

QUBITPAGE ROBOTICS x CARPHACOM · COMPETITIVE INTELLIGENCE · MARCH 2026

# SENTINEL vs THE WORLD

Complete competitive analysis, market positioning, use-case scenarios, and global vision for the SENTINEL modular robot platform. Why our approach wins: one universal core, four specialisations, full waterproofing, avatar remote control, and AI autonomy — at a fraction of the competition's price.

**60-80%**

CHEAPER THAN COMPETITORS

**IP67/68**

FULLY WATERPROOF ALL MODELS

**4-in-1**

MODULAR PLATFORM

**\$38B**

MARKET BY 2035

## 1 COMPETITOR COMPARISON

Real 2025/2026 pricing from press releases, investor decks, and trade publications

### HUMANOID ROBOTS

COMPANY	ROBOT	PRICE	DOF	PAYLOAD	BATTERY	COMPUTE	STATUS
<b>Boston Dynamics</b>	Atlas (Electric)	~\$150,000+	28+	25 kg	~1.5h	Custom SoC	LIMITED
<b>Tesla</b>	Optimus Gen 3	\$25,000-30,000*	28	20 kg	~4-5h	Tesla FSD chip	PRODUCTION
<b>Figure AI</b>	Figure 02	~\$60,000-80,000*	41	20 kg	~5h	Custom AI	LIMITED
<b>Agility Robotics</b>	Digit	~\$100,000	16	16 kg	~2-4h	Intel + custom	LIMITED


COMPANY	ROBOT	PRICE	DOF	PAYLOAD	BATTERY	COMPUTE	STA
Unitree	G1	\$16,000	23-43	3 kg	~2h	Jetson Orin	PRO
Unitree	H1	\$90,000	19	~10 kg	~2h	Jetson Orin	PRO
Sanctuary AI	Phoenix	~\$50,000-70,000*	20+	25 kg	~4h	Custom Carbon AI	PRO
1X Technologies	NEO	~\$30,000*	30	20 kg	2-4h	Custom	PRO
Apptronik	Apollo	~\$50,000*	28	25 kg	~4h	Custom	PRO
◆ SENTINEL	Core + WH/AG/MK/HM	€18,900-109,000	20-44	25 kg	8-72h	NVIDIA Jetson AGX Orin 64GB	PRO 202

WAREHOUSE & LOGISTICS

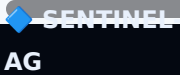
COMPANY	ROBOT	PRICE	TYPE	PAYLOAD	STATUS	LIMIT
<b>Boston Dynamics</b>	Stretch	\$65,000-75,000	Mobile arm	23 kg	PRODUCTION	Single no pic
<b>Locus Robotics</b>	AMR Fleet	\$25,000-35,000/unit	AMR (floor)	270 kg	PRODUCTION	No ma bins; subsc
<b>Amazon</b>	Sparrow + Proteus	Internal only	Arm + AMR	—	INTERNAL	Amaz limite enviro
<b>Fetch / Zebra</b>	Freight 1500	\$30,000-40,000	AMR	680 kg	PRODUCTION	Transp scanr acqui
<b>SENTINEL-WH</b>	Warehouse Model	€42,000	Humanoid	25 kg	PRODUCTION 2027	✓ Full · scan team contr

**MILITARY & SECURITY**

COMPANY	ROBOT	PRICE	TYPE	ENDURANCE	STATUS	LIMITAT
<b>Ghost Robotics</b>	Vision 60	\$150,000-165,000	Quadruped	3-8h	PRODUCTION	No manip quadruped tools/wea
<b>Boston Dynamics</b>	Spot (Defense)	\$75,000+	Quadruped	~90 min	PRODUCTION	Very short capability expensiv
<b>Milrem</b>	THeMIS	\$300,000-500,000	UGV tracked	8-12h	PRODUCTION	Large vel enter bui expensiv
<b>QinetiQ</b>	MAARS	\$300,000+	Armed UGV	8h	LIMITED	Wheeled capability
<b>General Dynamics</b>	MUTT	\$200,000+	Mule UGV	12h	LIMITED	Carrier/lo capability

COMPANY	ROBOT	PRICE	TYPE	ENDURANCE	STATUS	LIMITATION
	Military Model	€109,000	Humanoid	24-72h	PRODUCTION 2027	✓ Humanoid arts · rifle EMP/laser MIL-STD recharge

## AGRICULTURE

COMPANY	ROBOT	PRICE	TYPE	STATUS	LIMITATION
<b>Carbon Robotics</b>	LaserWeeder	\$500,000+	Tractor-mounted	PRODUCTION	Single function (weeding); extremely large size; extremely expensive
<b>Naïo Technologies</b>	Oz / Dino	€30,000-120,000	Autonomous weeder	PRODUCTION	Weeding only; no AI; limited AI; single function
<b>John Deere</b>	See & Spray	\$800,000+	Tractor + AI	PRODUCTION	Requires full-size tractor (not organic); or
<b>FarmWise</b>	Titan FT-35	\$250,000+	Autonomous weeder	LIMITED	Mechanical weeder; crops only; subscription
<b>Aigen</b>	Element	Subscription	Small solar bot	PROTOTYPE	Very small; weeding; planting; early sowing
	Agriculture Model	€40,500	Tracked humanoid	PRODUCTION 2027	✓ Laser weeding harvesting + sowing tractor body compatible · IP67 · solar sowing

## 2 WHY SENTINEL WINS

The unfair advantages that make our approach fundamentally better



## ONE CORE, FOUR ROBOTS

Every competitor builds a single-purpose robot. SENTINEL has **one universal Sentinel Core** that transforms into 4 completely different robots by swapping modular tools. Buy one Core, deploy it in your warehouse today, your farm tomorrow. **No competitor offers this.** This slashes R&D costs by 70% and manufacturing complexity by 60%.



## IP67/IP68 – FULLY WATERPROOF

Every SENTINEL model is **rain-proof, dust-proof, and can walk through water.** The sealed die-cast aluminium Core is IP67 (MK: IP68 + MIL-STD-810G). Competitors like Unitree G1, Figure 02, and Tesla Optimus have **zero waterproofing** — they can't operate outdoors in rain. Our robots work in mud, rain, snow, and shallow water crossings.



## AVATAR REMOTE CONTROL

Any SENTINEL can be **controlled in real-time by a human operator** via mouse+keyboard or smartphone joystick. See through the robot's eyes (Terminator-style HUD), move its hands precisely, operate tools, drive vehicles. **No competitor offers full avatar mode.** This enables: remote surgery, bomb disposal, firefighting, space operations — all from safety.



## AI + HUMAN HYBRID INTELLIGENCE

NVIDIA Jetson AGX Orin (275 TOPS) runs local AI for **autonomous decisions.** Gemini/GPT orchestrator understands voice commands and natural language. The robot can operate **fully autonomously OR under human avatar control** — or

switch between modes instantly. Rigorous testing and programmable safety limits prevent unintended actions.



#### SOLAR + 72h ENDURANCE

While competitors get 2-5 hours of battery, SENTINEL achieves **8-72 hours** depending on config. Solar skin cells on AG/MK models recharge continuously. Deployable solar camouflage panel for field operations. Optional hydrogen fuel cell for 72h+ endurance. **Tesla Optimus: ~5h. BD Atlas: ~1.5h. SENTINEL-MK: up to 72h.**



#### 60-80% CHEAPER

SENTINEL-HM at **€18,900** undercuts every humanoid except Unitree G1 (which has no waterproofing, 3kg payload, 2h battery). Even our military model at €109,000 is **65% cheaper than Ghost Robotics Vision 60** which doesn't even have arms. Romanian manufacturing with elite engineers = **Western quality at Eastern European costs.**



**The key insight:** Every competitor is building ONE robot for ONE market. We build ONE platform for EVERY market. This means our total addressable market is 10× larger, our per-unit R&D cost is 4× lower, and our production line achieves economies of scale that single-purpose robots never can. A farm that buys SENTINEL-AG can repurpose it as a home assistant in winter — **no competitor can do this.**

Every SENTINEL model features a sealed central core and waterproof joints — built to work in rain, mud, dust, and shallow water

#### SENTINEL - WH

### IP67

Submersible 1m / 30min

- ✓ Die-cast 6061-T6 Al core enclosure
- ✓ Roxtec IP68 cable glands
- ✓ Dow Corning 732 RTV joint seals
- ✓ Splash-proof during dock/wash operations
- ✓ Operates in cold storage (-20°C)
- ✓ Walk through puddles, wet floors

#### SENTINEL - AG

### IP67

Mud, rain, irrigation water

- ✓ Welded Al frame + IP67 track seals
- ✓ All connectors M12 IP67 rated
- ✓ Rain operation: full functionality
- ✓ Mud resistance: sealed track motors
- ✓ Irrigation crossings: 30cm water depth
- ✓ Greenhouse condensation resistant

#### SENTINEL - MK

### IP68

MIL-STD-810G + 2m / 1hr

- ✓ Bullet-proof titanium-reinforced shell
- ✓ IP68 — 2m depth for 1 hour
- ✓ MIL-STD-810G shock/vibration/temp
- ✓ River/stream crossing capability
- ✓ Monsoon, sandstorm, arctic operation
- ✓ NBC (nuclear/bio/chem) seal-ready

#### SENTINEL - HM

### IP67

Rain, garden, pool area

- ✓ Splash-proof for garden/outdoor use
- ✓ Kitchen steam/water resistant
- ✓ Can mow lawn in rain
- ✓ Pool-area safe (not submersible)
- ✓ Bathroom-safe moisture handling
- ✓ Car wash / outdoor cleaning capable



**Why this matters:** Tesla Optimus, Figure 02, Unitree G1/H1, and most humanoid robots are **indoor-only machines**. They cannot operate in rain, cannot handle dust, and have exposed electronics. SENTINEL is the only humanoid platform that can transition from a warehouse floor to a muddy

farm field to a rainstorm military operation **without any modification**. The sealed Sentinel Core protects the NVIDIA Jetson, power distribution, and all compute hardware from water, dust, impact, and temperature extremes.

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## WORLD-CHANGING USE CASES

How SENTINEL robots transform industries and why customers will rush to buy them



### E-COMMERCE FULFILMENT

SENTINEL-WH · \$800B global market

A warehouse runs 24/7 with zero human workers on the floor. SENTINEL-WH robots scan shelves (barcode + RFID), pick items with soft gripper hands, pack boxes, print shipping labels, and carry to courier zones. Multi-robot teams coordinate: picker → packer → labeller → carrier. Night shifts, holidays, pandemics — the warehouse never stops.

**Customer excitement:** Amazon, Shopify, DHL, FedEx warehouses can cut labour costs by 80% while increasing throughput 3×. ROI in **14 months**.

24/7 operation

80% cost reduction

3× throughput

14-mo ROI



### PRECISION FARMING

SENTINEL-AG · \$240B agritech market

A family farm deploys 3 SENTINEL-AG units. They plant seeds in spring, laser-burn invasive weeds between crop rows, monitor soil moisture, detect plant diseases via NDVI cameras, and harvest vegetables when ripe. With the tractor body conversion, they plough fields, haul produce, and manage irrigation — all autonomously or via avatar from the farmhouse.

**Customer excitement:** Eliminates need for seasonal workers (€15,000-30,000/season). Organic farming without herbicides. Works rain or shine. **Pays for itself in 2 harvests.**

Zero herbicides

NDVI health scan

12 PTO tools

Solar powered



## HOME COMPANION

SENTINEL-HM · \$15B home robot market

An elderly couple's SENTINEL-HM manages their daily life: carries groceries, mops floors, monitors health vitals (blood pressure, fall detection), cooks meals following recipes, waters the garden, walks the dog path. Via avatar, their daughter in another city can "visit" — seeing through the robot's eyes, talking through its speaker, even giving grandma a gentle arm-pat.

**Customer excitement:** At €18,900 it's cheaper than 6 months of a home care aide (~€24,000/year). Families feel their parents are safe. **Emotional connection drives viral adoption.**

Fall detection

Avatar visits

Garden care

24/7 companion



## CONSTRUCTION & MINING

SENTINEL-WH/AG · \$1.6T construction market

Construction sites deploy SENTINEL robots for dangerous work: scaffolding assembly at heights, welding in confined spaces, concrete finishing, rebar tying, demolition in unstable structures. Avatar mode lets skilled workers operate from an air-conditioned trailer. Mining operations send robots into unstable shafts — zero human risk.

**Customer excitement:** Construction has 5× the fatality rate of other industries. Insurance companies will **demand** robot workers. Governments will **mandate** robot-first in hazardous zones.

Zero falls

Hazardous zones

Night work

Avatar welding



## HEALTHCARE & DISASTER

SENTINEL-HM/MK · \$11B medical robotics

In pandemics, SENTINEL robots deliver medication, take vitals, and disinfect rooms without infecting staff. In disaster zones (earthquakes, floods), waterproof SENTINEL-MK units search rubble, carry survivors to safety, and deliver supplies in conditions too dangerous for humans. Avatar-controlled by surgeons, they perform triage in remote areas.

**Customer excitement:** COVID proved hospitals need infection-proof workers.

**Every major hospital chain will want 10+ units.** Governments will stockpile for disaster response.

Pandemic-proof

Disaster rescue

Waterproof

Remote triage



## INDUSTRIAL MAINTENANCE

SENTINEL-WH · \$60B maintenance market

Oil rigs, offshore wind farms, nuclear plants — environments too dangerous or remote for regular human presence. SENTINEL robots perform routine inspections (thermal + visual), replace parts, clean solar panels, and handle emergency shutdowns. Via avatar, expert engineers in London control a robot on an offshore platform in a North Sea storm.

**Customer excitement:** A single offshore inspection costs €50,000+ by helicopter + crew. A SENTINEL does it daily for free after purchase. **BP, Shell, Siemens will order hundreds.**

Offshore-ready

IP67 sealed

Thermal scan

Storm operation

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# AVATAR MODE — THE GAME CHANGER

Control any SENTINEL robot remotely from anywhere in the world — see through its eyes, move its hands, operate tools



### DESKTOP CONTROL

Mouse + keyboard controls like a video game. WASD to walk, mouse to look, click to grab/shoot/interact. **Terminator-style HUD overlay** shows object detection, distance measurements, threat assessment, and vital stats. Multi-monitor setup for simultaneous robot fleet management.



### SMARTPHONE CONTROL

On-screen joysticks (left: movement, right: camera/aim). Gyroscope head-tracking option. **One-tap command presets**: "go to shelf A3", "patrol perimeter", "return to base". Push notifications for AI alerts. Control your farm robot from the beach.



### VR IMMERSIVE

Full VR headset (Quest 3, Apple Vision Pro) for total immersion. **Feel like you ARE the robot**. Hand tracking maps 1:1 to robot hands. Haptic feedback gloves for tactile sensing. Perfect for remote surgery, bomb disposal, and precision assembly at distance.



**Remote work, redefined:** A warehouse manager in Germany controls 20 SENTINEL-WH robots in a distribution centre in Poland. A farmer in France monitors his vineyard via avatar from Paris. A military operator in a bunker controls a SENTINEL-MK team in a conflict zone — **zero human casualties,**

**zero risk.** A surgeon in Tokyo performs emergency triage via avatar on an earthquake victim in Turkey. **Avatar mode transforms EVERY industry** by decoupling human skill from physical presence.

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## MILITARY — ZERO-CASUALTY WARFARE

How SENTINEL-MK transforms military operations with non-lethal priority, lethal capability, and complete human safety



**The doctrine:** SENTINEL-MK operates on a **non-lethal first, lethal capable** principle. Primary weapons are designed to neutralise adversaries without killing: EMP pulse guns disable electronics, laser dazzlers blind sensors and optics, electroshock modules incapacitate personnel. But when the situation demands it, the modular weapon system accepts **lethal armament** — from pistols and rifles to anti-armour systems.

### NON-LETHAL ARSENAL (PRIMARY)



#### EMP PULSE GUN

Directional electromagnetic pulse disables vehicles, drones, communications, and electronics within 15m radius. **Neutralises a tank's electronics** without destroying it. Crew can surrender safely. Recharges from robot's battery in 45 seconds.



#### LASER DAZZLER / DESIGNATOR

Blinds optical sensors, cameras, and scopes at 2km+ range. Laser designation paints targets for allied precision munitions. Non-lethal to personnel (Class 3R eye-safe protocol). **Disables an enemy sniper's scope** from 1km without firing a shot.



#### MARTIAL ARTS + ELECTROSHOCK

HEBI T8+ actuators deliver **surgical-precision strikes**: punches, kicks, joint locks, weapon disarms. Trained on 50,000+ martial arts motion captures. Electroshock contacts on forearms deliver 50kV stunning charge on contact. **Incapacitates without permanent injury.**

### LETHAL CAPABILITY (WHEN REQUIRED)



#### MODULAR WEAPON MOUNTS

SENTINEL-LINK ports accept: **Pistol** (Glock 17/19), **Assault Rifle** (M4/AK platform), **Sniper Rifle** (precision .308), **Shotgun** (breaching), **Grenade Launcher** (40mm). AI-assisted targeting with wind compensation and target tracking. **Avatar operator makes all lethal decisions — robot never fires autonomously.**



#### CQB TOOLS

Knife, bayonet, entry tools (breaching charge, bolt cutters, hydraulic spreader). Night vision (FLIR Boson+ thermal), heat detection, laser tripwire detection. **Enter a building, clear rooms, extract hostages** — all via avatar control with zero human operators at risk.



### ANTI - ARMOUR

Shoulder-mounted anti-tank guided missile (Javelin-compatible mount). Anti-materiel rifle (.50 cal mount). **Destroy a tank, APC, or fortified position** from 2km while the human operator sits safely 50km away. Robot is expendable — human life is not.



### ZERO-DEATH MISSION SCENARIO

Urban hostage rescue

**Situation:** 12 hostages held in a 3-story building by 6 armed combatants.

**Traditional approach:** 20-person assault team, high risk of friendly casualties, collateral damage likely. Estimated casualties: 2-4 operators + unknown hostages.

**SENTINEL approach:** 6 SENTINEL-MK units + 2 SENTINEL-D drones. Drone thermal scan maps all persons in building. 4 robots breach simultaneously via 4 entry points (avatar-controlled by expert operators). EMP disables combatant communications. Laser dazzlers blind weapon optics. Electroshock incapacitates combatants. **Result: 12 hostages rescued, 6 combatants neutralised (alive), zero deaths.**

0 deaths

6 SENTINEL-MK

2 drones

12 hostages safe



### AI AUTONOMOUS DEFENCE

Base perimeter + reconnaissance

**Mode:** Guardian — fully autonomous with AI decision-making within strict programmed limits.

**Capabilities:** 24/7 perimeter patrol with thermal + visual scanning. AI identifies and classifies threats (person/vehicle/drone/animal). Non-lethal response is automatic (laser warning, voice challenge, alert operators). **Lethal response**

**requires human authorisation** — robot requests permission, operator confirms via avatar, robot executes. Full audit trail with 4K video recording.

**AI limits:** Rigorous testing: 10,000+ simulated scenarios. Rules of engagement programmed as hard constraints. Cannot be overridden by AI — only by authorised human operators with biometric verification.

AI patrol 24/7

Human-authorised lethal

10K test scenarios

Full audit trail

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## GLOBAL MARKET SIZE

Humanoid robot market projections — Goldman Sachs, McKinsey, BCG research (2025-2035)

2025

### \$2.1B

Early commercial deployments  
Amazon, BMW, Tesla pilots

2028

### \$6.8B

Mass production begins  
Warehouse + agriculture adoption

2030

### \$15B

Consumer market opens  
Home robots reach mainstream

2035

### \$38B

Full market maturity  
Global deployment across all sectors



**Goldman Sachs (June 2024):** "The humanoid robot market could reach \$38 billion by 2035, with potential for \$152 billion in a bull case scenario."

**McKinsey (2024):** "Humanoid robots could fill 4% of US manufacturing labour gap by 2030."

**SENTINEL's position:** With 4 markets served by one platform and prices 60-80% below competitors, even capturing **2% of the \$38B market = €760M annual revenue** by 2035.

TARGET MARKET BY SEGMENT

SEGMENT	GLOBAL TAM	SENTINEL MODEL	TARGET SHARE	REVENUE POTENTIAL	KEY BUYERS
<b>Warehouse / Logistics</b>	\$12B by 2030	SENTINEL-WH	1.5%	€180M/yr	Amazon, DHL, Shopify merc
<b>Agriculture</b>	\$8B by 2030	SENTINEL-AG	2%	€160M/yr	EU/US farms, cooperatives
<b>Defense / Security</b>	\$18B by 2030	SENTINEL-MK	0.5%	€90M/yr	NATO militari private secur
<b>Home / Healthcare</b>	\$15B by 2030	SENTINEL-HM	1%	€150M/yr	Aging popula hospitals, car
<b>TOTAL ADDRESSABLE</b>	<b>\$53B by 2030</b>	ALL MODELS	<b>1.1% avg</b>	<b>€580M/yr</b>	—

8 VISION & ROADMAP

From NVIDIA GTC 2026 to global deployment — our path to becoming the world's leading modular robot platform

- MARCH 2026**  
 **NVIDIA GTC Presentation**  
 LabLab.ai hackathon winner. Full platform demo: 3D simulator, robot specs, production guide, factory tour, market analysis. Built on NVIDIA Jetson platform. Investor pitch deck ready.
- Q2 2026**  
**Initial Investment – €2M**  
 Investors. Hire core team of 8 elite Romanian engineers. Begin Sentinel Core prototype #1. Secure Component Supply Agreements (NVIDIA, Dynamixel, HEBI).
- Q3-Q4 2026**  
**Prototype & Testing Phase**  
 Build 4 functional prototypes (one per model). IP67/IP68 certification testing. AI training on DGX A100. Avatar mode beta with 10 pilot testers. File key patents

(modular connector, mode-switching, solar skin).

**Q1 2027**

**Growth Investment – €8M**

Demo results from prototypes attract investors. Begin factory construction in Comuna Ciurila, Cluj. Install solar panels. Order production equipment. Hire full 21-person team.

**Q2-Q3 2027**

**Production Line Setup**

Factory operational. First 10 pre-production units built. CE marking + EU machinery directive certification. Begin pilot deployments with 5 launch customers (2 warehouse, 1 farm, 1 security, 1 home care).

**Q4 2027**

**First Commercial Sales**

30 units in Year 1. Initial customers: EU warehouse operators, Romanian/EU farms, home care agencies. Revenue target: €1.58M. Build order backlog for Year 2.

**2028**

**Scale – 80 Units**

Expand to all 4 models + drone. Enter military/security market (NATO evaluation). Open US sales channel. Revenue: €4.2M. Approach break-even by month 22.

**2029-2030**

**Global Expansion – 150-300 Units/Year**

Second factory line. Distributors in US, Japan, Australia. Military contracts with 3+ NATO countries. Additional investment (€25M) for international expansion. Revenue: €8.6M-€17M. Profitable from Year 3.

**2032-2035**

**Market Leader – 500+ Units/Year**

€29M+ annual revenue. €14M+ annual profit. IPO or strategic acquisition consideration. Manufacturing hub exports worldwide. SENTINEL becomes the standard for modular humanoid robots.



**The endgame:** By 2035, SENTINEL robots will be as common as industrial machines are today. Every warehouse will have a fleet. Every farm will have at least one. Every military will deploy them. And millions of families will have

a home companion that keeps their parents safe, helps with chores, and connects loved ones across continents — all through the same universal platform, the same Sentinel Core, the same Romanian-built quality. **We don't just build robots. We build the future of human-robot collaboration.**

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