

Team#:	P17046	Team Name:	Overcomer - Lower Extremity
Date:	22-Nov-16	Doc Owner:	Christopher Fenn
Revision#:	6	Approved:	

Engineering Requirement or Specs								
Requirement #	Importance	Function	Engr. Requirement (Metric)	Unit of Measure	Marginal Value	Ideal Value	Comment/Status	Test(how to verify to satisfaction?)
R1	9	Affordable	Cost	USD [\$]	400	200	labor cost and any costs associated with manufacturing, retail of \$500-\$1000	obtain quotes from our manufacturing sponsor(s)
R2	3	Mfg. Time	Mfg. CycleTime	Minute [min]	180	250	manufacturing this product should be simple as possible	measure total time it takes to manufacture
R3	9	User Safety	Static Stability: Tipping Angle	Degree [°]	10	35	product meets existing static stability requirements with device added	measure tipping angle with device attached
R4	9	User Safety	Brake Effective: Static	Inches [in]	2	0	test to see if brake hold with devices attached	lock brake on an 8 degree slope and ensure no movement
R5	3	User Safety	Turning Radius	Inches [in]	75	60	wheelchair maintains maneuverability with product intact	confirmatoin with abled bodied user to test turning radius
R6	9	Structural Design	Total Weight	Pounds [lbs.]	15	12	must be light weight	weightin of device and components
R7	9	Structural Design	Collapse Force	Torque [ft. lbs.]	221	148	ability to absorb impact before collapse in the same direction as the impact	Structual Analysis
R8	9	Structural Design	Ball Impact Strength (Speed)	Miles per Hour [mph]	25	30	energy imparted to the ball implying an exit velocity	structural analysis and component testing
R9	3	Structural Design	Adjustability	Inches [in.]	6-12	12-18	to fit a range of user sizes	built into design, ensure all positions are useable
R10	3	Structural Design	Accuracy (Range of Projectile)	Degree [°]	15	10	Degree variation from center line of expected travel	device testing to determine accuracy within 15 degrees of center
R11	1	Structural Design	Controllability	Degree [°]	15	10	move the ball at 5mph while making a turning radius	testing must verify that the user can travel 50ft while keeping the ball in the "capture" device
R12	9	Structural Design	Receiving Ability	Inches [in]	12	18	able to receive ball within this variance form centerline	ball will be passed within these centerlines to test device ability to capture the ball
R13	3	Structural Design	Installation Time	Minute [min]	3	1	Needs to be applied quickly to minimize set up time	Will be the required time for an able bodied (student) assistant to install device on wheelchair
R14	3	Structural Design	Max Force	Force [lbs.]	15 lbs/in^2	10 lbs/in^2	required energy to "kick" the ball	structural analysis and component testing

9 Very Important
3 Important
1 Optional