

INTRODUCTION

> Drones are Everywhere

Heavy lift drones have a variety of applications:

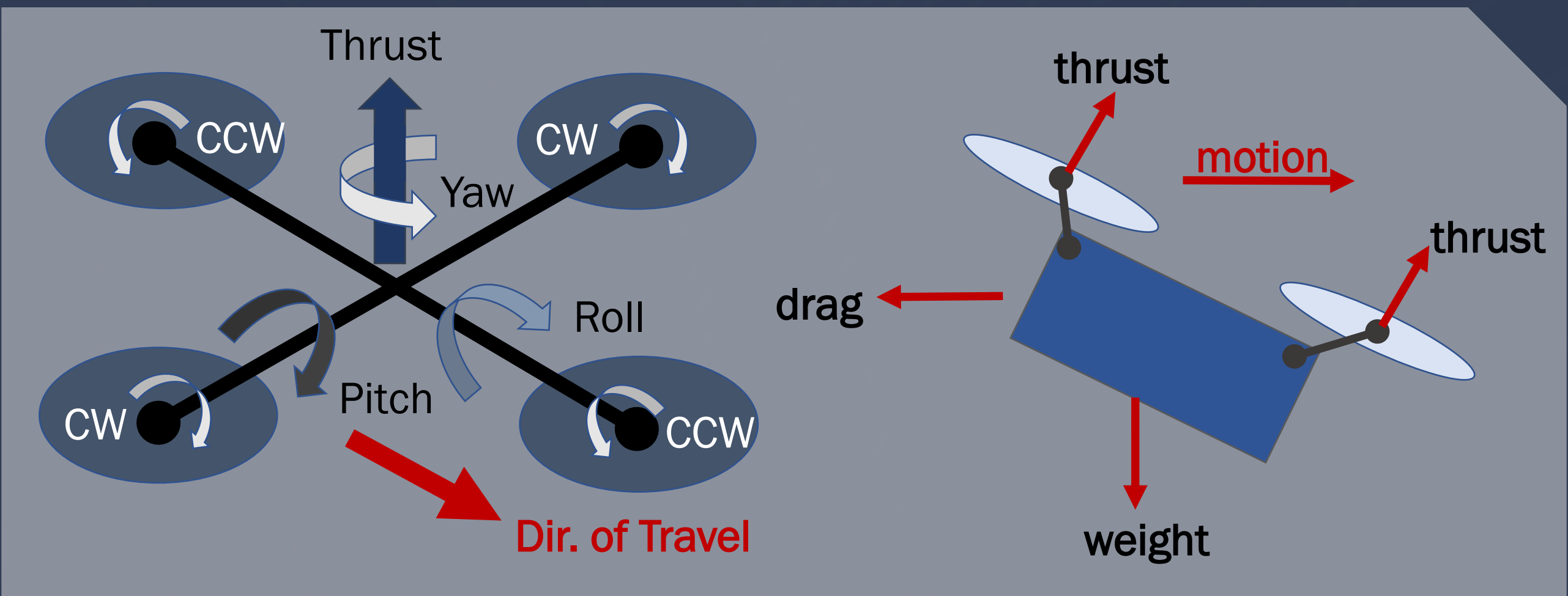


> What's Wrong with Existing Drones?

- 1. Battery powered drones have limited payload capacity
- 2. Transport/repair difficulties due to custom structural components
- 3. Attachment mechanisms are not optimized for heavy payloads

While drones with small payloads are relatively easy to maneuver, large payloads create issues

> How Do Drones Fly?



> Payload Connection Issues

**Rigid Body**

- Increased rotational inertia
- Reduced maneuverability

**Slung Load**

- Payload behaves like pendulum
- Difficult to control payload

MISSION

Design a drone capable of flying with a payload of 200 kg for over 30 minutes. The drone should be electrically powered and controlled remotely using a joystick.

OPERATIONAL PROFILE

200 KG

Load Capacity

30 min

Battery Life

4-Person Assembly

3D Printed Components

HEAVY LIFTING DRONE

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1. Extract 10K+ propeller-RPM options

2. Calculate thrust for each combo

3. Select motor based on power & RPM required

4. Select battery cells with high power-to-weight ratio

5. Configure battery cells for required power

Carbon X 3D Printed Body

Pulley Housing

Top Pulley System for Payload

1.78m

7.18 m

innovative

feasible

practical

Arm Adjustment

Fits in a Truck!

200 KG Payload Capacity