Exercise. 4

Design an unmanned aerial vehicle (UAV) for search and rescue operations in a remote mountainous region. Consider the following requirements:

- The UAV must be able to fly for at least 2 hours at an altitude of 10,000 feet.

- It must be able to navigate through dense forests and rugged terrain.

- It must have a payload capacity of at least 5 kg to carry medical supplies or emergency equipment.

- It must have a reliable autopilot system with GPS navigation.

Questions:

1. What type of propulsion system would you choose for the UAV (e.g., electric, gasoline, hybrid)? Why?

2. What features would you include in the flight control system to ensure stable and precise flight?

3. Would you use an autopilot or remote control system? Why?

4. What type of navigation system would you use (GPS-based or non-GPS based)? Why?

5. What are the essential functions and accuracy requirements for the navigation system in this application?