Aerial Robotics

Crazy Practical

Group 9

Mickaël Achkar

Noppawit Lertutsahakul

Karim Samaha

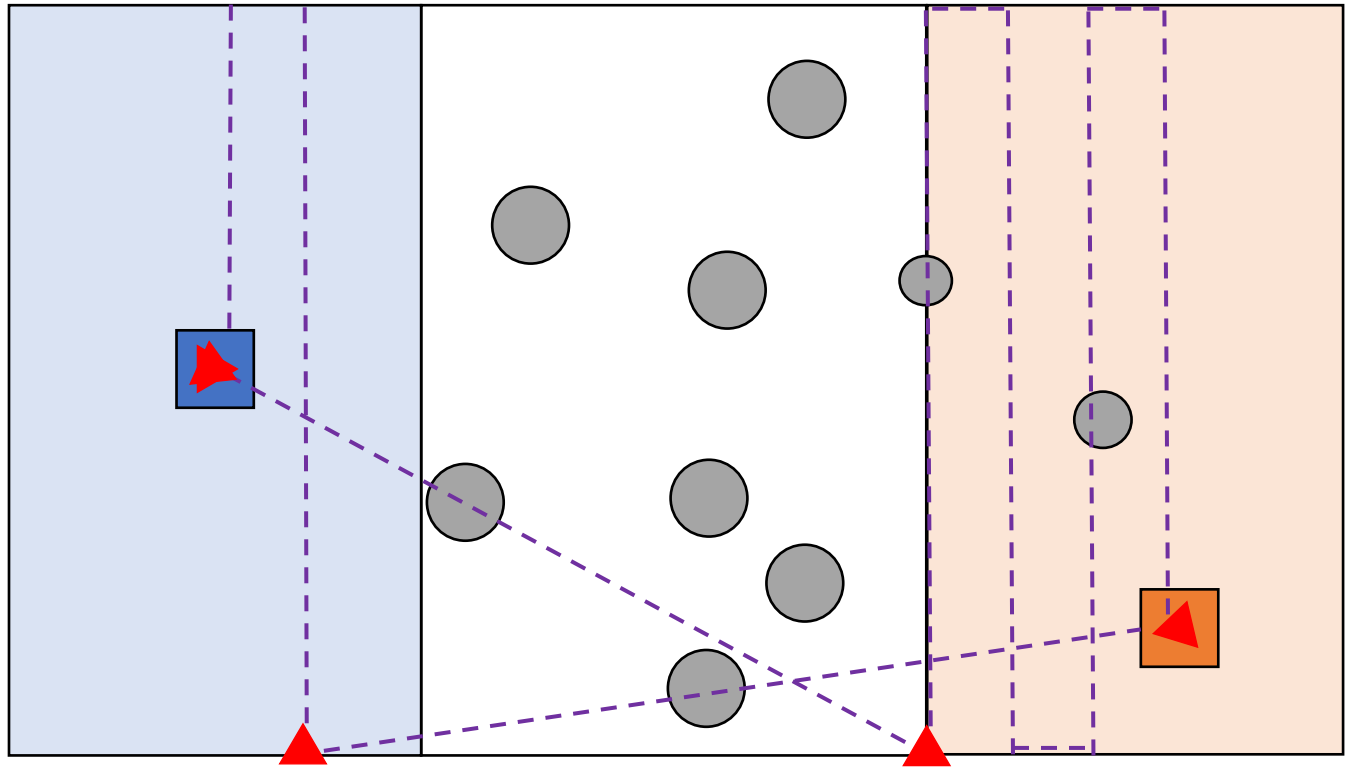
Experimental setup

Setup characteristics:

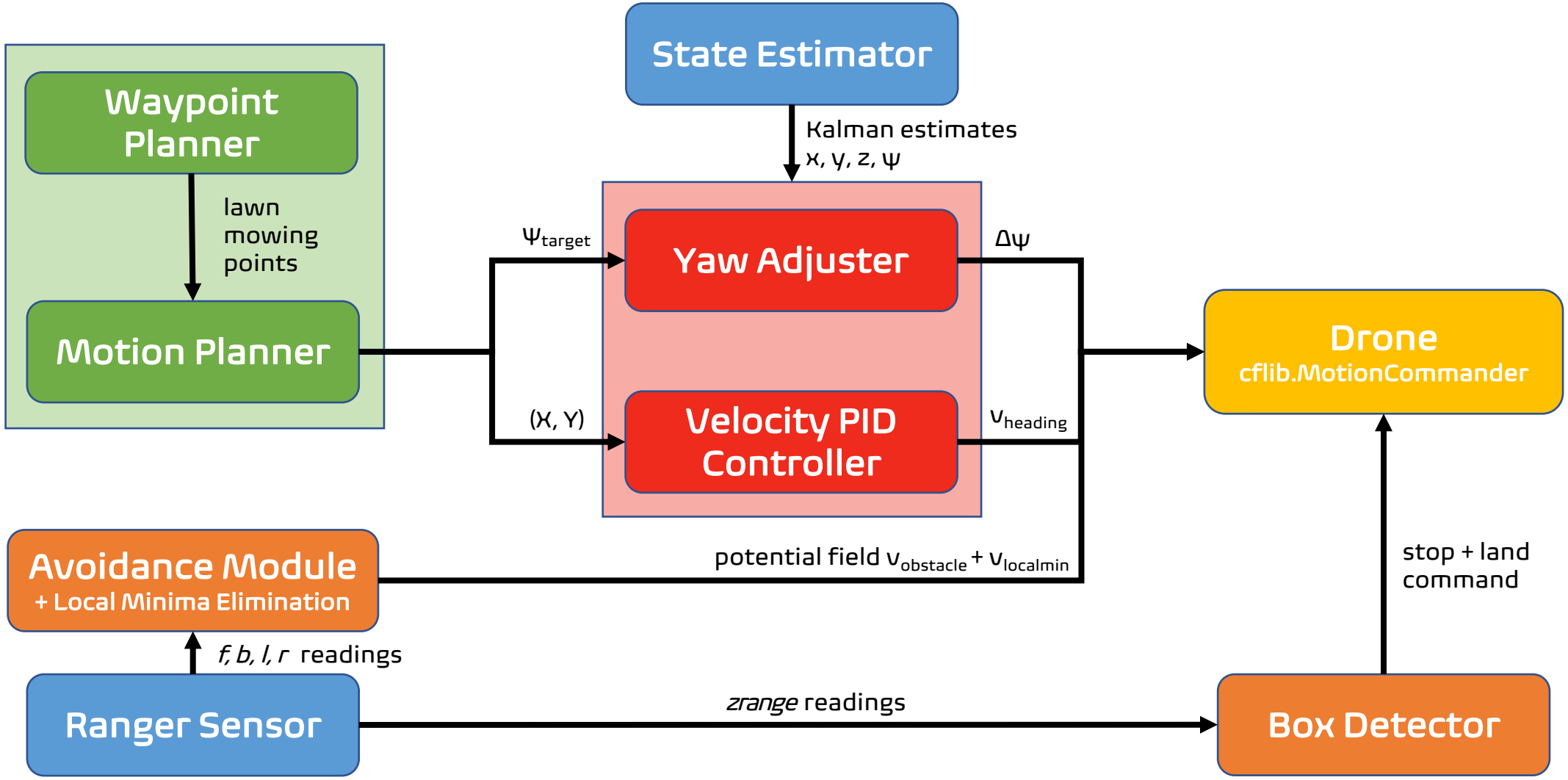
- Starting point: (0.6 m, 0.6 m)
- Map size: 1.2 x 4.77 m
- Multiple obstacles ~ 0.4 m

Mission scenario

- Compute lawn mowing grid search points
- Take-off, yaw, and fly to the grid search entry point.
- Yaw to be parallel to grid search line
- Grid search to find the landing pad
- Land and save the position
- Take off, yaw, and fly to the grid search entry point
- Grid search to find the landing pad
- Land



System architecture



Results

Mission characteristics:

- Starting point: (0.6 m, 0.6 m)
- Map size: 1.2 x 4.77 m
- Multiple obstacles ~ 0.4 m
- **Total completion time: 1 min 40 seconds**

Mission novelty:

- Low level programmed velocity controller (PID)
- Vector-field based avoidance with local minima rejection
- Fast and reactive architecture
- Limited use of yaw for better state estimates
- Lawn-mowing during the return phase to compensate state estimate drifts

Thank you!

Q/A