Spike: Task 15

Title: Soldier on Patrol

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# Goals / Deliverables

* Basic deliverables:
  + A “soldier on patrol” simulation where agents have 2+ high-level FSM modes, and low-level FSM behaviour, including at least:
    - High-level “patrol” and “attack” states
    - The “patrol” mode must control low-level states so the agent will visit waypoints along a path.
    - The “attack” mode must control low-level fighting states (shoot, reload, etc.)
  + Enemy agents need to be able to be added.
  + With the soldier attacking enemies, a basic health/attack model is needed.

# Technologies, Tools, and Resources Used

* SublimeText (for editing, executing and testing the code)
* Learning materials on Canvas (for instructions and sample code)

# Tasks Undertaken

* Copied project from Task 14: Agent Marksmanship folder to Task 15: Soldier on Patrol folder. Stripped spike report down to what’s needed for this task. Tweaked base code to separate out weapon and agent types from mode and sub mode, to allow more flexibility with states during this task.
* Set up a pre-set patrol path and changed the soldier and target’s starting positions to be the first point in the path and the centre of the simulation space respectively.
* Altered soldier agent to expand its field of view and remove gaps in said field of view.

# Instructions for Operating the Code

* A: toggle the display of agents’ obstacle avoidance range if it would otherwise not be displayed.
* B: toggle walls (i.e. boundaries of the simulation space) on and off
* I: toggle the display of agents’ force, velocity and net desired change in position.
* N: create a new obstacle in a random but valid position.
* O: toggle obstacles and hiding spots on and off.
* P: pause or un-pause the game.
* R: reposition all obstacles in random but valid positions. Obstacles are automatically repositioned when the window changes size.
* T: scroll through target movement types (stationary, moving between two points, evading).
* W: scroll through shooter weapons.
* Escape: exit the game.

# Code Snippets

# In-Simulation Screenshots

# What I Found Out