Eco Audit Report

Product name OTV_Oscar0501

Country of use World

Product life (years) 1

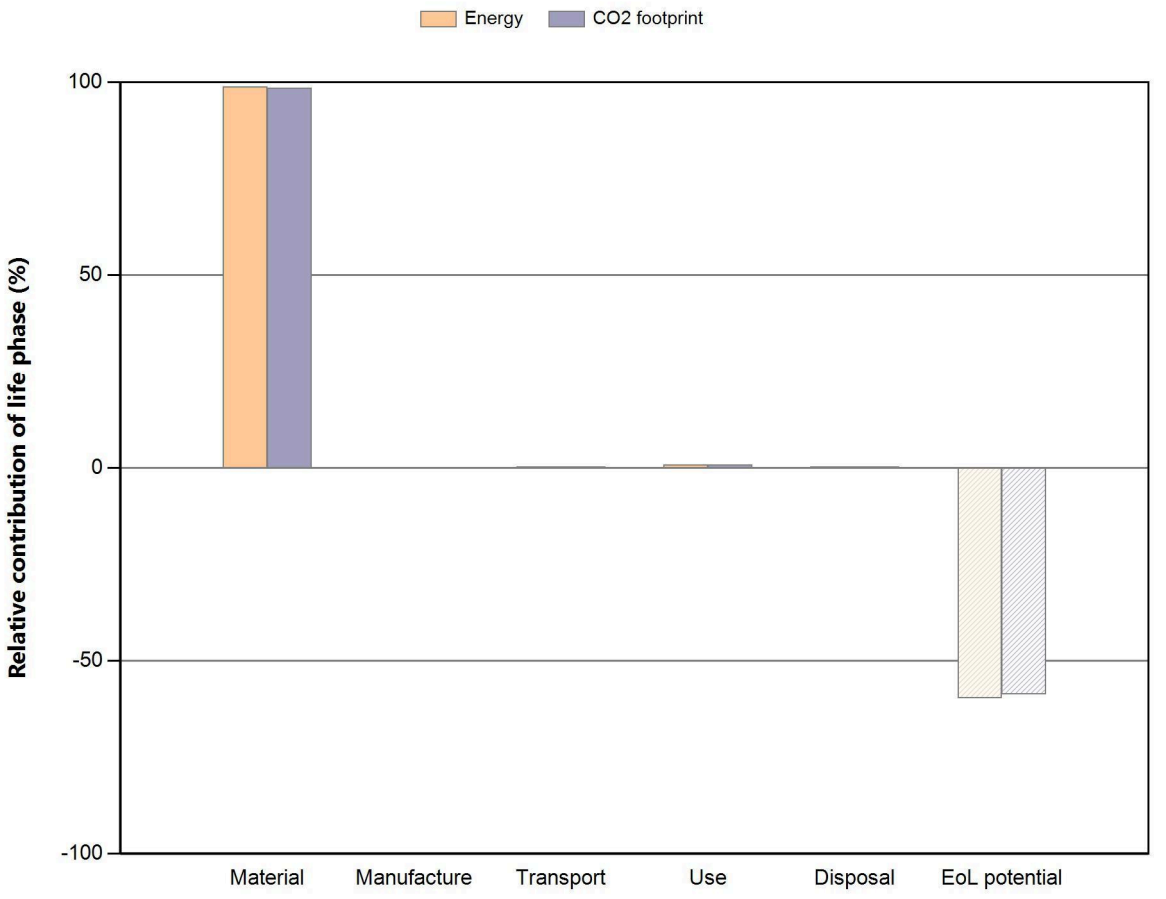
Phase	Energy (MJ)	Energy (%)	CO2 footprint (kg)	CO2 footprint (%)
Material	1.91e+03	98.7	97.2	98.5
Manufacture	0	0.0	0	0.0
Transport	5.05	0.3	0.364	0.4
Use	14.9	0.8	0.83	0.8
Disposal	4.69	0.2	0.328	0.3
Total (for first life)	**1.93e+03**	**100**	**98.8**	**100**
End of life potential	-1.15e+03		-57.9	

NOTE: Differences of less than 20% are not usually significant.

Monday, May 12, 2025

See notes on precision and data sources.

Summary:

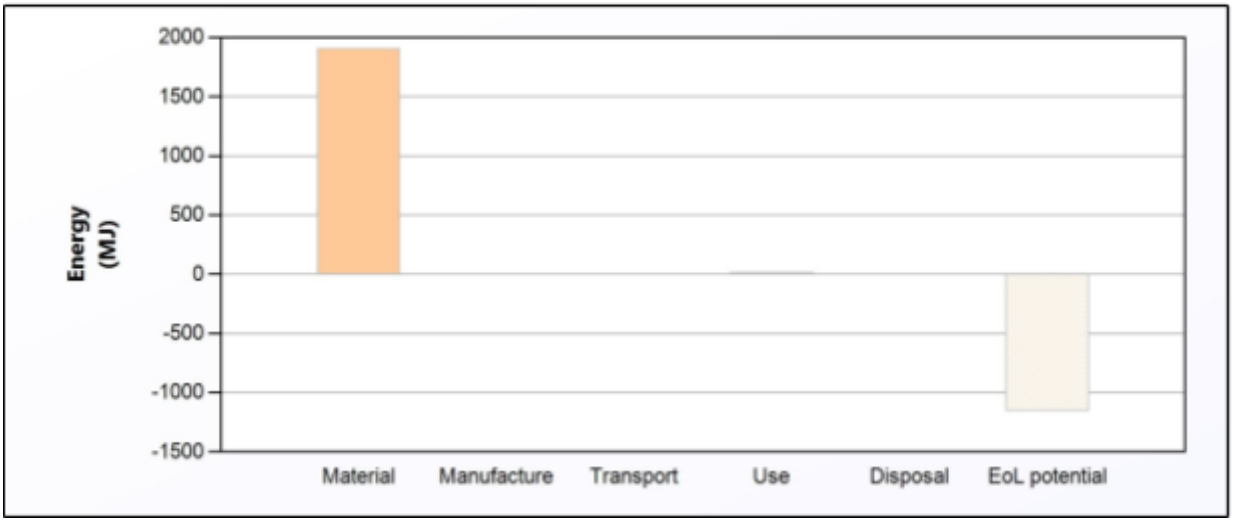


Energy details CO2 footprint details

Eco Audit Report

Energy Analysis

Summary



	Energy (MJ/year)
Equivalent annual environmental burden (averaged over 1 year product life):	1.93e+03

Detailed breakdown of individual life phases

Material:

Summary

Component	Material	Recycled content* (%)	Part mass (kg)	Qty.	Total mass (kg)	Energy (MJ)	%
Wheel Support	PEEK/IM carbon fiber, UD prepreg, UD lay-up	Virgin (0%)	0.006	2	0.012	9.4	0.5
Wood	Bamboo (longitudinal)	Virgin (0%)	0.02	1	0.02	0.68	0.0
Arduino	Printed circuit board assembly	Virgin (0%)	0.064	1	0.064	8.3	0.4
H-Bridge	Printed circuit board assembly	Virgin (0%)	0.04	1	0.04	5.2	0.3
Battery	NiMH, rechargeable battery (for laptops)	Virgin (0%)	0.26	1	0.26	2.4e+02	12.3
Tamiya Connector	Cable	Virgin (0%)	0.05	1	0.05	4.5	0.2
Rubber Belts	Polyurethane rubber (unfilled)	Virgin (0%)	0.071	3	0.21	17	0.9
3D printed parts	PLA (30% natural fiber)	Virgin (0%)	0.94	18	17	6.8e+02	35.8
Reed Switches	Resistor	Virgin (0%)	0.003	3	0.009	9.1	0.5
Snap Action Switch	Resistor	Virgin (0%)	0.001	2	0.002	2	0.1
PLA	PLA (30% natural fiber)	Virgin (0%)	0.56	2	1.1	45	2.4
MG996R Servo Motor	Fan	Virgin (0%)	0.055	1	0.055	14	0.7
Rocker Switch	Resistor	Virgin (0%)	0.003	1	0.003	3	0.2
5S5115M Servo Motor	Fan	Virgin (0%)	0.091	1	0.091	22	1.2
Greartisan Motor	Fan	Virgin (0%)	0.22	2	0.44	1.1e+02	5.8
Wires	Cable	Virgin (0%)	0.091	30	2.7	2.5e+02	13.0
Screws	High alloy steel, AerMet 100, solution treated & aged	Virgin (0%)	0.05	30	1.5	4.9e+02	25.7
Total				**100**	**23**	**1.9e+03**	**100**

*Typical: Includes 'recycle fraction in current supply'

***User-defined material

Manufacture:

Summary

Component	Process	Amount processed	Energy (MJ)	%
Total				**100**

Transport:

Breakdown by transport stage

Stage name	Transport type	Distance (km)	Energy (MJ)	%
Battery+ Tamiya Connector	32 tonne (4 axle) truck	72	1.6	31.4
H-Bridge	32 tonne (4 axle) truck	67	1.5	29.3
Arduino	32 tonne (4 axle) truck	76	1.7	32.9
Treads	32 tonne (4 axle) truck	15	0.32	6.4
Total		**2.3e+02**	**5.1**	**100**

Breakdown by components

Component	Mass (kg)	Energy (MJ)	%
Wheel Support	0.012	0.0026	0.1
Wood	0.02	0.0043	0.1
Arduino	0.064	0.014	0.3
H-Bridge	0.04	0.0086	0.2
Battery	0.26	0.055	1.1
Tamiya Connector	0.05	0.011	0.2
Rubber Belts	0.21	0.046	0.9
3D printed parts	17	3.6	71.8
Reed Switches	0.009	0.0019	0.0
Snap Action Switch	0.002	0.00043	0.0
PLA	1.1	0.24	4.8
MG996R Servo Motor	0.055	0.012	0.2
Rocker Switch	0.003	0.00065	0.0
5S5115M Servo Motor	0.091	0.02	0.4
Greartisan Motor	0.44	0.096	1.9
Wires	2.7	0.59	11.6
Screws	1.5	0.32	6.4
Total	**23**	**5.1**	**100**

Use:

Static mode

Energy input and output type	Electric to mechanical (electric motors)
Country of use	World
Power rating (W)	24
Usage (hours per day)	3
Usage (days per year)	25

Product life (years)	1

Relative contribution of static and mobile modes

Mode	Energy (MJ)	%
Static	15	100.0
Mobile	0	
Total	**15**	**100**

Component	End of life option	Energy (MJ)	%
Wheel Support	Landfill	0	0.0
Wood	Landfill	0	0.0
Arduino	Reuse	-8.3	0.7
H-Bridge	Reuse	-5.2	0.5
Battery	Reuse	-2.4e+02	20.4
Tamiya Connector	Reuse	-4.5	0.4
Rubber Belts	Landfill	0	0.0
3D printed parts	Landfill	0	0.0
Reed Switches	Reuse	-9.1	0.8
Snap Action Switch	Reuse	-2	0.2
PLA	Landfill	0	0.0
MG996R Servo Motor	Reuse	-14	1.2
Rocker Switch	Reuse	-3	0.3
5S5115M Servo Motor	Reuse	-22	2.0
Greartisan Motor	Reuse	-1.1e+02	9.5
Wires	Reuse	-2.5e+02	21.5

Screws	Reuse	-4.9e+02	42.6
Total		**-1.2e+03**	**100**

Disposal:

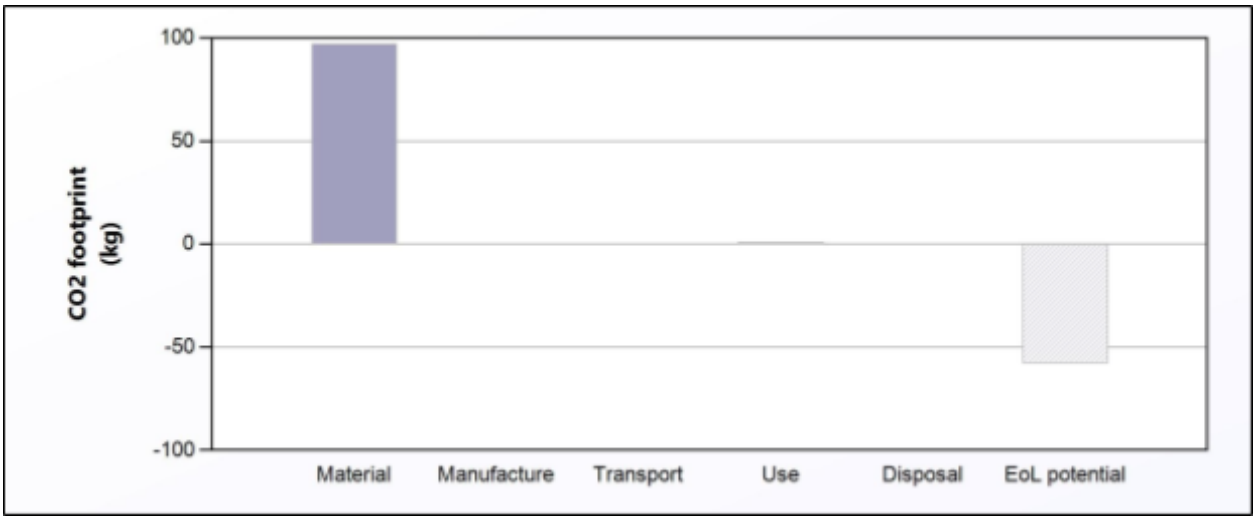
Component	End of life option	Energy (MJ)	%
Wheel Support	Landfill	0.0024	0.1
Wood	Landfill	0.004	0.1
Arduino	Reuse	0.013	0.3
H-Bridge	Reuse	0.008	0.2
Battery	Reuse	0.051	1.1
Tamiya Connector	Reuse	0.01	0.2
Rubber Belts	Landfill	0.043	0.9
3D printed parts	Landfill	3.4	71.8
Reed Switches	Reuse	0.0018	0.0
Snap Action Switch	Reuse	0.0004	0.0
PLA	Landfill	0.22	4.8
MG996R Servo Motor	Reuse	0.011	0.2
Rocker Switch	Reuse	0.0006	0.0
5S5115M Servo Motor	Reuse	0.018	0.4
Greartisan Motor	Reuse	0.089	1.9
Wires	Reuse	0.55	11.6
Screws	Reuse	0.3	6.4
Total		**4.7**	**100**

EoL potential:

Notes:

CO2 Footprint Analysis

Summary



	CO2 (kg/year)
Equivalent annual environmental burden (averaged over 1 year product life):	98.8

Detailed breakdown of individual life phases

Component	Process	Amount processed	CO2 footprint (kg)	%

Total				100	

Material:

Summary

Component	Material	Recycled content* (%)	Part mass (kg)	Qty.	Total mass (kg)	CO2 footprint (kg)	%
Wheel Support	PEEK/IM carbon fiber, UD prepreg, UD lay-up	Virgin (0%)	0.006	2	0.012	0.65	0.7
Wood	Bamboo (longitudinal)	Virgin (0%)	0.02	1	0.02	0.021	0.0
Arduino	Printed circuit board assembly	Virgin (0%)	0.064	1	0.064	0.62	0.6
H-Bridge	Printed circuit board assembly	Virgin (0%)	0.04	1	0.04	0.39	0.4
Battery	NiMH, rechargeable battery (for laptops)	Virgin (0%)	0.26	1	0.26	16	16.5
Tamiya Connector	Cable	Virgin (0%)	0.05	1	0.05	0.34	0.4
Rubber Belts	Polyurethane rubber (unfilled)	Virgin (0%)	0.071	3	0.21	0.68	0.7
3D printed parts	PLA (30% natural fiber)	Virgin (0%)	0.94	18	17	36	36.6
Reed Switches	Resistor	Virgin (0%)	0.003	3	0.009	0.5	0.5
Snap Action Switch	Resistor	Virgin (0%)	0.001	2	0.002	0.11	0.1
PLA	PLA (30% natural fiber)	Virgin (0%)	0.56	2	1.1	2.4	2.4
MG996R Servo Motor	Fan	Virgin (0%)	0.055	1	0.055	0.64	0.7
Rocker Switch	Resistor	Virgin (0%)	0.003	1	0.003	0.17	0.2
5S5115M Servo Motor	Fan	Virgin (0%)	0.091	1	0.091	1.1	1.1
Greartisan Motor	Fan	Virgin (0%)	0.22	2	0.44	5.2	5.3
Wires	Cable	Virgin (0%)	0.091	30	2.7	19	19.1
Screws	High alloy steel, AerMet 100, solution treated & aged	Virgin (0%)	0.05	30	1.5	14	14.6
Total				**100**	**23**	**97**	**100**

*Typical: Includes 'recycle fraction in current supply'

***User-defined material

Manufacture:

Summary

Transport:

Breakdown by transport stage

Stage name	Transport type	Distance (km)	CO2 footprint (kg)	%

Battery+ Tamiya Connector	32 tonne (4 axle) truck	72	0.11	31.4
H-Bridge	32 tonne (4 axle) truck	67	0.11	29.3
Arduino	32 tonne (4 axle) truck	76	0.12	32.9
Treads	32 tonne (4 axle) truck	15	0.023	6.4
Total		**2.3e+02**	**0.36**	**100**

Breakdown by components

Component	**Mass (kg)**	**CO2 footprint (kg)**	**%**
Wheel Support	0.012	0.00019	0.1
Wood	0.02	0.00031	0.1
Arduino	0.064	0.00099	0.3
H-Bridge	0.04	0.00062	0.2
Battery	0.26	0.004	1.1
Tamiya Connector	0.05	0.00078	0.2
Rubber Belts	0.21	0.0033	0.9
3D printed parts	17	0.26	71.8
Reed Switches	0.009	0.00014	0.0
Snap Action Switch	0.002	3.1e-05	0.0
PLA	1.1	0.017	4.8
MG996R Servo Motor	0.055	0.00085	0.2
Rocker Switch	0.003	4.7e-05	0.0
5S5115M Servo Motor	0.091	0.0014	0.4
Greartisan Motor	0.44	0.0069	1.9
Wires	2.7	0.042	11.6
Screws	1.5	0.023	6.4
Total	**23**	**0.36**	**100**

Use:

Static mode

Energy input and output type	Electric to mechanical (electric motors)
Country of use	World
Power rating (W)	24
Usage (hours per day)	3
Usage (days per year)	25
Product life (years)	1

Relative contribution of static and mobile modes

Mode	**CO2 footprint (kg)**	**%**
Static	0.83	100.0
Mobile	0	
Total	**0.83**	**100**

Component	End of life option	CO2 footprint (kg)	%
Wheel Support	Landfill	0	0.0
Wood	Landfill	0	0.0
Arduino	Reuse	-0.62	1.1
H-Bridge	Reuse	-0.39	0.7
Battery	Reuse	-16	27.7
Tamiya Connector	Reuse	-0.34	0.6
Rubber Belts	Landfill	0	0.0
3D printed parts	Landfill	0	0.0
Reed Switches	Reuse	-0.5	0.9
Snap Action Switch	Reuse	-0.11	0.2
PLA	Landfill	0	0.0
MG996R Servo Motor	Reuse	-0.64	1.1
Rocker Switch	Reuse	-0.17	0.3
5S5115M Servo Motor	Reuse	-1.1	1.8
Greartisan Motor	Reuse	-5.2	9.0
Wires	Reuse	-19	32.1

Screws	Reuse	-14	24.5
Total		**-58**	**100**

Disposal:

Component	End of life option	CO2 footprint (kg)	%
Wheel Support	Landfill	0.00017	0.1
Wood	Landfill	0.00028	0.1
Arduino	Reuse	0.0009	0.3
H-Bridge	Reuse	0.00056	0.2
Battery	Reuse	0.0036	1.1
Tamiya Connector	Reuse	0.0007	0.2
Rubber Belts	Landfill	0.003	0.9
3D printed parts	Landfill	0.24	71.8
Reed Switches	Reuse	0.00013	0.0
Snap Action Switch	Reuse	2.8e-05	0.0
PLA	Landfill	0.016	4.8
MG996R Servo Motor	Reuse	0.00077	0.2
Rocker Switch	Reuse	4.2e-05	0.0
5S5115M Servo Motor	Reuse	0.0013	0.4
Greartisan Motor	Reuse	0.0062	1.9
Wires	Reuse	0.038	11.6
Screws	Reuse	0.021	6.4
Total		**0.33**	**100**

EoL potential:

Notes: