Robotics and autonomous systems

Open Project Plan

1. Team name and team members

Jetbot_6_team

Valeriia Okromelidze, Ville Vapa, Juho Konttinen, Juuso Laine

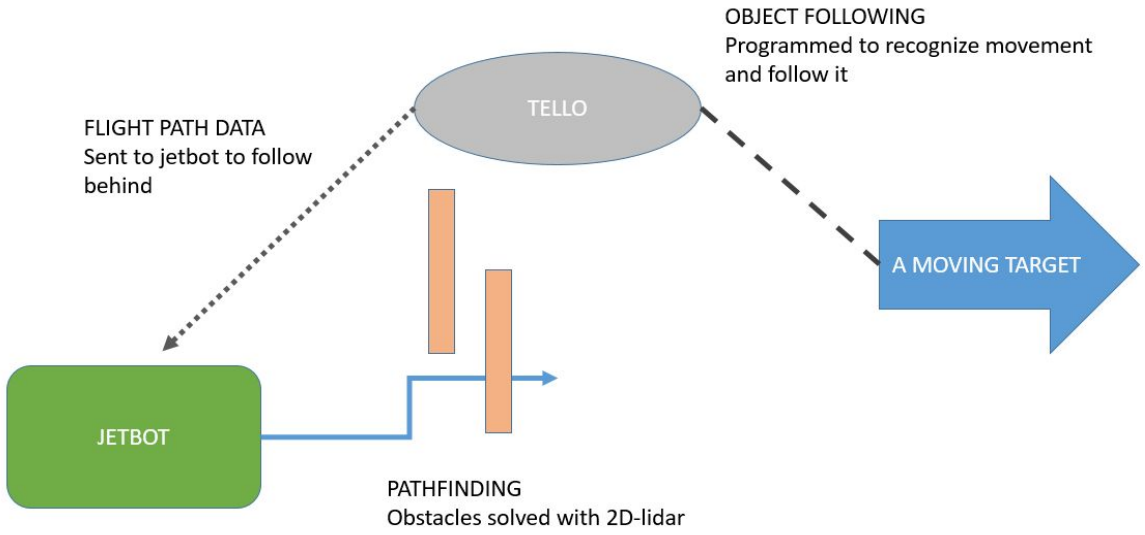
2. Application / Use-case

Our objective application is the combination of a flying vehicle (tello) and a ground vehicle (jetbot) communicating and cooperating together.

The concept idea is that the flying unit would detect movement and start following the moving object while sending its flight data to the ground unit. The ground unit could then independently follow the flight path to the destination by avoiding obstacles.

3. The system

- Tello drone, jetbot and their front cameras
- 2D -lidar for the jetbot
- Computers to run the code from (through Wi-fi and ZeroTier)
- Algorithms (A* pathfinding, Python command code for moving around)
- Data flow (Tello sends movement patterns to)



4. GitHub repo link

https://github.com/Valeria9533/Jetbot_6_team

5. Background

Basic knowledge about using both Tello drone and JetBot ground vehicle (basic moving commands, collision avoidance etc.).

6. Expected challenges and wishes to learn

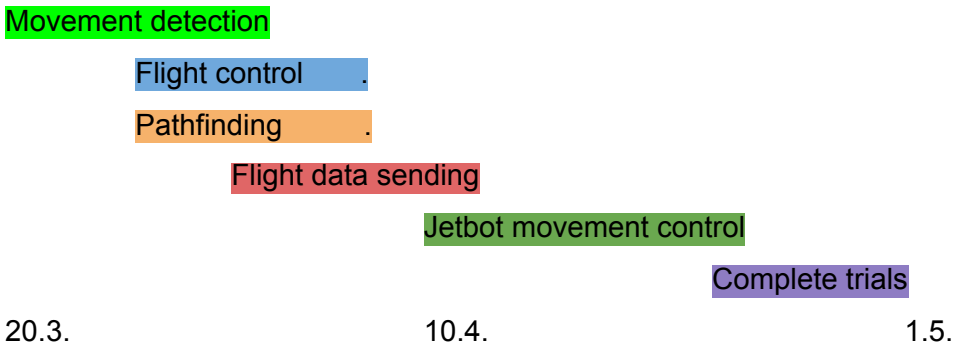
Pathfinding algorithms, detecting movement, object following. Creating a “data link” between the Tello and the JetBot. Learn to use robots and sensors.

7. Team roles

Pathfinding: Ville + Juho

Detecting person’s movement: Valeriia + Juuso

8. Work packages (how is the work going to be divided among team members and in time), with a tentative project schedule.



First steps are tello flight control and movement detection. Afterwards, the jetbot needs to get the flight data sorted so that its pathfinding can estimate a path.

9. Description of final experiment or demonstration.

Tello drone first follows an object and sends the movement commands it uses to the jetbot. Jetbot then moves according to the movement commands and goes around obstacles if needed.