Controls

The camera is moved left and right by the A and D keys, front and back with the W and S keys, and rotates around the Y axis with the Q and E keys.

Skydome

The sky dome logic was taken from the Rastertek tutorial. However, that tutorial created a separate Skydomeclass and Skydomeshaderclass, whereas this implementation instantiates the sky dome as a single Modelclass object. In the Graphicsclass, the Render() function will first translate the sky dome around the camera’s position. Then, back face culling is turned off so that the texture is rendered on the inside of the sphere, and the ZBuffer is turned off so that the dome is always rendered behind the objects in the scene. The sky dome is rendered using the light shader, instead of a separate sky dome shader, because a separate shader would have virtually all of the same properties as the light shader, without specular. Setting the specular color to (0.0f, 0.0f, 0.0f) in the light shader applies the same effect without having to add new shaders or classes. After the sky dome is rendered, back face culling and the ZBuffer are turned back on so the rest of the scene can render.

Loading Models

Treeclass

Fog

Sounds

Sounds were implemented in a separate Soundclass file and utilized in the Systemclass. The original structure was taken from the Rastertek tutorial with small changes. First, in LoadWaveFile() code that checked for stereo format, sample rate and 16 bit format was removed, as it interfered with the audio that was added to the scene. The Soundclass object is initialized in Systemclass’s Initialize() function, and loads the .wav files into two secondary buffers and plays them. The background sound is played on a loop at a set volume. The footstep effect is created by initializing the .wav file at the minimum volume, and checking in the Systemclass whether the camera is being moved in Frame(). In frames where the camera is moving, the SetFootstepVolume() function from the Soundclass is called, setting the volume to maximum, and in frames where the camera is not moving, the function sets the volume to minimum. In this way, the footstep sound is playing constantly, but setting the volume at certain times gives the impression of footsteps when moving.