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Coursera Fusion 360
Peer Graded Assignment: Simple Chassis

- Weigh less than 500g with a battery.
- Have a thrust ratio at 100% throttle of at least 8:1.
- Have a flight time of at least 5minutes.

Sharing your design for review: To share your design, upload a design document as a .txt or .pdf containing all the info required above including renders or screen shots, and a description of the parts chosen and why. Supply a link or thrust table for the applicable motor model and prop chosen so design calculations can be reviewed. Your design document MUST include the following:

- Component list
    - Motor DYS MR2205-2750kV x4 (28g x 4 = 112g)
    - 3S 1500 mAh x 2 (107g x 2 = 214g)
    - DYS Bull Nose plastic prop 6 x 4.5
    - Micro CC3D Flight Controller (7g)
    - DYS 40amp BLHeli ESC SN40A (20g x 4 = 80g)
    - FPV Racing Drone PDB with OSD BEC for CC3D (7.3g)
    - Hobby King 2.4Ghz 6Ch Tx & Rx V2(Mode 2) (13g)
- Estimated mass 57.3g chassis + components 219.3g + batteries 214g = 490.6g total mass
- Dimension across from motor to motor (ex. 250mm) = 230mm
- Estimated flight time = 15min depending on thrust ratio utilized for speed and acrobatics
    - 11.1V, 1500mAhx2=3aH (6a for 30m, 12a for 15min, etc)
    - 30amp continuously, with bursts of 45amp for 10sec
    - 490.6g /4=122.65g estimated at 2.5amp input x 4 motors=10a which is less than the 12a for 15min that the batteries are able to provide.
    - At 50% input one motor can almost lift the total mass at 12a (15min)
- Thrust ratio at 100% throttle = 6.36:1
    - 6x4.5 prop, 3S 1500mAh battery: 781.27 x 4 = 3125.08 / 490.6g = 6.36:1
- Explanation of component selection:

  I opted for the FPV Racing Drone PDB with OSD BEC over the Spedix PDB because of the considerable weight difference. The combination of 2)3S 1500mA batteries and 6x4.5 props gave be the best thrust ratio. I would have liked to use lighter motors, batteries, and possibly ESC with BEC eliminating the need for a PDB, but I could neither find thrust charts to make an informed decision, nor do I understand the electrical components or math that was done in this course well enough to find the components online with any kind of confidence.

- Screenshot or render of design