

Functional Requirements	Design Idea	Analysis	References	Risk	Countermeasure
Takeoff – with and without weight	Trained Pilot	Simulation time, flight time, practice	Col Young, books	Not enough time in training or practice. Pilot sick.	Backup pilot training in parallel
Fly – with and without weight. Strategy 1: Optimize design for fastest empty lap time	Aircraft	Equations given in class, test flights	Prof Coleman, Col Young, books	Not built in time. No testing or practice.	Complete design by XX/XX/XX. Keep baseline wing.
	Pilot	Simulation time, flight time, practice	Col Young, books	Not enough time in training or practice Pilot sick.	Backup pilot training in parallel
Land – with and without weight	High strength to weight truss structure to withstand loaded landings	Truss equations	Prof Spearing, Unified class notes, books	Not strong enough and crash landing destroys aircraft	Design for max weight. Do field test where gradually add weight to safe max
Be loaded with weight – minimize loading time	Pit crew loads weight	Time study of optimal procedure – saddle bags, Velcro, snap-in holder	???	Crew takes too much time. Crew not coordinated. Crew damages aircraft	Develop crew pit stop procedure. Train pit crew. Pit crew practice
	Weight bag grabbed on landing by tail hook	Catch mechanisms	Web, library books	Have to verify Prof Coleman will allow	Pit crew loads weight
Stow weight – facilitate minimum loading time	Side saddles on fuselage. Drop in weight	Time and motion study to see which is optimal for pit crew. CG analysis	Books	Unbalanced aircraft if not properly designed Loss of weight in flight/landing from less than sturdy mechanism	Flight testing of prototype mechanism
	Velcro				

	Snap in holder underneath fuselage				
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