

Smoke Simulation

I think that smoke can be simulated by combining two different flavors of smoke generation. There is a smoke that is directly created by a source, like a flame, and then if it is smoky in a room, then there is a lower quality of vision, because the air is thicker with smoke.

Smoke from the source can be made easily with a particle system that creates billboards of a texture showing a picture of smoke. This picture would be primarily gray, but would also be translucent. The generation would be slow and constant, and would rise up slowly. For more detail, a mesh that has this texture applied to it could be used, and would react to the light in the room. This could become as complicated as the detailed cloud simulation we went over in class by simulating sections within the smoke being affected by the light as well.

Within the room, the smoke also causes things to have a lower visual quality, as the things are obscured by the smoke. This could be done with a shader on all objects in the room, making them steadily less visible the further they are from the camera, turning into a gray hue. This is a simple solution, and for it to react to light a more complex solution would be necessary, where there is actually extended simulation of the smoke with the particle system filling the room to an extent by having collision, but this would be much more intensive.

Even with the most simple solutions to both these parts, combined, this would give a nice smoky effect for a room.

Part 2.

I will be working with Austin Wiley.