Inventory Management System for Indian Material Businesses

Problem Analysis & Solution Design

1. Understanding the Real Problem

After analyzing typical material businesses (tiles, laminates, hardware), I found **four major pain points** that kill margins:

Dead Stock (biggest issue) - 30-40% of inventory just sits there because owners buy based on discounts, not actual demand. No way to know what's selling vs what's collecting dust.

Stockouts - Popular items run out because there's no alert system. They realize only when customers ask and item is already gone.

Damaged/Expired Stock - About 5-10% loss because old stock gets mixed with new, or stored badly. No system to use old stock first.

Wrong Stock Numbers - Sales happen on counter, dispatch happens in warehouse, purchases noted in diary. Numbers never match reality. Everyone has different data.

2. Solution Approach: Process + Simple Tech

Most problems here **don't need fancy software**. They need basic discipline + one simple system to track things.
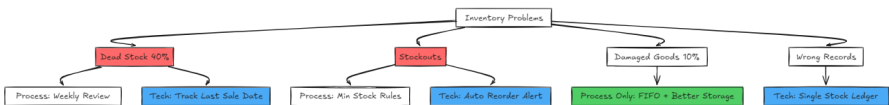
Solution 1: Fix Dead Stock

Process part:

- Every week, physically check slow-moving items
- Tag them: Green (selling), Yellow (slow), Red (dead - no sales in 90 days)
- Rule: Don't buy new stuff until Yellow clears. Discount Red items heavily.

Tech part (simple spreadsheet/app):

- Track: SKU name, quantity, last sale date
- Auto-calculate "days since last sale"
- Flag anything > 90 days in red

Impact: Frees up 20-30% locked capital in 2-3 months

Solution 2: Prevent Stockouts

Process part:

- Set "minimum stock level" for top 20 items (these are 80% of sales)
- Someone checks every morning if we're below minimum

Tech part:

- Stock ledger shows current quantity vs minimum
- Auto-alert when any item goes below minimum
- Generate purchase list automatically

Impact: 50% fewer stockouts, no lost sales

Solution 3: Reduce Damage

Pure process fix - no tech needed:

- Label storage bins with dates
- Always pick oldest stock first (FIFO)
- Monthly storage check for leaks, pests, bad stacking
- Inspect everything when supplier delivers

Impact: Cut damage from 10% to 3%

Solution 4: Accurate Stock Data

Tech solution (core system):
Single ledger for all stock movements. Every entry has:

- Date, SKU, In or Out, Quantity, Reason (purchase/sale/damage), Current balance

Who updates: Counter person after each sale, warehouse person after receiving stock

Why this works: One source of truth. No more diary vs computer vs memory mismatches.

3. What to Build (Part 2 Implementation)

The tech solution should be a **lightweight stock tracking system**. Not a full ERP - just the essentials.
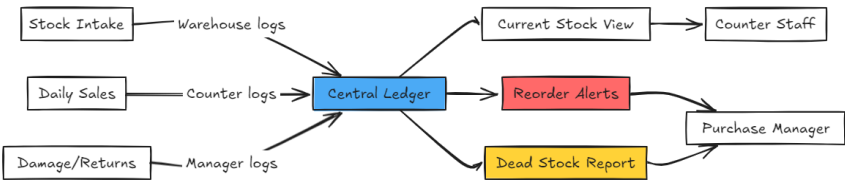
Core features only:

1. Stock ledger (add/remove stock with reason)
2. Current balance for each SKU
3. Reorder alerts (auto-generated when below threshold)
4. Dead stock view (sort by last sale date)
5. Simple dashboard showing: total stock value, items to reorder, dead stock value

What I'm NOT building:

- No barcode scanning (too expensive for small shops)
- No complex analytics or predictions
- No multi-location support (premature)
- No mobile app (responsive web is enough)

Tech stack: NextJS frontend + Express backend + PostgreSQL. Simple CRUD operations. Can build in 1-2 days.

4. Implementation Priority
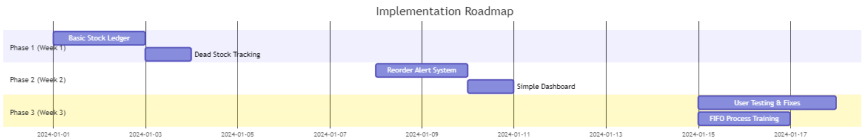
Start with: Stock ledger + dead stock tracking (Day 1-2 of Part 2)

- Input: SKU, quantity, purchase/sale, date
- Output: Current balance, items not sold in 90+ days
- **Why first**: Solves biggest problem (dead stock), builds data foundation

Then add: Reorder alerts for top 20 SKUs (Day 3-4)

- Set minimum levels for each SKU
- Auto-flag when below minimum
- **Why second**: Prevents revenue loss from stockouts

Later: Better UI, reports, bulk operations (if time permits)

5. Success Metrics (Simple & Measurable)

After 1 month:

- Dead stock reduces from 40% to 30% of inventory
- Zero stockouts for top 10 items
- 80% of transactions logged same day

After 3 months:

- Dead stock below 20%
- Damaged goods below 5%
- Inventory turns 6 times vs 4 times (better cash flow)
- Margin improves by 3-5 points

6. Why This Will Work

Keeps it simple: Business owners can understand everything in 10 minutes. No complex training.

Solves real pain: Focuses on dead stock and stockouts - the two things actually hurting them.

Low resistance: Just one web page to update. Feels like upgrading from diary to computer, not learning rocket science.

Quick wins: They'll see results in 2-3 weeks when first dead stock report shows what to discount.

Realistic: I'm not promising AI predictions or automation. Just basic visibility they don't have today.

Bottom line: Most inventory problems in small businesses aren't technology problems - they're visibility problems. Build the simplest system that makes stock movements visible, then let good decisions follow.