Lab 4
Coordinated and Collective Movements

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What this lab is about?

1- Reynolds flocking (Webots)
   (a) No specific formation geometry
   (b) No leader (usually a migration rule)

2- Robust formation control (Webots)
   (a) Specific formation geometry
   (b) Leader to move the formation

3- Graph-based formation control (Matlab)
Reynolds flocking in Webots

• You will study the impact of various parameters on the flock.

• Two different localization systems:
  • Absolute and centralized localization.
  • Odometry (motion model propagation) and communication.

• The performance is just an estimate (not very reliable).
Robust formation control in Webots

• The leader is controlled by your arrow-keys.

• There is a specific formation geometry – diamond shape.

• Note the differences between flocking and formation.
Graph-based formation in Matlab

• No leader in this case.

• Try to understand how the Laplacian controller works.

• Play with the parameters and note their effects.
Notes

• Remember to fill the feedback form