

**Team Name:** sdmay21-40

**Team Members:** Abdalla Abdelrahman, Daniel Nikolic, Benjamin Schneider, Noah Thompson, Mason Walls, Cole Weitzel

**Project Title:** Dancing Swarm of Robots

**Report Period:** Aug 31 - Sept. 13

**Advisors:** Dr. Akhilesh Tyagi, Dr. Diane Rover, Dr. Phillip Jones

### Summary of Progress in this Period

During the second period, we began our first steps toward a complete project design. We met as a group to complete the Design Thinking reflection and our first Lightning Talk over our project's requirements and relevant engineering standards. Possible sensor devices and setups were researched as well, with the group leaning toward LIDAR as the most likely choice.

Individually, group members completed the individual assignments over the Design Thinking and Project Management talks. Additionally, we have begun familiarizing ourselves with the Webots robot simulator that we will use for our early-stage modelling and testing. Once we are accustomed to it, we will be able to begin testing out different motion platforms for our project.

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### Pending Issues

Our group is completely new to the Webots software suite that we will be using for the majority of our prototype modelling. Currently, we are in talks with Group 10 from the S20-F20 senior design session for advice on getting started. We also still have yet to determine the platform to be used for the project. This will be done through modelling experimentation within Webots.

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### Plans for Upcoming Reporting Period

During the next period, we will be working on the first version of our design document. To do so, we will be having at least two group meetings to discuss the outline of the document and its contents. We will also be meeting with our advisors Dr. Tyagi and Dr. Rover once each week to discuss our design progress and upcoming ideas.

Additionally, we will be beginning modelling work through Webots to experiment with different motion platforms and sensor design schemes. Through this software suite, we will be able to run practice robot interactions, try different hardware setups, and test movement algorithms before implementing them in the real world. Once modelled in the synthetic environment, it will be significantly easier to build our final product.

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