

Engineering Specifications

The following are the design specification for the Airframe C design.

1. The aircraft shall have a maximum weight of 25 lbs without payload (40 lbs gross)
2. The aircraft shall have a flight ceiling of 1000 ft
3. The aircraft shall be able to sustain a flight of at least 40mph in calm conditions
4. The aircraft shall be capable of stable flight with a 15 lb payload
5. The aircraft shall utilize an open architecture payload interface
6. The aircraft shall provide a mechanical interface to the payload
7. The aircraft shall provide a secure anchoring connection for the photographic instrument payload
8. The aircraft shall provide a secure mounting location for the flight control electronics package (P10236)
9. The aircraft shall sustain steady flight in a controllable manner for at least 20 minutes
10. The aircraft shall be able to re-launch as soon as it has been re-fueled or re-charged
11. The aircraft shall be able to operate for at least 12 regular flights without needing routine maintenance
12. The aircraft shall be able to take off under its own power from a 1000 ft grass runway
 - o The aircraft shall have a sufficiently powerful motor
13. The aircraft shall be able to be transported in a motor vehicle when disassembled
14. The aircraft should be easy to assemble and disassemble by one person
15. The aircraft shall be able to navigate while on the ground
16. The final cost shall be less than the cost of renting a Cessna for a day (~\$8000)
17. The aircraft should have similar flight characteristics to a trainer RC plane
18. The wing shall support the plane's gross weight under +4/-2 G loading
 - o The wings shall not become detached from the plane while in flight
 - o The wings shall not deflect to a degree that interferes with the operation of the flight control surfaces (will not jam the servos)
19. The propulsion system shall provide uninterrupted, constant power for at least 20 min
20. The landing gear shall hold the plane at an optimal angle of attack while on the ground
21. The servos shall be of sufficient power to control the plane's control surfaces at speeds up to 50 mph
22. The aircraft shall be structurally sound; no parts shall leave the aircraft while in flight