



# Physical AI-Driven Robotics for Retail and CPG Automation



Take dangerous, repetitive work off your people to keep stores and warehouses running with full shelves when staffing is short. SoftServe brings Physical AI — robots that sense, decide, and act in the real world — onto your floor, delivered on time and on budget.

## THE URGENCY OF INTELLIGENT AUTOMATION IN RETAIL

### LIMITED INTELLIGENCE



Labor is short, and some tasks are hazardous. Manual work adds errors, delays, and risk to your people.

### OBJECTIVE MATURITY SCORING



Disconnected systems and thin shelf and inventory sensing leave stock levels a guess, not a fact.

### COST PRESSURES



Labor, fulfillment, and operating costs keep climbing. Margins need automation that lifts productivity.

### DEPLOYMENT BARRIERS



Complex modeling and slow integration across merchandising stall progress before it starts.

## HOW SOFTSERVE SUPPORTS RETAIL ROBOTICS DEPLOYMENTS

### AUTOMATE

Automate manual tasks, and accuracy and speed rise with them.

### SCALE

Scale operations with precision, using automation that holds up under volume.

### ACCELERATE

Accelerate innovation with AI-driven simulation and Physical AI.

### DE-RISK

De-risk and cut cost with simulation-first workflows and modular designs.

## IMPACT

Up to

**30%**

Faster delivery, with simulation-first retail planning.

Up to

**30%**

Lower hardware cost, through tightly integrated Physical AI.

Up to







**50%**

Less manual labor across checkout, shelf monitoring, and fulfillment.










\*Figures are indicative, based on benchmarks from completed projects.




## ROBOTICS USE CASES FOR RETAIL OPERATIONS

 <p><b>Inventory Management</b></p> <p>Robots track stock, catch stockouts, and confirm the right product is in the right place, in real time.</p>	 <p><b>Shelf Auditing</b></p> <p>Automated checks verify pricing and shelf accuracy, cutting errors and keeping you compliant.</p>	 <p><b>Store Operations</b></p> <p>Robots stack, sort, and run dark-store fulfillment, so stores move faster.</p>
 <p><b>Autonomous Delivery and Logistics</b></p> <p>Self-driving vehicles and mobile robots move goods between stores to keep shelves restocked.</p>	 <p><b>Warehouse Automation</b></p> <p>Optimized conveyors and automated picking and packing streamline fulfillment.</p>	 <p><b>Connected Retail Ecosystem</b></p> <p>AI and robotics link every channel for seamless fulfillment and a better customer experience.</p>

## PHYSICAL AI AND ROBOTICS CAPABILITIES

 <p><b>PHYSICAL AI TRANSFORMATION ROADMAP</b></p> <p>A clear plan for where automation pays off across store, warehouse, and supply chain, with the business case to back it.</p>	 <p><b>AUTONOMOUS RETAIL AND WAREHOUSE OPERATIONS</b></p> <p>Robots, mobile units, and humanoids that pick, replenish, and move material to keep warehouses flowing.</p>	 <p><b>SMART STORES AND INFRASTRUCTURE</b></p> <p>Connected stores and warehouses that manage energy, safety, and experience as they scale.</p>
 <p><b>HIGH-FIDELITY SIMULATION AND DIGITAL TWINS</b></p> <p>Virtual replicas of your stores and supply chains to test operations with simulated data before anything is built.</p>	 <p><b>EMBODIED AI PERCEPTION SYSTEMS</b></p> <p>Vision and sensing that give you real-time stock visibility, quality control, and loss prevention.</p>	 <p><b>OPERATIONAL INTELLIGENCE AND DECISION SYSTEMS</b></p> <p>Predictive analytics that sharpen decisions on demand, inventory, logistics, and staffing.</p>
 <p><b>PLATFORM, EDGE, AND OPERATIONS</b></p> <p>Scalable platforms that deploy, monitor, and manage your AI securely, from the edge to the cloud.</p>	 <p><b>ROBOTICS MANAGED SERVICES</b></p> <p>Proactive monitoring and tuning that keep performance and reliability high.</p>	 <p><b>ROBOTICS WORKFORCE TRAINING</b></p> <p>Training that helps your teams operate AI-powered systems with confidence.</p>

## SELECTED SUCCESS STORIES

<p><b>AUTONOMOUS FORKLIFT FOR WAREHOUSES</b></p> <p>A retailer needed goods to move faster between warehouse and store, without rebuilding the floor around the machines. Working with SoftServe, they deployed autonomous forklifts that map and navigate on their own and adapt to any layout. Trained in simulation, then sharpened with NVIDIA Cosmos on real-world data, the fleet reached <b>99.5% precision</b> and <b>92.8% recall</b> in live conditions, nearly double the <b>49.4% recall</b> of simulator-only models. Inventory now moves on its own.</p>	
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### EMBODIED AI RETAIL ROBOTIC ARM

Stocking, picking, sorting returns, and handling fragile items is repetitive work that wears on people. A retailer wanted that load off the floor team without slowing replenishment. Working with SoftServe, they put robotic arms to work that see, plan, and adjust their own moves item by item. The arms now sort with **>98% precision**, place and replenish faster, and free staff from the most repetitive tasks.



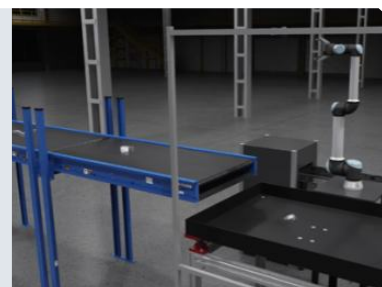
### HUMANOID ROBOT FOR RETAIL AUTOMATION

A retailer wanted automation that fit the store it already had, not a costly rebuild. Working with SoftServe, it introduced a humanoid robot that learns by watching people, moves safely through crowded aisles, and works alongside staff in real time. Because it adapts to existing processes, the store changes nothing about how it runs and gains a tireless teammate that lightens the daily workload.



### AI-POWERED CONVEYOR OPTIMIZATION FOR DISTRIBUTION CENTERS

In a high-volume distribution center, every minute of conveyor downtime costs throughput. Working with SoftServe, the operator tested and tuned package routing, workload balancing, and material flow in simulation before touching the floor. That simulation-first approach cut optimization effort by **up to 85%** and made engineering analysis **6–8x faster**, so performance improvements reached the line sooner and with less risk.



## WHY SOFTSERVE

30+ Years

Award-winning service across industries.

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Engineers across Robotics, Data Science, Big Data, AI/ML, XR, and IoT.

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Robotics labs for research, prototyping, testing, and deployment.

## Ready to bring Physical AI to your retail operations?

CONTACT US →

to schedule your Physical AI assessment and workshop, or visit our [service page](#) to see what is possible.

### ABOUT SOFTSERVE

SoftServe is a digital engineering and technology company. We decode complexity through creative thinking and precision engineering, designing digital solutions that advance performance and create lasting impact. Clients rely on us across digital engineering, robotics and advanced automation, data and analytics, cloud, and AI/ML.

