Pathfinding Algorithm Specifications

The non-player-controlled entities in the game will all follow the pathfinding algorithm specified in this document. The pathfinding algorithm will help the entities trace a smart path to their goal rather than the shortest, most direct path. This path will be computed using the A\* algorithm.

For example, the zombies will use the algorithm to find the player while being able to walk around the blocks, out of “rooms,” and to avoid lava.

A separate pathfinding algorithm will allow the zombies to be able to work together to corner the player. They will be able to split up and attack the player from multiple angles, taking into account the positions of all of the other enemies currently attacking the player.

The entities now also have limitations. They only have a limited view sphere, which means that they cannot see everything all the time. Furthermore, we’ll have the view spheres of all of the entities highlighted in a certain color. For example, the zombies will not try to chase you unless the player walks too close to it. In addition, the zombies will not be able to see across walls.

Furthermore, the player will also have a limited viewport. Since the game is 2D while simulating a 3D universe, the player’s limited viewport must be taken into account. In order to do this, the following rules must apply:

1. The player can only see in a certain radius around him
2. The player cannot see through walls
3. The player cannot see behind other entities

Dimming and lighting will occur based on the brightness of the current scene. For example, lava will increase the brightness, while the absence of light will lead to a dimming of the entire game screen.