



Follow the Leader

Hugh Fong (CpE), David Phan (CpE), Andy Vo (CSE), Lawrenze Dizon (CSE)

Professor Madhi Maaref

Department of Electrical Engineering and Computer Science

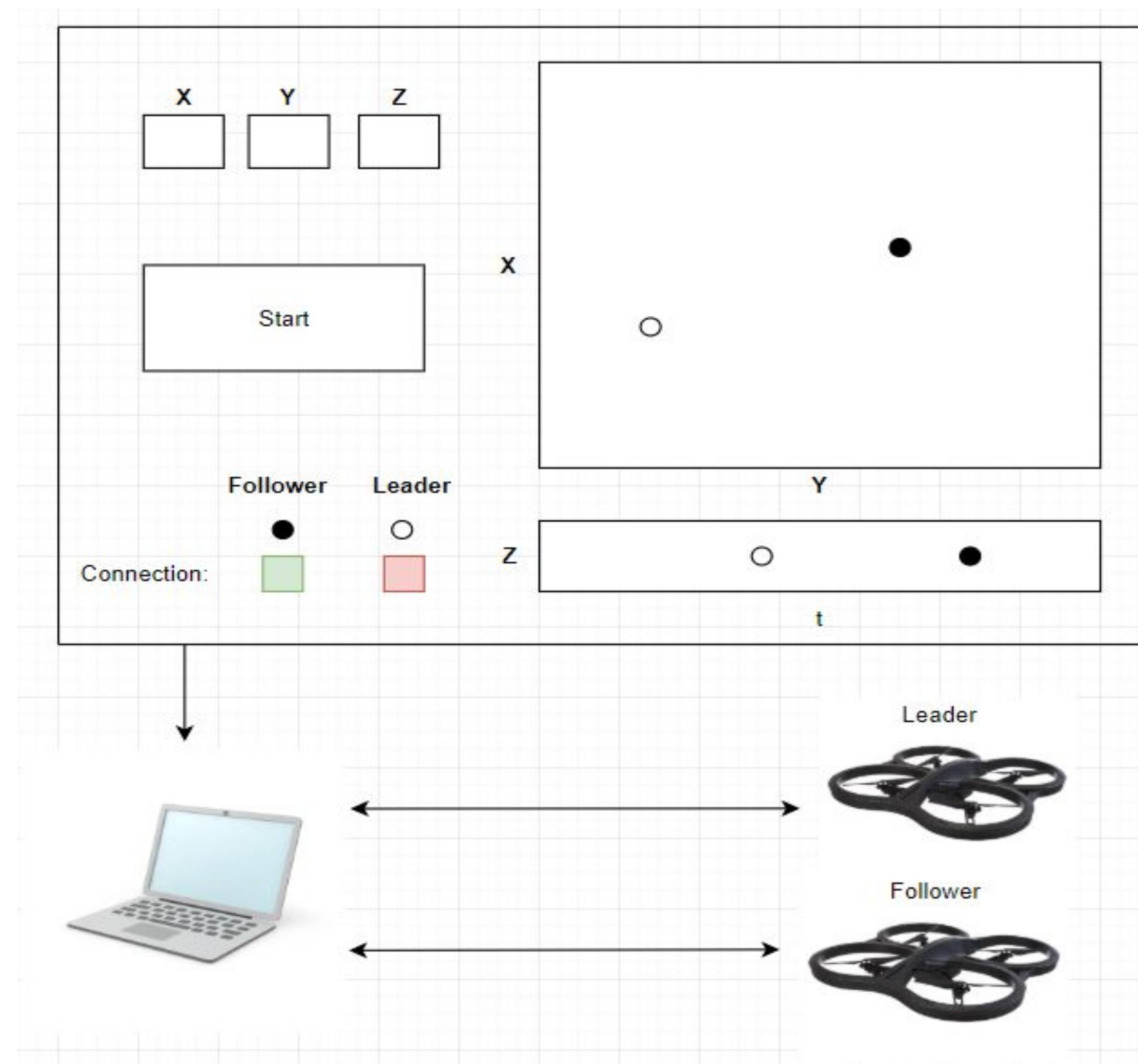
Background

In our project, we focus on having an autonomous follower drone to follow a primary leader drone. The project would help improve military technology by exploring ways to allow a single drone to communicate or control multiple autonomous drones.

Progress

- Implement a full screen GUI with a real-time graph plot
- Integrate GPS data from the drones with GUI
- Establish communication channel between drones via base station (laptop)
- Control drone through commands sent through laptop

System Diagram



Materials

- Parrot AR. Drone 2.0
- Raspberry Pi
- Laptop
- GPS Module (2)

Milestones

- Create base GUI Interface
- Control Parrot AR Drone with laptop with code in JS
- Retrieve Parrot AR Drone GPS data on the laptop
- Create a graph for GUI to display GPS data
- Establish connection from base station GUI to flight control program.
- Obstacle detection for follower drone

References

- [1] P. Bouman, et al. "Dynamic Programming Approaches for the Traveling Salesman Problem with Drone." Networks, vol. 72, no. 4, 2018, pp. 528-542.
- [2] L. Mottola et al. "Team-Level Programming of Drone Sensor Networks." Proceedings of the 12th ACM Conference on Embedded Network Sensor Systems - SenSys '14, 2014.