Installation and Setup Instructions for the Swarm-RL Project

<mark>This document describes the steps required to set up your environment and execute experiments for the Swarm-RL project.</mark>

Step 1: Create and Activate the Conda Environment

First, create a new Conda environment with Python 3.8 by executing the following command in your terminal:

conda create -n swarm-rl python=3.8

Next, activate the environment:

conda activate swarm-rl

Step 2: Install Required Packages

Navigate to the *projects/quad_swarm_rl* directory and install the necessary dependencies to build the simulation environment:

pip install -e .

Then, go to the root directory of the project and install additional requirements:

pip install -r requirements.txt

If needed, you can also install the following additional packages for extra functionality:

pip install numpy pymoo scikit-learn pandas sample-factory plotly numba bezier seaborn

Step 3: Execute Experiments

You are now ready to run your experiments. To do so, change the permissions of the main_search.py script to make it executable:

chmod +x main_search.py

The results of your experiments will be saved in the ./results directory.

Personalization Options

1. **Controller Selection**: If you want to use controller2 instead of the default controller1, you will need to change the experiment settings in the two Python scripts starting with search.... and Replace --experiment=controller1 with --experiment=controller2.

2. **Resource Allocation**: Please ensure that you allocate at least 16GB space for the experiment.

3. **Execution Time**: The estimated total execution time for the experiments is approximately 10 hours, as it includes both the search algorithm and the random algorithm experiments.