Decentralized Autonomous Robotic Swarm with Reinforcement Learning

Environment Preparation

In this initial phase, my objective was to acquire the necessary skills and foundational knowledge essential for realizing this project. The first step involved familiarizing myself with three primary programming languages: C++, Python, and SQL. Additionally, I focused on deepening my understanding of two critical deep learning concepts: computer vision and reinforcement learning. This comprehensive learning process took approximately six months, during which I systematically developed the expertise required to effectively approach and manage the project's challenges.

Tools

For this project, I utilized the following tools and platforms:

* Operating System: GNU/Linux
* Robotics Framework: Robot Operating System (ROS)
* Integrated Development Environment (IDE): Visual Studio Code (VSCode)

These tools provided a robust and flexible foundation for developing, testing, and deploying the decentralized autonomous robotic swarm equipped with advanced reinforcement learning capabilities.