WalSpectra - Inventory Management System for Walmart
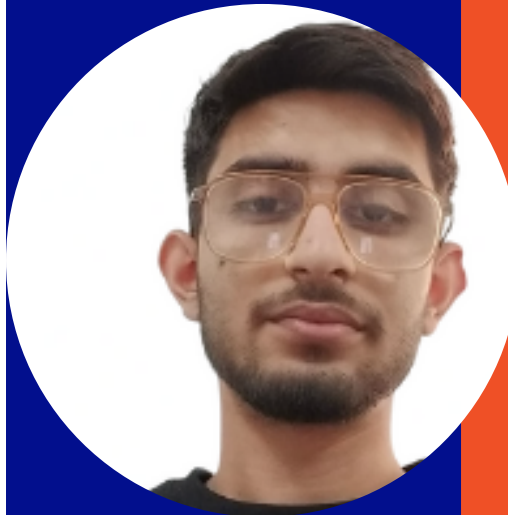
OUR TEAM – SPARKVIT

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- Winner : Microsoft Best of AI
- 80+ Certificates holder
- Best Report – AI Blueprint for Bharat, IIT Kharagpur
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- Excellence in Volunteering
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The Invisible Loss (Problem Statement)

Retail stores often struggle with a hidden issue known as phantom inventory — where items are recorded as in stock in the system but are physically absent from shelves. This leads to customer dissatisfaction, misinformed replenishment, and revenue loss.

UNDERSTANDING THE CORE PROBLEM

Imagine this scenario:

You're a customer who just spent 30 minutes driving to a large retail store. You've double-checked online — it says the Samsung 75" QLED TV is *"In Stock."* You walk in with confidence...

But the staff can't find it.
The system insists it's there — but physically, it's gone.

This is PHANTOM INVENTORY — items that exist in the digital system, but are missing in reality.
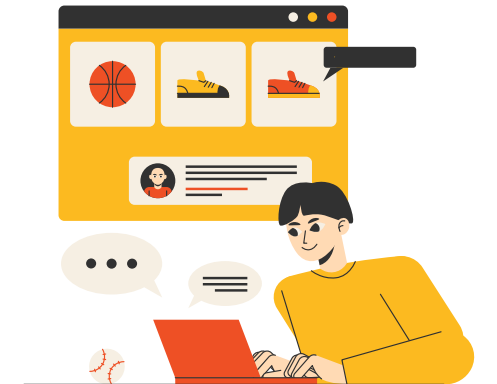
Why Items become "Phantoms"?

- **Misplaced Deliveries:** Items delivered to the wrong section remain forgotten.

- **Dead Zones:** Products left in obscure store areas become invisible.

- **Damage or Neglect:** High value items temporarily placed get lost in clutter.

- **Theft:** Stolen items remain in the system as available.

Our Innovation – WalSpectra

Shhh...Our AI system works like a digital detective that never sleeps. It continuously analyzes five main data streams:

3D STORE MAPPING & HEATMAP

AI DETECTION ENGINE

- Identifies misplaced, lost, or unaccounted inventory using store layout intelligence.

- Visualizes phantom inventory hotspots in real-time (Top/Isometric/Walkt hrough views).

RECOVERY ASSISTANT APP FOR STAFF

- Guides associates with exact location, value, and recovery confidence.

Our Innovation – WalSpectra

Shhh...Our AI system works like a digital detective that never sleeps. It continuously analyzes five main data streams:

ROI DASHBOARD

- Tracks recovery metrics, revenue impact, and AI performance.

SEAMLESS INTEGRATION

- Works with Walmart's existing POS, inventory systems, and 4,700+ stores.

Platform Overview

This section offers a spatial management and visualization platform, commonly used for facility management, security patrol, smart buildings or urban planning. The platform offers an advanced 3D interface that enables interactive zoning and object control.

ZONES

3D Images

PLATFORM OVERVIEW

1. Zones

- **What are Zones?**
  - Zones are specific places or regions within a building or geographic layout.
  - Zones can be color coded and labeled (for example, Lobby, Control Room, Restricted area).
  - Zones can be selected, grouped or monitored independently.

- **Features of Zones**
  - **Interactive Selection:** Clicking on a zone will highlight it, and possibly will open a detailed view or panel.
  - **Visual Color:** Different zones have some differences in color that visually establishes a difference.
  - **Hierarchical Structure:** Zones can be nested (e.g., Floor > Wing > Room) to allow for drill-down.
  - Status Indicators: Zones indicate real-time status (e.g., occupancy, alerts, temperature).
  - **Editable Boundaries:** Users can draw, resize, and move zones on the 3D map.

PLATFORM OVERVIEW

2.3D Images

- **3D Environment Overview:**
  - The whole interface leverages a 3D representation of a building/facility.
  - Users can rotate, pan, and zoom throughout the environment.
  - The model is very detailed in terms of walls, doors, equipment, and furniture.

- **Notable 3D Features**
  - **Camera Transitions:** The camera can perform smooth fly-through animations between zones or even between floors as required.
  - **Highlighting Objects:** Single items (desks, machines, etc.) animate a glow when hovered on or clicked.
  - **Layer Toggle**: Users may hide or display specific building components (i.e., ceiling, walls) to see what is inside the rooms.
  - **Object Information Panel:** Clicking on a 3-D item opens a panel to the side that brings up metadata associated with that object (i.e., asset ID, state).
  - **Live Data Overlay:** Some zones and objects are capable of displaying live statistics mapped directly on the 3-D map (i.e., "24°C", "3 personnel").

REAL PRODUCT EXAMPLES AND THEIR IMPACT

Let's talk about the actual products we're tracking and why finding them matters so much:

When one of these goes **missing**, it's like losing a small car's worth of value. These are **big, expensive items** that customers specifically come to the store for. If someone **drove across town** to buy this TV and you **can't find it**, you've **lost not just the sale but potentially a customer** for life.

SAMSUNG 75" QLED 4K TV (₹1,11,529):

LG REFRIGERATOR 28 CU FT (₹1,63,048):

This is even **more expensive than** the **TV**. Refrigerators are planned purchases - people **don't buy them on impulse**. They **research**, compare prices, and make a special trip. **Missing one of these is catastrophic** for customer satisfaction.

Scalability and Future Vision

30-Day Plug-and-Play Integration

- We designed our system to seamlessly plug into existing POS and inventory management systems—with zero disruption.
- Full deployment time: 30 days
- No major system overhaul needed
- Compatible with leading ERP & retail tech stacks
- Implementation is fast, frictionless, and future-proof.

Walmart Integration Potential

- With 4,700+ Walmart stores worldwide, even a modest recovery rate of **₹10 lakhs/month** per store would translate to a staggering:

Beyond Recovery: The Intelligence Layer

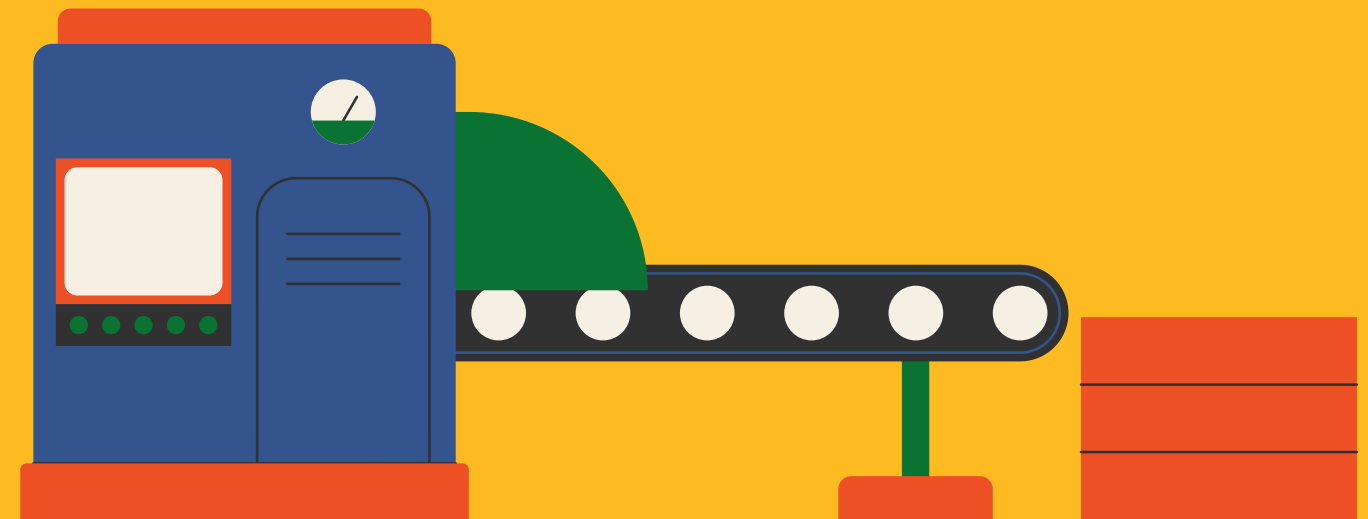Our solution evolves from a **recovery engine** to a **retail intelligence platform**, offering:

- **Pattern Detection**: Identifies repeat loss behaviors, internal shrinkage trends, and risky zones.
- **Store Layout Optimization**: Pinpoints inefficient or vulnerable areas to reconfigure displays, traffic, and security.
- **Data-Driven Governance**: Equips regional and national leadership with comparative insights across stores.
- We don't just fix the leak—we build smarter pipes.

Conclusion

We don't just find products — we restore trust, revenue, and operational clarity.

Every phantom item we recover isn't just merchandise—it's:

- A **customer served**, not disappointed
- A **sale secured**, not lost
- A **team empowered**, not overwhelmed
- A **business safeguarded**, not bleeding silently

Conclusion

In today's high stakes retail landscape, phantom inventory is a silent killer of revenue, trust, and efficiency. It's not a rare glitch it's a daily drain.

- Our AI system transforms this invisible problem into a solvable, trackable, and improvable process.
- With measurable ROI, operational transparency, and frontline empowerment, we're not just plugging a leak — we're rebuilding confidence across the supply chain.

- Because when technology meets human intelligence, every phantom turns into profit. ensure products move efficiently through the supply chain to the end user.