Texture Mapping



Why texture?

Detail is expensive to model
Often the surface of an object is viewed only from a distance

• We can 'paint' the detail on the object instead of increasing the complexity of the object





How is it done?

 As we draw each pixel of a surface, we get the local colour from the texture image.

• So we need a coordinate system on the surface to find the right part of the texture.

Just use x, y?



u, v Mapping



Remember shading and normals?

- Each vertex carries shading and/or normal vector values for interpolation.
- Give each vertex u, v values too.
- The interpolation can be done by software or hardware.



Ways to get u, v









L20: 10

Parametric surfaces









Different uses of texture





Ray traced?



Bump mapping



Bump Mapping Examples







Problems

- Undersampling: one pixel maps to an area covering many texture pixels (texels)
- Oversampling: many pixels map to an area contained by only one texel.

Undersampling



Oversampling





Oversampling





Surface and volume texture





Functional Textures





Movie Example

