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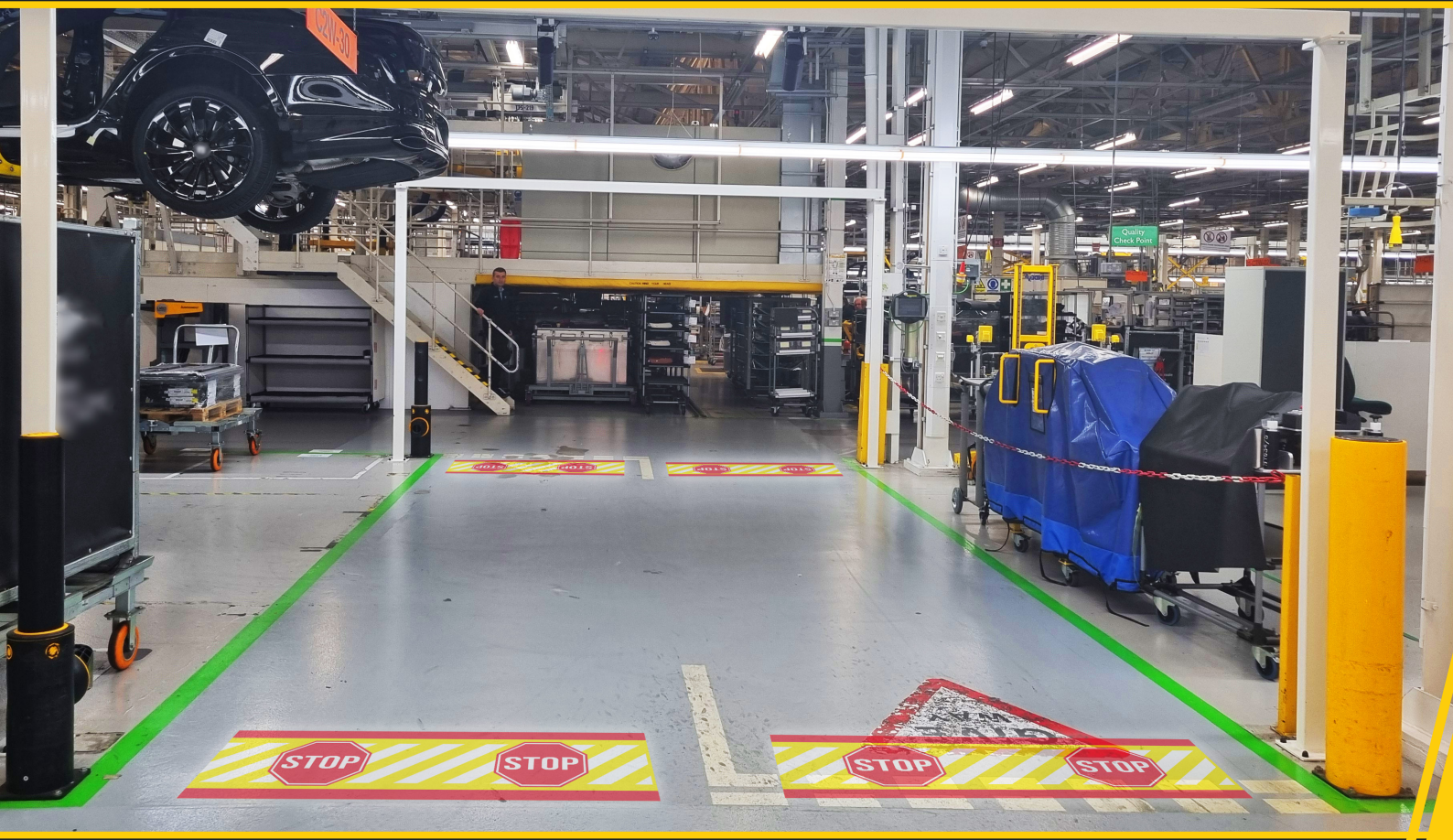
AI-POWERED SAFETY TRANSFORMATION AT A LUXURY AUTOMOTIVE MANUFACTURING FACILITY IN CREWE

ACTIVE SAFETY | AI VISUAL RECOGNITION | PEDESTRIAN AND VEHICLE RISK REDUCTION



DELIVERING SAFER WORKPLACES

WSS Europe supported a globally recognised luxury automotive manufacturer with an intelligent safety solution designed to reduce risk at a high-frequency crossing point within a live production environment.

WSS understands complex active safety risks, can identify where traditional systems fail, and can help customers use AI/context-aware technology to make their sites safer without disrupting operations.

PROJECT OVERVIEW

Active safety in a live manufacturing environment. WSS Europe was engaged by a globally recognised luxury automotive manufacturer to improve safety at a high-risk crossing point within a live production facility in Crewe. The area involved regular interaction between pedestrians, material transfer carts and ride-on pallet trucks, all moving through a constrained underpass with limited visibility. The client needed more than a warning system. They required a solution that could reduce collision risk without disrupting production flow, slowing operations or compromising quality standards. The project formed part of a wider move toward intelligent, AI-supported safety systems that help industrial sites control risk in real time.

THE OBJECTIVE

The objective was to improve safety at a critical crossing point by introducing a system that could:

Reduce Collision Risk
Protect pedestrians and vehicle operators in a busy shared movement zone.

Maintain Production Flow
Avoid unnecessary stoppages, delays or disruption to a precision manufacturing environment.

Recognise Real Risk
Differentiate between genuine hazard events and normal operational activity.

Work Within Existing Infrastructure
Deliver improvement without major changes to the production line or vehicle carrier system.

THE CHALLENGE

The crossing point created a complex interaction zone where many factors shared the same space. Key risk factors included:

Mixed Traffic
Pedestrians, material carts and ride-on pallet trucks operating in close proximity.

Restricted Visibility
A height-limited underpass reduced sightlines and reaction time, which represents a significant traffic safety hazard.

Frequent Crossings
High movement volume increased exposure throughout the working day.

Known Near-miss Risk
Previous incidents highlighted the need for a more reliable control measure.

The challenge was clear: Improve safety without slowing the operation down.

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WHY TRADITIONAL SAFETY SYSTEMS WERE NOT ENOUGH

Initial controls used conventional detection technology, including beam sensors, visual projections and audible alarms. While the system provided a basic warning function, it could not reliably interpret what was happening in the area. In a live production environment, that created a major limitation. The system was being triggered by activity that was not always hazardous. This created unnecessary activations and reduced confidence in the safety controls.

OPERATIONALLY, THIS RESULTED IN:

False Activations:
Warnings triggered when no genuine risk was present

Reduced Operator Confidence:
Frequent unnecessary alerts made the system less trusted

Workflow Disruption:
Crossing efficiency and production flow were affected

Risk Of Bypass:
When systems feel unreliable, people are more likely to ignore or work around them

THE CORE LIMITATION:

- Traditional sensors can detect presence or movement.
- They cannot always understand context.

In this environment, the system needed to know the difference between:

A Genuine Vehicle and Pedestrian Hazard
where an active warning or control response was required.

Normal Operational Activity
where no intervention was needed.

Alternative technologies, including radar, LiDAR and enhanced beam configurations, were also considered. However, these still relied mainly on presence or motion detection and could not provide the level of contextual understanding required. Modifying the vehicle carrier infrastructure was also reviewed, but this would have introduced unnecessary cost, disruption and production risk.

The conclusion was simple: The site did not need more detection. It needed smarter decision-making.

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THE WSS SOLUTION

Context-aware active safety using AI visual recognition. To address the challenge, WSS Europe implemented an AI-supported visual recognition system designed to operate within a complex industrial environment. The system was configured to identify specific risk conditions within the crossing zone and trigger safety responses only when genuinely required. This moved the site beyond simple detection and toward context-aware active safety. Instead of reacting to every movement, the system was designed to understand what was happening, assess whether a real hazard existed and activate the appropriate warning response.

HOW THE SYSTEM IMPROVED SAFETY CONTROL

The solution used intelligent camera-based monitoring to:

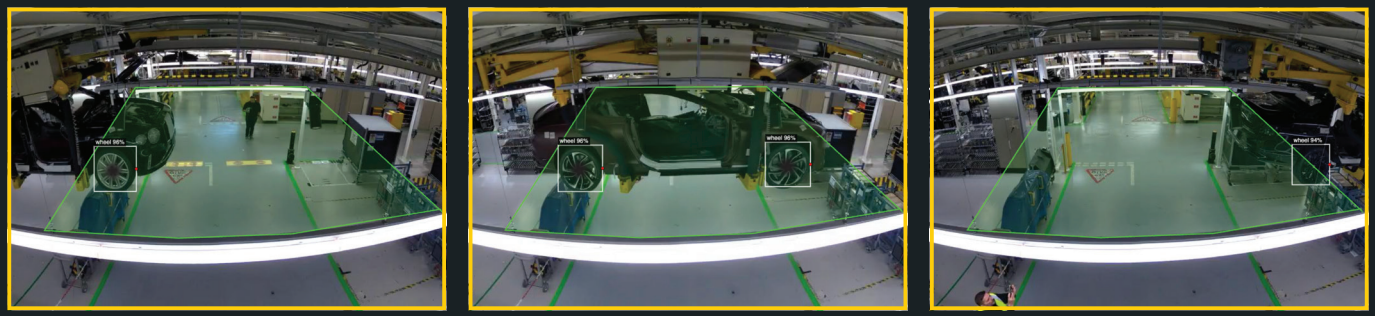
Identify Defined Hazard Conditions:
Recognise when vehicle movement created a genuine risk within the crossing zone.

Ignore Irrelevant Activity:
Reduce unnecessary activations caused by normal operational movement.

Support Real-time Decision-making:
Trigger warnings at the point of risk, not simply whenever movement was detected.

Improve Operator Confidence:
Create a safety system that people could trust because it activated when it mattered.

Protect Production Flow:
Improve safety without adding avoidable delays or disruption to the operation.



WHY AI WAS THE RIGHT APPROACH

The environment did not require a standard sensor package. It required a system capable of interpreting live site conditions. AI visual recognition allowed the safety response to be based on context, not just motion. That meant the system could respond to genuine risk while filtering out activity that did not require intervention.

This is where active safety creates real value:
not by adding more alarms, but by making the safety response more accurate, more relevant and more trusted.

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RESULTS & MEASURABLE IMPACT

The implementation delivered improvements across safety performance, operational reliability and confidence in the system.

SAFETY IMPROVEMENTS

Reducing Weekly Hazard Interactions:
Over 50 potential vehicle-to-person hazard interactions removed every operational week within the area.

More Reliable Hazard Detection:
AI-supported recognition improved the system's ability to respond to real risk conditions.

Improved Operator Trust:
Fewer false activations helped increase confidence in the safety controls.

OPERATIONAL BENEFITS

Reduced Unnecessary Disruption
The system supported safer movement without repeatedly interrupting normal operations.

Improved Crossing Flow
More accurate activation helped maintain smoother movement through the area.

Better Production Continuity
The solution supported safety improvement without compromising the live manufacturing process.

STRATEGIC BENEFITS

No Major Infrastructure Modification Required
The solution was delivered without disruptive changes to the production line or vehicle carrier system.

Protection Of People and High-value Assets
The system helped reduce risk in a critical shared movement zone.

Scalable Active Safety Approach
The project created a platform for future AI-enabled safety and automation applications.

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CONCLUSION

From detection to intelligent safety control. This project demonstrates how WSS Europe helps customers move beyond traditional safety systems and into smarter, more responsive risk control. In this case, the challenge was not simply to make the crossing more visible. The real challenge was to understand when risk was genuinely present and activate the right response without disrupting the operation. By applying AI visual recognition within a live manufacturing environment, WSS helped the client reduce false activations, improve operator confidence and strengthen protection at a high-risk crossing point. The result was a practical, site-specific active safety solution designed around the way the facility actually operates.

WHAT THIS SHOWS

WSS supports manufacturers and logistics operators by helping them:

Identify Real Operational Risk
Understanding where people, vehicles and processes interact.

Improve Active Safety Control
Using intelligent systems to trigger the right response at the right time.

Protect Productivity
Improving safety without creating unnecessary operational friction.

Reduce Reliance On Human Reaction Alone
Supporting safer behaviour through automated warnings and control measures.

Build Smarter Safety Environments
Combining physical safety systems, projected warnings, sensors and AI-supported technology.

WSS: DELIVERING SAFER WORKPLACES

WSS is not a one-size-fits-all supplier

We assess each environment, identify what is driving risk, and design integrated safety solutions around the layout, flow and real behaviour on site. Our approach combines passive safety, active safety and intelligent technology to help customers protect people, safeguard assets and improve operational control.

"Safety isn't built from products—it's built from understanding risk."

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IMPROVING WORKPLACE SAFETY & ASSET PROTECTION

WSS helps manufacturers and logistics operators reduce risk, prevent accidents and create safer, smarter workplaces.

Whether the challenge involves pedestrian and vehicle segregation, active safety systems, projected warnings, asset protection or AI-supported risk control, WSS designs solutions around the reality of each site.

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OUR PARTNERS & POWERED BY

COMPREHENSIVE ALL-IN-ONE SOLUTIONS AND SITE-SPECIFIC RECOMMENDATIONS

With over 3 decades of experience, our team of safety experts are dedicated to providing innovative solutions that not only increase safety awareness but also help to prevent incidents and injuries.

Our goal is to help businesses create a safer and more secure work environment for their employees and assets. By partnering with us, businesses can benefit from our expertise in innovative safety solutions and ultimately greater protect valuable assets.

AnterSystem · GOBOSERVICE by Sunland Optics srl · Kiwitron SMART INDUSTRY SOLUTIONS · DYNAMIC SAFETY

SPECTRUM · BEDROCK SPECIALIST SURFACE REPAIRS · DELTA LASERS TECHNOLOGY · CAME

WHAT WE DELIVER

Risk Reduction For People & Vehicles:
Pedestrian and MHE segregation, visibility at conflict points, safer crossings and controlled access.

Asset Protection & Operational Continuity:
Reduced damage to racking, walls, doors and infrastructure. Fewer disruptions and repairs.

A Compliant Working Environment:
Practical, auditable improvements that support safety standards without slowing the operation.

DigiScan360°
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