



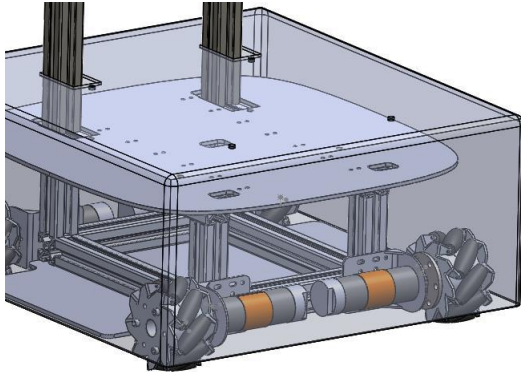
Team Omega

[Chennai, Tamil Nadu]



SOLIDWORKS

Sustainability Report



Model Name: UV Robot

Weight: 15979.53 g

Built to last: 10 year

Duration of use: 1.0 year



Manufacturing Region

The choice of manufacturing region determines the energy sources and technologies used in the modeled material creation and manufacturing steps of the product's life cycle.

Use Region

The use region is used to determine the energy sources consumed during the product's use phase (if applicable) and the destination for the product at its end-of-life. Together with the manufacturing region, the use region is also used to estimate the environmental impacts associated with transporting the product from its manufacturing location to its use location.

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Assembly Process

Region: India
Built to last: 10 year

Transportation

Truck distance: 1600 km
Train distance: 0.00 km
Ship distance: 0.00 km
Airplane Distance: 0.00 km

Use

Region: India
Duration of use: 1.0 year

End of Life

Recycled: 33 %
Incinerated: 13 %
Landfill: 54 %

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Environmental Impact (calculated using TRACI impact assessment methodology)

Carbon Footprint



2900 kg CO₂e

Material:	230 kg CO ₂ e
Manufacturing:	2600 kg CO ₂ e
Use:	0.00 kg CO ₂ e
Transportation:	2.2 kg CO ₂ e
End of Life:	8.8 kg CO ₂ e

Total Energy Consumed



3.0E+4 MJ

Material:	3300 MJ
Manufacturing:	2.6E+4 MJ
Use:	0.00 MJ
Transportation:	29 MJ
End of Life:	6.5 MJ

Air Acidification



1800 mol H⁺ e

Material:	59 mol H ⁺ e
Manufacturing:	1800 mol H ⁺ e
Use:	0.00 mol H ⁺ e
Transportation:	1.1 mol H ⁺ e
End of Life:	0.303 mol H ⁺ e

Water Eutrophication



0.696 kg N e

Material:	0.029 kg N e
Manufacturing:	0.663 kg N e
Use:	0.00 kg N e
Transportation:	9.0E-4 kg N e
End of Life:	2.7E-3 kg N e

Material Financial Impact

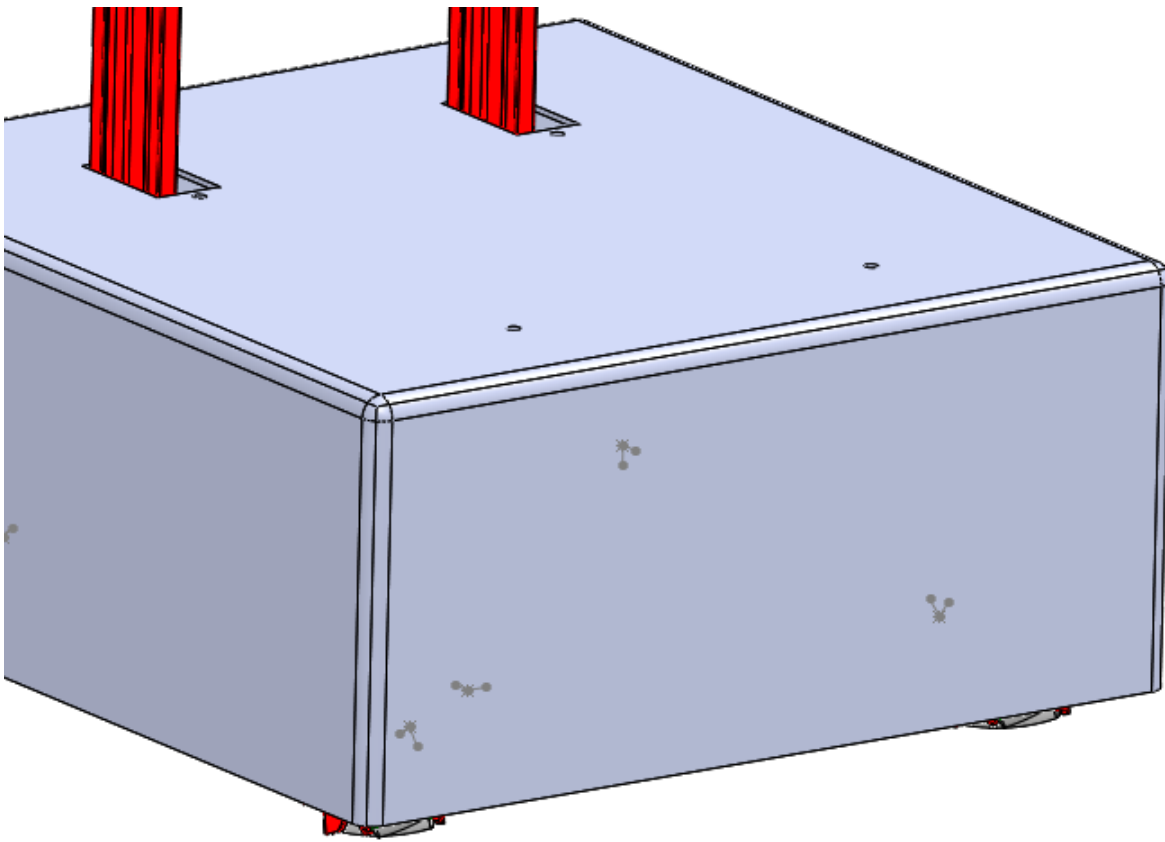
25.90 USD

Sustainability Report			
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Component Environmental Impact

Top Ten Components Contributing Most to the Four Areas of Environmental Impact

Component	Carbon		Water		Air		Energy	
base_uframe2	900	<div></div>	0.224	<div></div>	600	<div></div>	9000	<div></div>
base_frame2	770	<div></div>	0.190	<div></div>	510	<div></div>	7700	<div></div>
plate_new	86	<div></div>	0.021	<div></div>	57	<div></div>	860	<div></div>
nrobot_rack1	74	<div></div>	0.012	<div></div>	8.3		1300	<div></div>
rack_drivers_nr	59	<div></div>	5.4E-3	<div></div>	19	<div></div>	720	<div></div>
rack_base	18	<div></div>	1.6E-3		5.8		220	<div></div>
Satellite Wheel	8.5		2.2E-3		5.6		86	
planetary geared motor	4.5		4.1E-4		1.5		56	
allen bolt	1.7		4.2E-4		1.1		17	
wheel_hub_8mm	0.446		7.9E-5		0.133		5.3	





Glossary

Air Acidification - Sulfur dioxide, nitrous oxides other acidic emissions to air cause an increase in the acidity of rainwater, which in turn acidifies lakes and soil. These acids can make the land and water toxic for plants and aquatic life. Acid rain can also slowly dissolve manmade building materials such as concrete. This impact is typically measured in units of either kg **sulfur dioxide equivalent (SO₂)**, or **moles H⁺ equivalent**.

Carbon Footprint - Carbon-dioxide and other gasses which result from the burning of fossil fuels accumulate in the atmosphere which in turn increases the earth's average temperature. Carbon footprint acts as a proxy for the larger impact factor referred to as Global Warming Potential (GWP). Global warming is blamed for problems like loss of glaciers, extinction of species, and more extreme weather, among others.

Total Energy Consumed - A measure of the non-renewable energy sources associated with the part's lifecycle in units of megajoules (**MJ**). This impact includes not only the electricity or fuels used during the product's lifecycle, but also the upstream energy required to obtain and process these fuels, and the embodied energy of materials which would be released if burned. PED is expressed as the net calorific value of energy demand from non-renewable resources (e.g. petroleum, natural gas, etc.). Efficiencies in energy conversion (e.g. power, heat, steam, etc.) are taken into account.

Water Eutrophication - When an over abundance of nutrients are added to a water ecosystem, eutrophication occurs. Nitrogen and phosphorous from waste water and agricultural fertilizers causes an overabundance of algae to bloom, which then depletes the water of oxygen and results in the death of both plant and animal life. This impact is typically measured in either kg **phosphate equivalent (PO₄)** or **kg nitrogen (N) equivalent**.

Life Cycle Assessment (LCA) - This is a method to quantitatively assess the environmental impact of a product throughout its entire lifecycle, from the procurement of the raw materials, through the production, distribution, use, disposal and recycling of that product.

Material Financial Impact - This is the financial impact associated with the material only. The mass of the model is multiplied by the financial impact unit (units of currency/units of mass) to calculate the financial impact (in units of currency).

[Learn more about Life Cycle Assessment](#) 🌐