

MSD Project Risk Assessment

ID	Risk Item	Effect	Cause	Likelihood	Severity	Importance	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>			<i>L*S</i>	<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	Difficult to Assemble	Takes long time for first year engineering students to assemble	Complex design Too many little modules Inner parts of modules are fragile Many adapters needed to enforce modularity	2	2	4	Make it user friendly to assemble Write good assembling manual Decrease number of modules Make modules more durable Make it impossible to fit modules the wrong way Make colored markings on modules themselves to aid the assembling Make sure there are not many adapters needed for interfaces	Entire 10201 Team
2	The modules cannot interface with one another	The vehicle cannot be Assembled The vehicle is not functional when assembled	Modules need different interfaces than ones provided	1	3	3	Ensure other teams are using the same type of connection Provide adapters if necessary	Interface Manager Of 10201
3	Payload cannot be secured	The vehicle cannot carry the payload	The payload holder is not big enough Payload has non-tradition shape or is big in volume	2	2	4	Make payload mounting plate big enough to secure standard payload Make it possible to add straps or belts later on if it is necessary to secure non-standard payload	Entire 10201 Team
4	The vehicle is not esthetically pleasing	The vehicle does not look professionally constructed or well organized	Esthetics part has been left out in a design	1	1	1	Run wires more efficiently Incuse non-esthetically pleasing parts	Entire 10201 Team
5	The vehicle is not stable With or without the load	Vehicle is not maneuverable Vehicle cannot travel	The mass point is too high Base of the vehicle is	2	2	4	Make sure the mass point is low enough in any configurations. Make sure chassis can provide large	Entire 10201 Team

		through uneven terrain Vehicle cannot accelerate or move fast enough without losing balance	too small Mass point is skewed				enough area to have a big base. Make sure that vertical projection of the mass point is as close to the center of the base as possible Make it possible to rearrange the modules to provide for better stability	
6	Vehicle has a bigger mass than a previous generation	The Vehicle is too heavy	The chase is heavy The power pack is heavy The adapters are heavy	2	1	2	Use less material Use more lightweight material Use less heavy parts	Entire 10201 Team
7	Vehicle has a bigger volume than a previous generation	The Vehicle is too large	The chase is too tall The chase is too wide The power pack takes too much space The modules cannot be integrated more closely	2	1	2	Make chase smaller Ensure the modules can be integrated more closely to save more space Make power pack smaller	Entire 10201 Team
8	Vehicle cannot run for a long period of time	Cannot operate for a useful period of time on power source	The battery cannot provide desired power long enough The voltage dividers on interface adapters consume too much power	2	3	6	Use less and more efficient voltage dividers Ensure other teams make their modules run on the same voltage that is being provided Make sure enough power can be provided for modules for long enough time	Interface Manager Of 10201
9	The vehicle is too costly to manufacture	The vehicle cannot be manufactured at desired price	Teams miscommunicated on amount of money they allowed to spend The chase, power pack or adapters are too expensive Very little money is allocated for the chase and power pack	3	2	6	Discuss the money distribution with other teams. Make sure enough money is allocated for the chase, power pack and interfaces Use cheaper materials	Interface Manager Of 10201
10	Parts are ordered too late	The prototype cannot be manufactured and tested in time	Long lead time parts are not ordered and identified in time	3	2	6	Long lead parts are identified and ordered early enough	Project Manager Of 10201
12	Wrong parts delivered	The prototype cannot be manufactured and tested in time	The manufacturer shipped wrong package Wrong parts are ordered	1	3	3	Contact distributor to make sure they send correct parts Make sure correct parts are ordered	Project Manager Of 10201
13	Parts not delivered or damaged in delivery	The prototype cannot be manufactured and tested in time	The package got lost in shipment The package got	1	3	3	Use more reliable shipment method	Project Manager Of 10201

			damaged in shipment					
14	The modules are damaged during assembly or disassembly	The vehicle is damaged and cannot operate properly	The modules are fragile The inner parts of modules are not protected from outside The modules are fitted wrong way and got damaged The adapters or interfaces are too fragile	2	2	4	Make modules more durable Make it impossible to fit modules the wrong way Make colored markings on modules themselves to aid the assembling Incase the fragile modules Make more durable interfaces	Entire 10201 Team
15	The vehicle is damaged during operation	The vehicle is damaged and cannot operate properly	Fragile parts of vehicle are not protected from the environment The adapters or interfaces are too fragile	1	2	2	Incase the fragile modules Use more durable adapters Make more durable interfaces	Entire 10201 Team
16	Power surge Too much power is supplied from a test bench	The vehicle is damaged and cannot operate properly	Too much power supplied to modules and damaged them	1	3	3	Protect the vehicle from power supply with a fuse	Power Supply Manager
17	Li-ion battery explodes	The vehicle's power supply is damaged and cannot operate properly	The Li-ion battery is mistreated (overheated or overcharged)	2	3	6	PREVENT: Use PCB board to prevent overcharging. REDUCE: Include battery handling instruction in the manual	Power Supply Manager
18	Li-ion battery is over discharged	The battery can no longer be recharged	The battery has discharged during vehicle operation The battery was unused for a period of time long enough for the leakage currents to discharge it	2	3	6	PREVENT: Use PCB board to prevent overdischarging. REDUCE: Include battery handling instruction in the manual, make sure user knows to charge the battery up once in a while	Power Supply Manager
19	Too much power dissipated in the vehicle	Battery, vehicle components damaged due to high current flows	Short has occurred due to miswiring or exposed contacts	1	2	2	REDUCE: Use PCB board to regulate maximum current. REDUCE: Do wiring and assembling more carefully REDUCE: Make sure other modules are aware some power protection on their side	Entire 10201 Team
20	Modules are not power compatible	The vehicle cannot be Assembled	Voltage required by a module is different from	1	1	1	REDUCE: Ensure other teams are aware of their power interface.	Interface Manager,

		The vehicle is not functional when assembled	one supplied by power module					Power Supply Manager
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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.