

ID	Risk Item	Effect	Cause	Likelihood	Severity	Importance	Action to Minimize Risk	Owner
1	Flight Test Failure	Team fails to meet project deliverable	Poor aircraft design, pilot error, etc.	3	3	9	Design aircraft and associated tests correctly. Study weather for optimal test conditions	Lead Engineer
2	Wing spar does not prevent bending	Wings break off plane, catastrophic failure	Insufficient analysis on wing spar / wing loading. Poor selection of wing spar size / materials.	3	3	9	Perform wing loading analysis, ensure wing spar is sufficient to carry load, reduce wing length to reduce bending moment	Lead Engineer Aero Engineer Airframe Engineer
3	Wing bends in torsion	Flight control surfaces rendered ineffective, catastrophic failure	Poor wing mount, insufficient secondary wing spar	2	3	6	Perform torsional analysis on the wing mount and secondary wing spar, reduce wing chord to reduce torsional moment	Lead Engineer Aero Engineer Airframe Engineer
4	Meeting Project Deadlines	Project will run behind schedule, or project deliverables are not met	Poor planning and poor execution	3	2	6	Create proper schedules with an appropriate buffer time between dependent actions, keep all team members aware of work that needs to be done	Team Lead
24	Motor too small	Motor does not provide enough power to accelerate plane down runway	Selected motor was too small	2	3	6	Slightly oversized motor selected; motor tested for static thrust generation	Lead Engineer
5	Servos are underpowered	Servos cannot move the flight control surfaces under aerodynamic load	Poor servo selection, poor servo mounting points / angle, control surfaces too large	2	2	4	Servos must be appropriately selected for plane / control surface size and airspeed	Aero Engineer and Controls Engineer
6	Plane fails to take off	Plane cannot reach required takeoff speed	Airfoil drag is too great, motor is not powerful enough to accelerate plane	2	2	4	Analyze motor selection for sufficient power, compare thrust and airfoil drag equations	Lead Engineer Airfoil Engineer Controls Engineer
7	Build Time Runs Over	Delay in meeting project deliverable, flight testing does not run on schedule	Poor scheduling and poor work habits	2	2	4	Begin build phase early and maintain positive team morale	Team Lead
8	Servo disconnects in flight	Loss of flight control surface(s), catastrophic failure	Poorly secured wires, poorly anchored	1	3	3	Properly anchor all servos, properly secure all wires,	Lead Engineer
9	Wings Detach from Plane	Wings break off plane, catastrophic failure	Poor connections, connection comes loose, wing loading too great	1	3	3	Re-enforce / analyze wing attachment. Use metal hardware in necessary for strength.	Lead Engineer Airframe Engineer
10	Component Redesign	Forced project redesign can force the project to run over deadlines	Aircraft was not designed with proper components	1	3	3	Smart aircraft design with proper backing analysis. Compliance with subsystem interface designs	Entire Team Lead Engineer
11	H1N1/Illness	Team members can fall behind in work	Germs	3	1	3	Proper cleanliness and Hygiene	Entire Team
12	Miscellaneous Damages/Theft	Loss of progress and time	Negligence	1	3	3	Ensure all parts are properly stored and secured	Entire Team
13	Budget Driven Redesign	Team will have to redesign aircraft systems, increasing time needed for completion	Improper knowledge of budget constraints or funding restricted	1	3	3	Have budget clearly defined and avoid expensive components where possible	Team Lead Lead Engineer
14	Rear Landing Gear Failure	Loss of ground control (steering), potential cargo / plane damage	Poor attachment, hole on the runway,	2	1	2	Ensure plane body / cargo can withstand a loss of rear landing gear. Select suitable landing gear for plane size and weight	Lead Engineer Airframe Engineer
15	Front Landing Gear Failure	Nose dive (prop damage), cargo damage, plane structural damage	Landing gear detaches from plane body	1	2	2	Re-enforce / analyze the landing gear mounts.	Lead Engineer Airframe Engineer

16	Wing fails to lift plane	Plane cannot take off on runway	Airfoil of insufficient size, wrong airfoil selected	1	2	2	Analyze airfoil selection in XRLF5	Lead Engineer Airfoil Engineer
17	Component Testing Failure	Delay in project deliverable or testing schedule	Faulty component or poor system design	1	2	2	Test parts early and properly design all critical systems	Entire Team
18	Budget Increase Needed	Unable to purchase critical parts needed for aircraft design and build	Expensive design or over design	1	2	2	Have budget clearly defined and avoid expensive components where possible	Lead Engineer Team Lead
19	Part Lead Time	Parts required for assembly delay build progress	Parts were not ordered far enough in advance	2	1	2	Order parts at the end of MSDI and make sure all parts are ordered	Team Lead Lead Engineer
20	Team Member Injury	Team member can fall behind in work resulting in a progress delay	Multiple	1	2	2	Every team member acts in a responsible manner ensure work is done in a timely manner	Entire Team
21	Critical Data Loss	Component re-design or re-analysis necessary	Hard drive failure, Lost flash drive	1	2	2	All documents are backed up and on EDGE	Entire Team
22	Winter Break Start Up	Ramp up time for project build is longer due to winter break	The break between Fall and Spring quarters	1	2	2	Continue work and send project updates during the winter quarter	Entire Team
23	P10662 Project Failure	Camera used for testing is not prepared for flight testing	Improper design to fit into airplane, design is unfinished or unable to function	2	1	2	Use an alternate camera system for aerial imagery	Project Lead
24	Battery Performance	Batteries do not provide specified power or voltage	Poor manufacturing, improper charging, specifications are wrong	2	1	2	Use an alternate supplier for batteries or use an alternate combination	Propulsion Engineer
25	Specifying Wing Spar	Specifying proper wing spar takes too long, carbon fiber spar takes too long to order or is unavailable	Engineering selection and design was poor or improper, desired spars not available or delivered	1	2	2	Find other carbon fiber tube suppliers, design a backup spar which can be used.	Lead Engineer