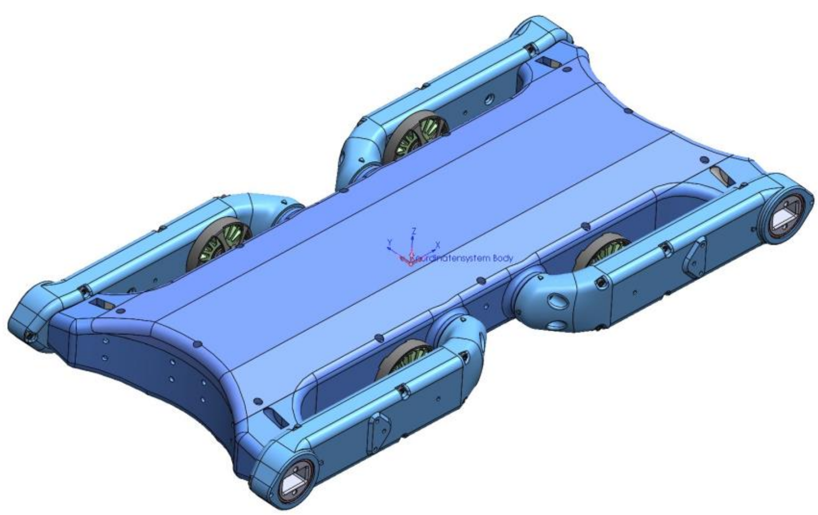
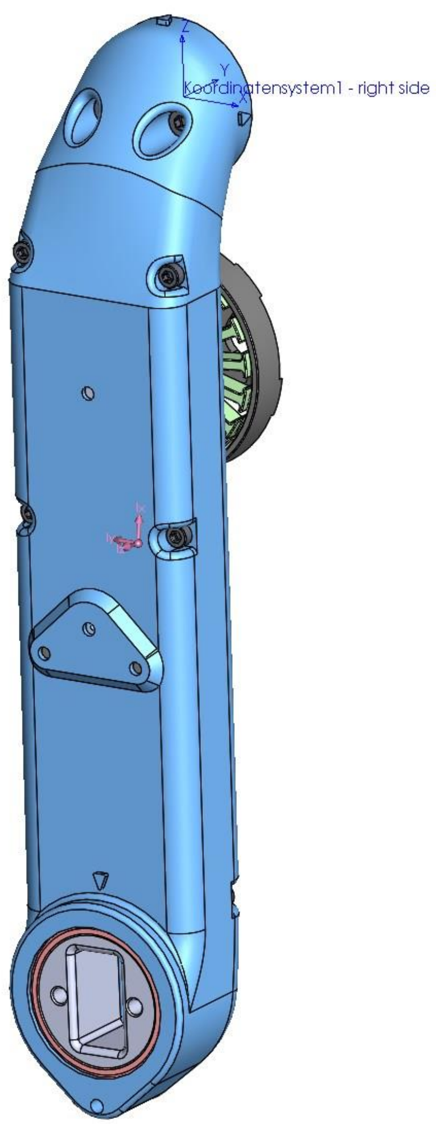
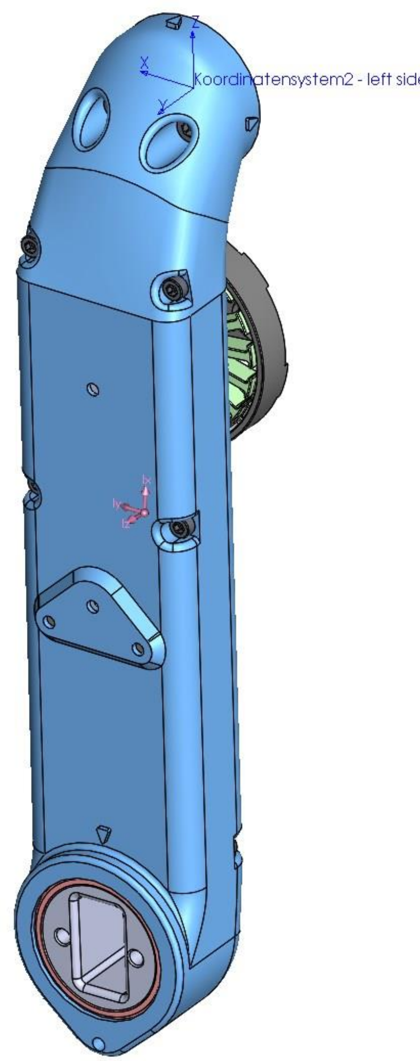
Quadruped inertia parameters - used in robot_properties_solo urdf file

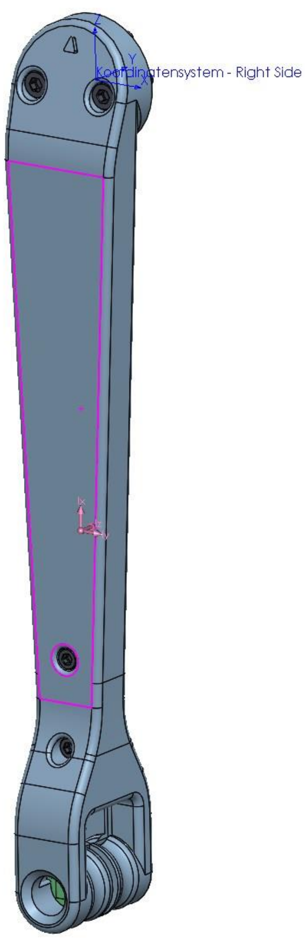
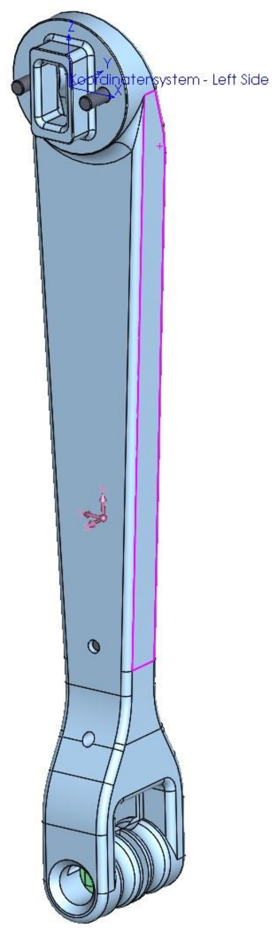
The inertia measurement is done with very high numerical precision.
See http://mathworld.wolfram.com/MomentofInertia.html for a refreshing idea on what is the momentum of inertia.

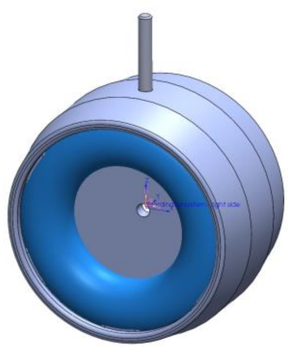
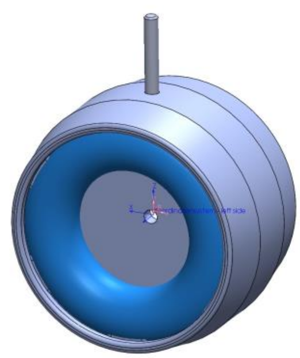
While filling in the urdf one need to make sure that the diagonal inertia are greater or equal to 0.
For the numerical precision 10^{-5} seems enough for the urdf.
In the following file the quadruped is extremely light weight and symmetrical so the non diagonal terms are for most part negligible.

Solid works give the inertia in the positive form by default according to:
https://forum.solidworks.com/thread/84904
So the non diagonal terms has opposite signs in the urdf

	Body
Mass [kg]	1.43315091
Center of Mass Position [m] with respect to the URDF coordinate system.	X = 0.00001554 Y = -0.00004220 Z = -0.00096243
Inertia [kg*m^2] with respect to the center of mass aligned to the URDF coordinate system.	Lxx = 0.00578574 Lxy = 0.00000578 Lxz = -0.00000004 Lyx = 0.00000578 Lyy = 0.01938108 Lyz = 0.00000012 Lzx = -0.00000004 Lzy = 0.00000012 Lzz = 0.02476124
Screenshot	

	Upper Leg Right Side	Upper Leg Left Side
Mass [kg]	0.14853845	0.14853845
Center of Mass Position [m] with respect to the URDF coordinate system.	X = -0.00001377 Y = -0.01935853 Z = -0.07870700	X = 0.00001377 Y = 0.01935853 Z = -0.07870700
Inertia [kg*m^2] with respect to the center of mass aligned to the URDF coordinate system.	Lxx = 0.00041107 Lxy = 0.00000000 Lxz = -0.00000009 Lyx = 0.00000000 Lyy = 0.00041193 Lyz = 0.00004671 Lzx = -0.00000009 Lzy = 0.00004671 Lzz = 0.00003024	Lxx = 0.00041107 Lxy = 0.00000000 Lxz = 0.00000009 Lyx = 0.00000000 Lyy = 0.00041193 Lyz = -0.00004671 Lzx = 0.00000009 Lzy = -0.00004671 Lzz = 0.00003024
Screenshot	 	

	Lower Leg Right Side	**Lower Leg Left Side**
Mass [kg]	0.03070001	0.03070001
Center of Mass Position [m] with respect to the URDF coordinate system.	X = 0.00000000 Y = -0.00787644 Z = -0.08928215	X = 0.00000000 Y = 0.00787644 Z = -0.08928215
Inertia [kg*m^2] with respect to the center of mass aligned to the URDF coordinate system.	Lxx = 0.00012024 Lxy = 0.00000000 Lxz = 0.00000000 Lyx = 0.00000000 Lyy = 0.00012029 Lyz = 0.00000305 Lzx = 0.00000000 Lzy = 0.00000305 Lzz = 0.00000216	Lxx = 0.00012024 Lxy = 0.00000000 Lxz = 0.00000000 Lyx = 0.00000000 Lyy = 0.00012029 Lyz = -0.00000305 Lzx = 0.00000000 Lzy = -0.00000305 Lzz = 0.00000216
Screenshot		

	Foot Right Side	Foot Left Side
Mass [kg]	0.00693606	0.00693606
Center of Mass Position [m] with respect to the URDF coordinate system.	X = 0.00000000 Y = 0.00000000 Z = 0.00035767	X = 0.00000000 Y = 0.00000000 Z = 0.00035767
Inertia [kg*m^2] with respect to the center of mass aligned to the URDF coordinate system.	Lxx = 0.00000057 Lxy = 0.00000000 Lxz = 0.00000000 Lyx = 0.00000000 Lyy = 0.00000084 Lyz = 0.00000000 Lzx = 0.00000000 Lzy = 0.00000000 Lzz = 0.00000053	Lxx = 0.00000057 Lxy = 0.00000000 Lxz = 0.00000000 Lyx = 0.00000000 Lyy = 0.00000084 Lyz = 0.00000000 Lzx = 0.00000000 Lzy = 0.00000000 Lzz = 0.00000053
Screenshot		

Motor Rotor Antigravity 4004	Inertia [kg*m^2]
	Lxx = 0.00000245 Lxy = 0.00000000 Lxz = 0.00000000 Lyx = 0.00000000 **Lyy = 0.00000447** Lyz = 0.00000000 Lzx = 0.00000000 Lzy = 0.00000000 Lzz = 0.00000245 The reflected inertia at the output joint is 81 times higher compared to the inertia of the motor rotor. For rotation around the motor axis only the Lyy value should be relevant.