Robert Gentile

EGP-410

Assignment2

From the basis of Assignment1 two major changes have been added. First is the addition of target avoidance for the AI entities. Second is the use of Collisions and walls. Also worth mentioning is the addition of a new steering method and Debugging mode. The new steering is simple and arbitration of wander and seek given a radius value for the target. Debugging mode now allows for the modification of values stored in the Game class that can be changed and accessed throughout the project.

For target avoidance the method used is separation. The update in each kinematic unit now takes a pointer to the UnitManager class. Within the update function a new function for separation takes the UnitManager pointer and returns the to be used steering. The function itself loops through the units, checks the distance of self to units and adds a separation strength acceleration onto the currentsteering. If that strength is greater than max acceleration, then max acceleration is added instead. With this AI entities move away from each other while maintaining their usual path.

Walls are now included and with that collisions are added as well. A BoxCollider class has been created which has a vector2d for corner position, a vector2d for the dimensions, getters, setters, and a checkcollision function that takes another BoxCollider as its parameter. The function just checks if either box is to left or below the other and if none of those cases are true the function returns true to represent a collision. The units now have a BoxCollider member as does the new Wall class. To check collisions within the unit update the BoxCollider member pointer is passed to the WallManager which checks the collision with each existing wall. Lastly the Wall are create in the WallManager with start point, end point, and width members. With that data a BoxColider is made in the constructor and uses those members to perform the Allegro draw line function.