



Company Profile

Company Overview



We bring physical AI to every factory.

Probotics builds ProboticsOS,
An edge AI operating system that transforms
existing factory CCTV into a live digital twin.

- Founded in 2025, Seoul, South Korea
- AI × Robotics × Manufacturing

Name	Probotics
Founded	2025
CEO	Gyou Young, Park
본사	126 Main Building, 2, Toegye-ro 36-gil, Jung-gu, Seoul
Website	www.probotics.co.kr/en
Official Channels	Youtube Linkedin

➤ Partners



From Factory Vision to **Physical AI**.



Gyou Young, Park | CEO & Founder

Gyou Young started Probotics after building vision AI directly for the plants that needed it. He holds a patent for image-based foreign-object detection on food processing lines, published research on fire detection, and previously led an engineering team in Korea's Ministry of National Defense IT Corps. He drives Probotics' conviction that physical AI has to earn its place on the shop floor before it earns a place in the pitch deck.



Sang Yun, Kim | CTO & Co-Founder

Sang-yun leads the architecture behind ProboticsOS, the system that turns ordinary factory CCTV into a live 3D digital twin. In industry-academia research he developed nighttime human-detection models — the low-light, low-contrast conditions that make most factory cameras useless after dark — and he later worked on cloud-native large-scale real-time systems with Korea's National Information Society Agency. Before founding Probotics he led an engineering team in Korea's Ministry of National Defense IT Corps. Hard perception under bad conditions, running continuously at scale, is exactly what a factory demands, and it is what ProboticsOS is built to do.

Engineering

Probotics' engineers specialized in manufacturing AI and simulation — the people who deploy models onto edge hardware inside real plants, not benchmarks. The team collaborates with ETRI on AI LLMOps and builds robot-integration software on top of the digital twin, so what the cameras understand today becomes what the robots act on tomorrow.

Probotics keeps building toward **Automated Manufacturing**



2025 – Founded

Client-specific AI development projects in defect detection and safety monitoring — the field validation that became ProboticsOS.



2026.4 – NVIDIA Inception

Joined the NVIDIA Inception Program. Every layer of ProboticsOS — edge inference to digital twin — runs on NVIDIA.

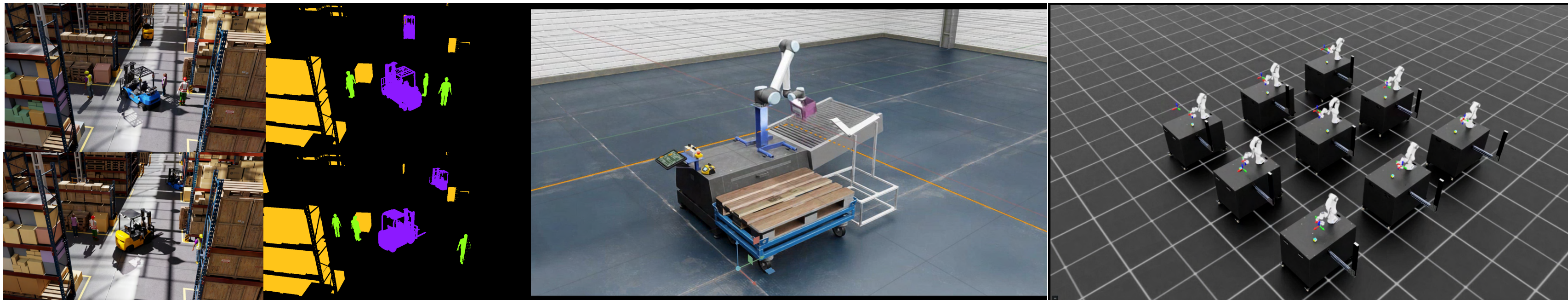


2026.6 – ProboticsOS Launch

From prototype to product: ProboticsOS launched as the company's first standardized commercial product, and met manufacturers face to face at STK AI Factory Expo.

Same Camera. New job.

Turning factory CCTV into structured intelligence for Physical AI.



01 Raw footage

02 AI Perception

03 Simulated

04 At scale

고도화된 화재 및 연기 탐지를 위한 YOLOv9 실시간 성능 최적화 연구
Real-Time Performance Optimization of YOLOv9 for Advanced Fire and Smoke Detection
박규영, 김상현
(Park Gyou Young, Kim Sang Hyun)

초록: 화재를 조기에 감지하는 것은 피해를 최소화하는 데 매우 중요하다. 하지만 물리적 신호를 기반으로 한 기존의 화재 감지 기술은 화재를 조기에 감지하는 것에 한계가 있다. 이를 해결하기 위해서 본 연구에서는 최신 YOLOv9 객체 탐지 모델을 화재 및 연기 탐지에 최적화하는 방법에 대해 다룬다. YOLOv9에 WIoU, Coordinate Attention(CA) Module, CARAFE 업샘플링, Omni-Dimensional Dynamic Convolution(ODConv)을 추가한 모델을 9558개의 화재 및 연기 이미지를 가지고 혼란 및 테스트를 진행하였으며, 학습 시간과 평균 정밀도, fps를 비교한 결과 YOLOv9에 Coordinate Attention(CA) Module, Omni-Dimensional Dynamic Convolution(ODConv)을 추가한 모델이 가장 뛰어난 성능을 보였다. 해당 모델의 mAP@0.5 같은 0.895이며, 높은 화재 및 연기 탐지 성능을 지니고 있어, 화재의 조기 탐지를 가능하게 한다. 이는 화재 확산을 방지하는 데 중요한 역할을 할 수 있다.

Keywords: YOLOv9, 딥러닝, 화재 감지, 연기 탐지, WIoU, Coordinate Attention, CARAFE, Omni-Dimensional Dynamic Convolution

Vision AI – Research-backed

관인생략

출원번호통지서

출원일자 2025.11.05
특기사항 심사청구(유) 공개신청(무)
출원번호 10-2025-0165353 (접수번호 1-1-2025-1236167-18)
(DAS접근코드FD99)
출원인성명 박규영(4-2025-065528-3)
대리인성명 특허법인로드(9-2025-100001-2)
발명자성명 박규영
발명의명칭 RGB 및 IR 4채널 영상정보 기반 마몬김 이을 제거 시스템 및 이을 이용한 이을 제거 방법

지식재산처장

Vision AI – Patent Filed

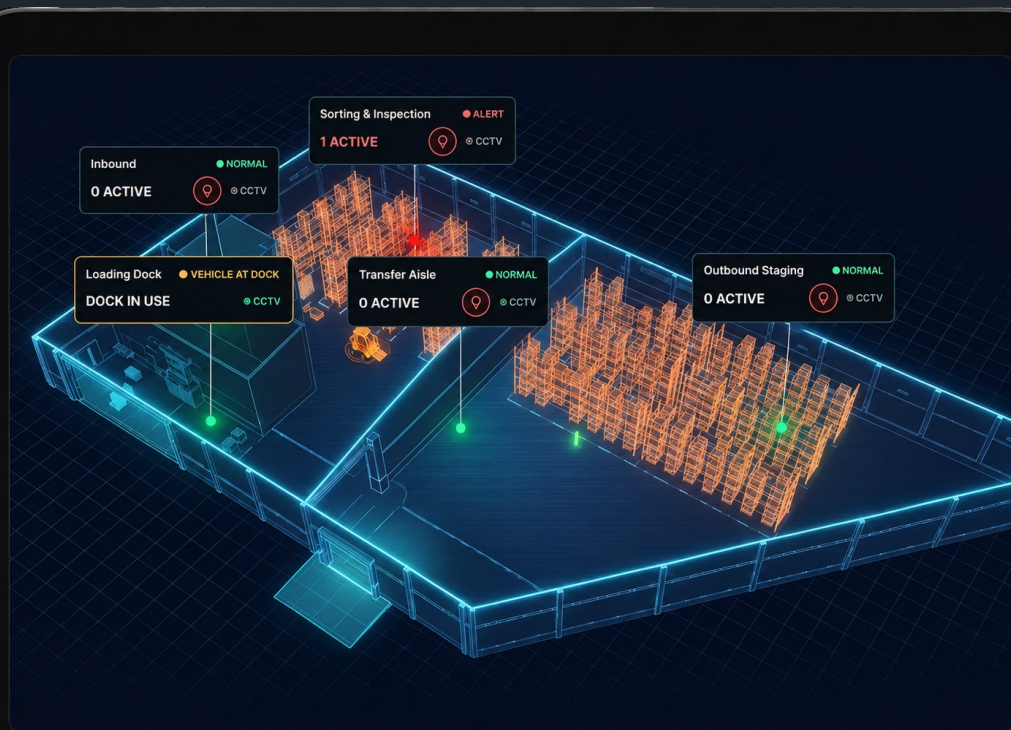
Built on Proven Technology

Every layer of ProboticsOS is built on proprietary AI research, filed IP, and NVIDIA's industrial AI stack.

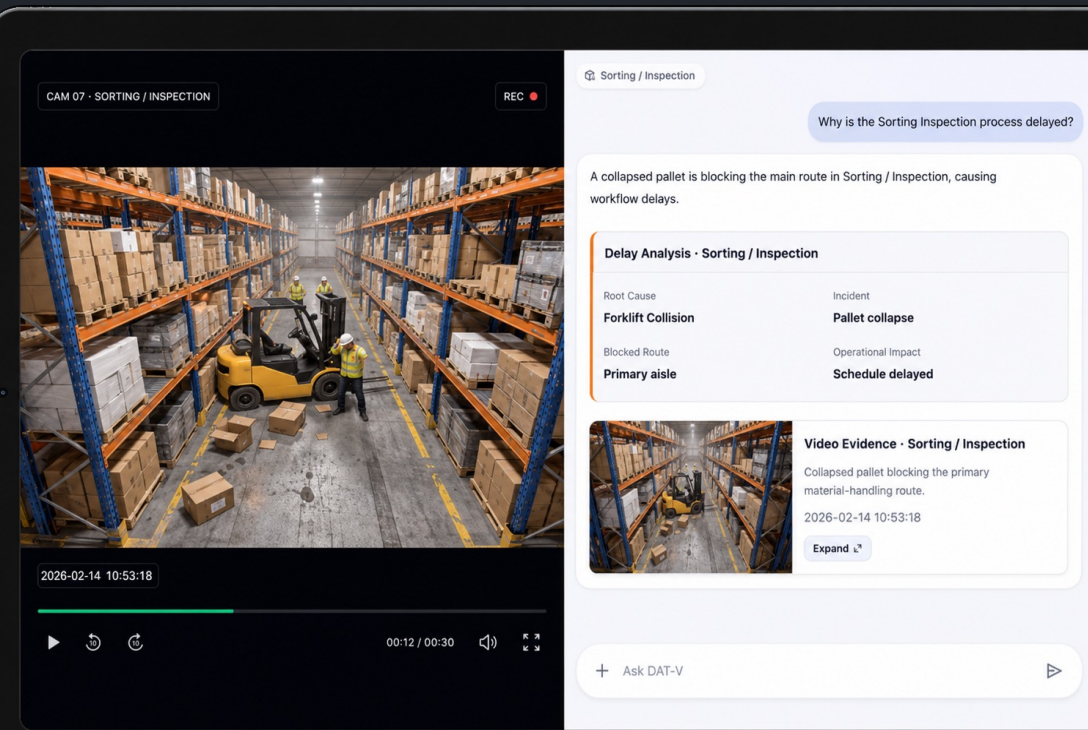
- Perception engineered for real factories, not demo reels.
- Core detection method filed with the Korean IP Office.
- Built on NVIDIA Isaac Sim, Omniverse, Jetson, and DeepStream.

ProboticsOS starts with the **CCTV** you already have.
Same Camera. New job.

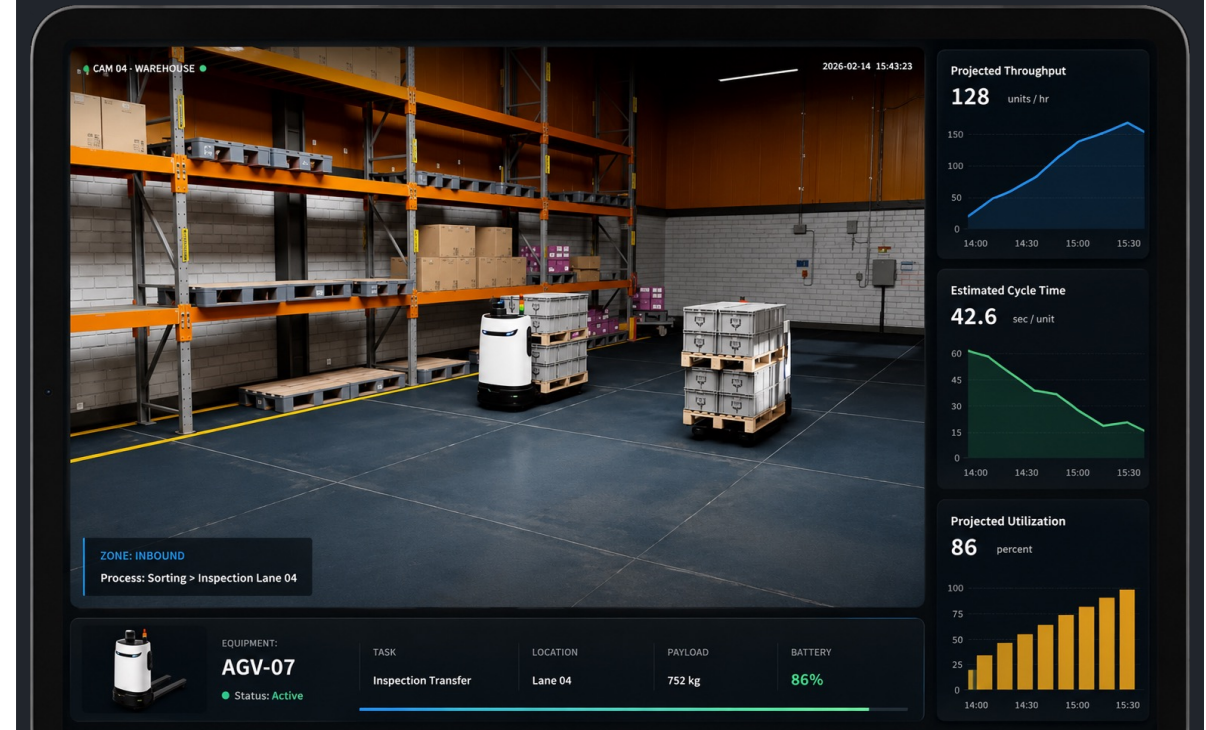
1 CCTV-based Digital Twin



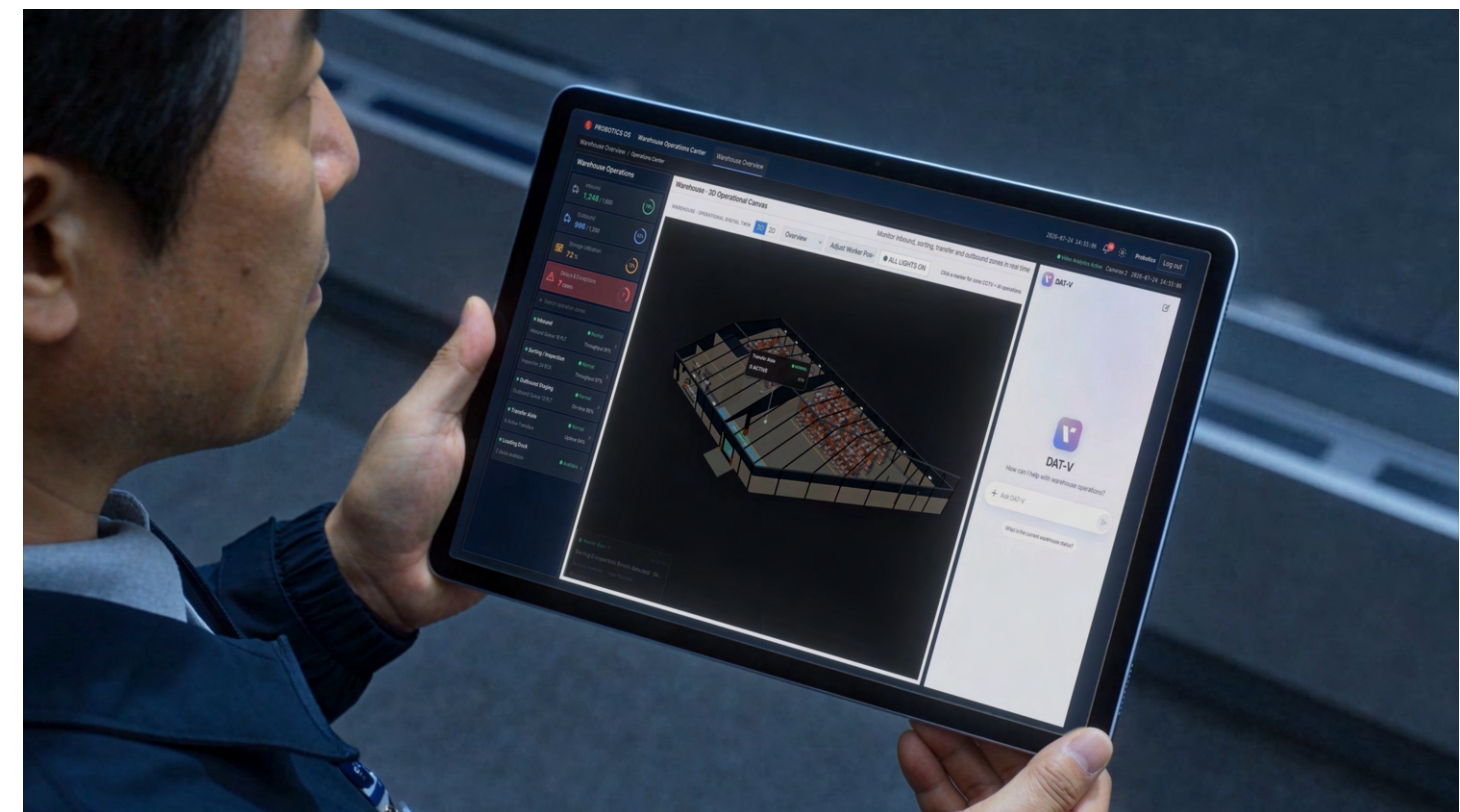
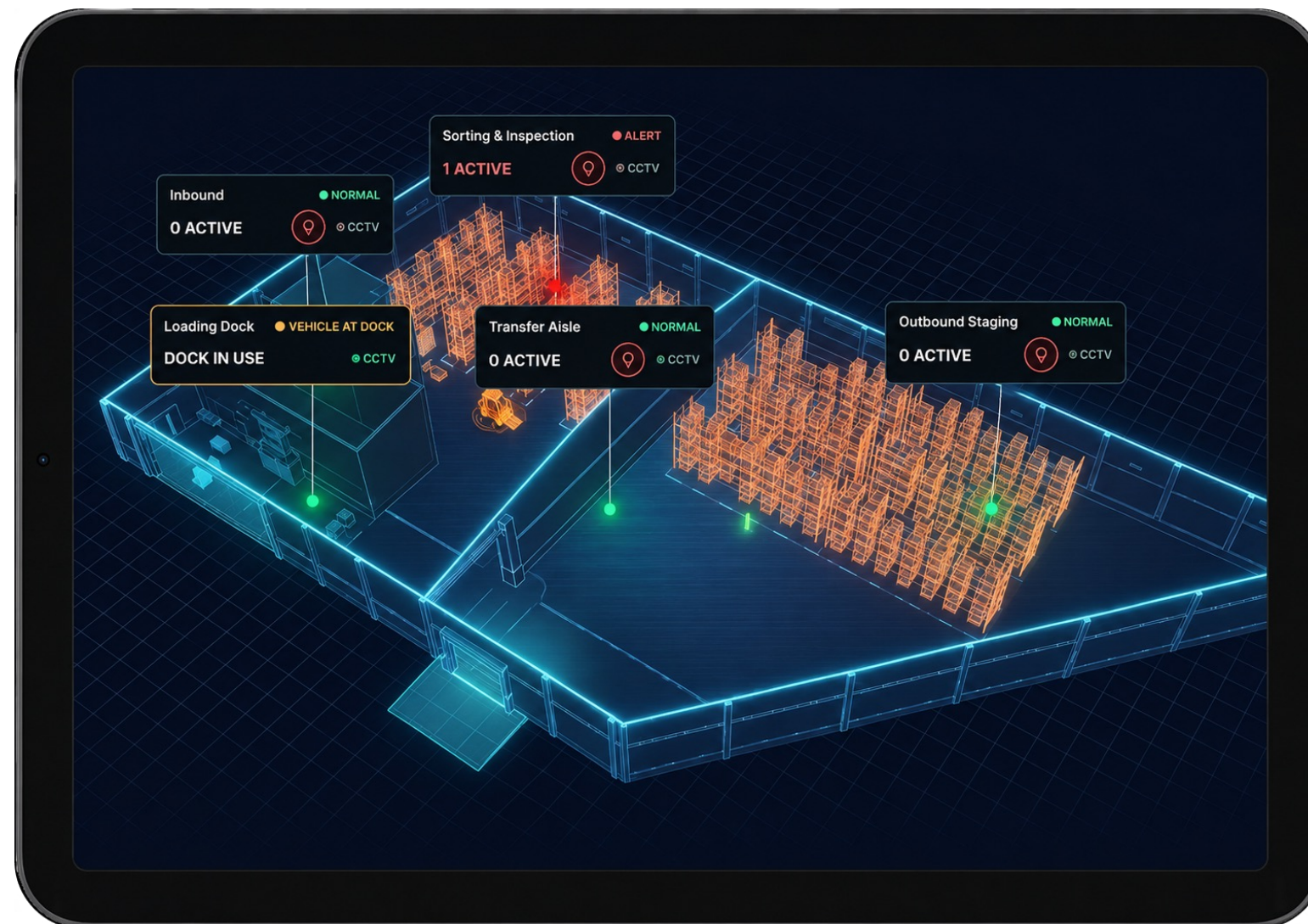
2 Factory Vision AI Agent



3 Robot Simulation

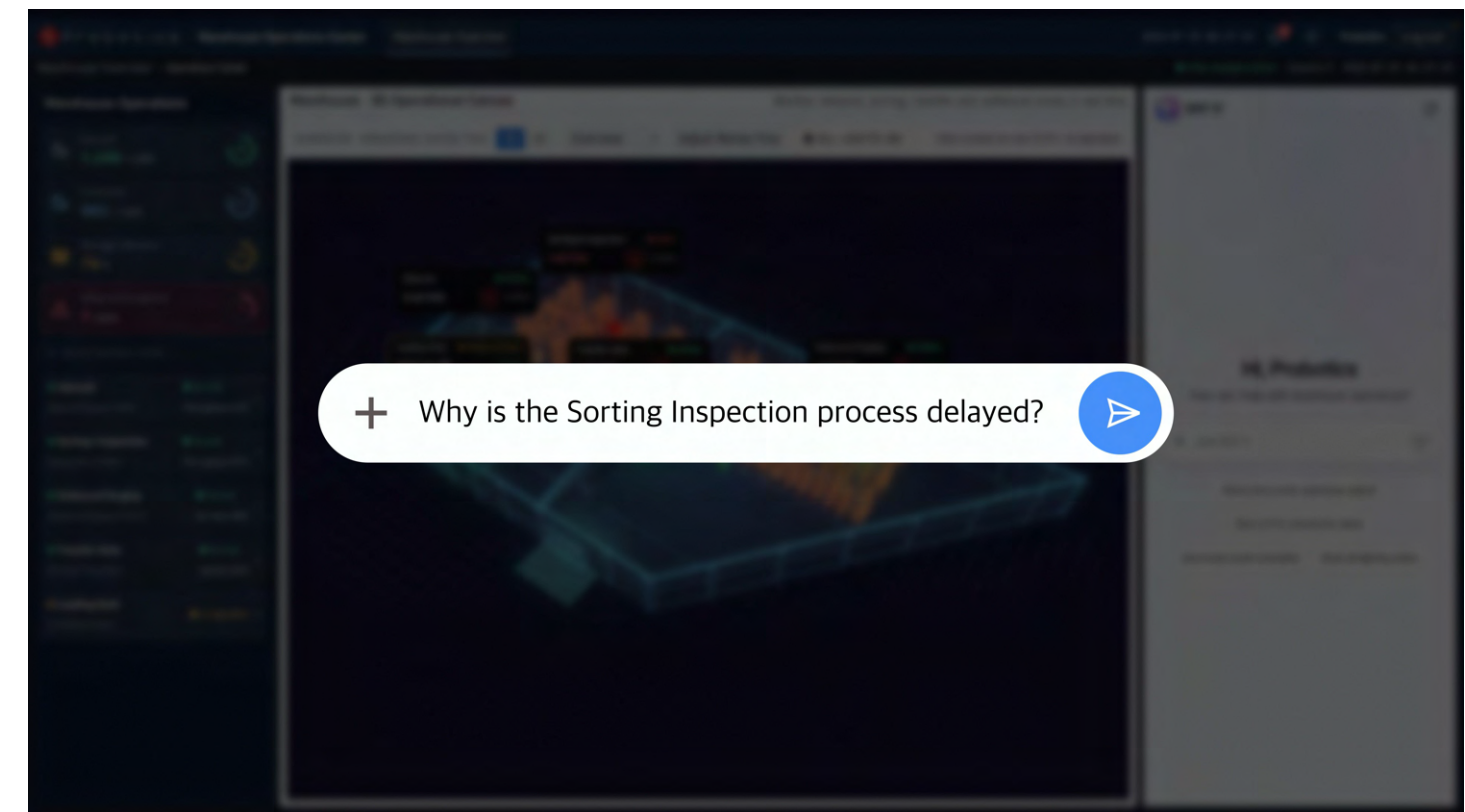
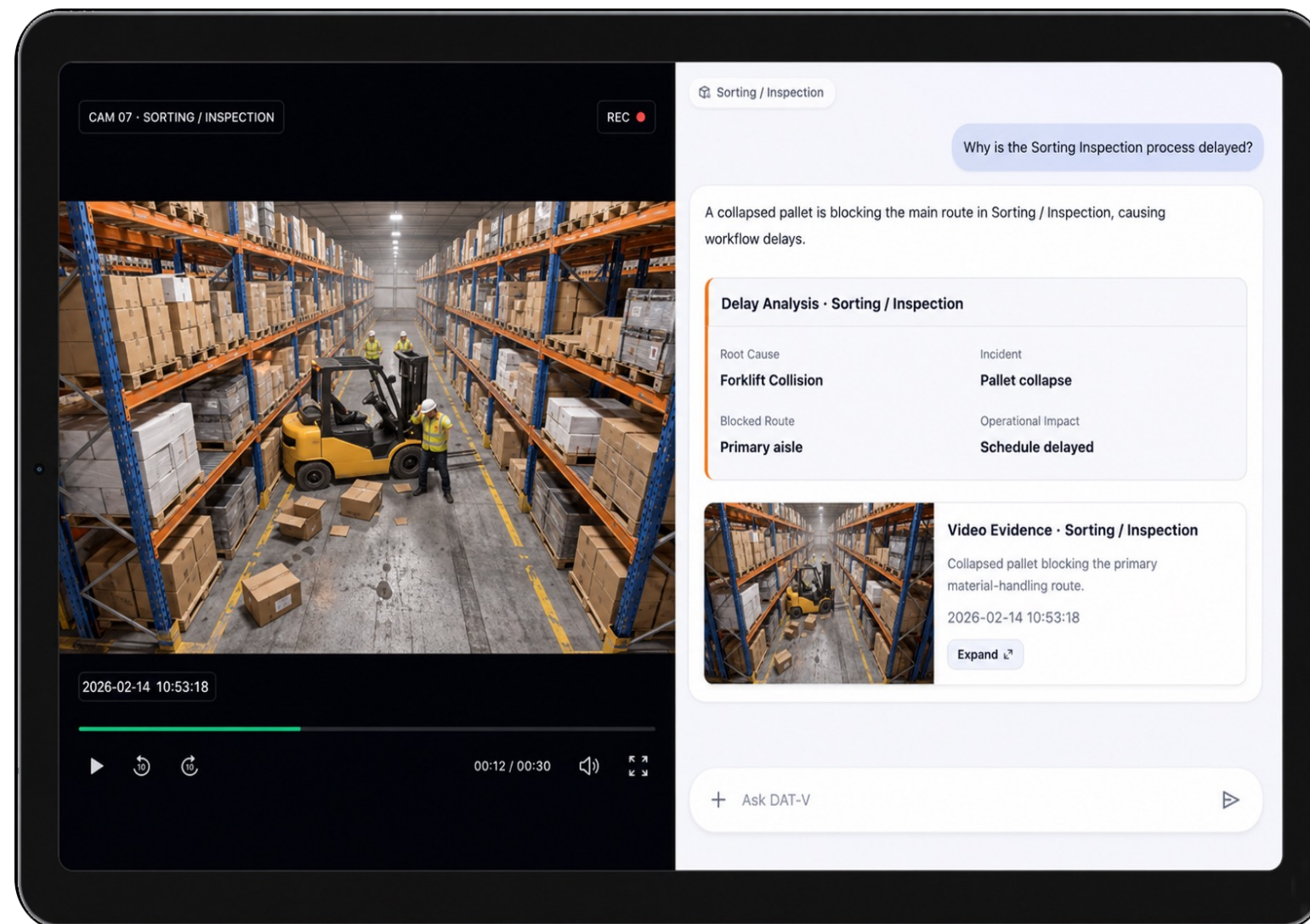


See your whole factory on **one screen**.



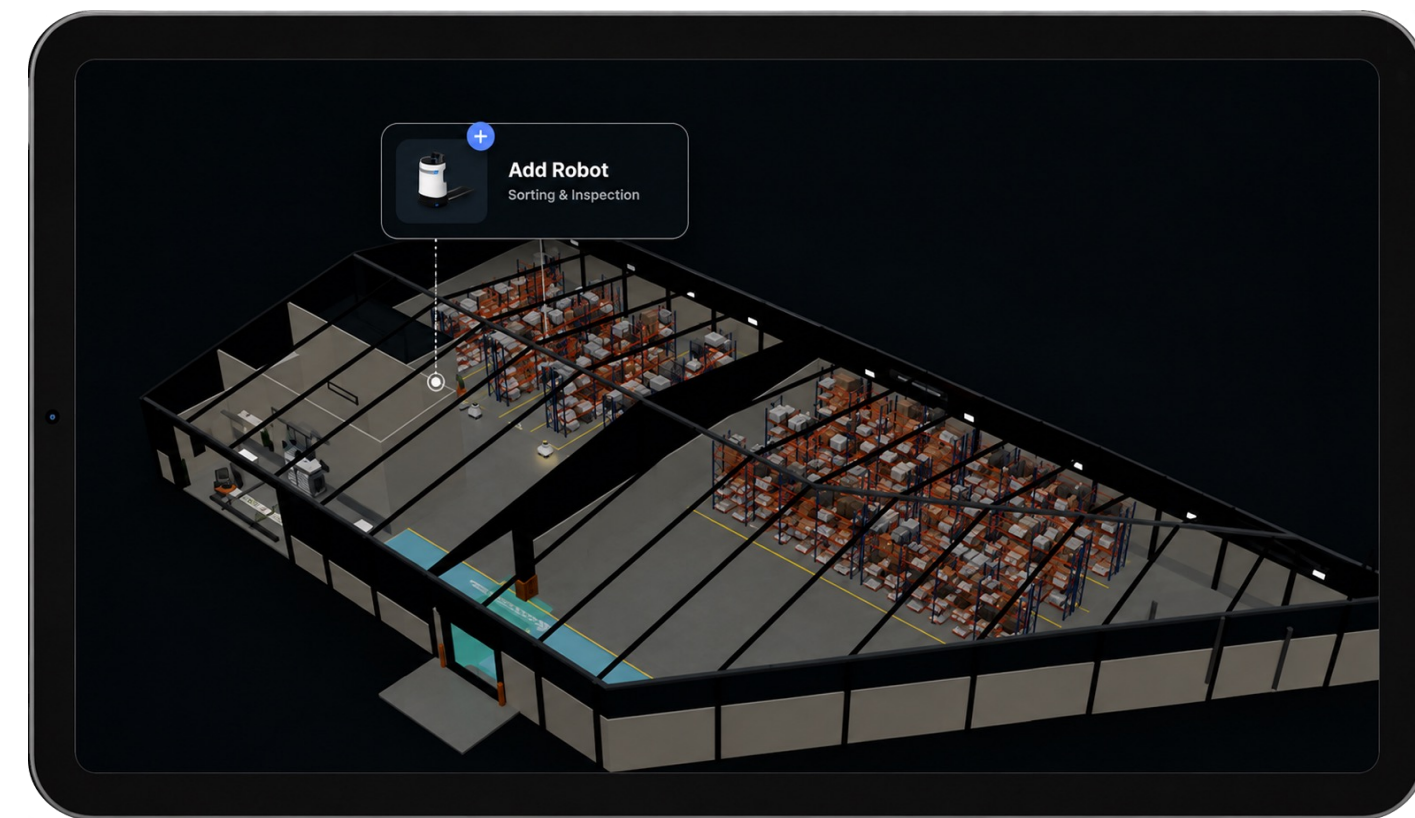
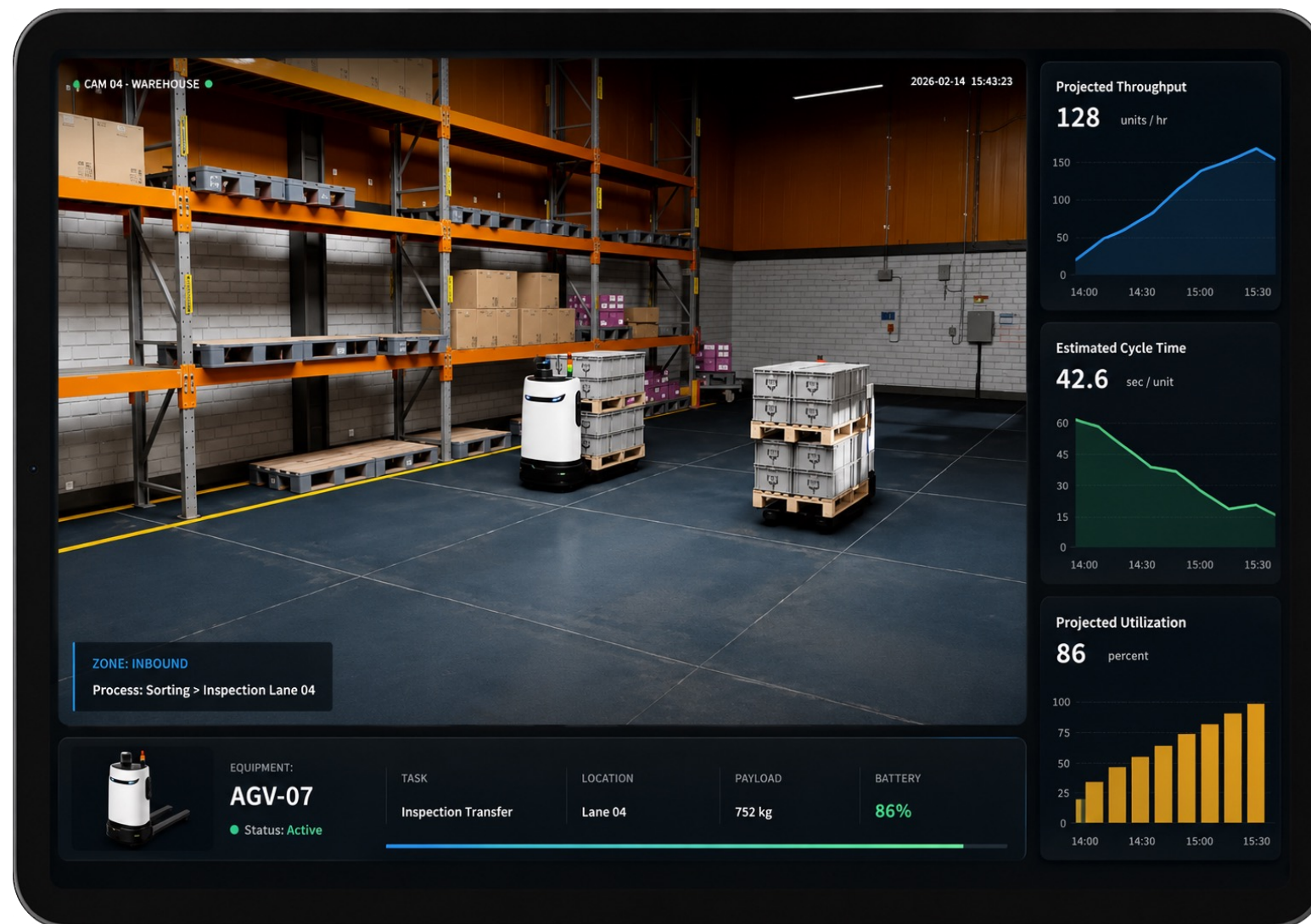
- Reconstructs the floor in 3D from camera footage.
- Zone status and events update in real time.
- No LiDAR, no 3D scanning, no new sensors.

Ask your factory why. It answers with the footage.

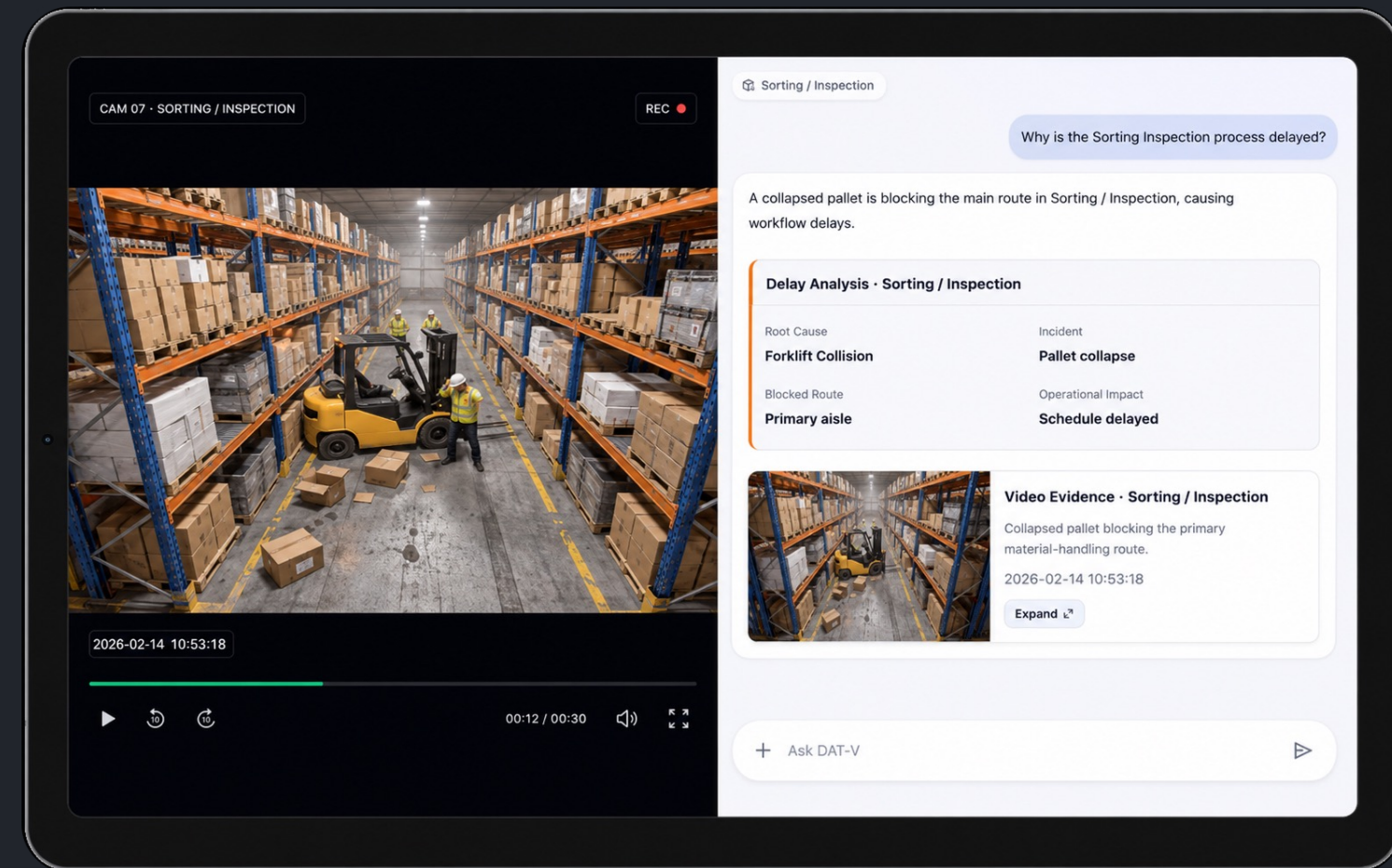
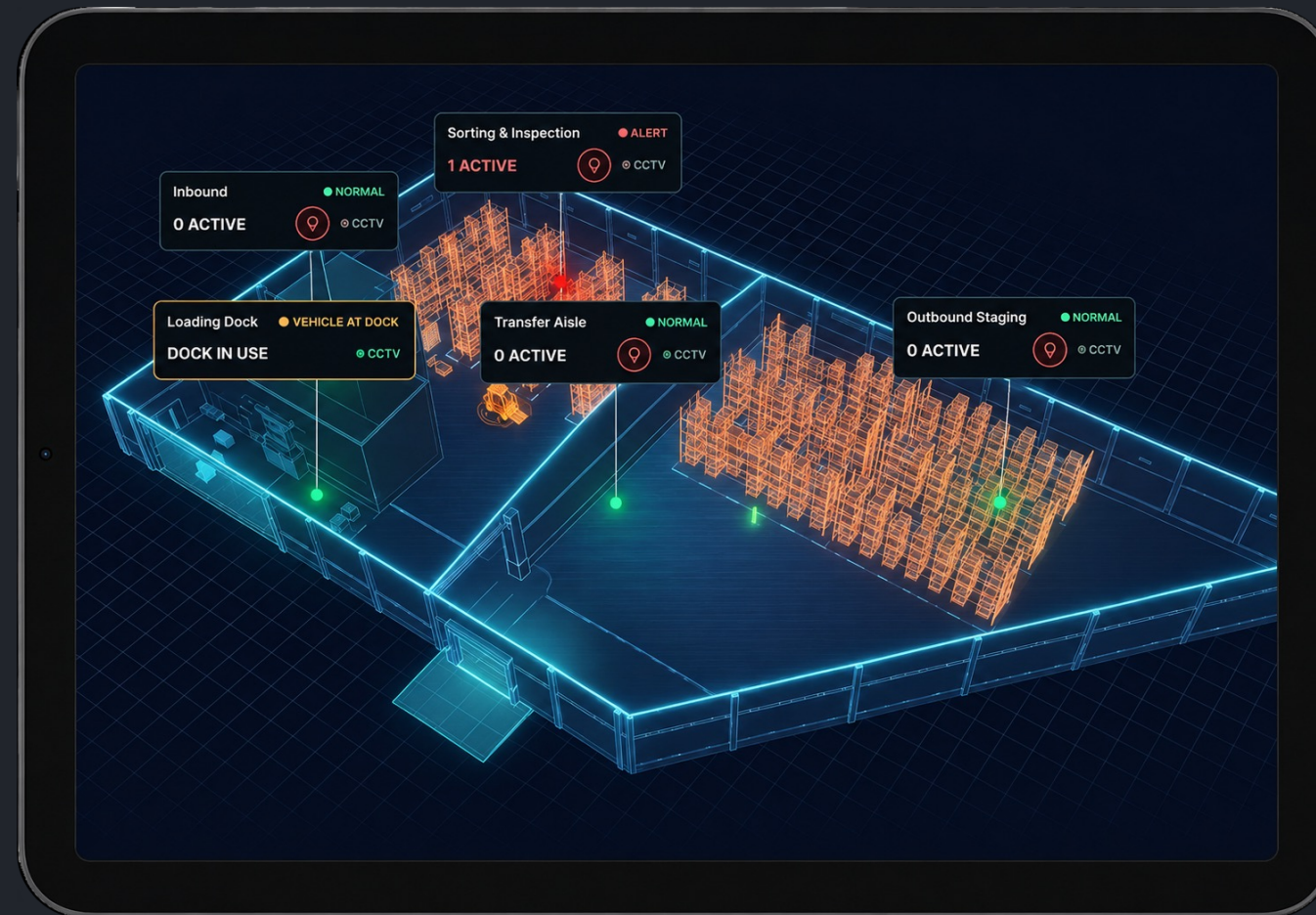


- Ask "why did this process fall behind?" and get an answer
- Every answer comes with the video that proves it
- Finds the moment no one was watching

Test a robot inside your digital twin before you buy it.



- Drop the robot you're considering into your own factory
- See throughput, cycle time, and where it bottlenecks
- Runs on your real operating data — not vendor specs



Thank you

Turn your factory CCTV into a Digital Twin

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