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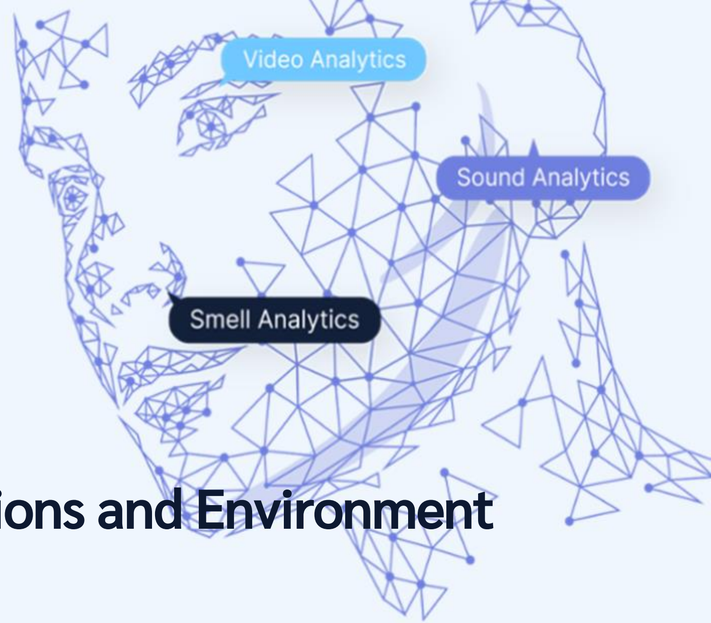
iQ-Intelligent Ports

Safety, security and operations across land and sea



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Port Intelligence

Trade, tourism and shipbuilding



Trade artery

Ports connect countries bordering seas and large rivers.

Connected system

Port, rail and road applications share event information quickly with the teams concerned.

Cruise and shipyards

Cruise terminals and shipbuilding and repair yards add distinct needs.

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Worker Safety

PPE and hazardous conditions



PPE and cranes

Check helmets and fluorescent jackets. Detect people under cranes or in unsafe locations.

Falls

Detect slips, falls and falls from a height.

Evacuation

Support evacuation management.

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Hazard and Speed Detection

Video, sound and smell analytics

Chemical and gas

Detect chemical hazards, gas leaks at critical points, and oil or chemical spills.

Smoke and fire

Detect smoke and fire, including outdoor areas and spaces with high ceilings.

Noise

Control noise from compressors and heavy equipment.

Vehicles and boats

Detect speeding vehicles and boats.

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Perimeter Security

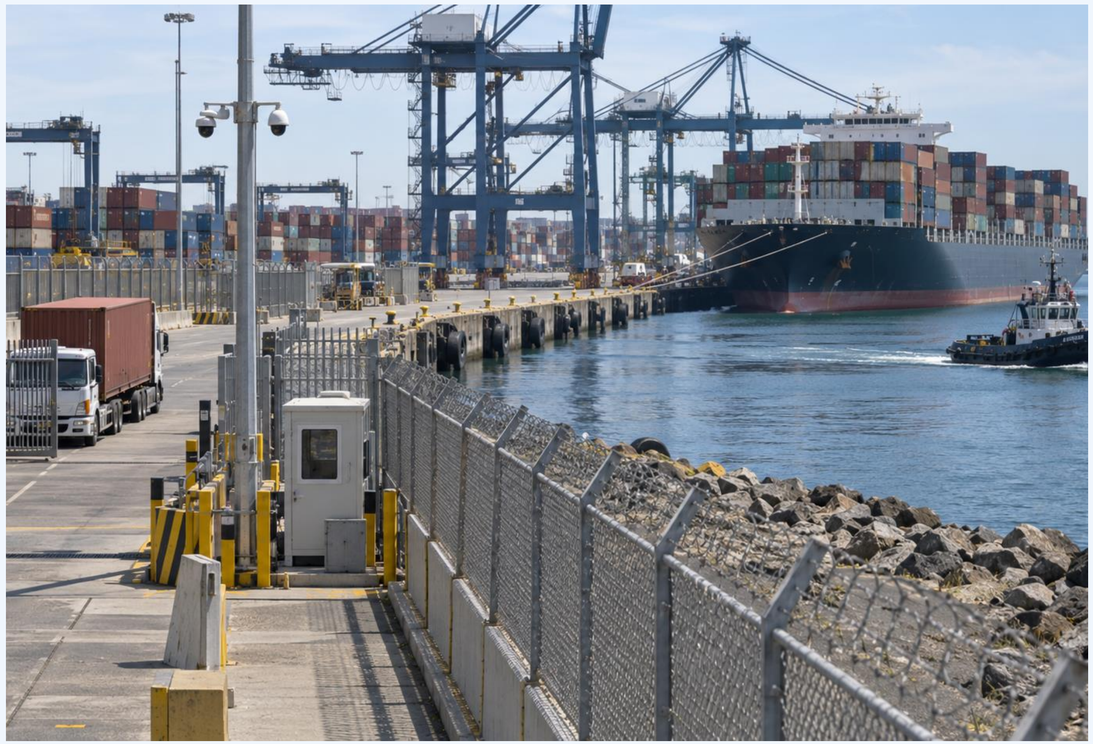
Classify activity around extensive land and sea boundaries

Boundary

- Protect the land and sea perimeter over long distances.
- Differentiate ships, vehicles, people and animals to allow or disallow entry and alert on the relevant intruder.
- Detect intrusions and identify the intruder.

Incidents

- Detect abandoned objects, running, loitering, wrong-way movement and a person down.
- Detect graffiti, vandalism and parking violations.



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Cargo and Camera Protection

Detect changes and preserve the view



Cargo monitoring

iQ-140 or iQ-180 can alert when stockpiles change shape or decrease in volume despite constant staff movement.



Theft prevention

Protect containers, cars and other merchandise at docks.



Camera integrity

Detect camera malfunction or sabotage.

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Authorized Access

Match people, vehicles and containers to a task





People and drivers

- Support databaseless access management.
- Driver Match checks that driver and vehicle are registered and authorized.

Vehicles and cargo

- Recognize license plates for authorized or unauthorized vehicles.
- Container barcodes can support delivery and pickup authorization.

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Inventory Investigation

Follow a missing item back to the event



01

Capture

Record each person entering the cargo storage area.



02

Detect

Identify missing inventory.



03

Review

Jump back to the event when the inventory was taken.



04

Identify

Use the captured image to in vestigate the suspect.

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Maintenance and Environment

Equipment, site operations and environmental protection



Maintenance

- Support preventive maintenance and operations.
- Detect stalling conveyor belts.

Site operations

Manage car parks and understand time spent in different locations.

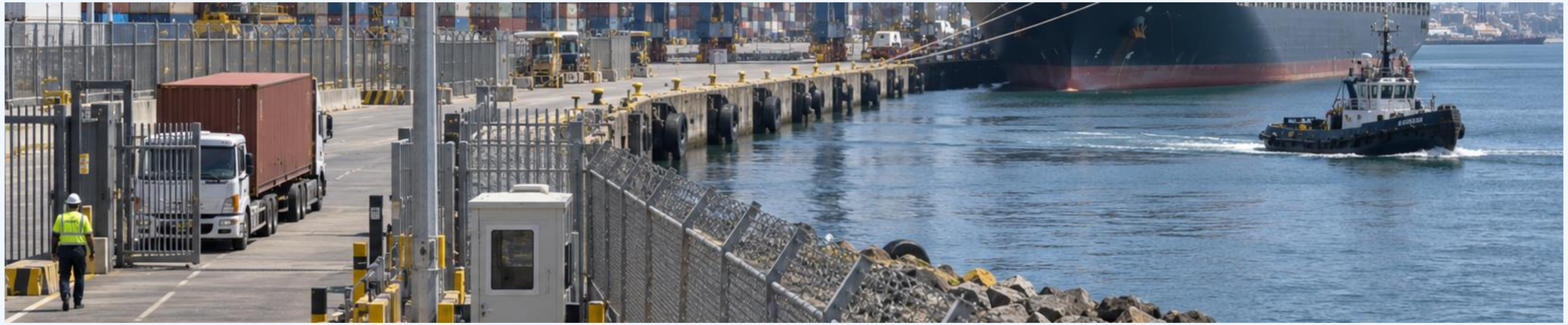
Environment

Detect dust plumes from incorrect mineral or coal loading.

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Ship Flow Management

Queue intelligence supports port capacity



Flow

Increase the flow of ships entering and leaving the port.

Queue

Differentiate large ships from small boats to monitor congestion.

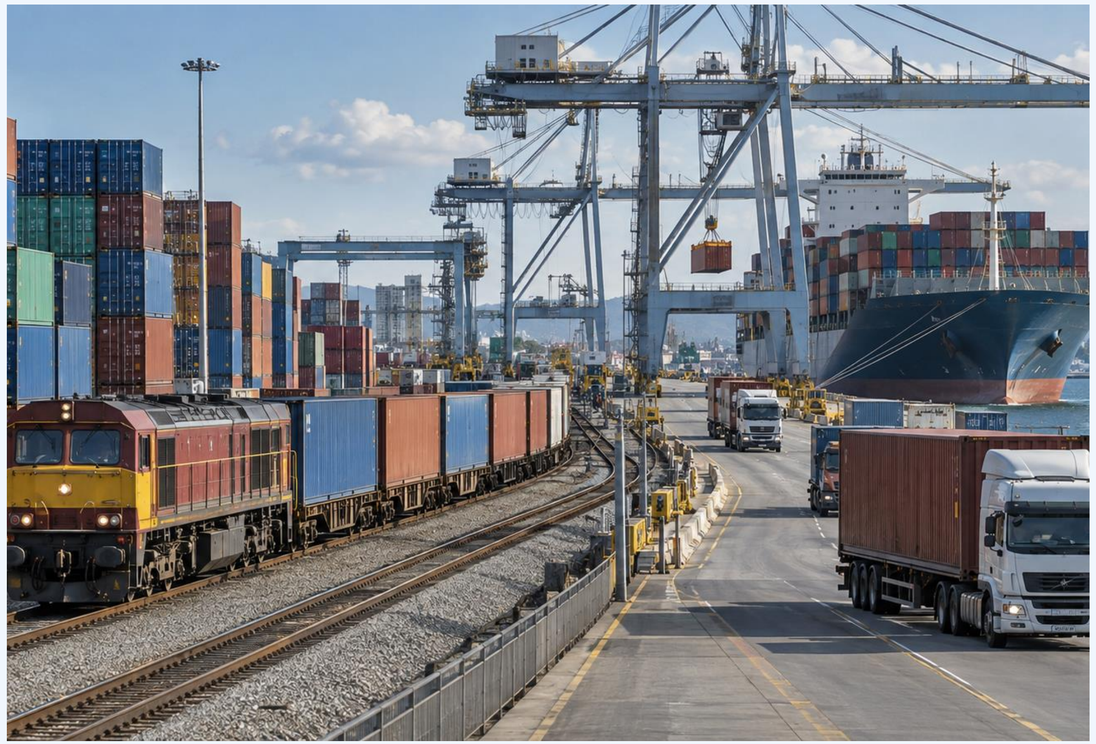
Planning

Use flow information to inform future resource planning.

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Freight Connections

Rail heads, roads and truck access



Rail

Safe loading, human safety at rail heads, and dust cloud detection.

Road

Detect incidents, debris, wrong-way vehicles, accidents, jaywalking and speeding.

Trucks

Manage vehicle access, dwell time and entry and exit queues.

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Cruise Passenger Flow

Queues, boarding and terminal security

Queues

Manage queue lengths and dwell time.

Boarding

Count passengers and non-passengers boarding and disembarking.

Terminal security

Manage security at check-in counters.



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Cruise Operations

Supplies, kerbside, parking and facilities



Logistics

Safe boarding of supplies, waste removal and personnel authentication.

Vehicles

Manage kerbside pickup and drop-off plus parking for cars and buses.

Facilities

Manage refuse rooms, waste and infrastructure such as escalators.

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Shipbuilding and Repair Safety

Large manufacturing environments at the port

Access and arrivals

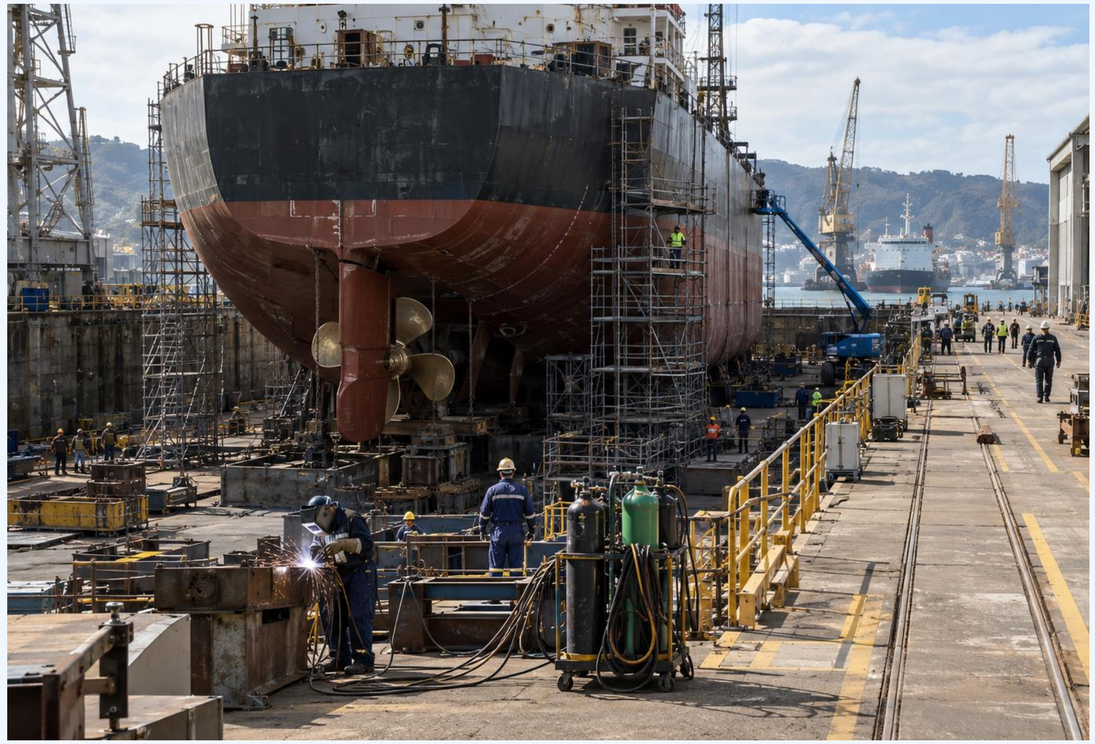
Manage access, parking and bus interchange when staff arrive together.

Gas after welding

Smell detection checks that gas cylinders have been switched off.

Smoke, fire and theft

Detect smoke, fire and theft.



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Multi-sensory Technology

Video, sound and smell analytics with autonomous response



VIDEO

Detect safety and security events and recognize license plates.

SOUND

Monitor noise from compressors and other heavy equipment.

SMELL

Detect chemical hazards and gas leaks, including gas left on after welding.

INTUITIVE AI
No Deep Learning
No GPUs, Fast Deployment

COMPREHENSIVE
Autonomous Multi-Sensory
Analytics (video, sound & smell)

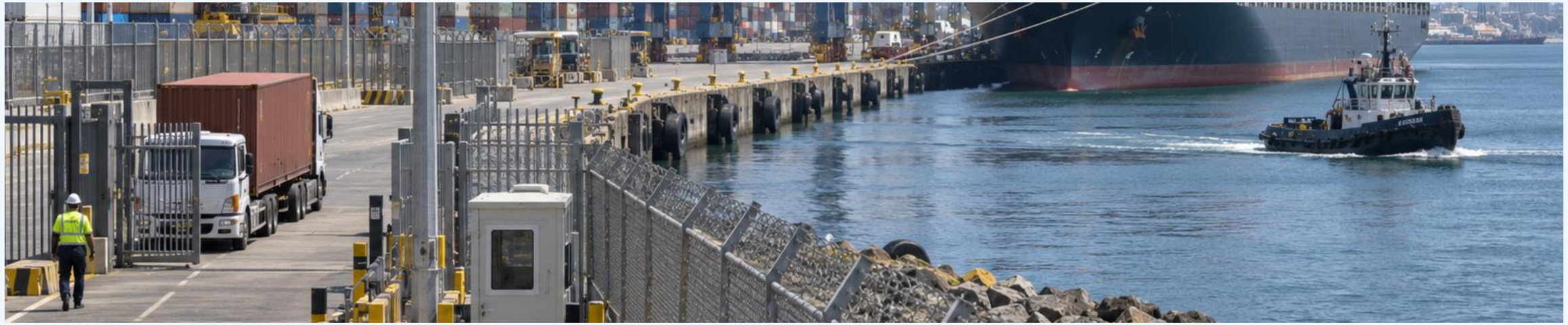
SAFETY
Privacy
Protection

AUTONOMOUS RESPONSE
Reduced requirement
for a control room

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Automated Response

NAMS and iQ-Hawk link detection to action



NAMS

Minimize nuisance alarms in complex, crowded port scenes.

iQ-Hawk

Detect events while identifying people and vehicles on the same camera.

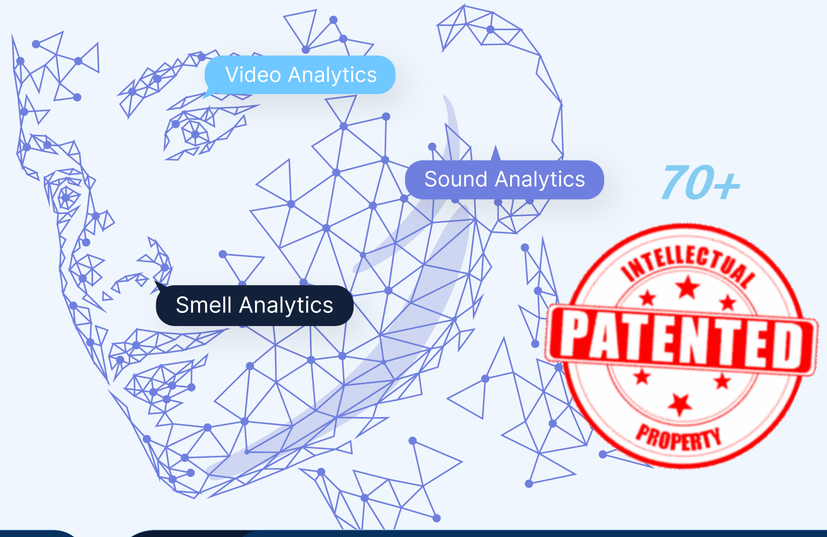
ASAP

Link automated response to the port operator’s own processes.

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Technology Benefits

Advanced Multi-Sensory Analytics – Video, Sound, Smell



01 COST EFFECTIVE

Uses existing
CCTV infrastructure

No GPUs
16×↓ carbon footprint

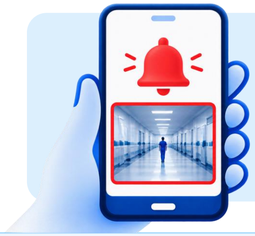
Fewer cameras
Lower-resolution cameras

90% less
Storage and network bandwidth

02 AUTONOMOUS RESPONSE

Detect › **Find** › **Respond**

When there is an event,
the system can find the appropriate responder and tell them where to go and what to do.



They do not require a large control room environment – **a smart phone becomes the control room.**

03 PRIVACY PROTECTION

All systems are privacy protected.

Operators cannot recognize individuals, while the system can still raise alerts for safety, security and operational efficiency.

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About iOmniscient

Partnership

All iOmniscient Products run exclusively on Intel based computing hardware using OpenVINO™

- The use of Advanced AI technology that goes beyond Deep Learning enables iOmniscient to run its systems without the need for 3rd party GPUs.
- This reduces the power required by a factor of 16 – resulting in a 16-fold reduction in the carbon footprint.
- This is just one part of a multi-faceted program to help customers to implement Sustainable Systems.

www.iomni.ai

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About iOmniscient

- iOmniscient is an **Ethical AI** company.
- It offers **multi-sensory (video-sound-smell) Artificial Intelligence based analytics for Autonomous Systems.**
- It focuses on ensuring **Outcomes** for its customers.
- With **over 2 decades of experience,** iOmniscient systems have been demonstrated to be **robust,** operating with high accuracy and few false alarms specially in **complex and crowded** environments.
- By design, its systems **reduce the cost of infrastructure** required:
  - they can use existing cameras
  - they require fewer cameras with lower resolution
  - they require 90% less storage and network bandwidth
  - they are computing light and require no GPUs
  - they allow autonomous operations requiring fewer personnel to operate
- iOmniscient has implemented projects in **70 countries.**
- With over **70 international patents** many of its capabilities are unique and unavailable from any other source.





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