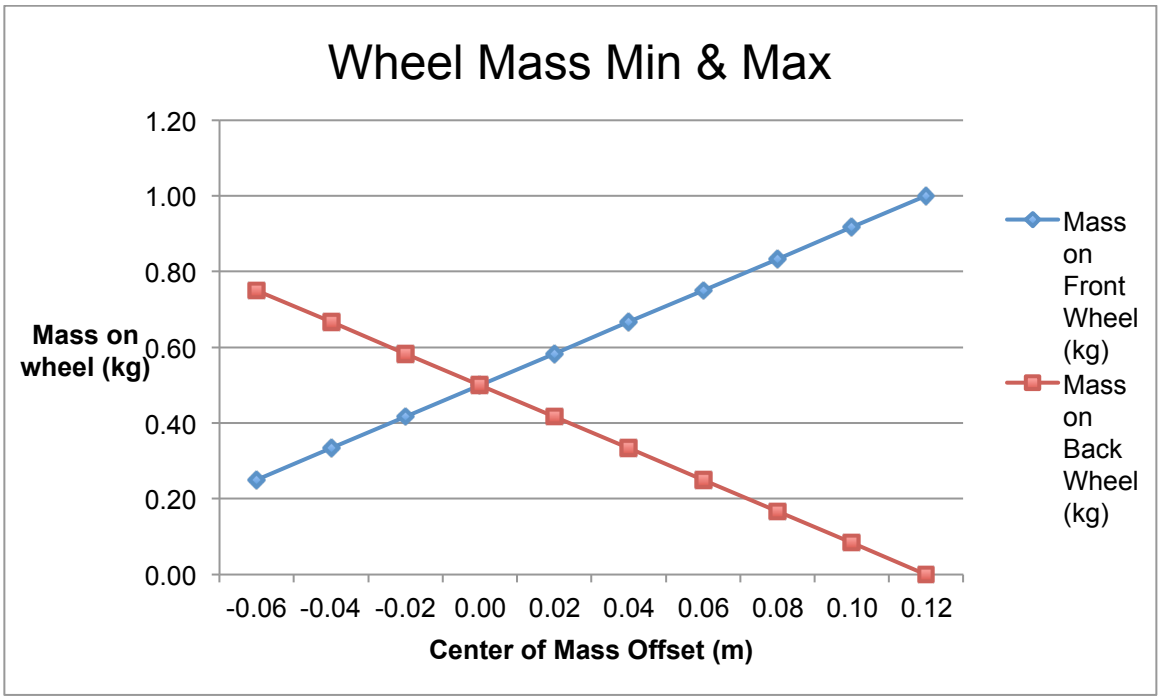
Robot Wheel Forces to Test
V1.2 – Sept 26, 2016

forces on wheels (N)		
scenario	front	back
1	**1.84**	**5.52**
2	**12.26**	0.00
3	4.91	2.45
4	6.44	2.15
5	8.18	**1.64**
avg	6.72	2.35



scenario 1: wheel front global min

name	parameter	unit	value
mass total amount	mtotal	kg	1.50
ref pt to center of mass	xcm	m	-0.06
ref pt to x location of front wheel	xf	m	0.12
center of mass to x location of front wheel	xf'	m	0.18
ref pt to x location of back wheel	xb	m	0.12
center of mass to x location of back wheel	xb'	m	0.06
distribution of mass	j	%	0.75
mass front wheel	mf	kg	0.19
mass back wheel	mb	kg	0.56

scenario 2: wheel front global max

name	parameter	unit	value
mass total amount	mtotal	kg	2.50
ref pt to center of mass	xcm	m	0.12
ref pt to x location of front wheel	xf	m	0.12
center of mass to x location of front wheel	xf'	m	0.00
ref pt to x location of back wheel	xb	m	0.12
center of mass to x location of back wheel	xb'	m	0.24
distribution of mass	j	%	0.00
mass front wheel	mf	kg	1.25
mass back wheel	mb	kg	0.00

scenario 3: ideal

name	parameter	unit	value
mass total amount	mtotal	kg	1.50
ref pt to center of mass	xcm	m	0.04
ref pt to x location of front wheel	xf	m	0.12
center of mass to x location of front wheel	xf'	m	0.08
ref pt to x location of back wheel	xb	m	0.12
center of mass to x location of back wheel	xb'	m	0.16
distribution of mass	j	%	0.33
mass front wheel	mf	kg	0.50
mass back wheel	mb	kg	0.25

scenario 4: typical robot, distribution towards front

name	parameter	unit	value
mass total amount	mtotal	kg	1.75
ref pt to center of mass	xcm	m	0.06

ref pt to x location of front wheel	xf	m	0.12
center of mass to x location of front wheel	xf'	m	0.06
ref pt to x location of back wheel	xb	m	0.12
center of mass to x location of back wheel	xb'	m	0.18
distribution of mass	j	%	0.25
mass front wheel	mf	kg	0.66
mass back wheel	mb	kg	0.22

scenario 5: robot carrying payload on arm

name	parameter	unit	value
mass total amount	mtotal	kg	2.00
ref pt to center of mass	xcm	m	0.08
ref pt to x location of front wheel	xf	m	0.12
center of mass to x location of front wheel	xf'	m	0.04
ref pt to x location of back wheel	xb	m	0.12
center of mass to x location of back wheel	xb'	m	0.2
distribution of mass	j	%	0.17
mass front wheel	mf	kg	0.83
mass back wheel	mb	kg	0.17