Displaying

Group 6

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Displaying

- We don’t just talk about display but we try talk about everything that we can display.
- Basic method of displaying are:
  - Multiscreen.
  - Texture mapping on plane surface.
  - 3D Projection mapping.

Multiscreen

Two or many screen.

A Multiscreen setup allows you to partition and display your content on several monitors or projection.

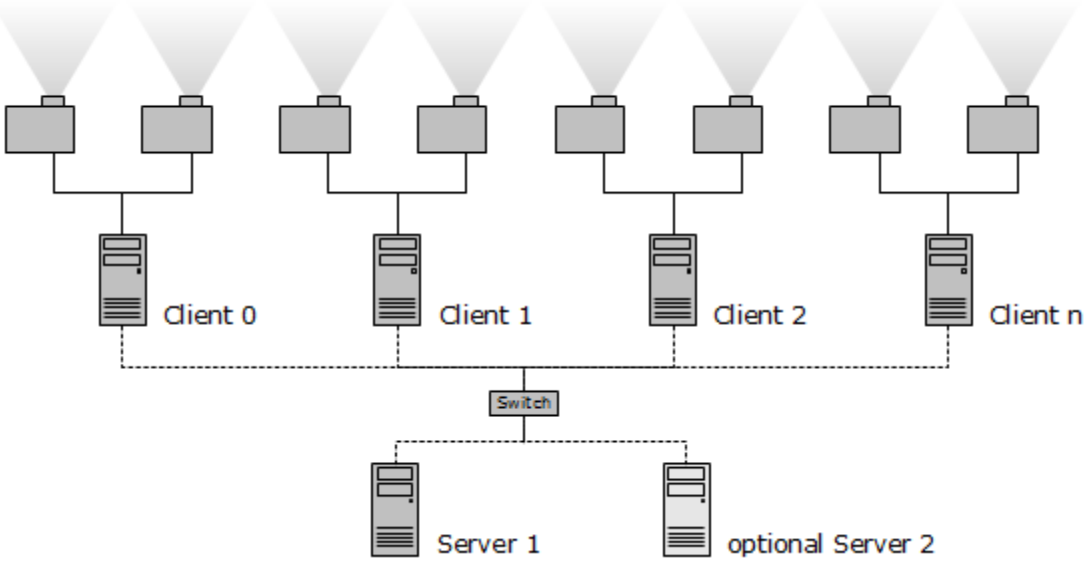
Helps to increase the productivity.

MultiScreen in VVV

- **vvvv** is suitable to control any amount of client computers from a single server with a technique called “Boygrouping".Boygrouping lightens the effort involved in creating multi-screen systems or seamless multi-projection setups.

Boygrouping

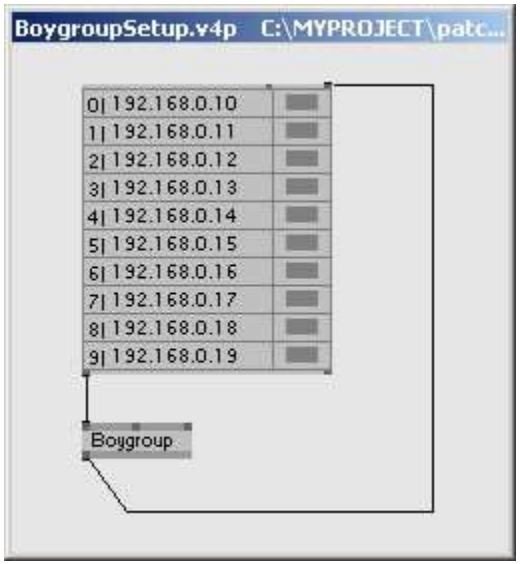
- "Boygrouping," allows you to replace one single object on the server with a group of Hardware Setup.
  - Dedicated server pc, no of client pcs connected to ethernet.



http://vvvv.org/documentation/boygrouping-basics#preparations-on-the-server

MultiScreen(Basic nodes

- EX9 (comes with the addon pack in vvvv/multiscreening
- S and R node (Server and client respectively).
- Boygrouping patching



Boygroup

- Clients and server
- Connect through ethernet .
- Directory Structure.
- Preparation of clients
- Boygroup patching.

Websites

- https://vimeo.com/57452403
- http://vvvv.org/documentation/boygrouping-basics


Calculation
Renderer
Switch
UniformScale
Quad
ScaleXY
TranslateXY Left
TranslateXY Right
Transform
Transform
Renderer - LeftPart
Renderer - RightPart
Biggroup
NodeLib
DirectX Renderer
LeftPart DirectX Renderer
RightPart DirectX Renderer
Be frugal
Profit is the engine that lets us achieve our goals. If we do more with less, we can do more.
2:15 AM
6/13/2014

Texture mapping on plane surfaces

What is Texture?

- 2 and 3 dimensional element
- Perceived surface quality

http://en.wikipedia.org/wiki/Texture_(visual_arts)

Texture Mapping

- Can model the micro-geometry, material property
- Increase the visual effect of a scene
- Clever way to add surface details
- graphics use texture mapping

Advantages

- High quality Images
- Speed up Rendering

Disadvantages

- Rounding Error
- Viewing Properties

Texture Mapping

Three types of mapping

- Texture mapping
  - Uses images to fill inside of polygons
- Environment(reflection mapping)
  - Uses a picture of environment for texture maps
- Bump mapping
  - Emulates altering normal vectors during rendering process

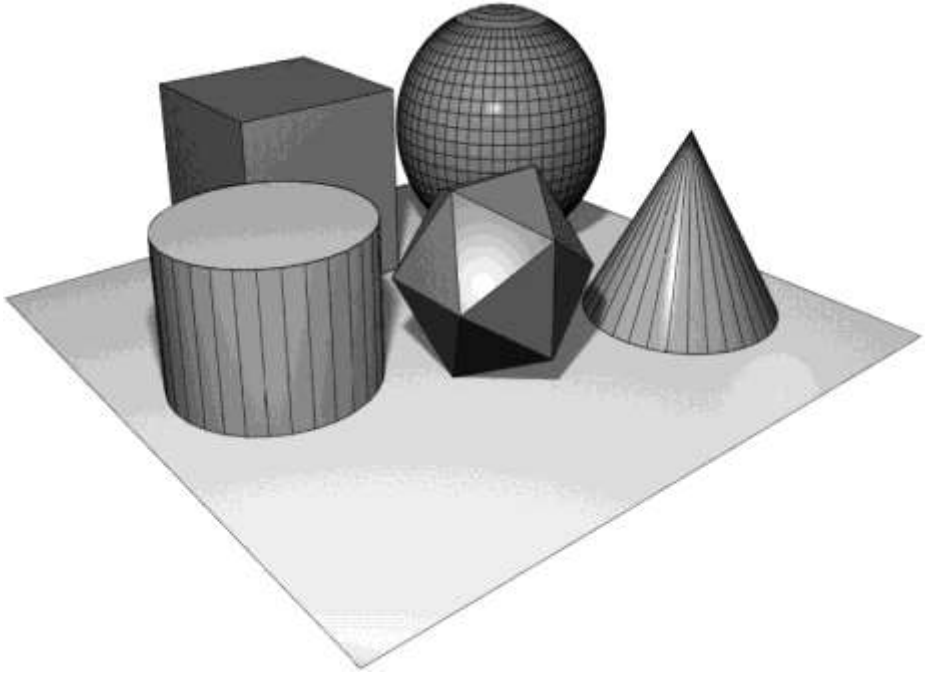
Texture Mapping

Can you do this?

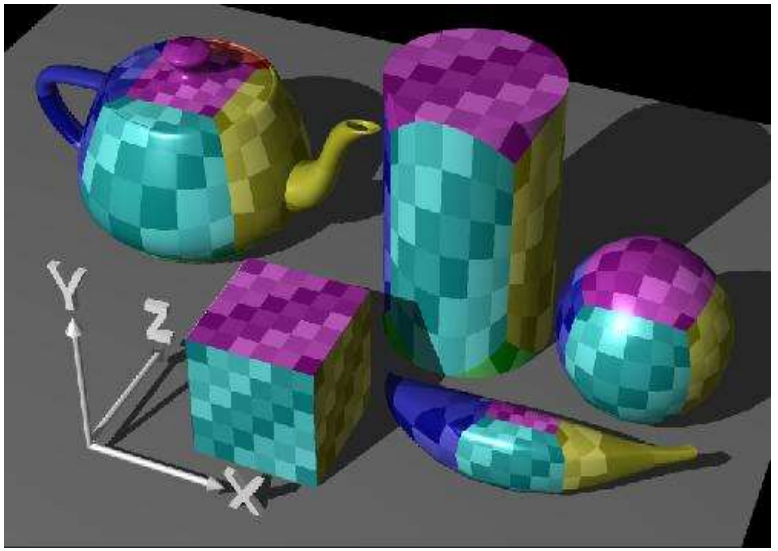
Texture mapping on plane surfaces

http://en.wikipedia.org/wiki/Texture_(visual_arts)

Texture Mapping



Geometric Model



Texture mapped model

3D Projection Mapping

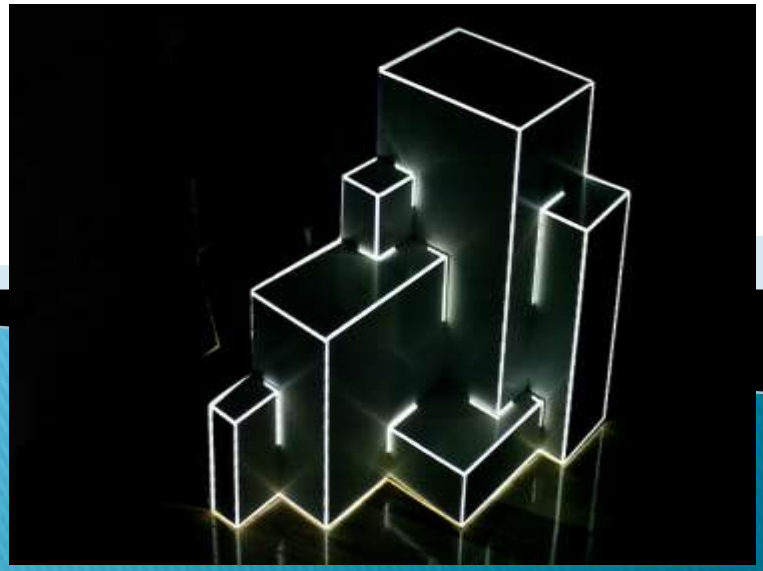
1. Introduction
2. History
3. Setup
4. VVVV
5. Video Example

http://wizardstudiosglobal.com/projection-mapping/

3D Projection Mapping

1. Introduction

- Projection Mapping is used to create 3D Illusions on, mostly unregularly shaped, objects
- This objects differ from small installations to complex industrial buildings
- Mostly used for special occasions, festivals, openings, advertisements etc.
- Visualization are based on different inputs: mainly sound and movement sensors



3D Projection Mapping

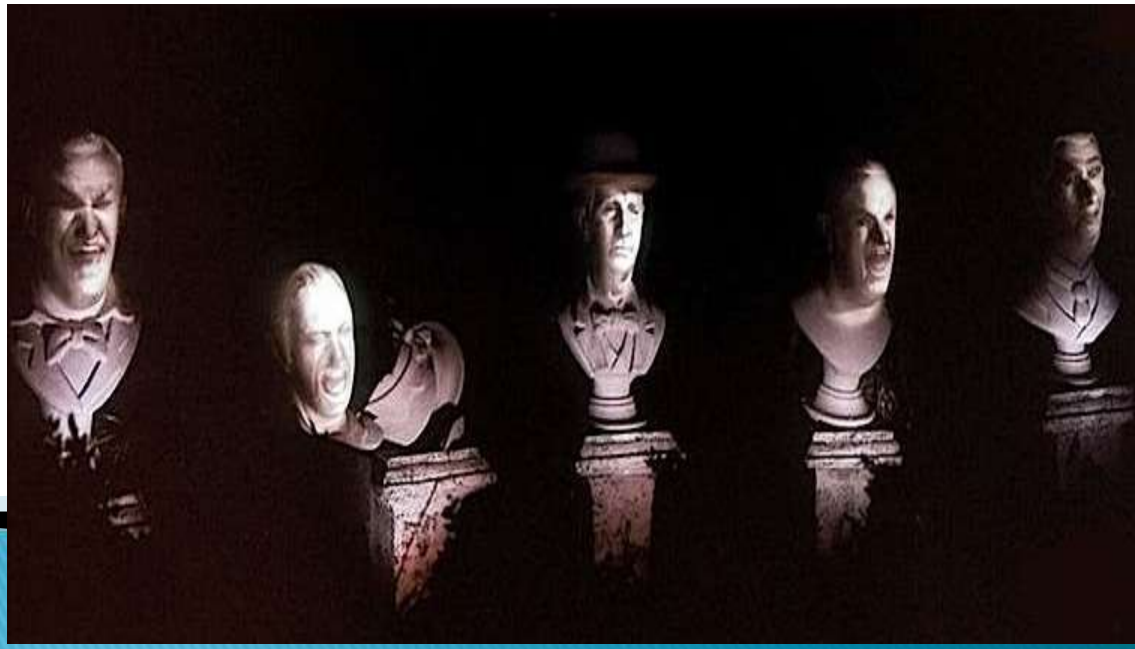
1. Introduction

- Requirements:
  - PC
  - Beamer (at least one)
  - Software (vvvv; vj-software etc.)
- Additional requirements:
  - Kinect, different Sensors
  - Music Instruments (Midi Controller)

3D Projection Mapping

2. History

- One of the first projections on non-flat surfaces is from 1969
- Disney used the technique for some optical illusions for the opening of the Haunted Mansion ride in Disneyland
- Singers were recorded and the footage was projected on the busts of their faces



http://projection-mapping.org/the-history-of-projection-mapping/

3D Projection Mapping

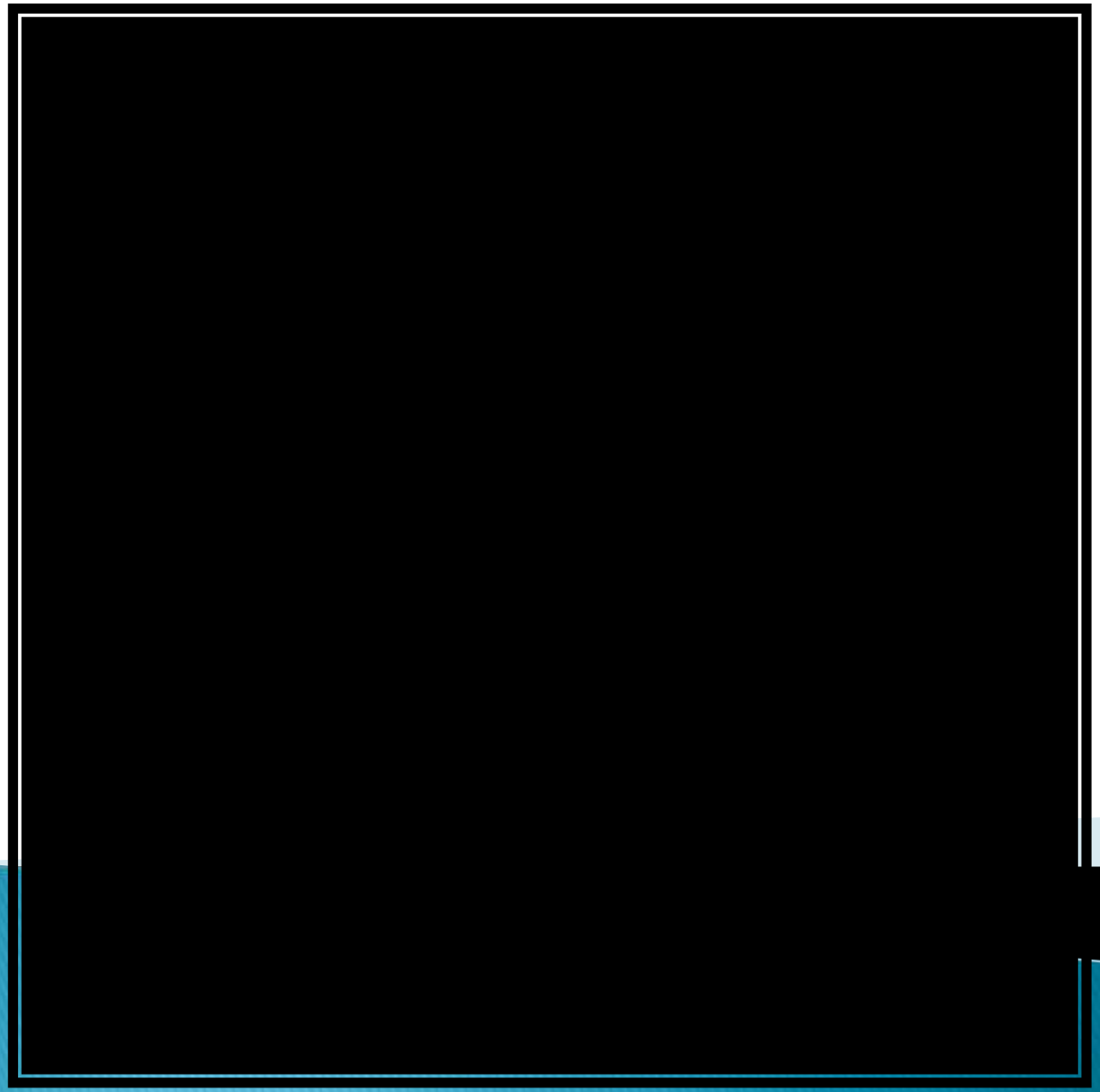
2. History

- Another projection example of the 80s is from Michael Naimark
- He recorded a room with two performers
- The room was painted completely white
- A projector displayed the recorded content

http://www.naimark.net/projects/displacements.html

3D Projection Mapping

2. History



http://projection-mapping.org/the-history-of-projection-mapping/

3D Projection Mapping

3. Setup

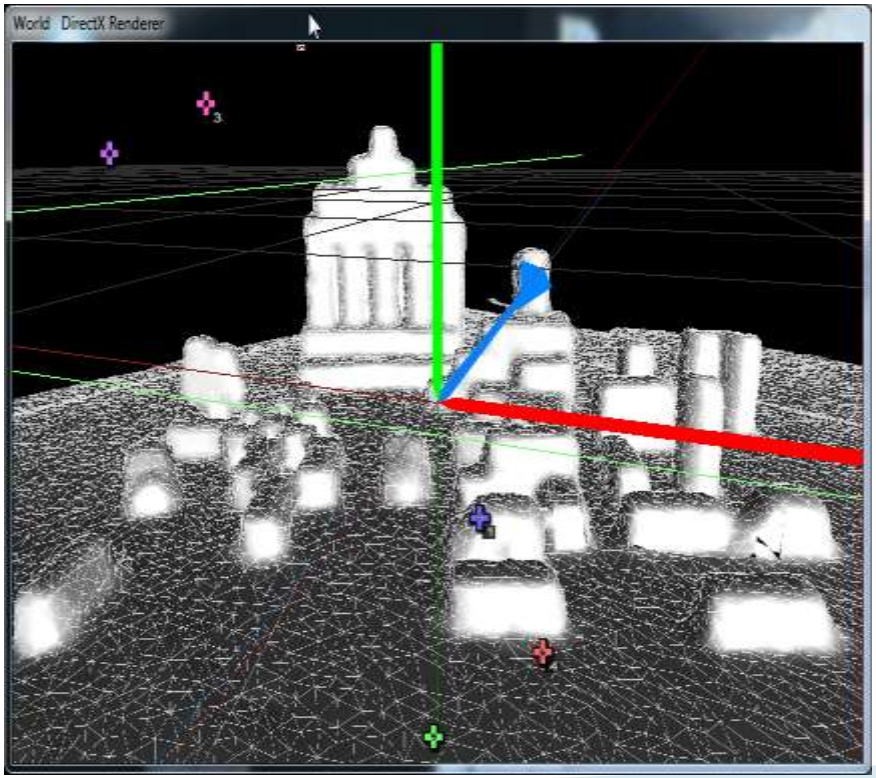
- The main difficult in the beginning, is to find the right viewing position
- The projection will look undistorted only from the view of the projector
- So the projection needs to be adjusted to fit the real world shapes

http://vvvv.org/documentation/how-to-project-on-3d-geometry

3D Projection Mapping

3. Setup

- As next step, the environment should be rebuild as a virtual replica
- It can be made either in vvvv with simple geometries or in other 3D software (e.g Blender)
- This example was created with ReconstructMe (SDK for free available)

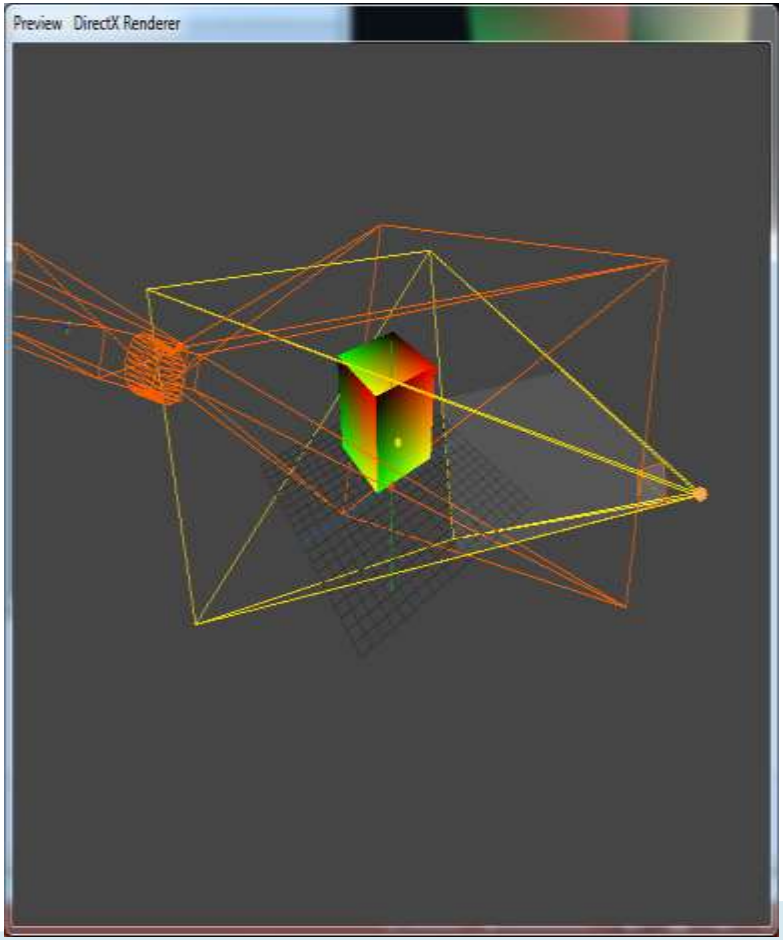


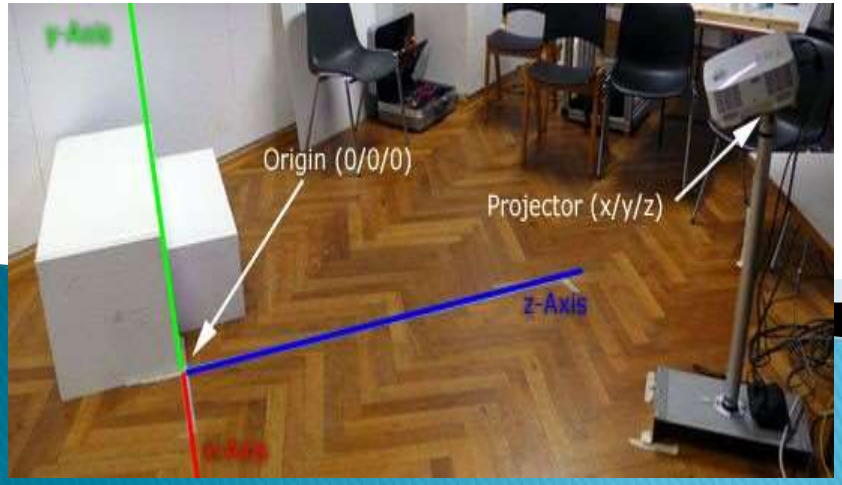
http://vvvv.org/contribution/vvvv.tutorials.mapping.3d

3D Projection Mapping

3. Setup

- For the best result, the real coordinates must be implemented in the virtual scene with regarding to the projectors position, orientation and lens-characteristics



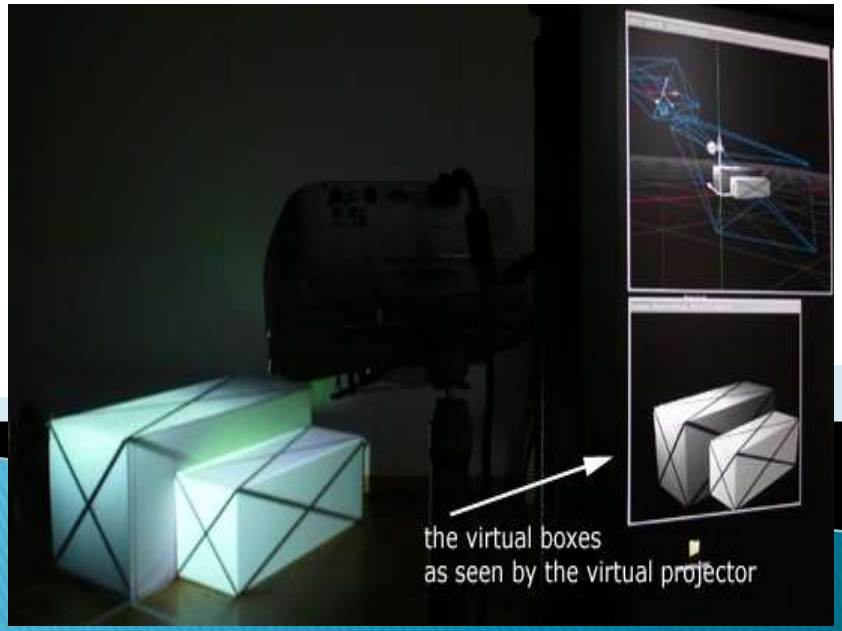


http://vvvv.org/documentation/how-to-project-on-3d-geometry

3D Projection Mapping

3. Setup

- As last step, a texture or video can be mapped on the objects
- Further, any kind of combinations with other devices, sensors, music are possible



http://vvvv.org/documentation/how-to-project-on-3d-geometry

3D Projection Mapping

5. Video Example

http://www.youtube.com/watch?v=UJ7E7uEZN00&feature=kp

http://www.youtube.com/watch?v=4iGNTegpLZI#t=137
