Exercise 5

Design a hybrid battery system for a drone that combines lithium-ion batteries with fuel cells. The drone requires a minimum of 2 hours of flight time and a maximum weight of 5 kg for the battery system.

Requirements:

- Calculate the total energy required for the drone's flight time
- Select a suitable lithium-ion battery configuration (type, voltage, capacity)
- Choose a fuel cell type and configuration (type, voltage, power output)
- Design a hybrid system that combines the lithium-ion batteries and fuel cells
- Optimize the system for minimum weight and maximum efficiency

Deliverables:

- A detailed diagram of the hybrid battery system
- A calculation sheet showing the energy requirements and battery/fuel cell selection
- A written summary (max. 250 words) explaining the design choices and optimization strategies