Code Cubicle 4.0

LOGISTICS AND SUPPLY CHAIN

SmartChain360

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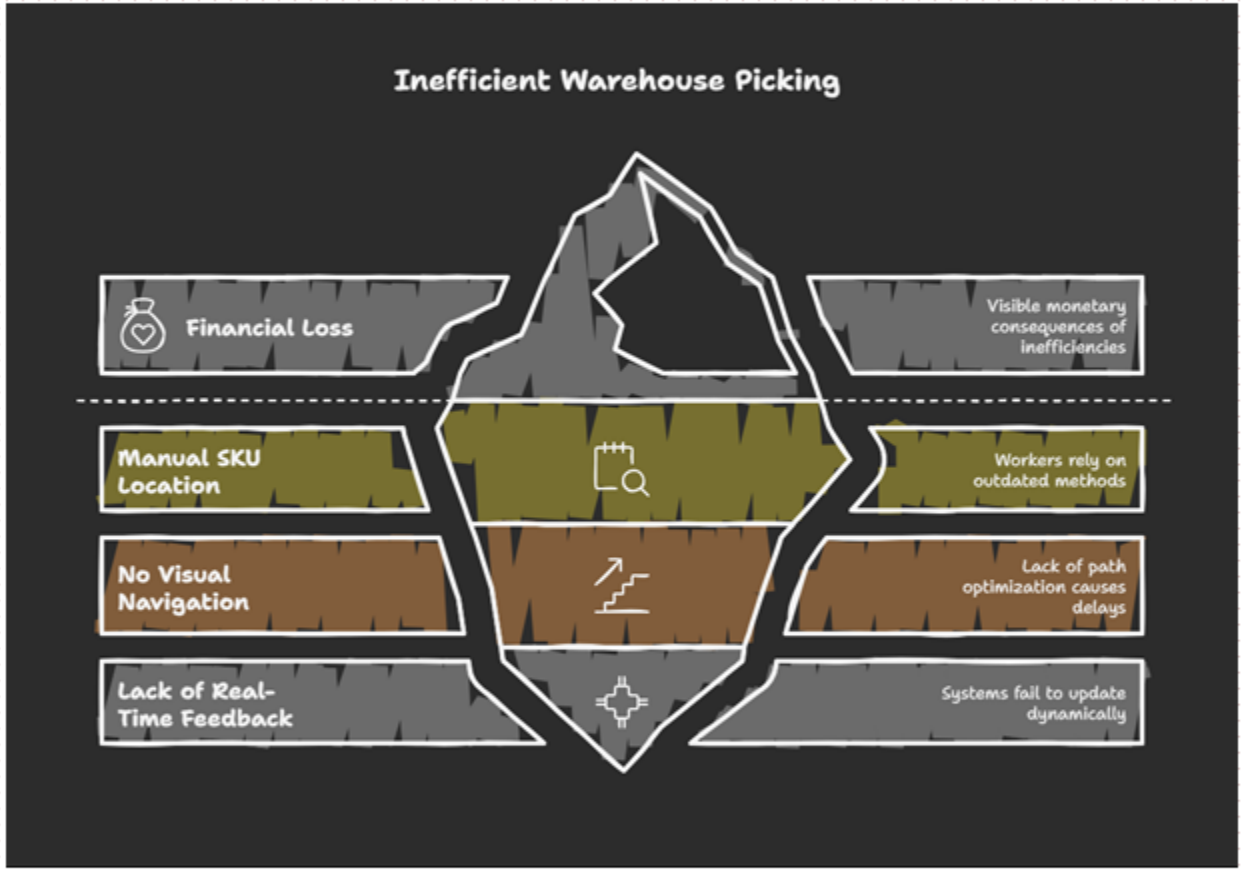
Problem Statement – Inefficient Warehouse Picking



Manual SKU Location
Warehouse workers often rely on printed sheets, memory, or verbal instructions to find items. This leads to:
- Increased search time per order
- Higher cognitive load on workers

No Visual Navigation or Optimization
Workers take longer, non-optimal routes
- Aisle congestion and backtracking occur frequently

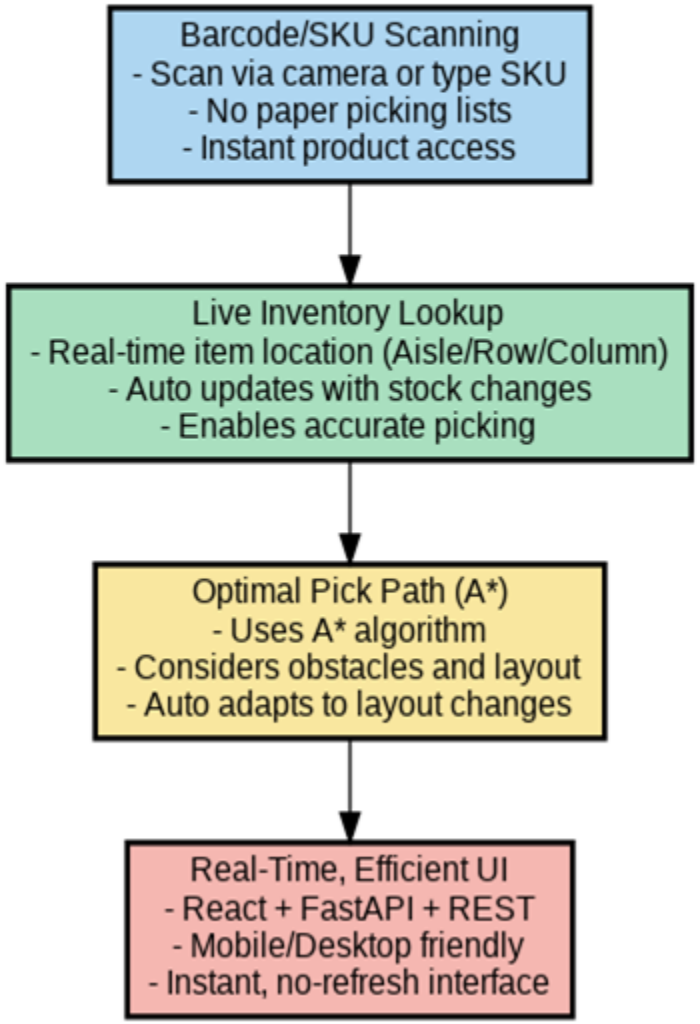
Lack of Real-Time System Feedback
- Recalculate pick paths dynamically when stock or layout changes
- Integrate easily with barcode scanners

Operational Inefficiencies = Financial Loss
- Delayed order fulfillment → poor customer experience
- Labor cost increases due to slower processing
- Missed KPIs for picking speed and order accuracy

Modern warehouses need intelligent, responsive, and visual tools to guide pickers efficiently and minimize manual dependencies.

Introducing SmartChain360: A Smart Web App for Pick Path Optimization

Inventory Spotter is a **lightweight, web-based solution** that digitizes and streamlines warehouse picking using live data and AI pathfinding.



Impact & Benefits

- 30–40% faster picking times
- Less physical strain and aisle confusion
- Real-time visibility = improved decision-making
- Integrates easily with barcode scanners or future mobile extensions

SmartChain360 empowers warehouse workers to **locate, retrieve, and pick SKUs faster and smarter**, transforming everyday operations with minimal disruption.

Key Features – Smarter, Faster and Visual Picking

Dock-Side Dispatcher

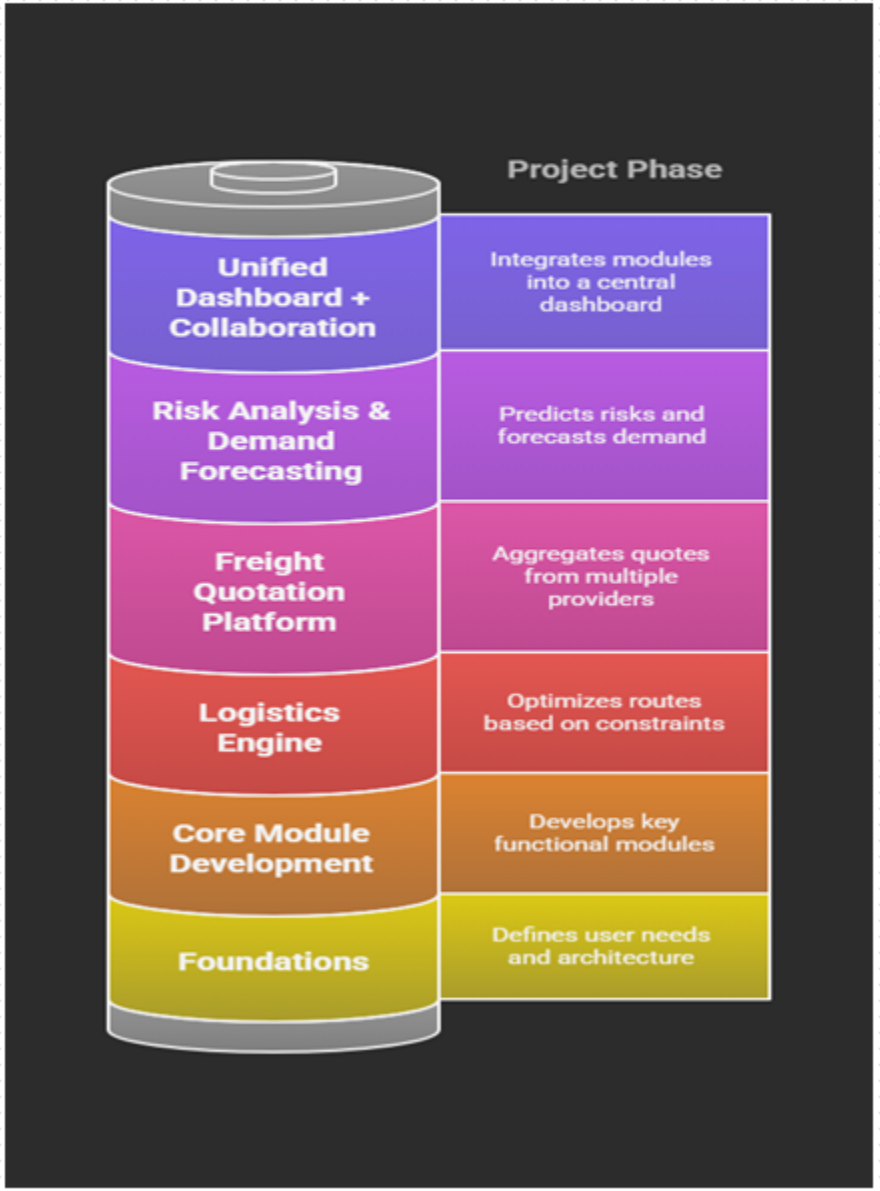
- Real-time dock and gate assignment.
- Text-to-speech for hands-free operation.
- **Impact:** Speeds up vehicle turnaround time and reduces manual communication delays.

Inventory Spotter

- Barcode/SKU scanning, live inventory lookup.
- A* algorithm to show the optimal pick path.
- **Impact:** Increases picking speed by 30–40%, reduces worker fatigue and errors.

Parcel Compliance Checker

- Validates item weight, type, and destination rules in real-time.
- Flags and alerts non-compliant shipments.
- **Impact:** Prevents shipment rejections and ensures regulatory adherence.



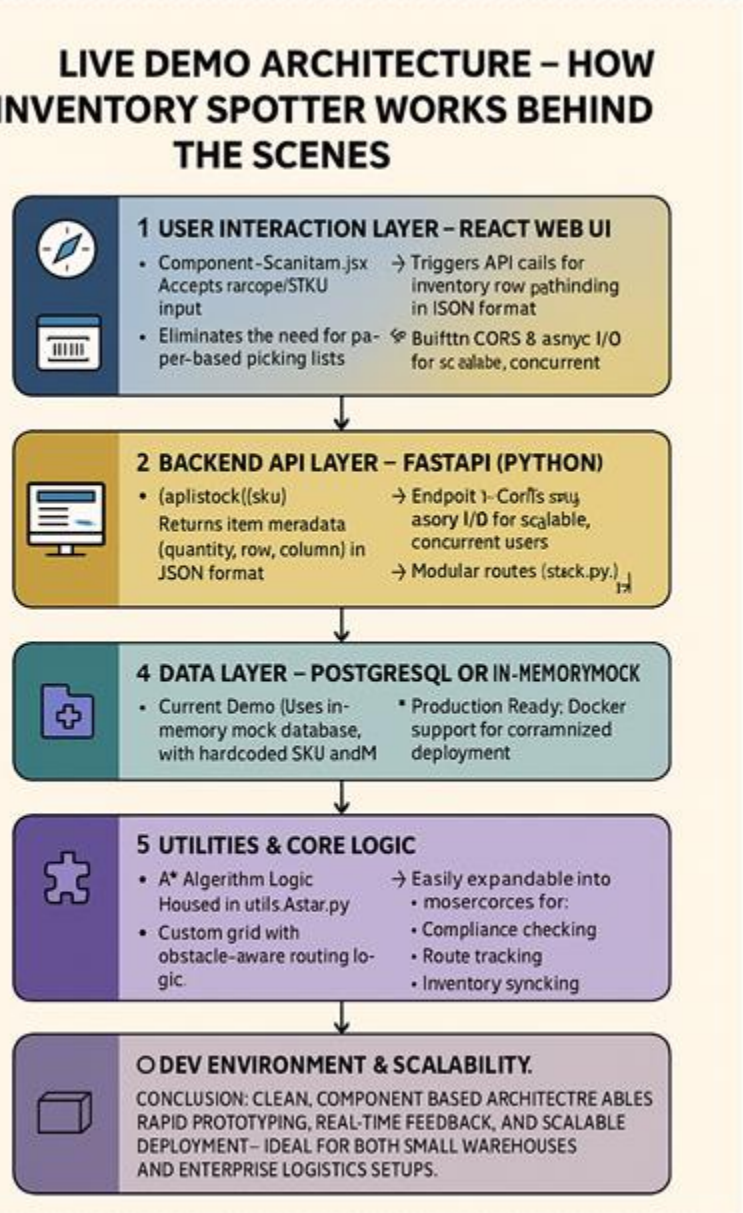
Multi-Modal Route Optimizer

- Takes shipment details and ranks best routes (air/sea/land/hybrid).
- Evaluates based on cost, delivery time, and environmental impact.
- **Impact:** Enables smarter, greener, and faster shipping decisions.

Freight Quote Aggregator

- Single interface to fetch and compare logistics provider quotes.
- Uses clustering logic to suggest best-fit providers.
- **Impact:** Reduces logistics costs and improves decision-making.

- **SmartChain360 Dashboard**
- Centralized view with shipment maps, alerts, route plans, and compliance status.
- **Impact:** Empowers managers with real-time visibility and decision support.
- **Team Chat & Collaboration Panel**
- Slack-like messaging with smart notifications.
- Real-time updates on issues (e.g., stuck shipments).
- **Impact:** Enhances coordination and reduces downtime.



Conclusion and Future

- **Risk Dashboard**
- Real-time monitoring of risks (weather, delays, geopolitical).
- Suggests safer alternative routes or pre-booking.
- **Impact:** Mitigates costly disruptions and improves delivery reliability.
- **Demand Forecasting Engine**
- Flags understock/overstock issues.
- **Impact:** Optimizes inventory planning and reduces holding costs.

- **AskSupplyBot AI Assistant**
- Voice/text-based assistant for routing and compliance queries.
- **Impact:** Reduces manual lookup and training time.
- **Parcel Snap Validator**
- Uses computer vision for label/size verification via camera.
- **Impact:** Prevents human error in packaging and labeling.