

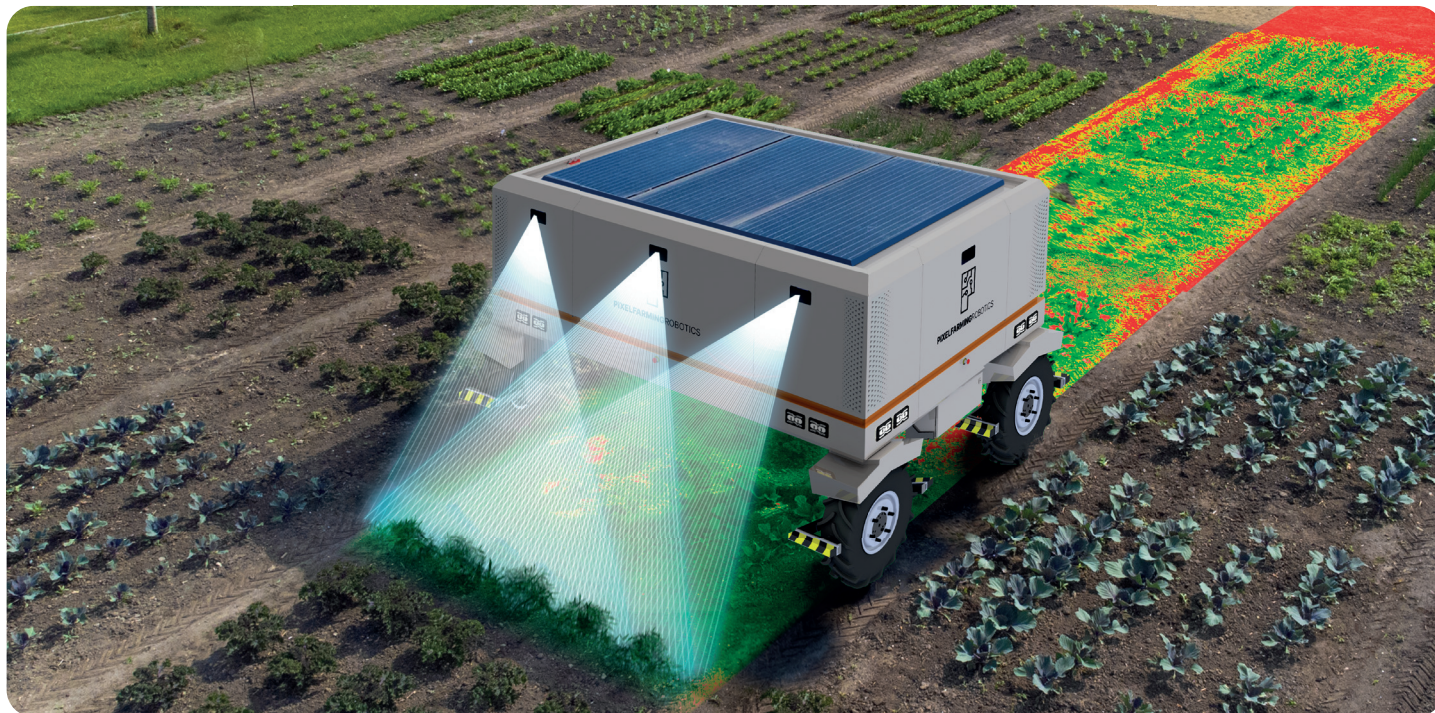
Robot One

Brochure



Robot One

About Robot One



Robot One

A smart agricultural robot designed for chemical-free weed control in large-scale environments.

Robot One is a smart agricultural robot designed for chemical-free weed control in large-scale environments. Equipped with 14 camera's for computer vision, solar panels and an optional hybrid range extender for all-day operation.

Can be equipped with up to 40 high-power lasers and include 10 controllable arms that are independently adjustable in row width and working depth.

Using both computer vision and data from its two GPS receivers, Robot One has an accuracy of up to 2 millimeters. This allows for plant specific crop treatment and chemical-free weed control.

Robot One helps farmers transition to regenerative farming. This not only increase soil fertility, but also improve water retention, reduce erosion, and promote biodiversity. In addition it can also lead to more resilient crops and higher yields.



Nett weight
2140 kg



10.000 shots
Per laser, per hour



Battery
13 kWh



Connectivity
Dual RTK-GPS + Ntrip



Capacity
1 hectare per hour

Proven technology

Each part of Robot One has been rigorously tested and validated in real-world conditions, ensuring that what we offer is not just a promise, but a reality.

Robot One is not a prototype — it is the future of farming, available today.



**Eradicate weeds with our
high-power lasers**

130 Watts and 10.000 shots per laser per hour.

We are excited to announce the launch of our new integrated high power laser module that can remove weeds without the use of chemicals. This technology is a game-changer for farmers who are looking for a sustainable and efficient way to remove weeds.

Our new high power laser module is designed to selectively target weeds in a sustainable manner using a high-power Co2 laser. This offers a precise and ecological solution that leaves the microbiology of the soil intact which helps improve, crop yield, plant health and more.

Our laser module is part of a larger trend in the industry where farmers are looking for better and ecological alternatives to achieve their sustainability goals.

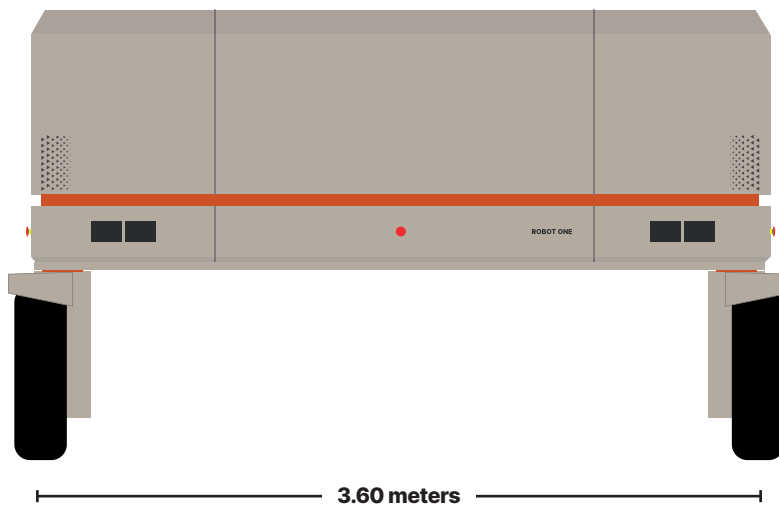
Compared to traditional weed removal methods such as chemicals and mechanical weeding, laser technology offers a more sustainable and efficient solution to weed management. The use of chemicals has led to the increase of herbicide-resistant weeds and unwanted contamination of the soil.

To start working with Robot One we offer farmers a comprehensive onboarding program.

One Robot, two sizes

Robot One is designed to support the most used track widths up to 3.60 meters. With its compact dimensions it can be transported with a standard trailer.

Robot One



20 high-power lasers

Can mount up to 4 laser units, 5 lasers per row

200.000 shots

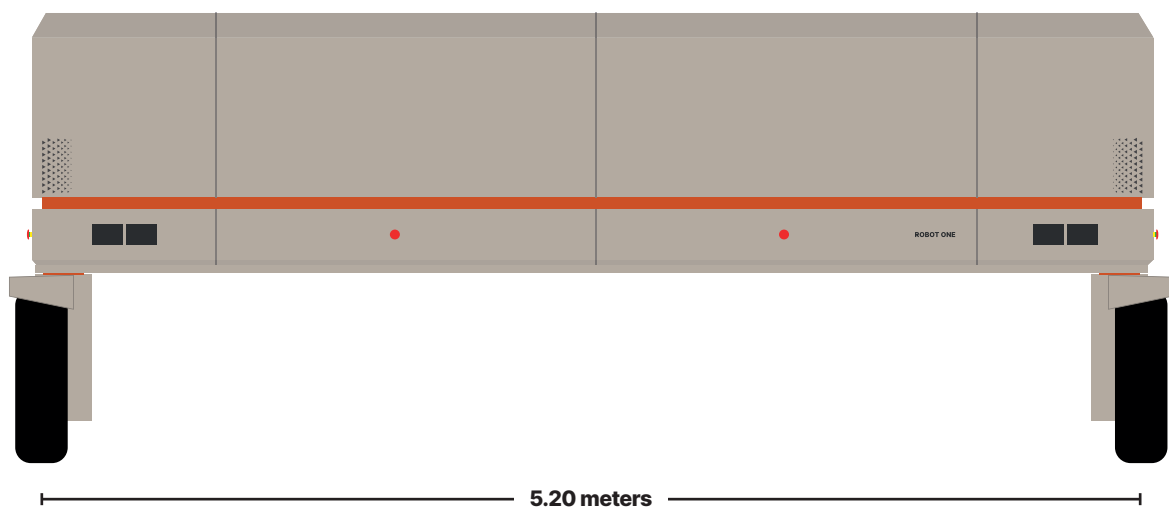
Per hour with 4 laser units mounted

2.6 kWh power

130 Watt per laser per hour

Robot One L goes one step further and is aimed at large scale industrial farming with track widths up to 5.20 meters and required specialized transport.

Robot One L



40 high-power lasers

Can mount up to 4 laser units, 10 lasers per row

400.000 shots

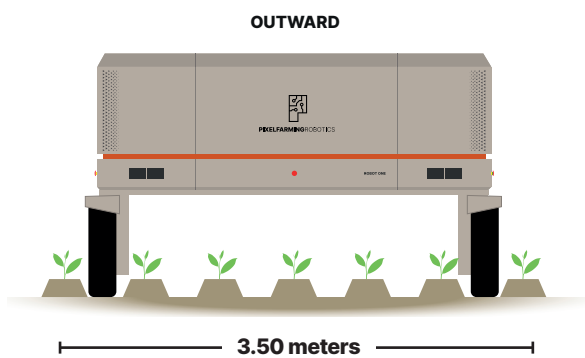
Per hour with 4 laser units mounted

5.2 kWh power

130 Watt per laser per hour

Supported track widths

Robot One with its flexible layout and wheel orientation is able to adapt to all commonly used row widths and bed types.

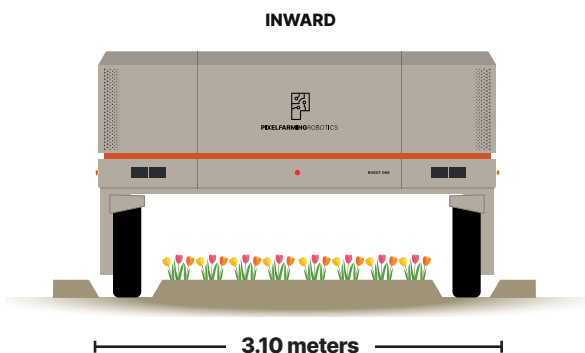
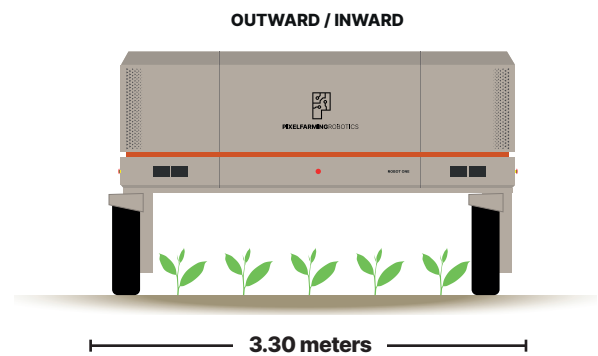


3.60 meters

Supports interdistance 50 cm, 75 cm

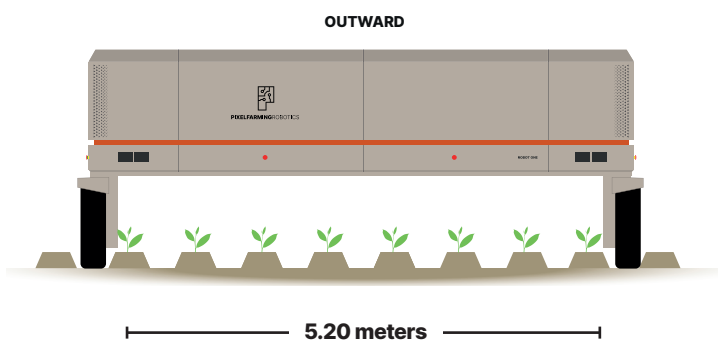
3.40 meters

Supports interdistance 50 cm, 75 cm

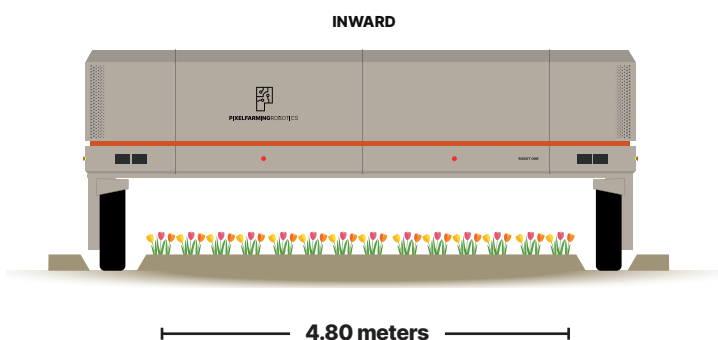
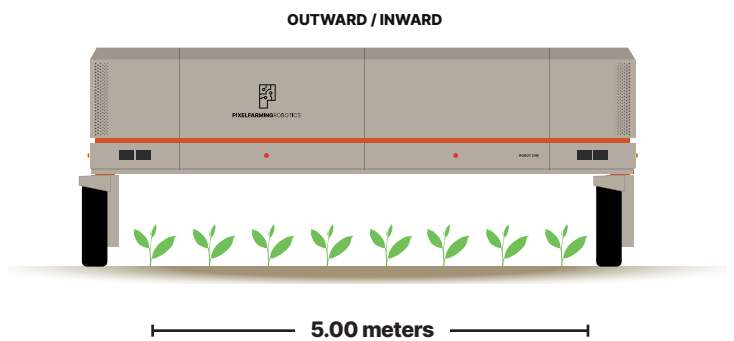


3.20 meters

Supports bed sizes up to 285 cm



5.20 meters
Supports interdistance 50 cm, 75 cm

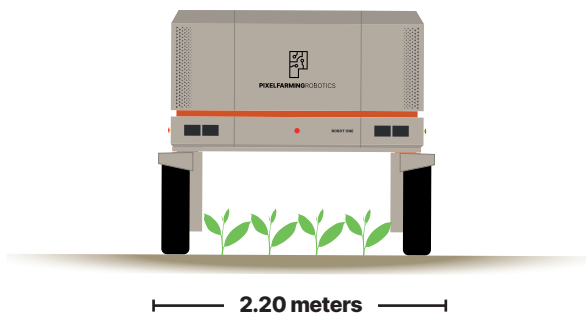


4.80 meters
Supports bed sizes up to 425 cm

Alternate drive

Robot One can also alter its driving mode to support even smaller row widths and bed sizes.

OUTWARD



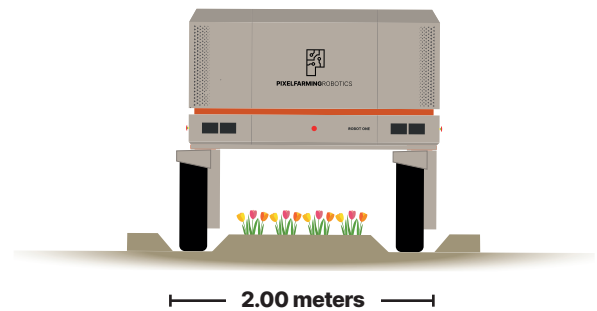
2.20 meters

Supports interdistance 37.50 cm, 50 cm, 75 cm

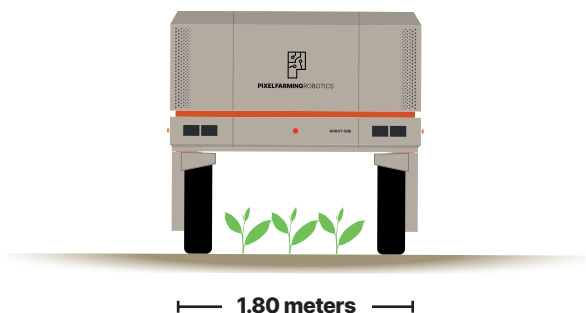
2.00 meters

Supports bed sizes up to 180 cm

OUTWARD / INWARD



INWARD



1.80 meters

Supports interdistance 37.50 cm, 50 cm, 75 cm

Hardware upgradability

Robot One is designed to be modular at its core. This hardware upgradability is an important feature for professional use.

Hardware upgradability refers to the ability to upgrade or replace components of a computer or other electronic device, such as the main processing unit, onboard GPU's for machine learning, mechanical arms and tools or its stereoscopic camera units. Hardware upgradability is an important feature for professionals who want to stay ahead of the curve.

Prolonging the operational lifespan

As technology advances, upgrading components can keep it up-to-date and operational for a longer period of time, reducing the need for frequent unit replacements.

Customization and flexibility

Professionals have different requirements and workloads, and hardware upgradability allows you to choose and upgrade specific components based on your needs and budget.

Improved performance

Upgrading to newer components can significantly enhance performance and efficiency.

Cost-effectiveness

Upgrading components is often more cost-effective than buying a new device, as it only requires the cost of the upgraded component rather than the cost of a whole new device.



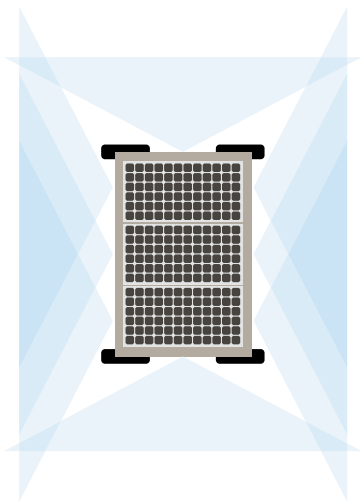


Easy to operate

With our intuitive controller with integrated display.

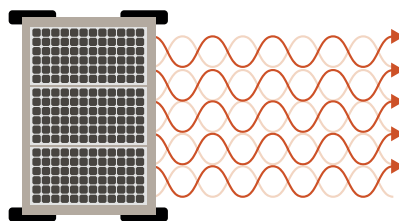
Robot One is designed with ease of use in mind and can be easily operated with our controller with integrated display. The display screen provides intuitive navigation through the robot's various functions and settings, allowing for quick adjustments to be made on the fly.

Robot One is user-friendly and requires minimal training to operate, making it a great choice for professionals.



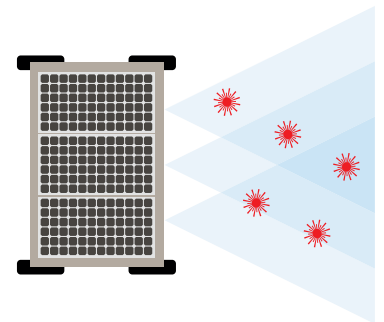
Obstacle avoidance

Vision based obstacle avoidance uses cameras and image processing algorithms to analyze the environment and identify potential hazards. Robot One uses this information to calculate a safe path and navigate around the obstacle.



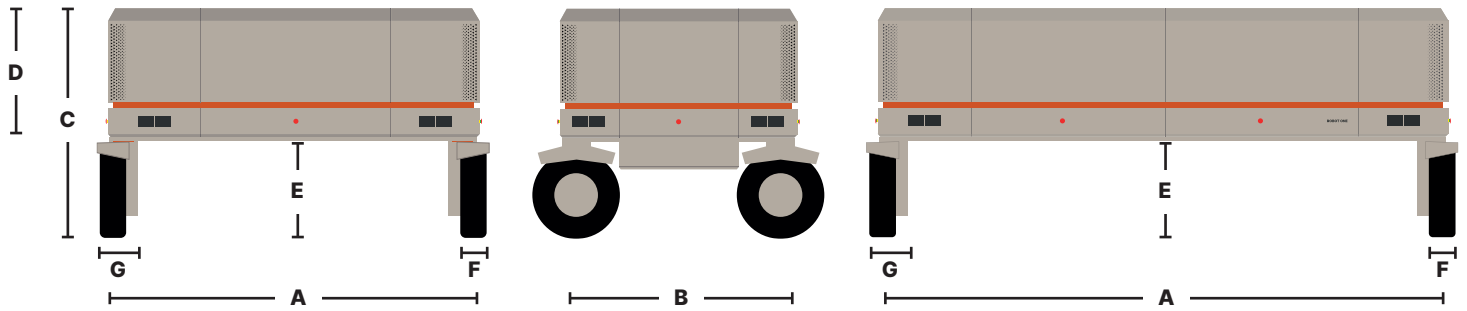
Scan and act

After the first detection run is complete you can start planning which actions need to be done. Use a laser to combat weed stems or use a finger-weeder to clear weeds from within the plant row. Our vision-based approach offers maximum tool flexibility.

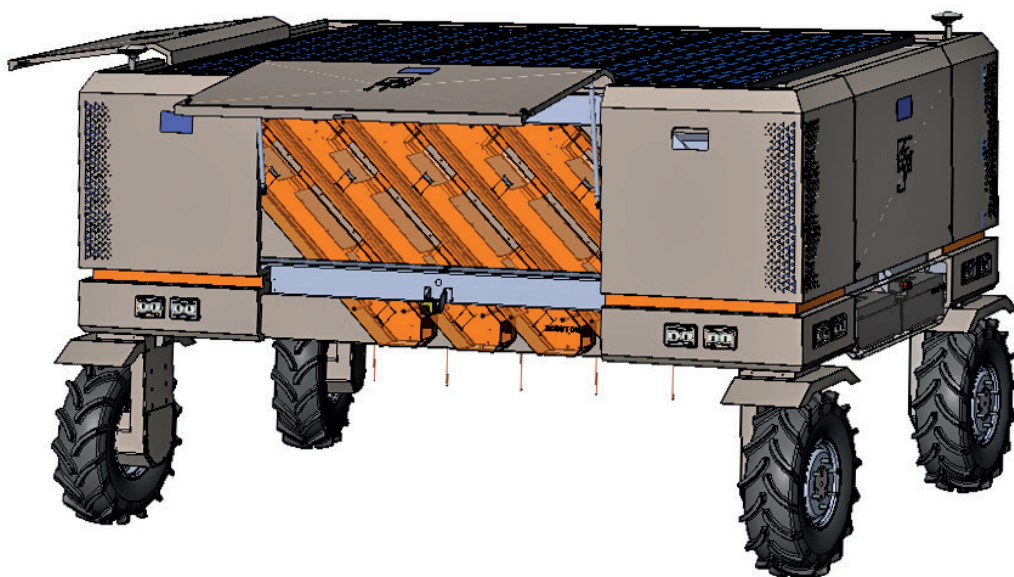


Fine-tuning the detection model

With every operation, Robot One collects new images which can be used to fine-tune your plant detection model. This increases its accuracy and its value. As a new revenue model you can make your detection model available for sale.



		Robot One	Robot One L
Measurements	A Overall width	3740 mm	5340 mm
	B Overall length	2400 mm	2400 mm
	C Overall height	2230 mm	2230 mm
	D Body height	1267 mm	1267 mm
	E Wheel Base	860 mm	860 mm
	F Wheel width	250 mm	250 mm
	G Wheel with axle	350 mm	350 mm
	H Ground Clearance battery	700 mm	700 mm



Internals	Processing Unit	AI Performance	275 TOPS (INT8)
		GPU	NVIDIA Ampere architecture with 2048 NVIDIA CUDA® cores and 64 tensor cores
		Max GPU Frequency	1.3GHz
		CPU	12-core Arm® Cortex® A78AE v8.2 64-bit CPU 3MBL2+6MBL3
		CPU Max Frequency	2.2 GHz
		Memory	64GB 256-bit LPDDR5 204.8GB/s
		Storage	64GB eMMC 5.1
		Video Encode	2 × 4K60, 4 × 4K30, 8 × 1080p60, 16 × 1080p30 (H.265), H.264, AV1
Camera's	14 Stereographic camera's	Dimensions	91 mm x 28 mm x 17.5 mm
	RGB sensor	DFOV / HFOV / VFOV	81° / 69° / 54°
		Resolution	13MP (4208×3120)
		Focus	50cm – ∞
		Focus type	Fixed focus
		Max Framerate	60 fps
	Stereographic sensor	DFOV / HFOV / VFOV	86° / 73° / 58°
		Resolution	480P (640×480)
		Focus	6.5cm – ∞
		Focus type	Fixed focus
		Max Framerate	120 fps



We believe in robotic technologies in agriculture. Pixelfarming Robotics was founded in 2019 to support the robotics transition in agriculture. We design and manufacture advanced agricultural robots to support regenerative and biodiverse farming.

Pixelfarming Robotics

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