APSC 200 P2: Week 5 Outline

Department of Mathematics and Engineering
Queen's University

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1 Objectives

The main objectives of this week are listed below.

1. Continue translating the mathematics used for deployment algorithms to MATLAB code. This week will be focusing on implementing a cost and/or energy function that will impact the movement of the agents in the simulation.
2. Begin writing Final Report. This is not an exhaustive list of the requirements for the Final Report, refer to the marking rubric for the final report for a detailed breakdown of the requirements for the final report.
   (a) Review feedback from Proposal Report and make required changes
   (b) Final Design Solution
   (c) TBL Analysis
   (d) Economic Analysis

1.1 Formation Algorithm

1. Introduce cost and/or energy function to the *moveAgents.m* to attach limitations on the movements made by the agents.
2. Test various design parameters to determine the optimal solution for your application.

1.2 Flocking Algorithm

1. Introduce cost and/or energy function to the *updateVelocity.m* to attach limitations on the movements made by the agents.
2. Test various design parameters to determine the optimal solution for your application.

1.3 Opinion Algorithm

1. Introduce cost and/or energy function to the *updateNodeData.m* function to attach limitations on the movement made by the agents.
2. Test various design parameters to determine the optimal solution for your application.

1.4 Lloyd's Algorithm

1. Complete the *moveAgents.m* function to move agents towards their centorids
2. Complete the *velocityFunction.m* function to determine how agents move, given a velocity magnitude and direction
3. Complete the *energyFunction.m* function to compute the change in agent energy after moving

2 Lectures and Workshops

There is no lecture scheduled for this week. The two workshops are work periods to work on your project and an opportunity to ask the TAs questions you may have about the project.

3 Deliverables

This weeks deliverables are:

1. Progress Report 2 (due ...)