

### Exercise .3

Design a drone frame for a small surveillance drone that needs to fly for at least 30 minutes and carry a payload of 500 grams. Consider the following design requirements:

- The drone should have a maximum takeoff weight of 2 kg.
- The frame should be made of a lightweight yet strong material.
- The drone should have a wingspan of at least 500 mm to ensure stability.
- The frame should have a compartment to hold a battery with dimensions 150 mm x 50 mm x 30 mm.
- The drone should have a camera mount that can hold a small camera with a maximum weight of 200 grams.

Questions:

1. What material would you choose for the drone frame and why?
2. What is the minimum thickness required for the material you chose to ensure the drone's stability and strength?
3. Design the frame's structure, including the shape and dimensions, to meet the requirements above.
4. How would you ensure the camera mount is secure and stable?