'real product' instead 'description or image'

- _ 'Try and buy' - products can be explored, even simulating its use on-line
- _ 'Build/customize, try and buy' approach linked to database driven site offers various application in industry.

Development of a graphical unit only in last
18 months more then a double Moors law!

Various approaches for presenting spatial information

To make effective and attractive presentation on the Web it is possible to use various approaches.

- _ 2D Flash examples
- _ Apple Quicktime VR objects and scenes
- _ Various panoramic images
-
- _ Shockwave models
- _ [Web 3D objects](#)
- _ [Web 3D scenes](#)



Although very attractive some of approaches aren't three-dimensional at all!

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Various approaches for presenting spatial information - Web 3D Objects

Today every CAD or other 3D software use own 3D engines to explore and exchange their native formats on the web.

Useful to present various simple consumer products like electronics to furniture.

- 1_ Basic manipulation like rotation, zoom, pan
- 2_ Optional is change of characteristics like color or texture
- 3_ Exploring object like open it and test its functions



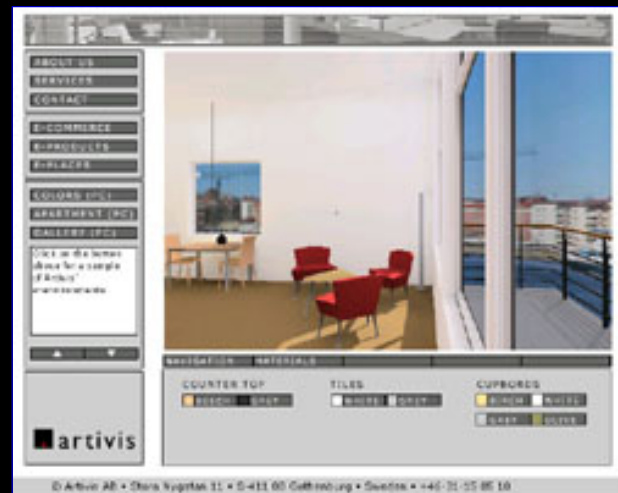
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Various approaches for presenting spatial information - Web 3D Scenes

Specific authoring tools to develop web contents

- 1_ for 'more than object'
- 2_ whole scenes with walk through and manipulation
- 3_ realistic material descriptions, rendering definitions
- 4_ lighting and shadows meets photo-realistic capabilities
- 5_ physical spatial characteristics like gravity or collision detection

All solutions requires their own plug-in to explore 3D files, but common feature is automatic plug-in installation on first related link.



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State of the Art Technology

Recent information from Siggraph 2001 Conference, Computer graphics and interactive media, Los Angeles.

- _ Cult3D
www.cult3d.com
- _ Eon Reality
www.eonreality.com
- _ Virtue3D
www.virtue3d.com
- _ Viewpoint VET
www.viewpoint.com



Siggraph 2001, World Conference about computer graphics and interactive media!

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Future of the Web3D

- _ quickest growth related to e-commerce
- _ still under continuous and intensive development
- _ various targets in future technology development
 - on-demand 3D streamed contents
- _ various compression methods for streamed 3D models
- _ how to make it most efficiently and profitable to use
 - _ in architectural applications
 - _ in consumers products
 - _ in merchandise industry
- _ new trends in car industry - customizing your own car in live connection to production

This clasification is up-to-date but technology is developing every day and positions aren't clear jet!

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Conclusion

This field is interesting for a different e-commerce solutions in a first place. This can be simple presentation for client or or complex presentation for real estate. Using Internet as collaboration tool those technology can be used intensive in architecture, urban planning. Another interest field is education. Visual aspects of the subject presented, interaction that is very important and multimedia contents could be linked together. If we know all what is on the Web, such solutions would offer new values to distance learning.

In global scale of trends on the market we could expect use of augment systems linked to global telecommunications. By developing 4G telecommunication networks quick connections would enable also for such systems which would offer new fields of activity..

Some of the recent authors works from educational to commercial that are using these technologies are elaborated. From virtual building, furniture presentation and interactive design to the merchandise tools and assembling assistant for Swatch AG, Swiss are presented in this work.

Important resources:

www.web3d.org

www.viewpoint.com

www.eonreality.com

www.cult3d.com

www.quicktime.com

www.virtue3D.com

www.opticore.com

www.macromedia.com

Web3D Showcase

For overview of this showcase certain plugins are necessary. They should be installed automaticly on first relevant link. If you experinece any problems relevant download links are available.

[Quicktime & Panoramic](#)

[Download plugin](#)

[Shockwave & Flash](#)

[Download plugins](#)

[Cult3D](#)

[Download plugin](#)

[Eon Reality](#)

[Download plugin](#)

[Virtue3D](#)

[Download plugin](#)

[Viewpoint](#)

[Download plugin](#)

[Kaon](#)

[Download plugin](#)

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Web3D Showcase - [Quicktime QTVR & Panoramic images](#)

Quicktime & Panoramic – <http://www.apple.com/quicktime/download/>

- [Nec computer](#)
- [GE Lighting](#)
- [Swatch Cylinder Kiosk](#)
- Vaha-
- [Student work](#)

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Web3D Showcase - [Shockwave & Flash](#)

[Shockwave & Flash](#) - www.macromedia.com

– [Armstrong](#)

– [Intel AnyPoint](#)

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Web3D Showcase - **Cult 3D**

Cult3D – <http://www.cult3d.com/download/>

– [Breitling Watch](#)

– [TagHeuer Watch](#)

– [Seiko Watch](#)

– [Swatch .beat](#)

– [Bell Phone configurator](#)

– [Nokia 9110 Tryout](#)

– [Nokia 3310 Explorer](#)

– [HP Mobile](#)

– [Hags](#)

– [Replica Furniture](#)

– [Knoll](#)

– [Eiffel Tower](#)

– [Trains models](#)

– [Toyota Celica Configurator](#)

– [Swatch The Club](#)

– [Sample Gallery](#)

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Web3D Showcase - **Eon Reality**

Eon Reality – www.eonreality.com

– [Kinnarps](#)

– [Kitchen designer](#)

– [Dell Table](#)

– [Dell Lexmark](#)

– [Audi](#)

– [Artvis appartments visualisation](#)

– [Stack! Studio](#)

– [Chamber](#)

– [Hall](#)

– [Housing](#)

– [FlorPlant](#)

– [Office Depot Designer](#)

– [Office Depot Chair Configurator](#)

– [Fixa Hemma](#)

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Web3D Showcase - **Virtue3D**

Virtue3D – www.virtue3d.com

– [Virtue3D Room Designer](#)

– [Museum walkthrough](#)

– [Compression demonstration](#)

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Web3D Showcase - **Viewpoint VET**

Viewpoint – http://www.viewpoint.com/developerzone/download/vet_installer.html

– [Hypeview Sample](#)

– [HyperZoom Sample](#)

– [Thomaswille](#)

– [Sony Vaio](#)

– [Eddie Bauer](#)

– [Nike Running Shoe](#)

– [Student example](#)

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Web3D Showcase - **Kaon & Hyperview**

Kaon – www.kaon.com

[Sample Gallery](#)

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