Manufacturing & Warehousing

INDUSTRY CONTEXT

Manufacturing plants and warehouses operate in high-velocity environments where people, forklifts, AGVs, conveyors, and heavy machinery constantly interact. Blind intersections, high noise levels, limited visibility, and shifting workflows increase the risk of collisions, injuries, and production disruptions. Static signage and manual communication methods struggle to reflect real-time conditions, leaving workers unaware of immediate hazards.

Operations leaders require automated, visible, and reliable communication that adapts dynamically to activity on the floor—without relying on human intervention or slowing production.

Scenario

A distribution center experiences frequent near-miss incidents at forklift intersections, dock doors, and pedestrian crossings. During peak shifts, congestion increases and radios or visual mirrors fail to provide timely warnings. Workers and drivers lack immediate, unmistakable alerts when risk conditions escalate.

BotIQ Systems Solution

BotIQ creates a responsive safety and operations layer by integrating sensing, automation, and communication:
- Precision Sensing LiDAR continuously monitors forklift and pedestrian movement.
- The LiDAR Controller evaluates proximity, congestion, and speed thresholds.
- Dynamic Digital Displays activate high-visibility warnings automatically at high-risk zones.

- Optional audio alerts reinforce messages in noisy environments.
- Solar and cellular options support deployment in outdoor yards or temporary areas without infrastructure.

Messaging updates dynamically as conditions change—reducing incidents, improving compliance, and maintaining throughput.

MANUFACTURING & WAREHOUSING USE CASES

Use Case 1: Forklift–Pedestrian Collision Prevention

Description
Detect and warn workers when forklifts and pedestrians approach shared intersections or blind corners.

Example Display Messages
- "FORKLIFT APPROACHING — STOP"
- "PEDESTRIANS PRESENT — USE CAUTION"
- "BLIND INTERSECTION — PROCEED SLOWLY"
- "YIELD TO PEDESTRIANS"

Value
- Reduced collision risk
- Improved worker awareness
- Stronger OSHA compliance

Use Case 2: Dock Door & Loading Zone Safety

Description
Prevent accidents around active dock doors and loading zones during loading and unloading operations.

Example Display Messages
- "DOCK ACTIVE — STAND CLEAR"
- "TRUCK BACKING — DO NOT CROSS"

- "AUTHORIZED PERSONNEL ONLY"
- "WAIT — LOADING IN PROGRESS"

Value
- Fewer dock-related injuries
- Safer loading operations
- Reduced downtime

Use Case 3: Congestion & High-Traffic Zone Awareness

Description
Monitor congestion and alert workers when aisles or work zones become overcrowded.

Example Display Messages
- "HIGH TRAFFIC ZONE — PROCEED WITH CAUTION"
- "AISLE CONGESTED — USE ALTERNATE ROUTE"
- "SLOW DOWN — HEAVY ACTIVITY"

Value
- Improved traffic flow
- Reduced near misses
- Better operational efficiency

Use Case 4: Shift Change & Operational Messaging

Description
Communicate shift changes, production targets, and operational updates without relying on supervisors or radios.

Example Display Messages
- "SHIFT 2 STARTS AT 2:00 PM"
- "TODAY'S TARGET: 1,200 UNITS"
- "OVERTIME APPROVED — SEE SUPERVISOR"
- "END OF SHIFT — CLEAR AISLES"

Value

- Clear, consistent messaging
- Fewer missed instructions
- Improved workforce coordination

Use Case 5: Emergency & Evacuation Alerts

Description

Deliver immediate instructions during emergencies such as fires, chemical spills, or equipment failures.

Example Display Messages

- "EMERGENCY — EVACUATE IMMEDIATELY"
- "FIRE ALARM — FOLLOW EXIT SIGNS"
- "SHELTER IN PLACE — AWAIT INSTRUCTIONS"
- "EMERGENCY DRILL IN PROGRESS"

Value

- Faster response times
- Reduced confusion and panic
- Improved safety outcomes

OPTIONAL ENHANCEMENTS FOR MANUFACTURING & WAREHOUSING

- AI Cameras: Detect unsafe behavior, restricted-area entry, and congestion
- Audio Alerts: Audible warnings in high-noise environments
- Solar Power: Support outdoor yards and temporary zones
- Cellular Connectivity: Remote monitoring and updates without local networks

WHY BOTIQ SYSTEMS FOR MANUFACTURING & WAREHOUSING

- Automates hazard detection and communication
- Reduces reliance on manual monitoring
- Improves safety without slowing operations
- Integrates with existing industrial systems