Updates on Projective Texture Mapping

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I. On Projective Texture Mapping

- A method for texture mapping which allows the texture image to be projected onto the scene as if by a slide projector [Cass Everitt, 1999]

- A projector (location and orientation)
- A texture image
- A view volume: (perspective or orthogonal)

Projected Texture image onto the scene

DEMO
The projective texture mapping was proposed as standardization item into X3D at SC24 Meeting/Web3D, 2008.

- Any nodes for projective texture mapping are not specified into X3D yet.

For last four years, several sample examples for projective texture mapping have been developed.

Current, implementation results of projective texture mapping has transferred into X3D browsers such as freeWRL, etc.
II. Proposed Nodes

- X3DProjectiveTextureNode
- OrthoTexture:X3DProjectiveTextureNode
- PerspectiveTexture:X3DProjectiveTextureNode
- ProjectiveTextureGroup:X3DChildNode
Proposed Nodes

X3DProjectiveTextureNode

SFString [in, out] description “”
SFVec4f/d [in, out] position 0 0 10 1
SFVec3f/d [in, out] direction 0 0 1
II. Proposed Nodes

OrthoTexture: X3DProjectiveTextureNode

SFString [in, out] description “”
SFVec4f/d [in, out] position 0 0 1 0
SFVec3f/d [in, out] direction 0 0 1
MFFloat [in, out] viewVolume -1 1 -1 1 -1 1 // (viewvolume)
SFNode [in, out] texture NULL [TextureNode]
SFNode [in, out] textureTransform NULL [TextureTransformNode]
## Proposed Nodes

**PerspectiveTexture:** X3DProjectiveTextureNode

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFString</td>
<td>[in, out] description “”</td>
</tr>
<tr>
<td>SFVec4f/d</td>
<td>[in, out] position 0 0 10 1</td>
</tr>
<tr>
<td>SFVec3f/d</td>
<td>[in, out] direction 0 0 1</td>
</tr>
<tr>
<td>SFFloat</td>
<td>[in, out] fieldOfView n/4 (0, n) // field of view</td>
</tr>
<tr>
<td>SFFloat</td>
<td>[in, out] aspectRatio 1 // aspect ratio</td>
</tr>
<tr>
<td>MFfFloat</td>
<td>[in, out] minmax 1 10 // min-max z value</td>
</tr>
<tr>
<td>SFNode</td>
<td>[in, out] texture NULL [TextureNode]</td>
</tr>
<tr>
<td>SFNode</td>
<td>[in, out] texture Transform NULL [TextureTransformNode]</td>
</tr>
</tbody>
</table>
II. Proposed Nodes

**ProjectiveTextureGroup:X3DChildNode**

- SFFloat [in, out] alpha 1 [0,1]
- SFCColor [in, out] color 1 1 1 [0,1]
- MFString [in, out] function []
- SFNode [in, out] metadata NULL
- MFString [in, out] mode []
- MFString [in, out] source []
- MFNode [in, out] projectiveTexture [] [X3DProjectiveTextureNode]
III. Documentation