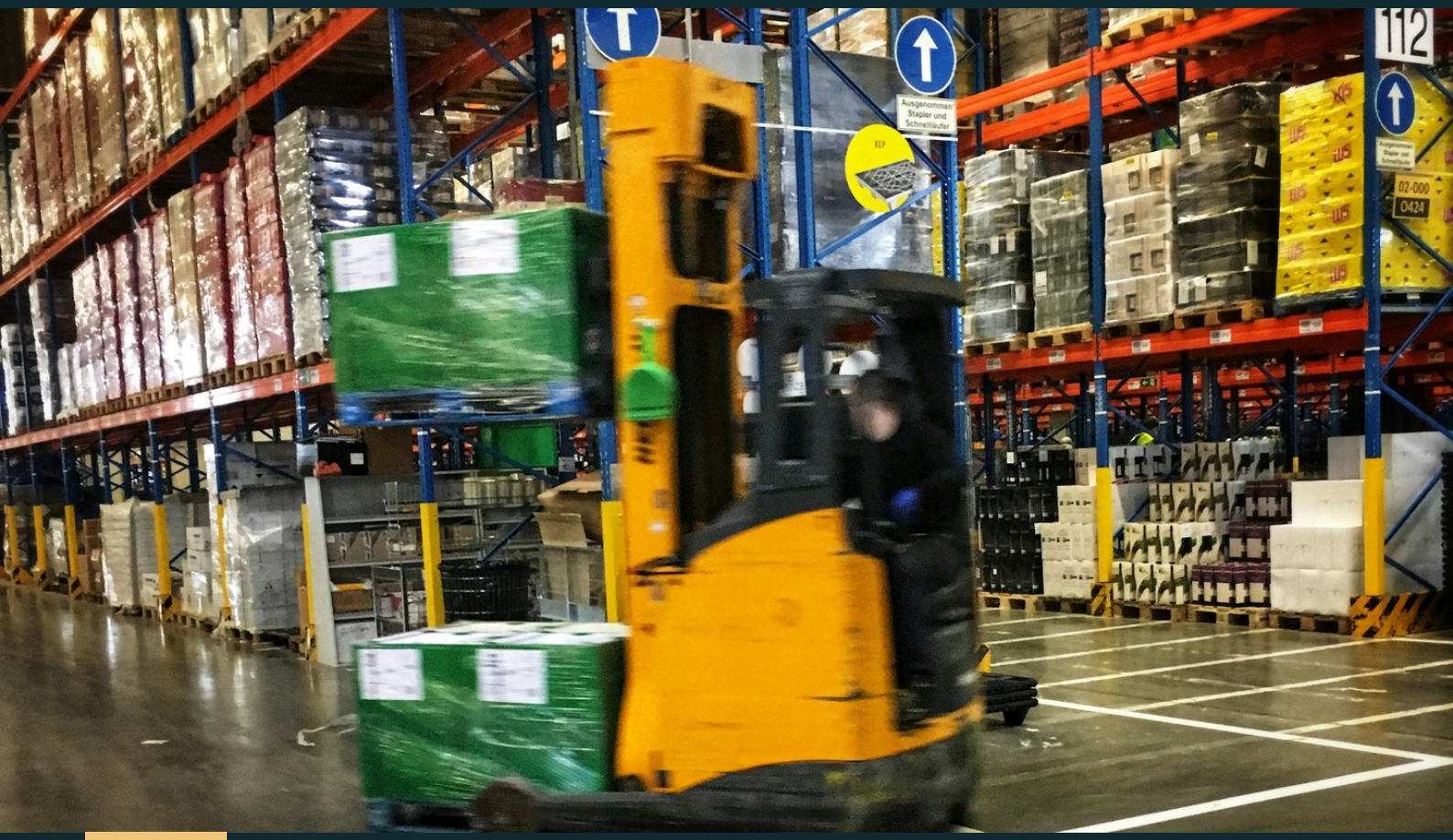
APPLICATION SERIES / 02

Sharp Vision for Industrial sites



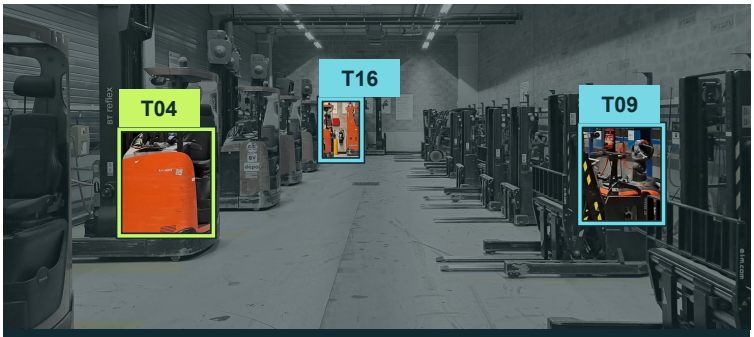
Follow the lift, not just the crossing.

The wide video follows detected foreground objects across the aisle. Sharp Vision adds time-stamped optical images to each track as it gets a useful view, so the reviewer can see both the route and the machine that took it.

01 / ADVANCED MODE: TRACK-BASED RECORDING

One video. A history for each track.

The wide camera follows detected foreground subjects as they move. The output is a lower-resolution wide video plus metadata for each track: its position over time and the high-resolution optical images captured when attention revisits it.



WIDE VIDEO / illustrative review frame

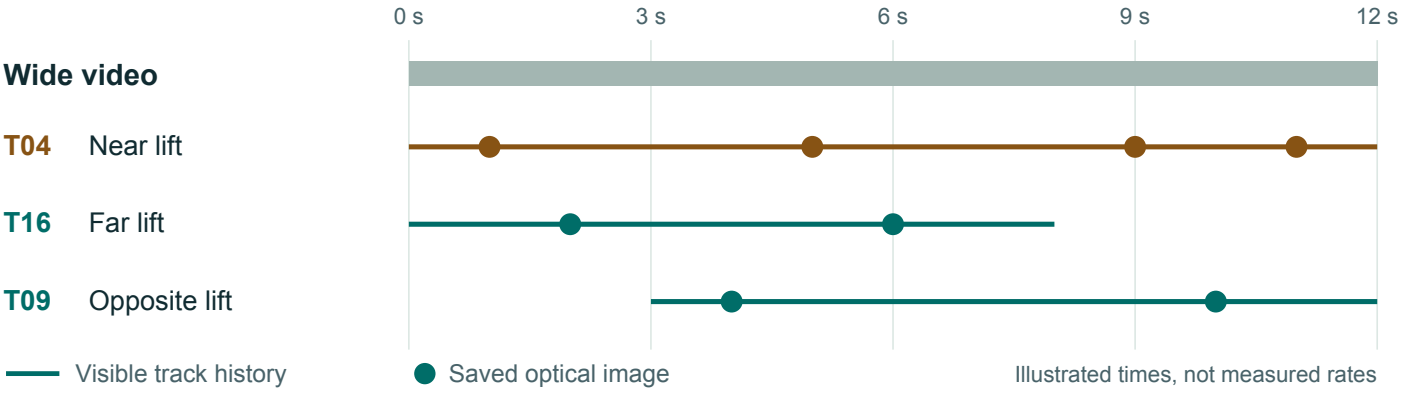
EACH TRACK RECORD

Track ID
Groups observations of one subject.

Position + time
Locates it in successive wide frames.

Linked optical images
Each keeps its own capture time.

WHAT IS SAVED DURING A 12-SECOND EXAMPLE



REPLAY AND EVIDENCE / SELECTED TRACK T04

0 s Storage bay **6 s Crossing** **12 s Staging aisle**

Which lift crossed the aisle? Select T04 and follow its positions from the storage bay to staging; open the saved view nearest the crossing.

An equipment classifier can inspect the optical sample. A supervisor can review its timing alongside the other lifts' movements.



ORIGINAL REVIEW INTERFACE

Watch the recording review

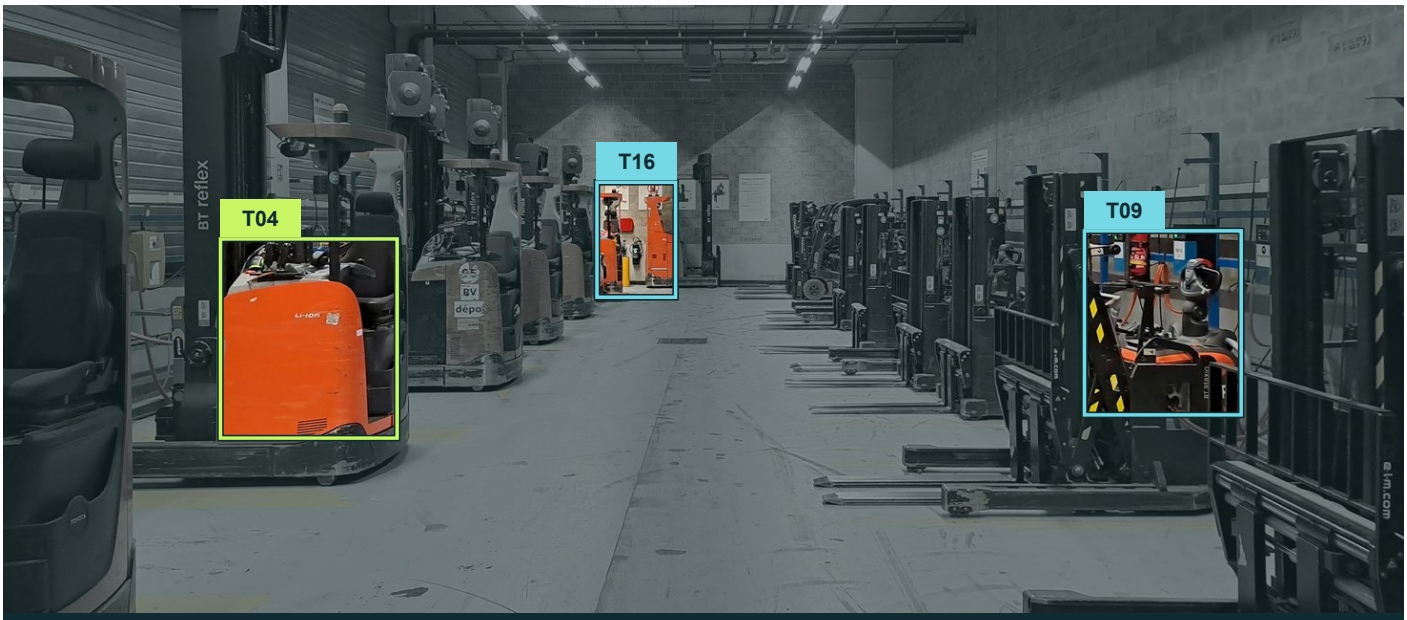
Choose a time range, select a tracked subject and open or save its detail images. A track ID is not a verified identity; only captured detail is available.

Open Wamda's recording demo >

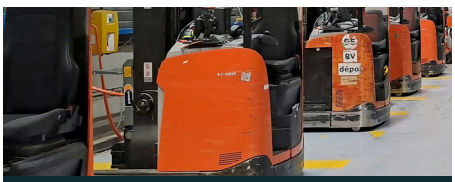
02 / INSIDE AN ATTENTION CYCLE

Give the moving lift the next look.

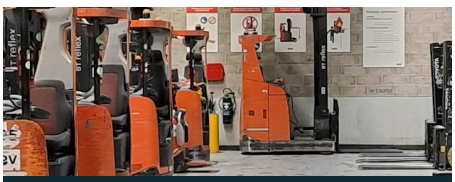
In this example policy, a lift about to leave its bay gets the next close-up. Parked lifts are checked less often. Their last detail images remain available without taking the crossing out of view.



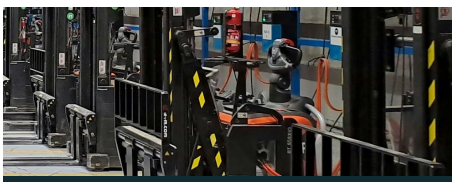
Current attention Previously sampled Continuous wide context



T04 / Near lift
Last sample +0.4 s



T16 / Far lift
Last sample +0.0 s



T09 / Opposite lift
Last sample +0.1 s

ONE DETAIL CHANNEL / FIVE EXAMPLE VISITS

+0.0 s	+0.1 s	+0.2 s	+0.3 s	+0.4 s
T16	T09	T04	T04	T04

The controller chooses a location; a fast-steering mirror directs the narrow sensor before exposure. These are optical samples, not AI-enlarged overview pixels.

Photo and times illustrate an attention policy, not footage of a deployment. The team's 10 actions/s is a shared rate, not 10 new close-ups/s for every subject.

Scene: Manh LE / Unsplash

Try the attention demo >

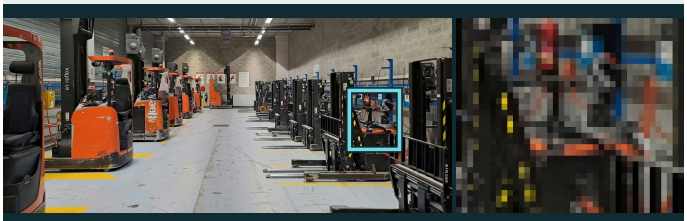
03 / SAME SCENE, FOUR RECORDING CHOICES

What would each camera keep?

Which lift entered the shared aisle, and what else was nearby?

Each right-hand inset inspects the same opposite lift (T09).

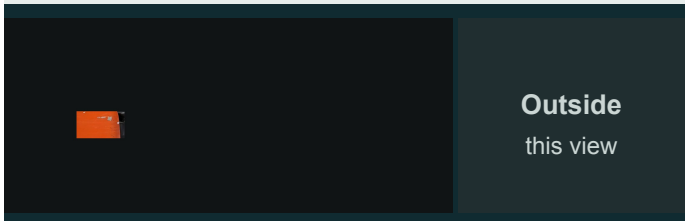
Fixed wide camera



SCENE FOOTPRINT — Digital crop

The aisle and both rows remain visible. Enlarging the far lift cannot recover features the wide sensor missed.

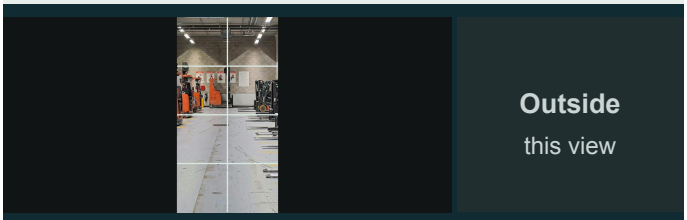
Zoomed PTZ



SCENE FOOTPRINT — Not recorded

Aim at the near lift and the opposite row is outside the zoomed recording.

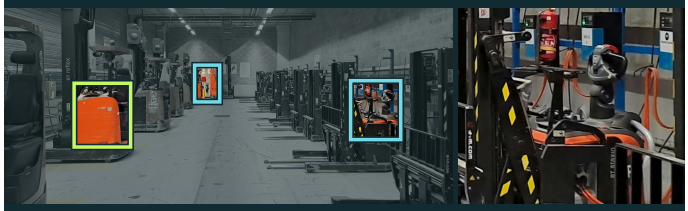
Fixed multifocal / 30°



SCENE FOOTPRINT — Not recorded

Detail is continuous in the central aisle sector. The near lift and opposite row lie outside it here.

Sharp Vision

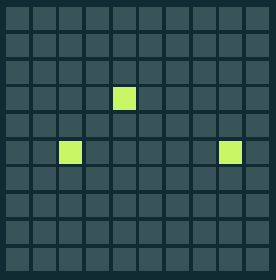


SCENE FOOTPRINT — Saved optical

Give the near lift more visits and keep the earlier views of the other two lifts linked to their tracks.

Illustrative zoom: digital crop reduced to 40 pixels across; saved optical uses the same crop at source detail.
Not a measured camera test. Black = outside the optical field; the 30° sector models one unit.

100 possible places to look



10 x 10 conceptual grid

A supervisor can review the lift and its route together. More of the detail channel's time can go to a changing situation.

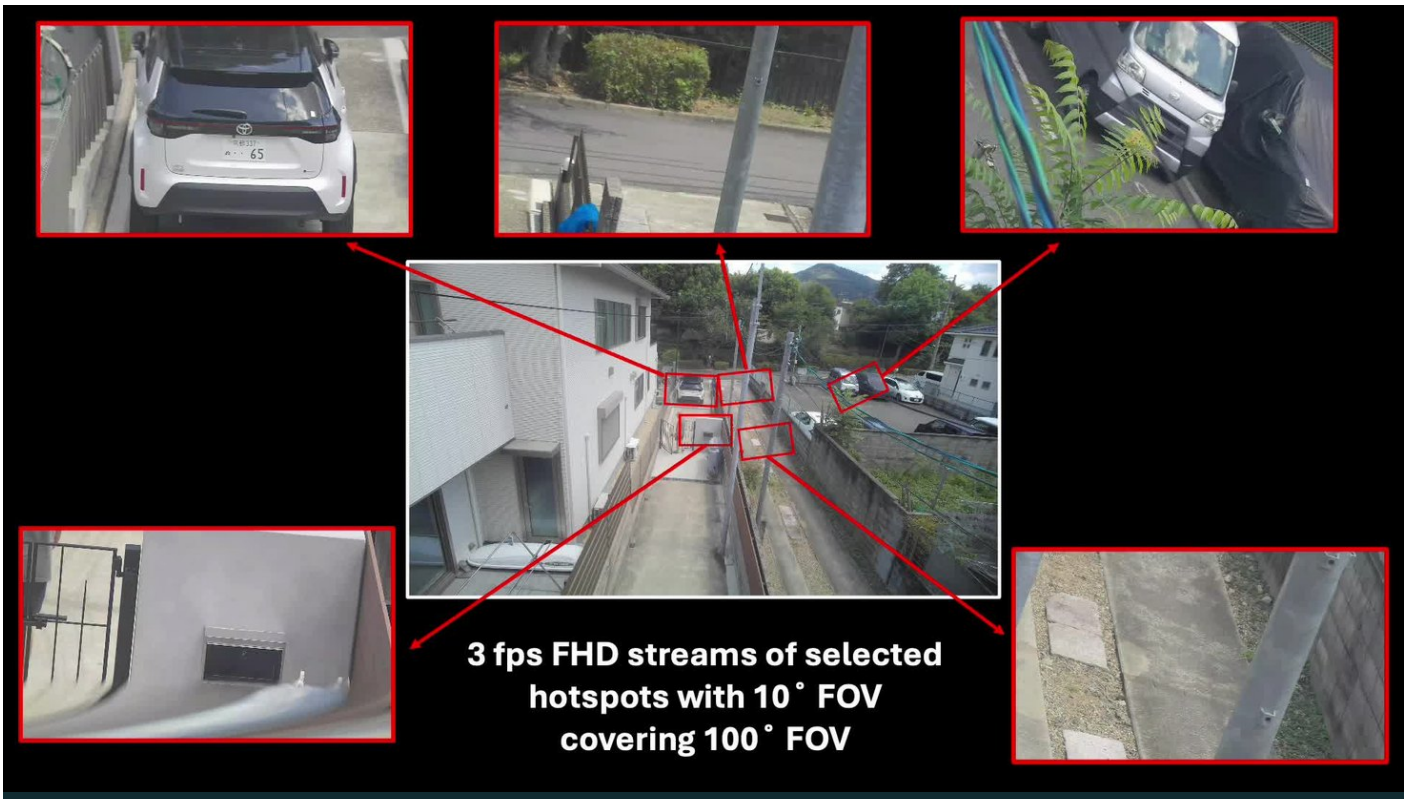
The grid represents candidate locations from one viewpoint, not 100 simultaneous camera feeds. Equivalence depends on getting the required detail in time; an unsampled event has only the wide recording.

Pilot measure: In recorded crossing passes, compare usable views per lift and the longest wait for a new capture when two lifts move.

04 / BASIC MODE: FIXED HOTSPOTS

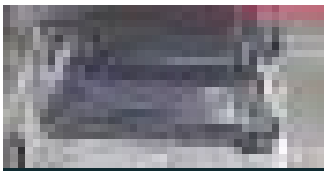
One wide view. Five optical hotspots.

This is a still from Wamda's original Sharp Vision recording. The middle image is the overview. The five surrounding images are focused views of the marked locations, not details generated from the middle image.



WAMDA AI / ORIGINAL HARDWARE DEMONSTRATION

The 3 fps FHD label applies to this hotspot recording, not to every track or site.



Enlarged overview



Optical hotspot

Same car, different captured detail

Look at the rear window. Enlarging the wide view does not reproduce the contours gathered by the narrow optical channel. Both crops are from the original demo frame.

Hotspot: revisit a place

A shared crossing, staging bay and loading point

Track: revisit a subject

A lift moving between a rack and a bay

Research basis: the team's ICLR 2018 workshop study tested visual hierarchies on gaze and digit tasks, not equivalence to a 100-camera installation.

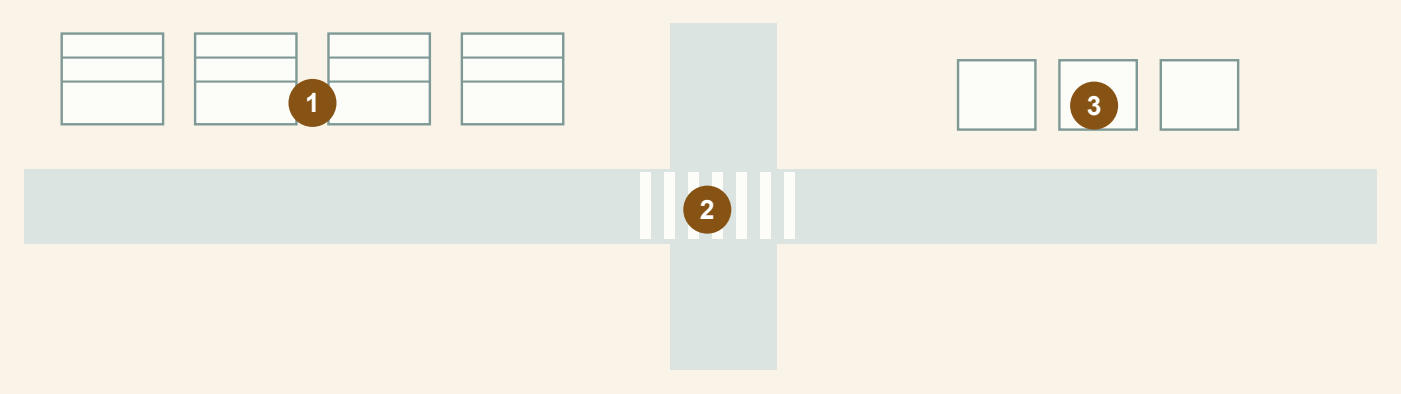
Watch the hardware recording >
Read the study >
Compare camera modes >

05 / OPERATIONAL QUESTIONS

Read the work sequence

Example site layout

SCHEMATIC / NOT TO SCALE



1 Storage racks
2 Shared crossing
3 Staging bay

01 Aisle crossings

Where was the lift when the walkway became occupied? Review their relative positions in the overview rather than judging from an isolated close-up.

02 Staging and transfer

Was a load approaching the bay or leaving it? Combine direction of travel in the wide scene with the available image of the load.

03 Near-miss review

Which part of the route needs a closer look? Use the timeline to find the approach, then inspect the captures available for that pass.

SCOPE OF USE

An aid to review, not a machine guard or a certified collision-prevention system.

06 / PLANNING A PILOT

Start with one shared aisle and crossing



WAMDA AI / CAMERA PROTOTYPE

ORIGINAL SHARP VISION CONFIGURATION

100°
horizontal wide view

10°
horizontal optical detail window

Two sensors
wide context and directed detail

WHAT THE PROTOTYPE DEMONSTRATED

In a 30-minute daytime trial on a two-lane road, Wamda documented vehicle images at 10, 20, 40 and 80 metres. These were vehicle observations, not a guaranteed range for every subject, site or lighting condition.

WHAT TO CHECK ON YOUR SITE

1. Test at real forklift speeds and with loads of different sizes.
2. Check sightlines when racks are full and vehicles overlap.
3. Compare capture quality and saved data across two representative shifts.

Selective detail can reduce bandwidth and storage

Planning example: two Full HD equivalents at 4 Mb/s each, plus 0.5 Mb/s for track data and stills, total 8.5 Mb/s, or about 2.75 TB per unit over 30 days. Encoding and capture frequency affect actual costs; backup storage is extra.

Explore the camera demo >

Discuss a site pilot >

Sector photo: Bernd Dittrich / Unsplash. Product image: Wamda AI.