

## MSD Project Risk Assessment Template

ID	Risk Item	Effect	Cause	Likelihood	Severity	Importance	Action	Action to Minimize Risk	Owner
	<i>Describe the risk briefly</i>	<i>What is the effect on any or all of the project deliverables if the cause actually happens?</i>	<i>What are the possible cause(s) of this risk?</i>			L*S		<i>What action(s) will you take (and by when) to prevent, reduce the impact of, or transfer the risk of this occurring?</i>	<i>Who is responsible for following through on mitigation?</i>
1	Improperly sized coil	Can't levitate object	Poor calculations and simulations	2	3	6	Prevent	Create flexible design to allow for adjustment of coil strength	Trong
2	Unfamiliarity with Hall Effect sensor operation	Design time increase	Lack of experience	3	1	3	Accept	Literature research on Hall Effect; Run experiments to benchmark	Kevin
3	IR poor accuracy at long distance	Position sense errors	Nature of IR proximity detection	2	1	2	Accept	Multiple sensors, combination of sensing methods, error minimization in code	Holden
4	Sub-system communication	Not able to properly interpret signals	Poor system design/implementation	1	3	3	Prevent	Define strict interface protocol	Holden
6	Wall outlet Power interface	Component damage	Poorly design PSU	1	3	3	Prevent	Test, observe, and analyze circuit subsystem power requirements to prevent excess power draw	Holden
7	Late part ordering	Prototype not built on time	Long lead-time parts not ordered on time	1	3	3	Prevent	Determine lead times for each part and ensure they are ordered with plenty of time to spare	Kevin
8	Receiving parts to incorrect location	Don't have parts to build prototype	Incorrect shipping location specified in purchase order	1	3	3	Prevent	Ensure the order is labeled with the project number and team member name and get shipping tracking information if possible	Kevin
9	Design does not meet customer needs	Customer unhappy	Not carefully selecting specs to meet customer needs	1	3	3	Accept	Reanalyze engineering specs and modify to ensure customer requirements are met	Trong
10	PCB redesign	PCBs need to be redesigned or reworked	Poor design or poor schematic documentation	2	3	6	Prevent	Team design reviews after each circuit update and thorough documentation	Trong

11	Unfamiliar microcontrollers	Long software development time	Poor microcontroller selection	1	1	1	Accept	Select proper microcontroller for task and one that designer has some familiarity with.	Kevin
12	Emergency Absence	Not enough man power	Unexpected illnesses or personal issues	2	3	6	Prevent	Have a clear backup responsibility assigned	Team
13	Lack of resources	Not enough money to go on	Underestimating the cost of parts	2	2	4	Reduce	Constantly analyze the current BOM to minimize cost along the way	Trong
14	Mechanical Design and Drawings	Unable to specify tolerances to meet manufacturing criteria.	No Mechanical Engineers	2	2	4	Prevent	Consult with MEs to assist with mechanical drawings	James
15	Circuit Thermal Drift	Instability in system	Unexpected/improperly considered operating conditions	1	3	3	Reduce	Design circuits which are temperature independent or can minimize component temperature coefficient	Kevin
16	IR Sensitivity to Light Noise	Instability in system	Ambient light noise on sensor	1	3	3	Reduce	Benchmark sensors before starting design	Holden
17	Time span between MSD1 and MSD2	Forgetting everything	Large time gap between MSD1 and MSD2	1	1	1	Reduce	Take good notes for MSD1	Team

Likelihood scale	Severity scale
1 - This cause is unlikely to happen	1 - The impact on the project is very minor. We will still meet deliverables on time and within budget, but it will cause extra work
2 - This cause could conceivably happen	2 - The impact on the project is noticeable. We will deliver reduced functionality, go over budget, or fail to meet some of our Engineering Specifications.
3 - This cause is very likely to happen	3 - The impact on the project is severe. We will not be able to deliver, or what we deliver will not meet the customer's needs.

"Importance Score" (Likelihood x Severity) – use this to guide your preference for a risk management strategy	
Prevent	Action will be taken to prevent the cause(s) from occurring in the first place.
Reduce	Action will be taken to reduce the likelihood of the cause and/or the severity of the effect on the project, should the cause occur
Transfer	Action will be taken to transfer the risk to something else. Insurance is an example of this. You purchase an insurance policy that contractually binds an insurance company to pay for your loss in the event of accident. This transfers the financial consequences of the accident to someone else. Your car is still a wreck, of course.
Accept	Low importance risks may not justify any action at all. If they happen, you simply accept the consequences.

