Joseph Shaffer

CSE 5541

Shaffer.567

Lab 4 AI Simulation Readme

This game behaves like sharks and minnows. Basically the goal of the game for the prey(the cubes) is to reach the other side of the board, which is not defined noticeably but the dimensions of the board are 15 f by 13f. The prey are generated randomly in the bottom half of the board and each are given a random goal to reach on the other side of the board. So each prey has a random x value, a y-value of 0, and a z-value of 13f that they need to reach and they will move towards that goal and anytime they move to this goal, they will be white. If the prey reaches the far end without being eaten, their color will change to green the new goal will be a random x-value, y-value of 0, and a z-value of -13f. This repeats as long as the prey is still alive. Furthermore, the prey has a constant velocity of 1.25f right now which is faster than the predators, but will not accelerate ever. The prey will try to avoid the predators if the prey sees one in its field of view, and if so the prey will move in a direction opposite of the predator and will start moving towards the goal if they no longer see the predator in the field of view. The field of view for the prey is greater in degrees and distance than the predators currently. Also, more prey are generated than the predators.

The predators (spheres) on the other hand will be generated on the top half of the board and in general move in a random direction, where they move in the same direction for some time and will eventually change directions due to travelling in one direction for too long, or just to avoid going outside the perimeter of the invisible board. The predators have a velocity of 1f, but will accelerate by 2f if there is a prey in their field of view, which is not guaranteed to see every prey no matter how close as the predator’s orientation changes constantly due to its random movement and as it sees new prey that is closer to itself. Furthermore, the predator will not sense a prey that is not in the degree of the field of view not matter how close the prey is. Furthermore, the predator has a limited lifespan and the only way to increase that lifespan is to eat a prey, as eating a prey basically restarts that predator’s lifespan, so if the predator does not eat, it will eventually die. Currently the predator will only live for 100 frames and when only 20 frames are left, the predator’s color will change from blue to red. Also by pressing ‘W’ key, the predators life span will be increased, while pressing ‘S’ will decrease the lifespan.

Also, several obstacles(cylinders) are generated around the field at random. Both predator and prey characters should try to go around these obstacles.

Also by pressing the up arrow, a new predator will be generated, which has no limit.

Pressing the down arrow will generate a new prey object, which has a limit of 125.

Pressing the right arrow key will generate a new obstacle, which has a limit of 25.