

Window into a virtual world

SEP Kick-off

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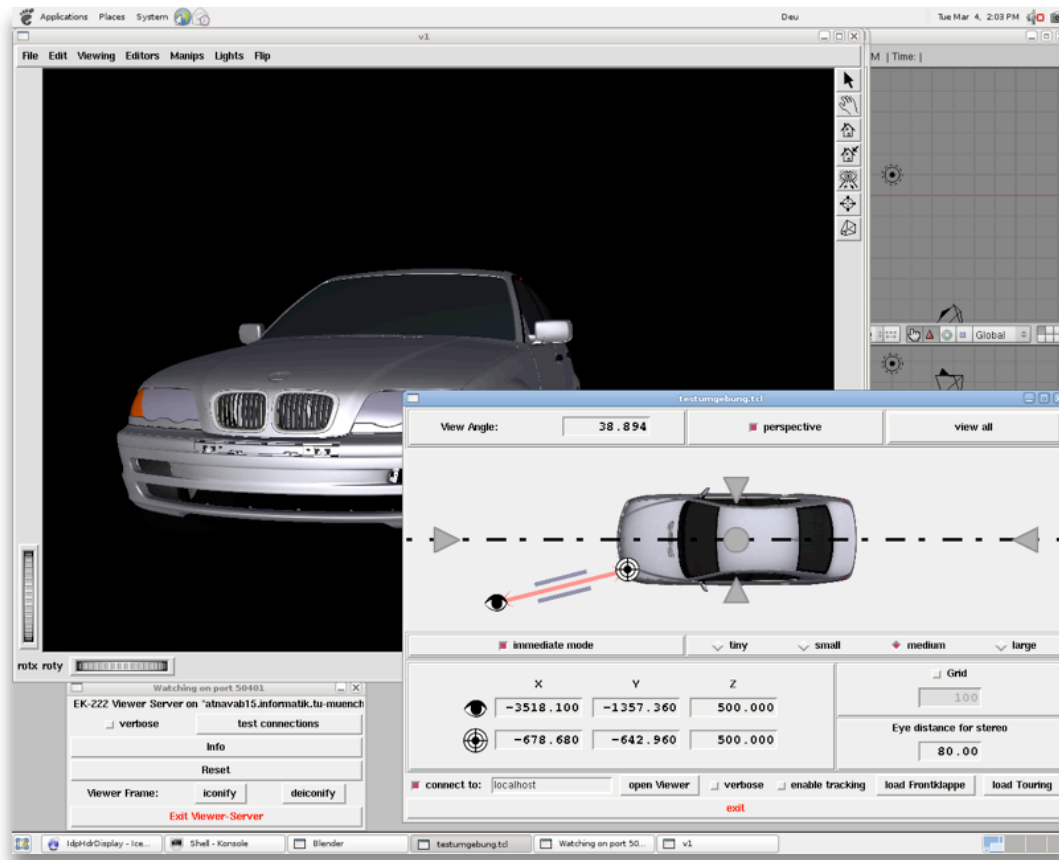
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About the target application

Zusbau

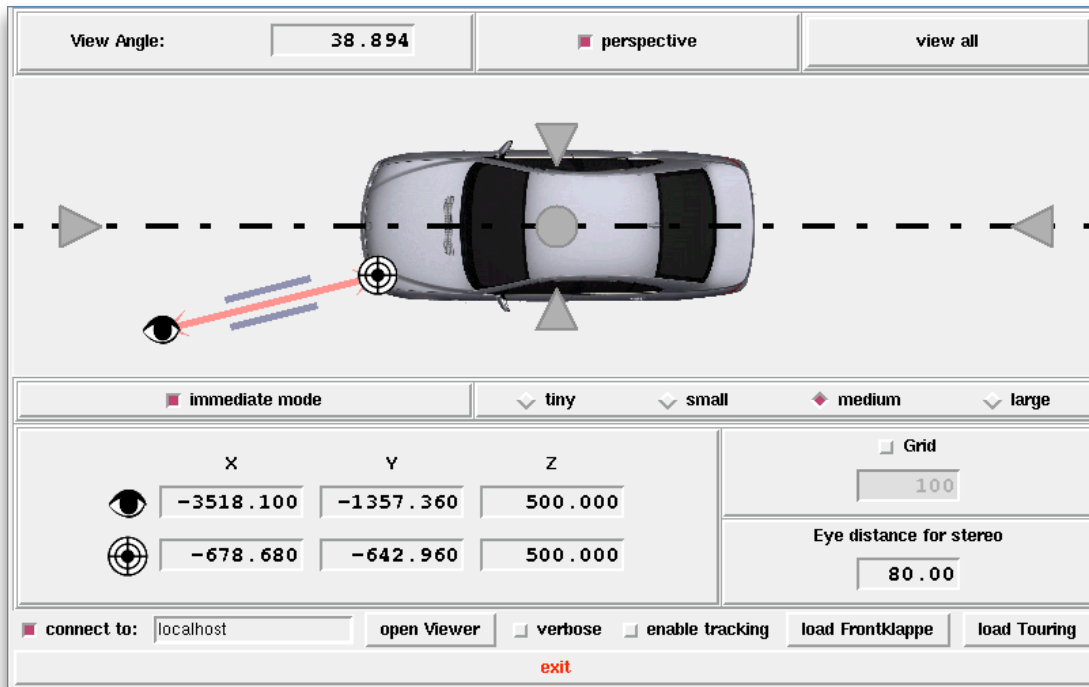


- Single instance control server
- Multiple display instances
- Target platform: Linux
- TCL
- For surface evaluation in the car design process

Project Goal:

Make it work in CAVEs and on Powerwalls

About the target application Zusbau



- Single instance control server
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Project Goal:

Make it work in CAVEs and on Powerwalls

Requirements

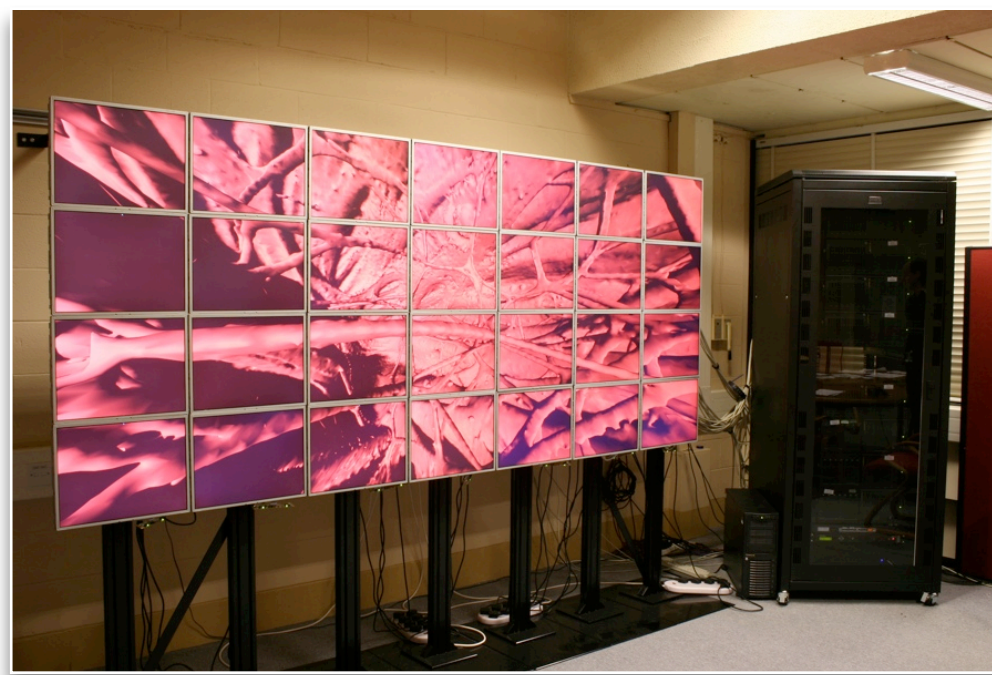
- Support for different CAVE and Powerwall configurations
- Integration in Zusbau
- Distributed deployment environment
- Interoperable with TCL
- Easy & fast configuration and calibration

Possible screen configurations (1)

Powerwall setups - support for both, headtracked and non-tracked viewers



<http://www.comp.leeds.ac.uk/vvr/>



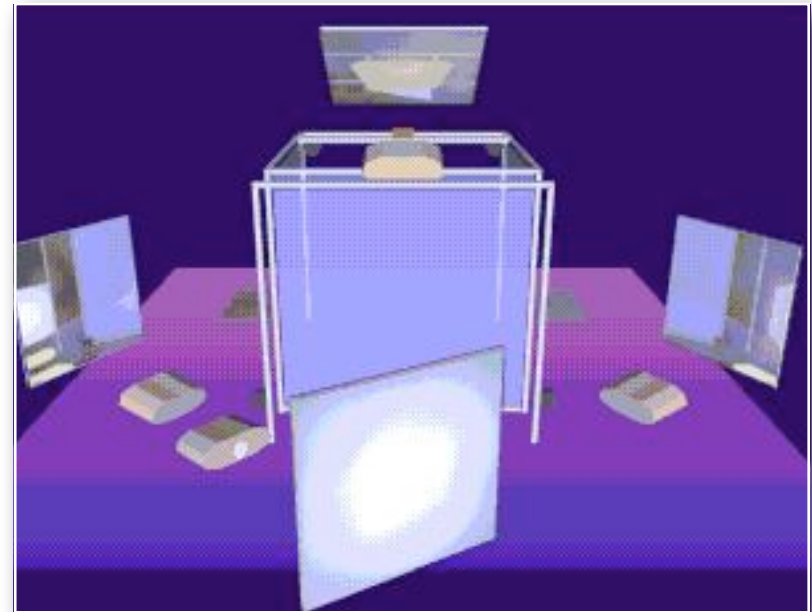
<http://www.vista.bham.ac.uk/equipment/visualisation-and-computing.htm>

Possible screen configurations (2)

n-sided CAVE environments - screens don't have to be perpendicular



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<http://archive.ncsa.uiuc.edu/Cyberia/VETopLevels/VR.Systems.html>

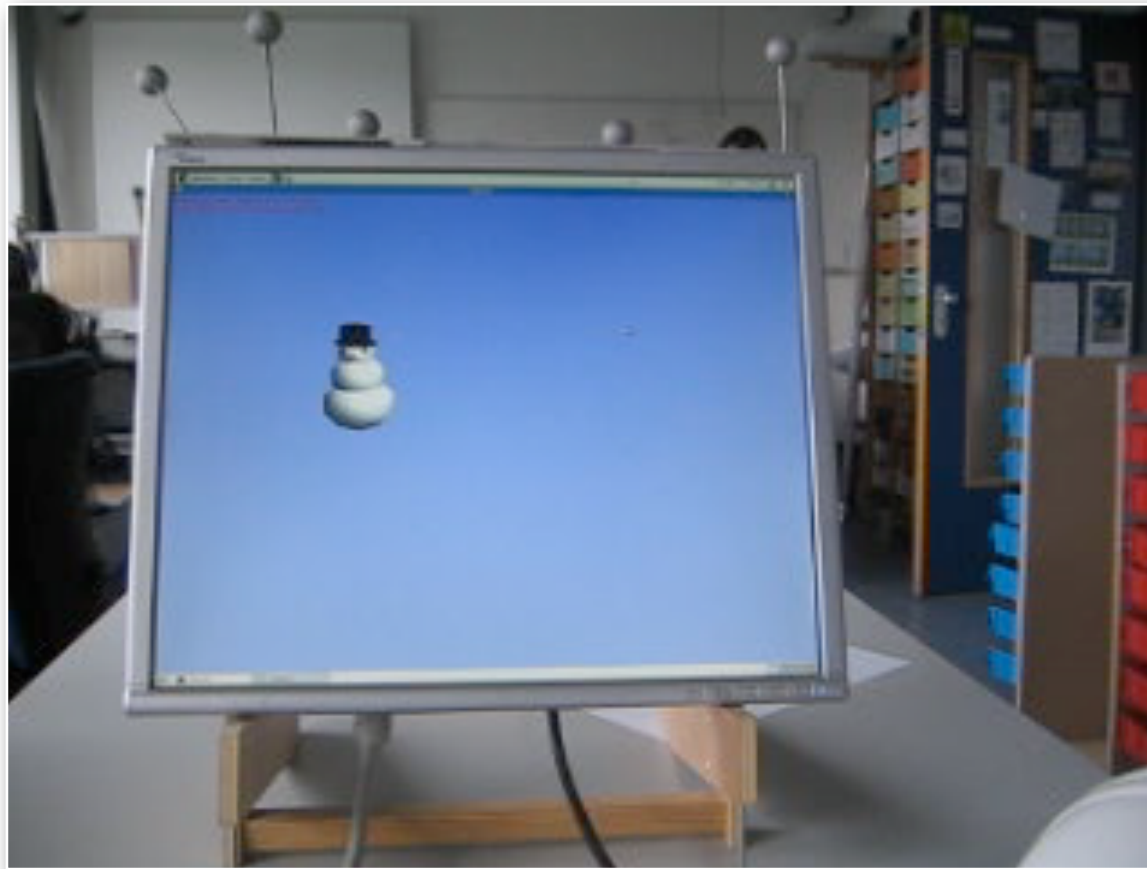
Possible screen configuration (3)

Window into a virtual world - generalized byproduct of the first two configurations

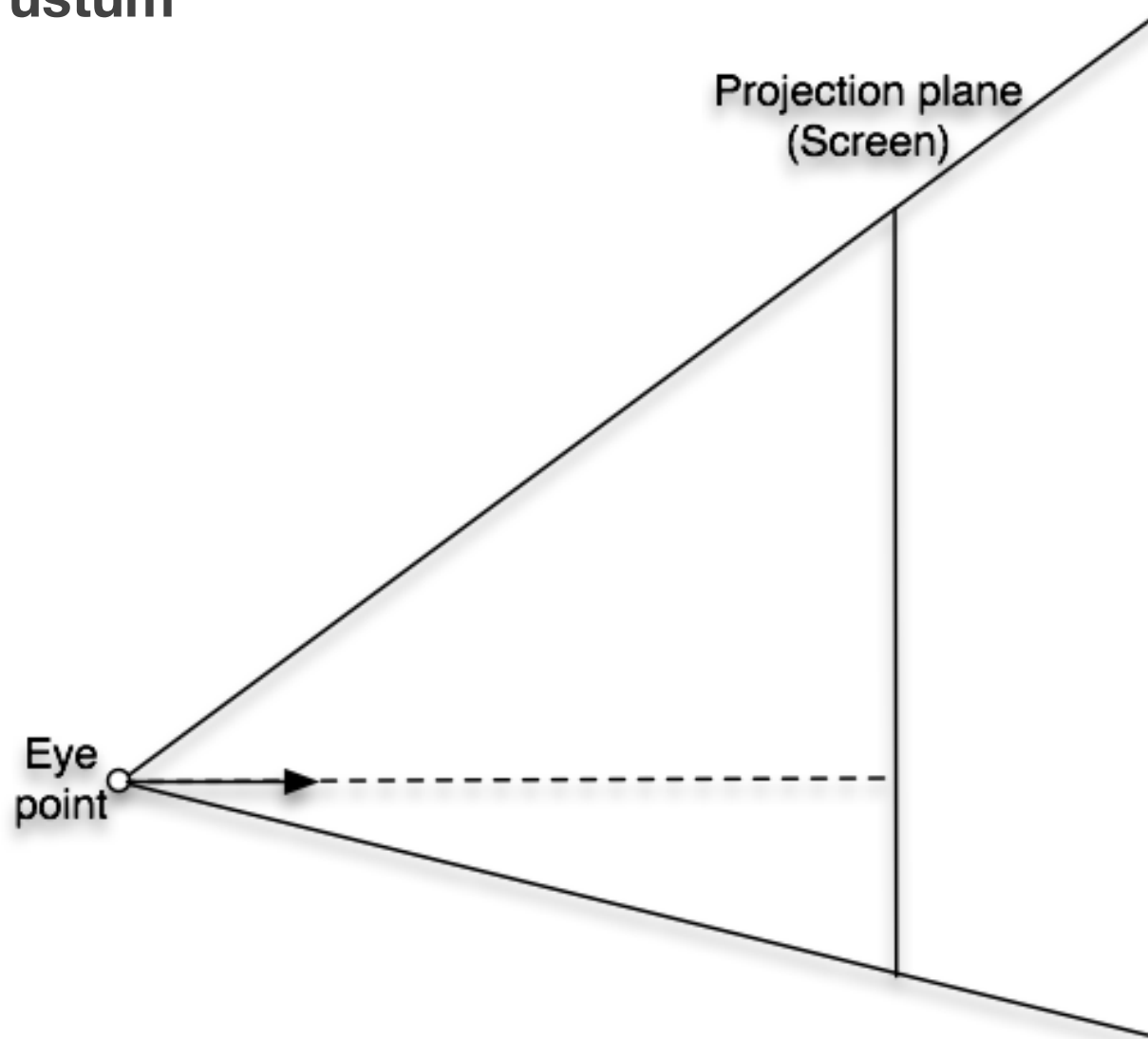


Possible screen configuration (3)

Window into a virtual world - generalized byproduct of the first two configurations

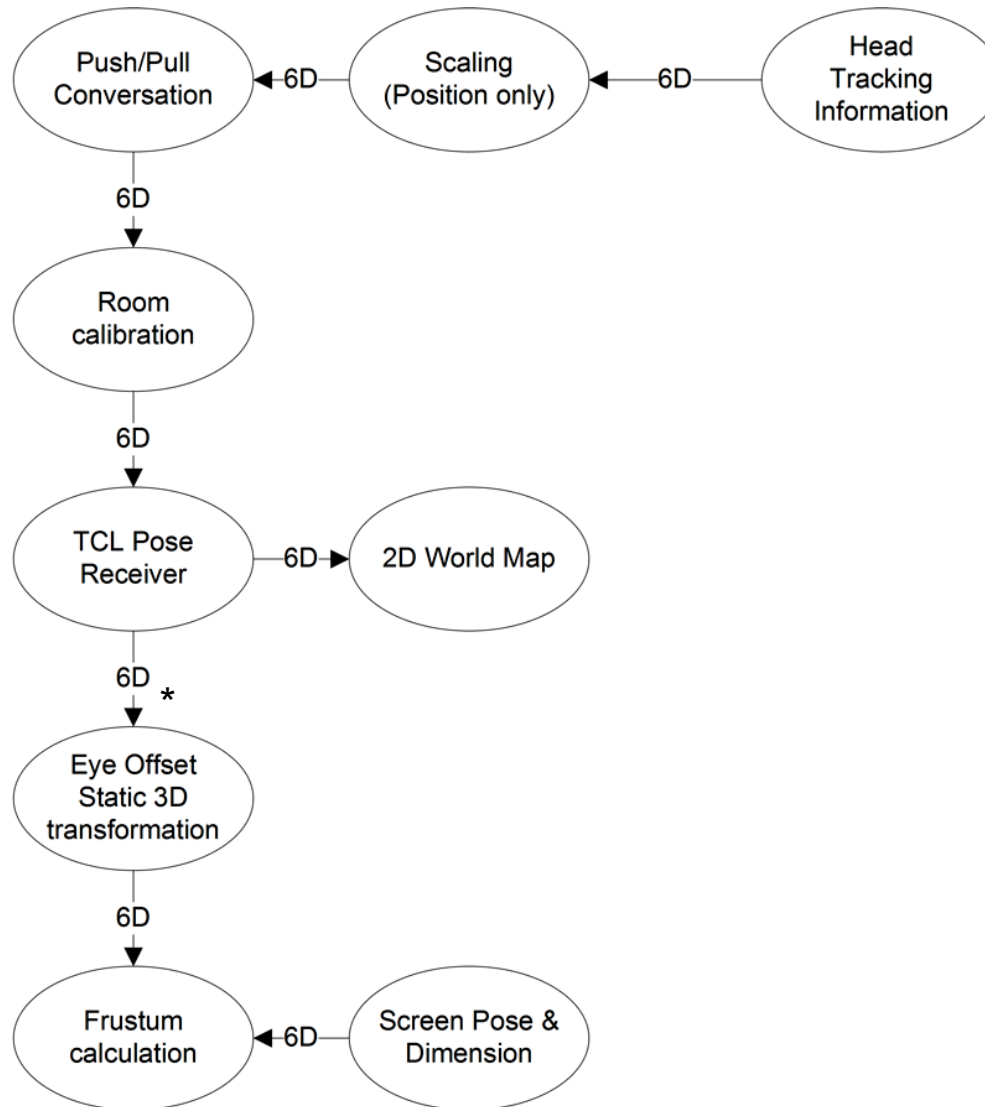


Off-axis view frustum

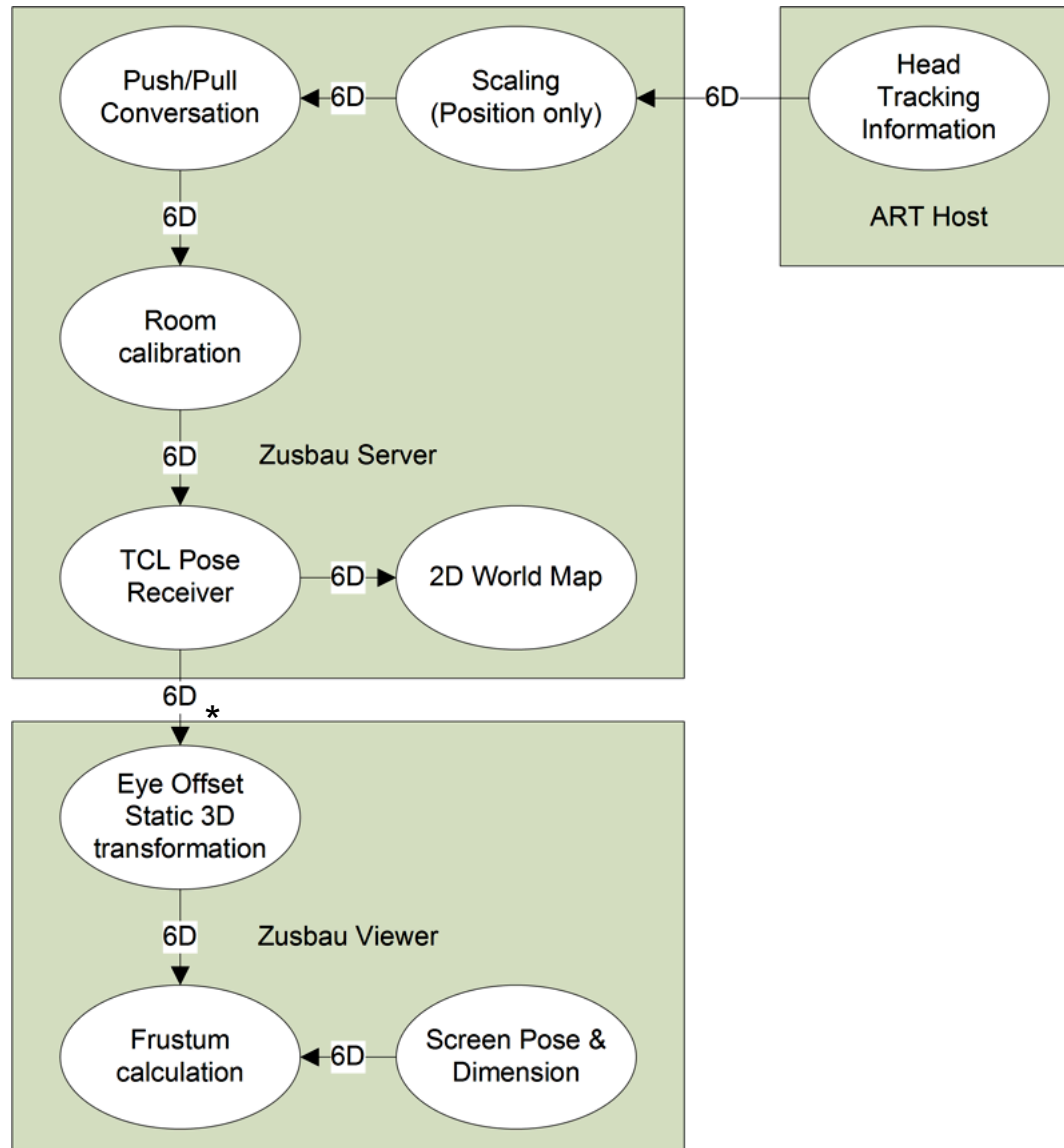


Asymmetric view frustum, the viewer is not looking at the center of the screen

Spatial relations



Spatial relations



Approach

- Calculation of off-axis view frustum like in CruzNeiraSig93*
- Creation of an Ubitrack pattern for window-into-the-world paradigm
- Using Ubitrack pattern in target application
- No implicit stereoscopic rendering - each eye will need a separate configuration

*Surround-Screen Projection-Based Virtual Reality: The Design and Implementation of the CAVE (Carolina Cruz-Neira et al., University of Illinois at Chicago)

Q & A

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