

## Design and Implementation of Simple Controllers for Ollies and Sparks



Swarm robotics is the study of robotic systems consisting of large numbers of relatively simple agents whose local interactions with each other and with their environment lead to a collectively intelligent behavior. In this project, we are interested in navigation behaviors of the swarm and we would like to build an interface that allows a user to control navigation of robots in a swarm in an abstract manner and by providing a sequence of points each robot must reach during its execution.

The goal of this project is to design and implement controllers for Ollies and Sparks that allow the users to specify a sequence of destination points for the robots to follow and the control inputs that drive the robots from one point to the next one are automatically generated. This involves: 1) an interface that allows a user to specify the number of robots and a sequence of points for each robot, 2) controllers that derive each robot from one point to the next one in their corresponding sequence, 3) simulation of the scenario and validating correct execution of the controllers.

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