

Proposal

We would like to create an animated scene of a textured teapot and mug. This will be laid out on a single canvas and both meshes will be sitting on a flat surface. We will use a perspective projection camera, as well as implement the orbital and panning controls for viewing the scene from various angles using the mouse and keyboard.

There will be a directional lighting source pointing at the teapot and mug from above at a bit of an angle, as well as ambient lighting to increase the brightness of the scene slightly. The rest of the scene will also be textured to include an image of some ground and skybox background.

Alongside the basic requirements, we will add shadows casted from the teapot and mug onto the ground, as well as use bump maps to add a small 3D illusion to the texture of the ground and the mug. Lastly, the animation of the teapot will lift it and rotate it slightly above the mug as if it were pouring its contents, and then return to its start state where it will then loop until stopped using UI controls.

GitHub Repository: <https://github.com/denk0403/BostonTeapot>

- Basic Requirements
 - WebGL canvas (using ThreeJS)
 - Camera (with perspective projection)
 - 2 3D mesh objects
 - Teapot
 - Mug
 - A directional and ambient lighting source
 - Four textures
 - One for the teapot
 - One for the ground
 - One for the mug
 - One for the background
 - Two user interactions
 - One for moving/rotating around the teapot
 - Mouse and keyboard (WASD or arrow keys)
 - One for animation controls
 - UI for playing, pausing, stopping, and completing the animation.
- Additional Requirements
 - Shadows
 - Teapot and mug shadows on the ground.
 - Bump Maps
 - Distort the surface of the ground and mug slightly.
 - Animation
 - Lifting the teapot to look like its pouring into the mug, and loop.