

Team #:	P17046	Team Name:	Overcomer - Lower Extremity
Date:	22FEB17	Doc Owner:	Jason Constant/Chris Fenn/JSC
Revision #:	6		

ID	Risk Item	Effect	Cause	Likelihood	Severity	Importance	Action to Minimize Risk	Owner
1	Attachment Fails to Perform desired functions - Technical Risk	Delay in timeline, due to necessary redesign	Product is not acceptable for use	1	6	6	Reduce the risk of damage/injury by designing with this concern in mind and making sure each concept performs all required functions. (Phase 2) Risk and severity of ID1 was reduced by our methods	Jason
2	Budget – Resource Risk	Insufficient Funds for Project	Ordering the wrong parts, constraining to expensive items	0	3	0	Carefully outlining purchasing expenses, monitoring BOM's (Reduce). (Phase 2) No Change. (Phase 3) We have made strides to be able to quantify the cost of the system now that detailed design has begun.	Chris
3	Time – Resource Risk	Project doesn't get done, milestones aren't met, incomplete demonstration	Poor time management, lack of communication	3	6	18	Follow Gantt chart and personal plans (Prevent). (Phase 2) ID2 has also been reduced by using thoughtful criteria on the concept selection phase of systems level design.	Chris
4	Liability issues preventing interviews with children - Resource Risk	Missing a specific, but important CR	Not jumping through the bureaucratic hoops properly or soon enough	0	6	0	Make sure to get the balls running as early as possible, and work with OUE team to streamline process and to get better questions (Reduce). (Phase 2) Josh is working with The Overcomer Upper Extremity (OUE) team to make sure this process will be moving as quickly as possible. (Phase 3) Josh has been making progress and has set our team up to succeed in the IRB review. We are Cleared to test on ourselves and MC is going to perform all of our formal testing for us, so there is no chance of any more liability issues for our (Likelihood 0 was 1) (MSD2 Phase 1).	Josh
5	Manufacturing issues - Technical Risk	Project is not Manufacturable with "suggested" supplier	Poor Design Selection, poor communication with supplier, supplier is as capable as they claimed	1	6	6	Follow the MSD process and be sure to make thoughtful choices when it comes to concept selection (Reduce). Stay in touch with proposed supplier to make sure we are designing within their means of productions (Phase 2) Josh will be meeting with the "recommended" supplier after the design review on Thursday, to help us determine the capability of the company (Phase 3).	Chris
6	Manufacturing issues - Time Risk	Project goals are not met, delay in schedule	Not adequate Communication with Supplier, about lead times and expected delays	0	3	0	(Phase 2. New risk separated from ID5) Staying in touch with Supplier about lead times and updates. (Reduce) Almost every part is ordered and received by team (Likelihood 1 was 2) (MSD2 Phase 1).	Chris
7	Attachment - Safety Risk	Users get hurt	Bad design, weak testing criteria, bad benchmarking, poor testing procedure	1	6	6	Make a detailed and forgiving project plan (Reduce). (Phase 2) ID2 has also been reduced by using thoughtful criteria on the concept selection phase of systems level	Josh
8	MSD Team has only three members - Resource Risk	More work for each team member	Could cause delay in scheduling compared to MSD schedule team failing to complete all customer requirements	0	6	0	Accept responsibility as individuals and be sure to establish good team norms (Reduce). (Phase 2) We have gotten help from the OUE team to help us when needed, but more importantly, we have been able to take the fact that we only have 3 members as an advantage. We are more familiar with each other and know how to efficiently work together. We acquired 2 new Mechanical Engineers, so there is not more risks of not having enough members (Likelihood 0 was 3) (MSD2 Phase 1).	Chris
9	Slotted Cylinder Propulsion System- Technical Risk	Attachment will not function	Concept is only current design path	1	9	9	(Phase 3. New Risk) Determine required DC motor to perform the winding action in short period of time. Plus test to see if just turning the motor off will be adequate release system or if a new subsystem needs to be designed (Reduce).	Josh
10	System Electrical Requirements (power and voltages) - Technical Risk	Attachment will not function for acceptable amount of time	System too heavy, not enough power for extended use of system	1	3	3	(Phase 3. New Risk) Determine what different voltages are required for the servos and DC motor, if they are not the same, then a relay system with a secondary power supply or a modular power supply will be required. The capacity of the motor is also an important concern, because if you can only move the servos once and the DC motor to shoot once, then that is not acceptable. We have sized and received a battery that will work properly with system (Severity 3 was 6) (MSD2 Phase 1).	Jason
11	System Electrical Requirements wiring for manufacturability - Technical Risk	Attachment will not be easy or inexpensive to manufacture	Wiring of components is not simple and clean.	1	3	3	(Phase 3. New Risk) Reduce the likelihood that this will become an issue, by keeping the location of the relevant components and what they need to be wired to in mind. Wiring capabilities are now increased in the design and new holes will be added into frame to all easier wiring (Severity 3 was 6) (MSD2 Phase 1).	Jason
12	Drawings are uncompleted - Time Risk	Project doesn't get done, milestones aren't met, incomplete demonstration	Poor time management, lack of communication	3	3	9	(Phase 4. New Risk) Drawings will be completed before the final semester meeting with Advisor. All soccer attachment specific parts are now drawn and ready to be made, but mounting system isn't designed, so it has not drawings still (No Change) (MSD2 Phase 1).	Jason
13	Attachment to chair mounting system isn't completed - Technical Risk	Project doesn't get done, milestones aren't met, incomplete demonstration	Lack of work resources	3	9	27	(New Risk MSD 2 Phase 1) Use new team members to our advantage to develop functional mounting system (Reduce)	Chris
14	Not able to fabricate ourselves - Resource Risk	Project doesn't get done, milestones aren't met	Lack of acquiring information from our fabrication shop	1	3	3	(Phase 4. New Risk) Most Complicated parts will be fabricated first to allow time to troubleshoot and re-manufacture.	Josh

Low Risk Items
 Flagged High Risk Items
 No Risk Items - Completed

MSD 2 Phase 2 Total:	90
MSD 2 Phase 1 Total:	90
Phase 4 Total:	84
Phase 3 Total:	96
Phase 2 Total:	57

Likelihood scale	Severity scale
1 - This cause is unlikely to happen	3 - 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	6 - 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	9 - 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)	
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
Accept	Low importance risks may not justify any action at all. If they happen, you simply accept the consequences.