



Safety as a constraint or an enabler

Rethinking risk and performance in
port operations

Introduction of AccuTrack



WHO ARE WE?

- Part of
 - **Lanco Group** (est. 1969), privately owned industrial group
 - **Mi-Jack Products**, industry leader in RTG cranes
- Specialized in Terminal Optimization
- European representation of the Mi-Star portfolio



OUR MISSION

To ensure every worker returns home safely while maximizing yard operations.



Trusted and installed worldwide by



WHAT DO WE DO?

- MHE / Crane Tracking
- People Tracking
- Workforce and Equipment Protection
- Fleet Management
- Inventory Management
- Inventory In-Cab Navigation
- Digital Twin



Workforce Protection through RTLS

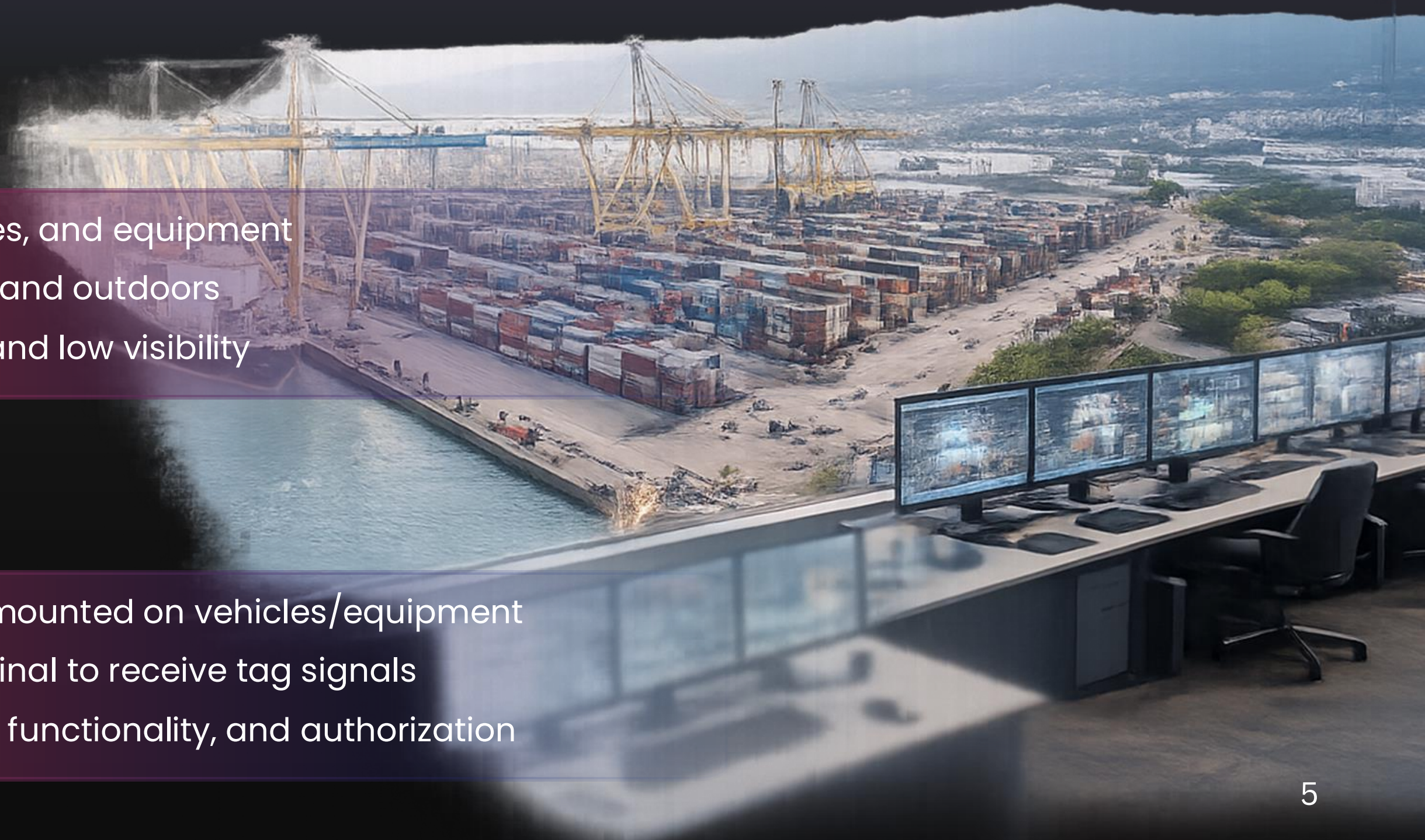
REAL-TIME LOCATING SYSTEM (RTLS)

Real-Time Tracking & Visibility

- **Multifunctional:** Tracks people, vehicles, and equipment
- **Any Environment:** works both indoors and outdoors
- **Reliable:** Resistant to rain, snow, dust and low visibility

System Components

- **Tags:** Wearable (e.g., helmet tags) or mounted on vehicles/equipment
- **Anchors/Sensors:** Installed in the terminal to receive tag signals
- **Gate Access Stations:** Verify presence, functionality, and authorization



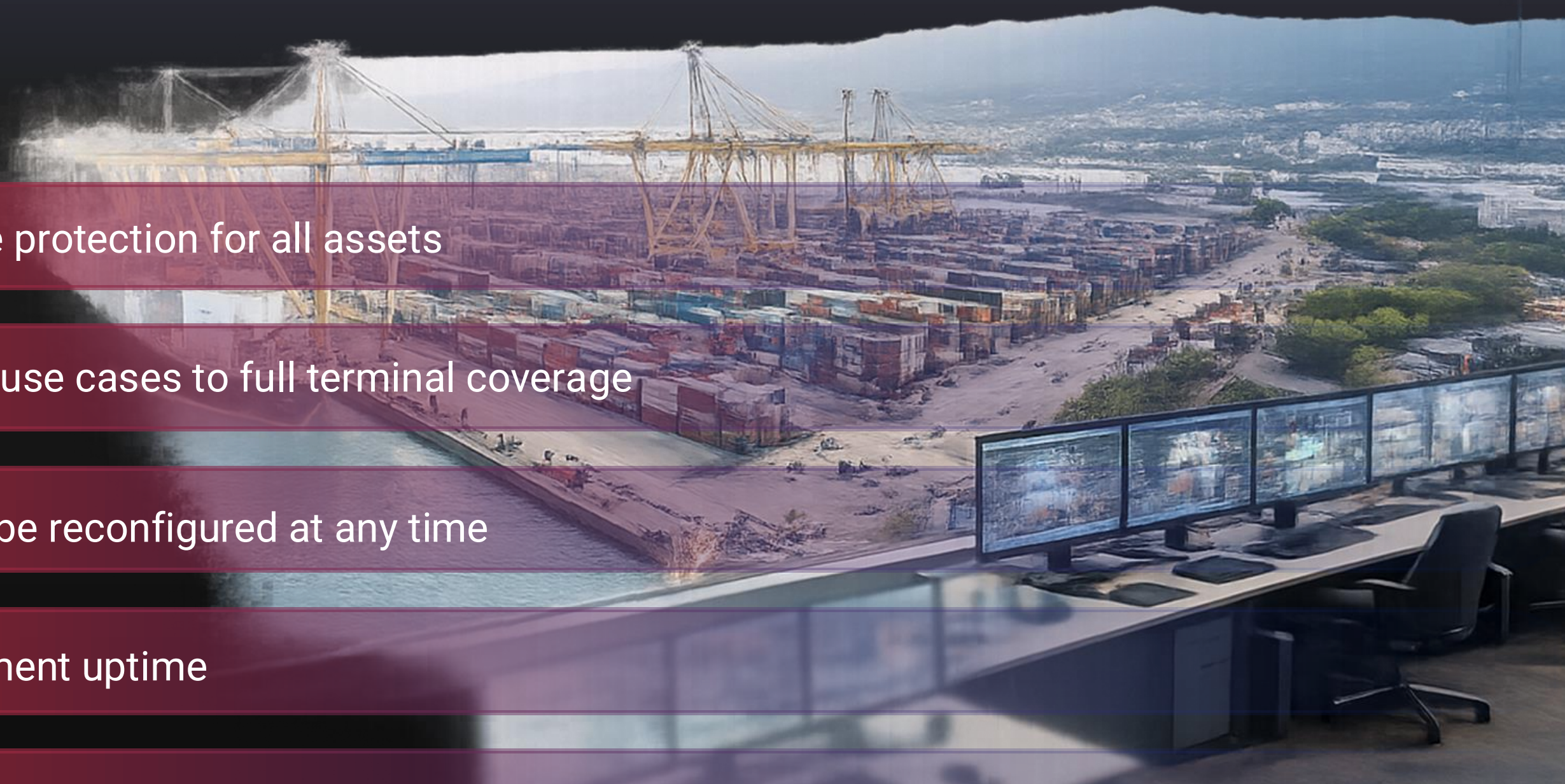


Workforce Protection through RTLS

RTLS

Key Customer Benefits:

- ✓ **Full Flexibility:** Customizable protection for all assets
- ✓ **Scalable:** From small-scales use cases to full terminal coverage
- ✓ **Adaptable:** Safety logic can be reconfigured at any time
- ✓ **Efficiency:** Increased equipment uptime
- ✓ **Safety:** Greater Transparency in daily operations



Should safety systems adapt to operations or should operations adapt to safety systems?



Operations define what is realistically possible



Safety principles must define operational boundaries

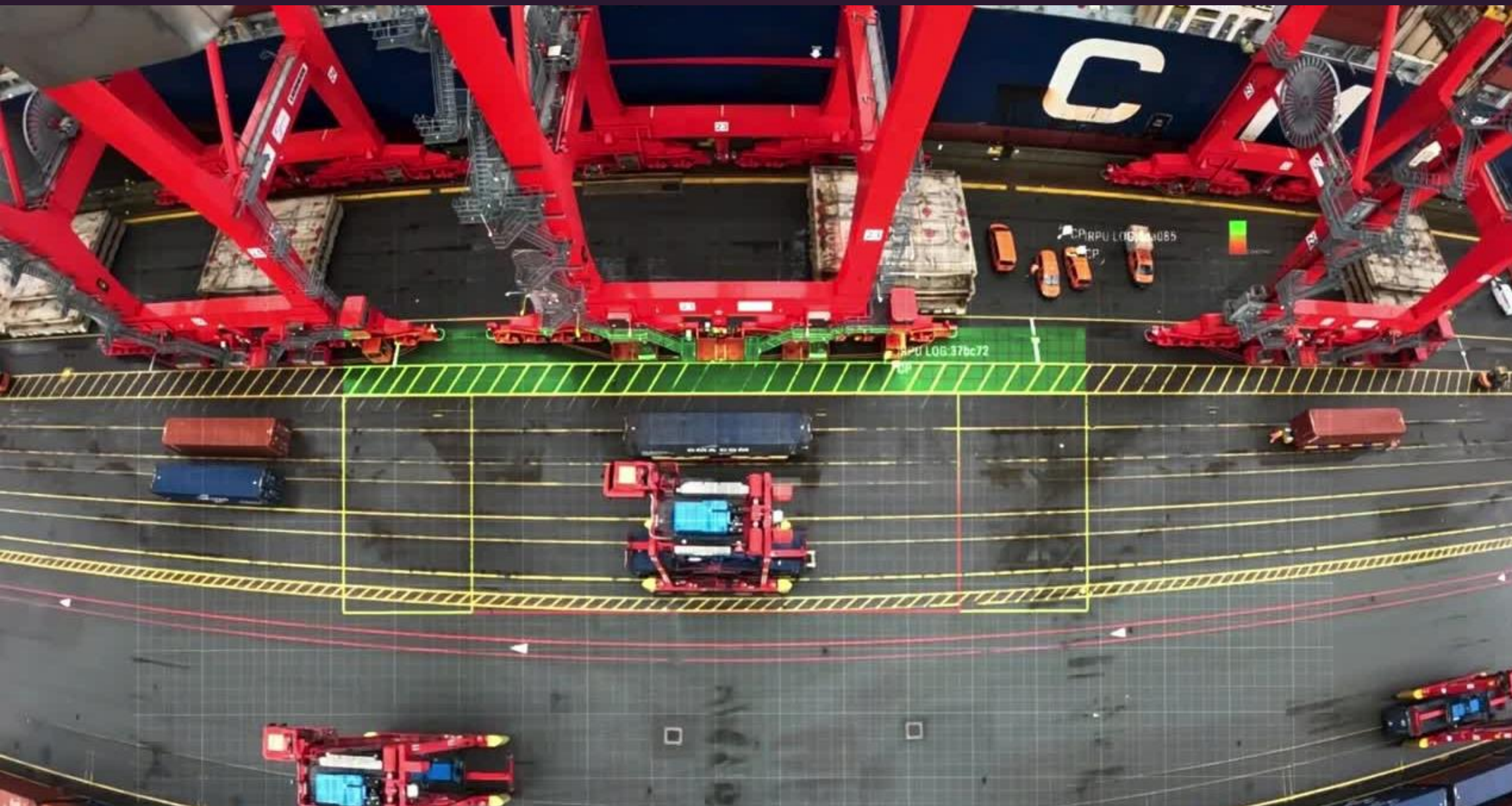


PROTECT PERSONNEL

in manual operations

Safe and Unsafe Zone Concept

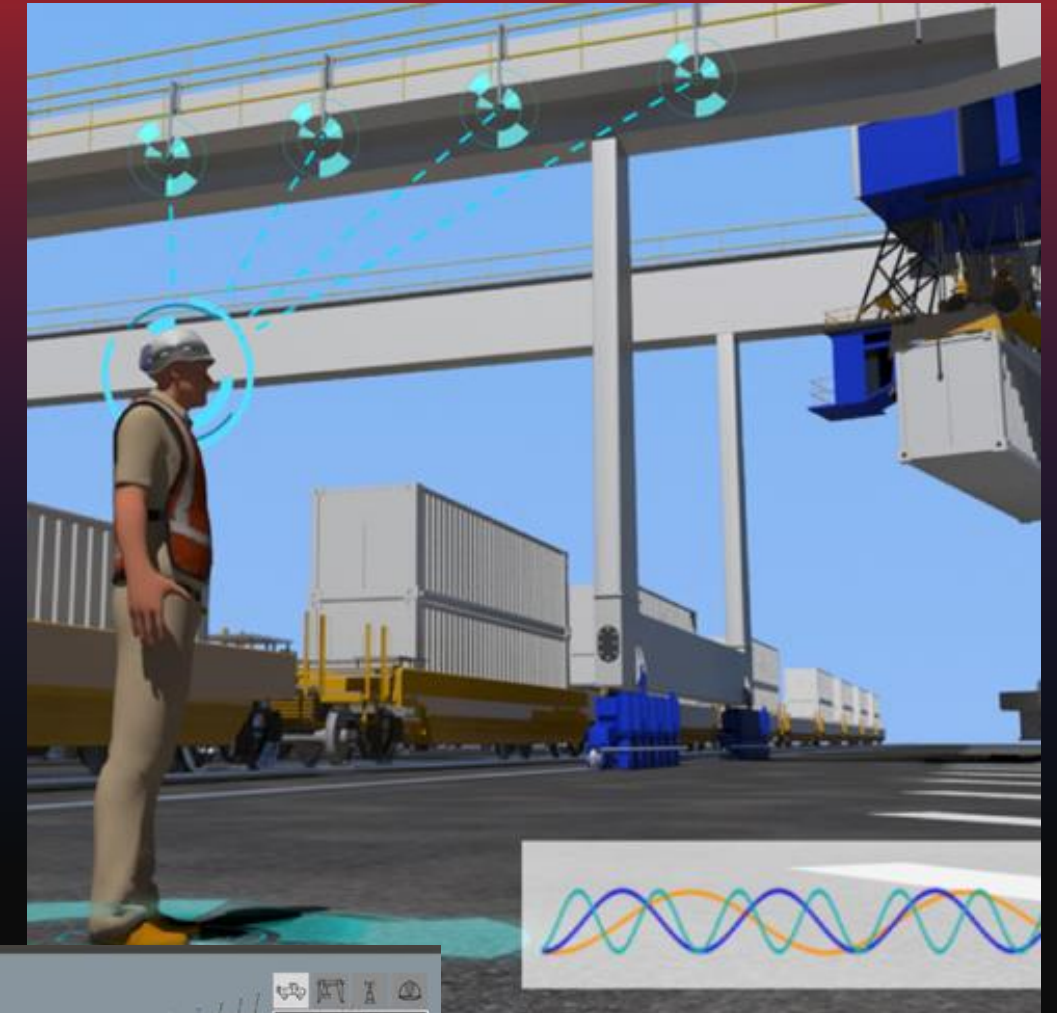
- Division of the working area into safe (green) and unsafe zones (red)
- Personnel equipped with helmet tags and tracked in real time.
- Straddle carriers receive a signal indicating the zone personnel are located.
 - Red signal: straddle carriers not allowed to enter
- ✓ Crane and straddle carriers can operate safe and simultaneously with personnel present



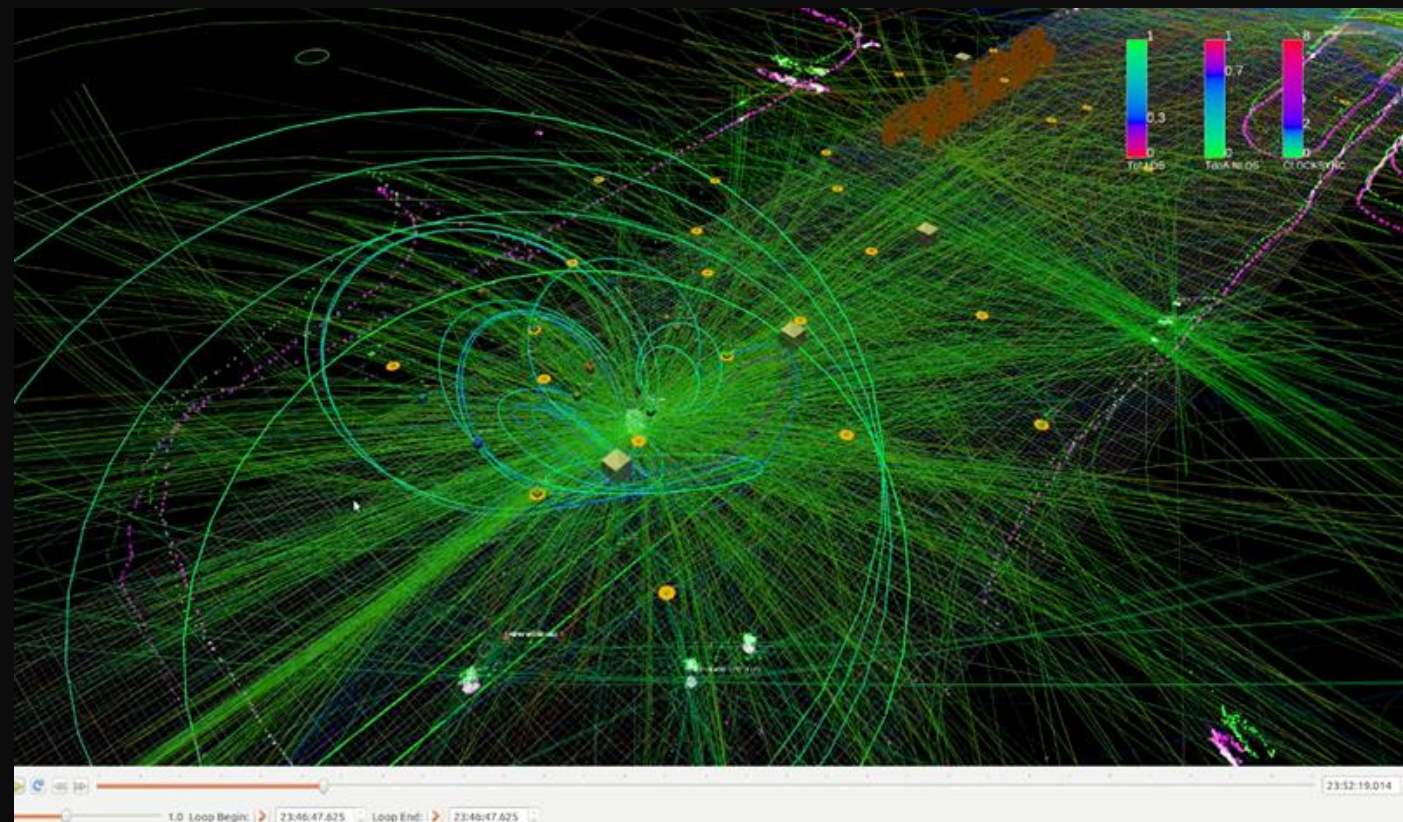
HARDWARE EXAMPLE PERSONNEL TRACKING



Personnel Tag



Anchors





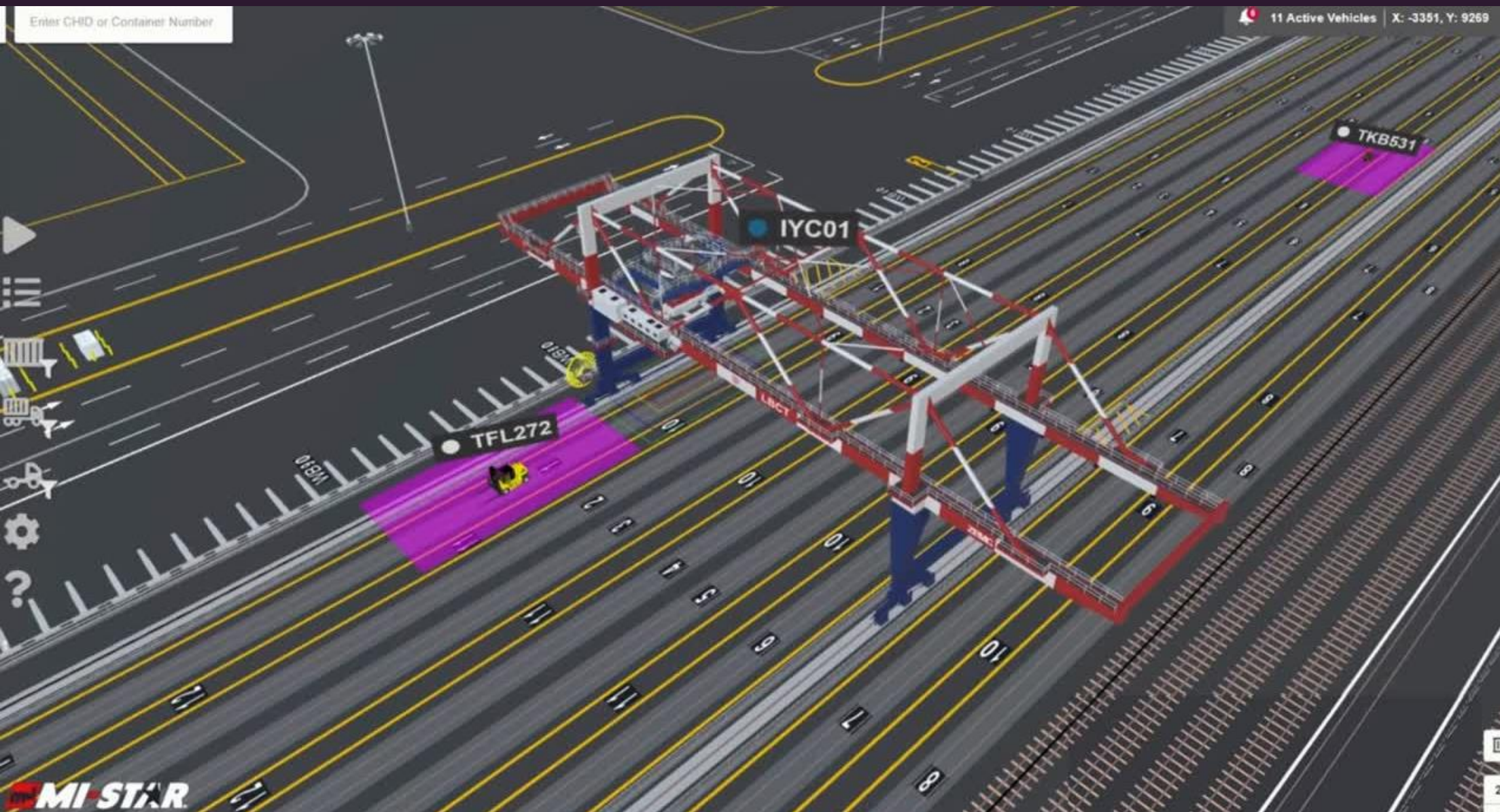
Long Beach
Container
Terminal

ENABLE SIMULTANEOUS OPERATION

of automated and manual equipment

Collision Avoidance MHE vs. Crane

- Safety zones around the vehicle and beneath the spreader
- Depending on zone overlap, the crane triggers:
 - automatic slowdowns
 - automatic safety stops
 - followed by controlled obstacle avoidance
- During loading and unloading, safety zone is reduced to the vehicle cabin
- Safety redundancy: Vehicles are actively alerted, increasing driver awareness





DP WORLD

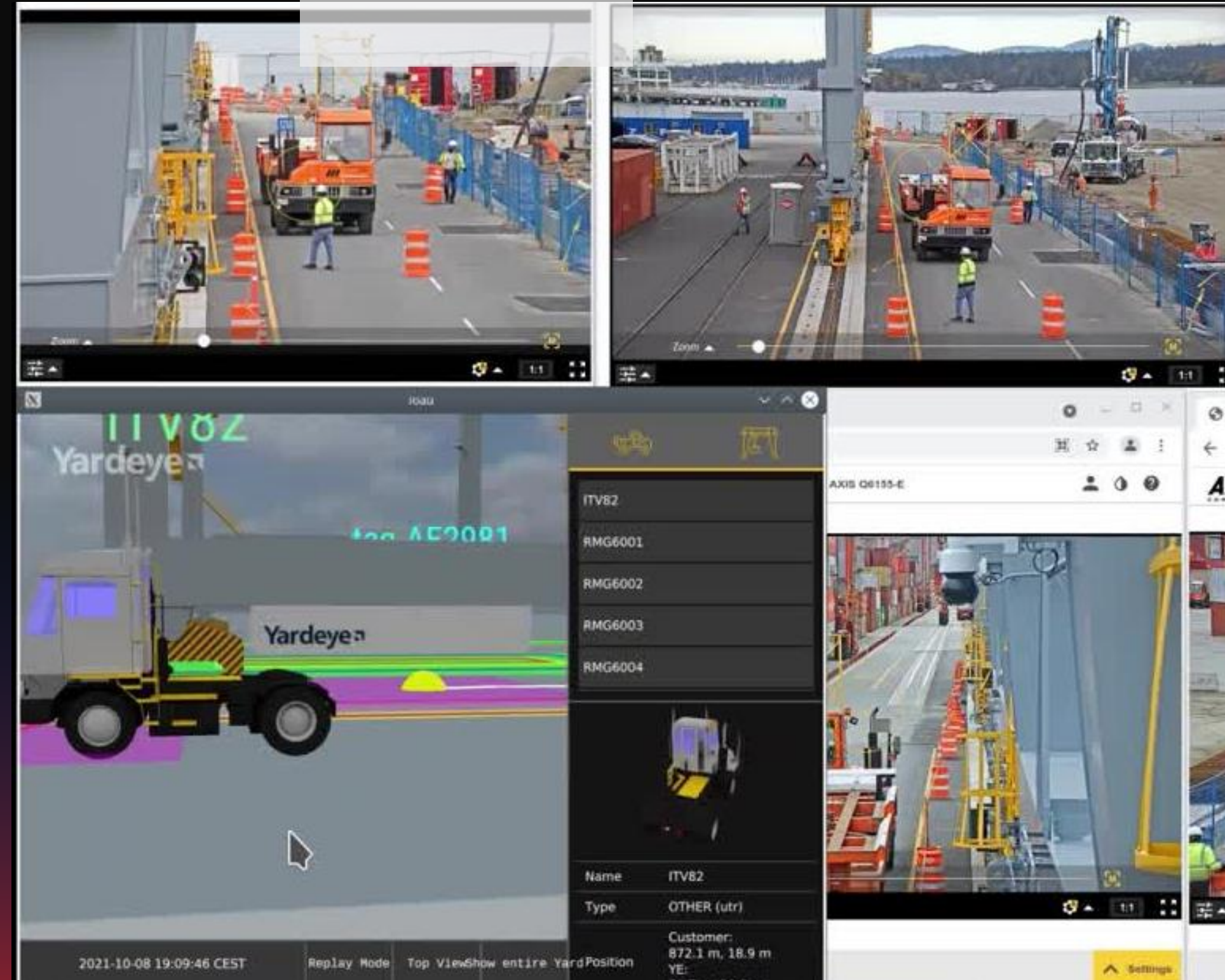


AUTOMATED PROTECTION

against operations above personnel

No line of sight required

- Personnel equipped with a helmet tag = tracked
- Safety zone is placed around the person
- Depending on zone overlap, the crane triggers:
 - automatic slowdowns
 - automatic safety stops
 - followed by controlled obstacle avoidance
- Requirement: Personnel without a tracking tag are not permitted to enter the terminal (test situation shown in video)
- Tractor position transmitted to TOS; driver's cab protected by a safety zone during loading and unloading.

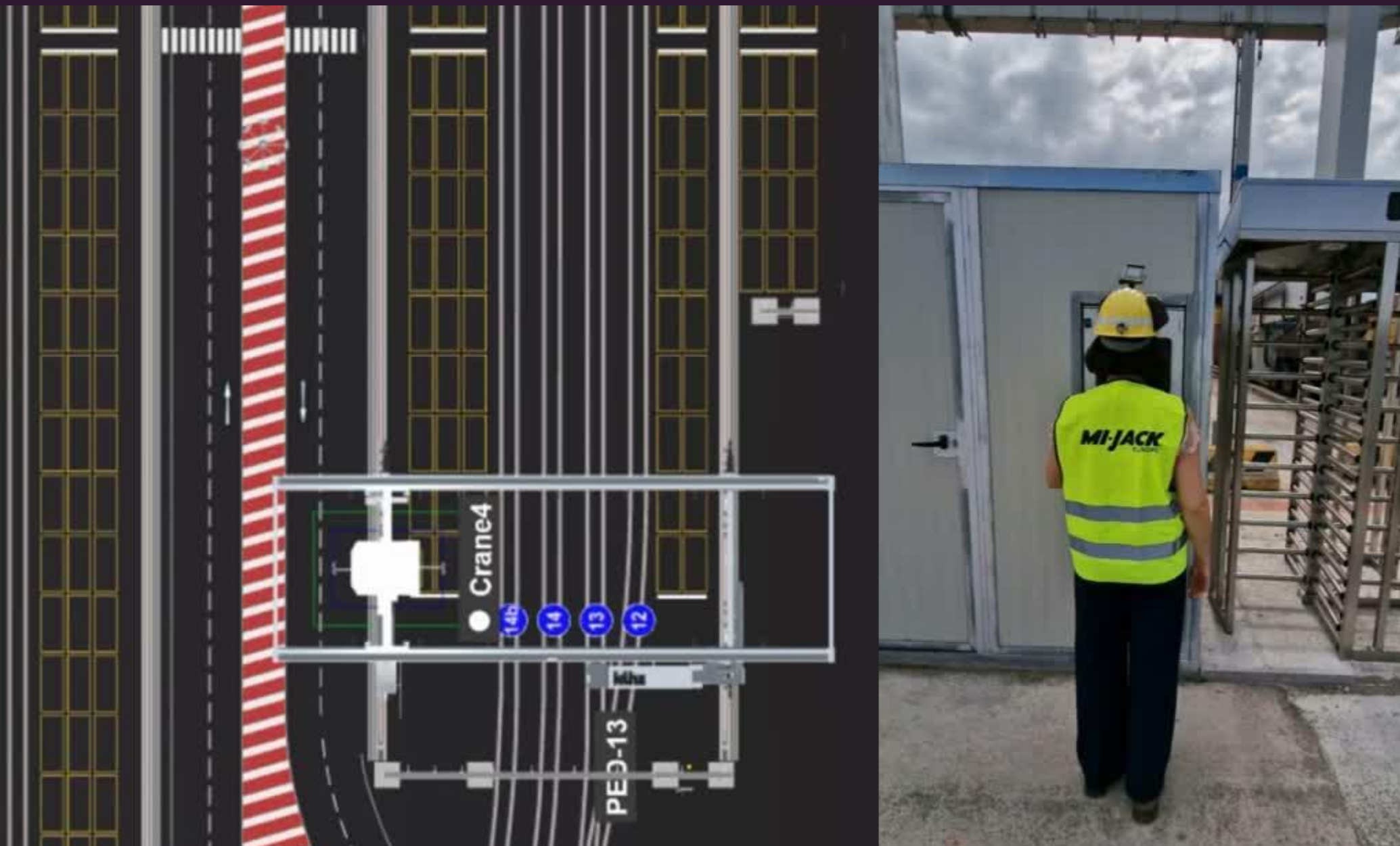


ALLOW TERMINAL ACCESS

only for tracked and authorized personnel

Personnel working next to 6 new automated cranes

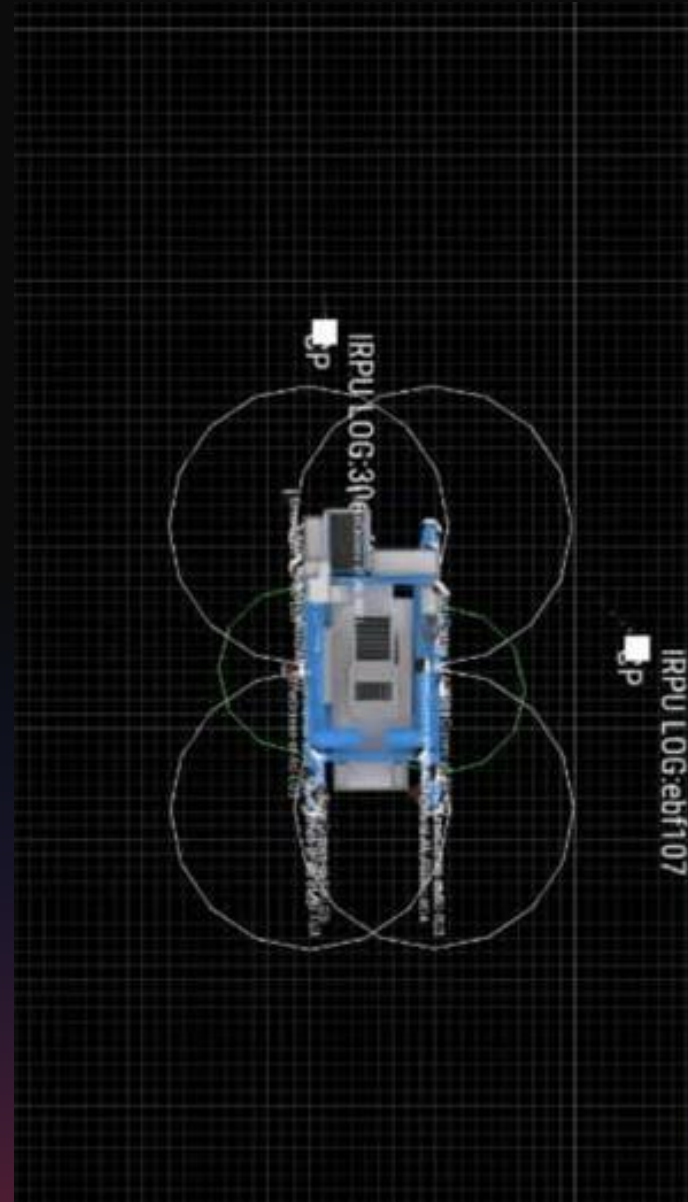
- Personnel are equipped with tracking tags#
- The Gate Access Station verifies:
 - helmet tag functionality
 - authorization, granting access via the selected access system (e.g. turnstile)
- Tag is registered in the digital twin, creating a dynamic safety zone around the person
- ✓ This safety zone prevents spreader operations above personnel, enabling human-machine interaction without stopping operations
- ✓ All events will be reported to the TOS



SEE YOUR PERSONNEL

No line of sight required

- Early detection of personnel in the vicinity of automated equipment using personal tags
- Automatic stopping of the straddle carrier as soon as a potential hazard is detected
- ✓ Protection even without line of sight
- ✓ Prevention of hazardous situations before personnel enter the vehicle's driving path



ACCU TRACK

ONE SYSTEM. MULTIPLE USE CASES.

- Enables safe operation from manual to automated environments, including mixed-traffic.
- Detects and warns of personnel and vehicle near cranes and material handling equipment (MHE)
- Prevents collisions between personnel and MHE/Crane
- Prevents MHE-to-crane & MHE-to-MHE collisions

Safety as a constraint or an enabler?

It depends on how we manage risk

Different operational challenges for each terminal

Static safety systems create bottlenecks

High performance sometimes means operating close to risk

Performance slows down when operations adapt to safety

Performance increases when safety adapts to operations

Is safety as a constraint or an enabler?

 Safety is a constraint to performance

 Safety is an enabler of performance



THANKS FOR YOUR ATTENTION!

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