Swarm Bots

Overview and Objective

1) Deliver a ROS2 integrated package which implements a swarm algorithm that makes 20 turtlebots follows a user defined trajectory
2) Deliver a stand alone mobile CPP library which calculates velocities and trajectories needed.
3) The objective is to have the ROS2 package use the swarm_library to implement the swarm algorithm

Approach

1) Create CPP swarm_library
2) Develop ROS2 package and ensure it works properly with swarm_library
3) Create demo, perform testing using google tests and colcon tests
4) Clean up code using tools such as cpplint, cppcheck

Software Development Practices

1) Libraries including: std_msgs, geometery_msgs, rclcpp, tf2, tf2_ros, custom built swarm_library, etc.
2) Agile Iterative Process (AIP) with a test driven development approach
3) MIT license, Doxygen documentation, github CI
3) Google C++ style, cpplint, cppcheck

Timeline

Phase 0: Proposal, Planning and Designing
Phase 1: Implementation, UML diagram, google and colcon tests
Phase 2: Testing, troubleshooting and polishing repository