iOmniscient

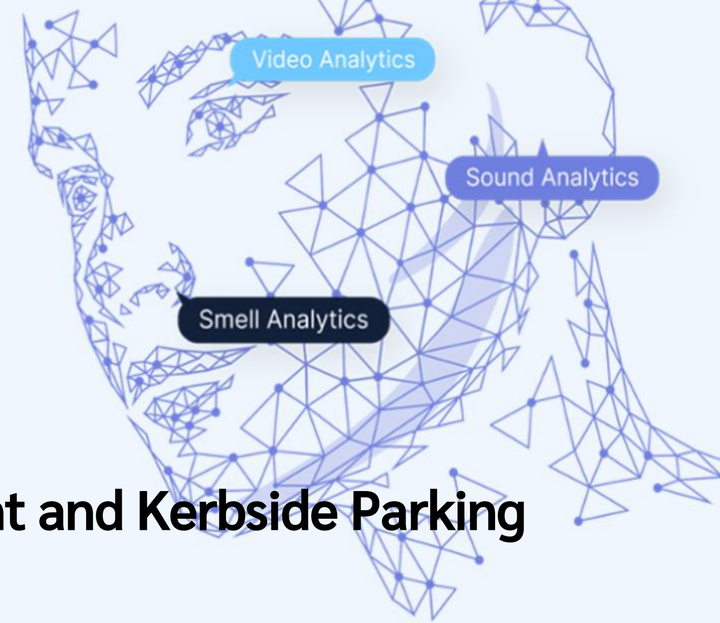
iQ-Roads

Traffic intelligence, enforcement, safety and asset management



iOmniscient

Table Of Contents



1 System and Technology

2 Traffic Monitoring and Incidents

3 Law Enforcement

4 Adaptive Traffic Optimization

5 Environment and Kerbside Parking

6 Pedestrian Safety and Infrastructure

7 Response, Operations and Deployment

8 About iOmniscient

Click a number and go to the page

iOmniscient

Roads System

A multi-sensory system for traffic, safety and emergency response

Operational modules

- Traffic monitoring and incident management
- Law enforcement and adaptive optimization
- Pedestrian safety and kerbside parking

Supporting modules

- Autonomous emergency response
- Environment and infrastructure management
- Video, sound and smell analytics
- Works with existing cameras, requires fewer lower-resolution cameras, and uses 90% less storage and bandwidth



iOmniscient

Roads Technology

Recognition, tracking and shared video services



Recognition

- Multi-lingual plates from 130 countries, including multiple plates on one car.
- Make/model and container-number detection.
- Anonymized vehicle tracking, classification and behavior analytics in busy and crowded scenes and across non-overlapping cameras.
- Anonymized people tracking.

Network and sensors

- Smart compression for low-bandwidth video transmission.
- Video Utility gives stakeholders purpose-specific access without compromising confidentiality.
- Smell analytics can indicate poor vehicle emissions.

iOmniscient

Analytics and System Tools

Patented analytics with maps and operational tools



NAMS and learning

NAMS (Nuisance Alarm Minimization System) reduces event-data noise. Continuous learning. Computing-light analytics require no GPUs.

Detection and maps

iQ-Hawk combines detection and identification on one camera, with support up to 1 megapixel.

Integrated maps, optional GIS, perspective and scheduling tools.

Operator tools

Jump to Event or Alarm by package. Analyze historic incident data across locations and time.

iOmniscient

Traffic Monitoring

Use multiple cameras to understand movement and congestion



COUNT

Count vehicles by direction and size, including left and right turns.

AGGREGATE

Combine camera data to measure density and manage congestion.

SPEED

Estimate traffic speed and detect slowdowns.
Measure headway between vehicles.
Monitoring speed is not infringement quality.

iOmniscient

Incident Management

Detect emerging hazards in busy road scenes



Road incidents

- Bikes or pedestrians intruding onto main road
- Sound cues such as accidents or high-speed cars
- Wrong-way vehicles and near misses
- Accidents

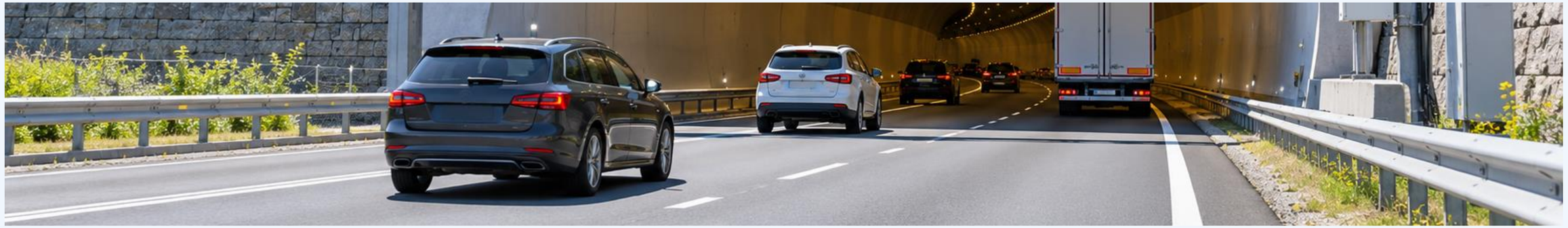
Objects and vehicle detection

- Detect fallen debris despite obscuration, including in heavy traffic.
- Detect vehicles by color

iOmniscient

Highway and Tunnel Safety

Monitor highway traffic and protect tunnel entrances



Traffic patterns

Detect improper lane changes, slow-moving vehicles and queue buildup.

Road incidents

Detect vehicles stopped on the shoulder.

Tunnel protection

Detect smoke and fire
Identify over-height vehicles at tunnel entrances.

iOmniscient

Law Enforcement

Speed, plate and junction evidence

250 km/h

Built-in radar speed detection at a location, with ±5% accuracy.

99.8%

Plate recognition accuracy at speeds up to 250 km/h, covering plates from 130 countries.



Violations

- Average speed over a distance
- Red-light and bus/taxi lane violations
- Stolen vehicles and registration/insurance checks

iOmniscient

Adaptive Traffic Optimization

Combine multiple data sources with simulation and live control

01

Inputs

CCTV, mobile data, drones, loops and pedestrian/vehicle flows.

02

Analysis

Traffic simulation, historic traffic analysis and data analytics for traffic planning.

03

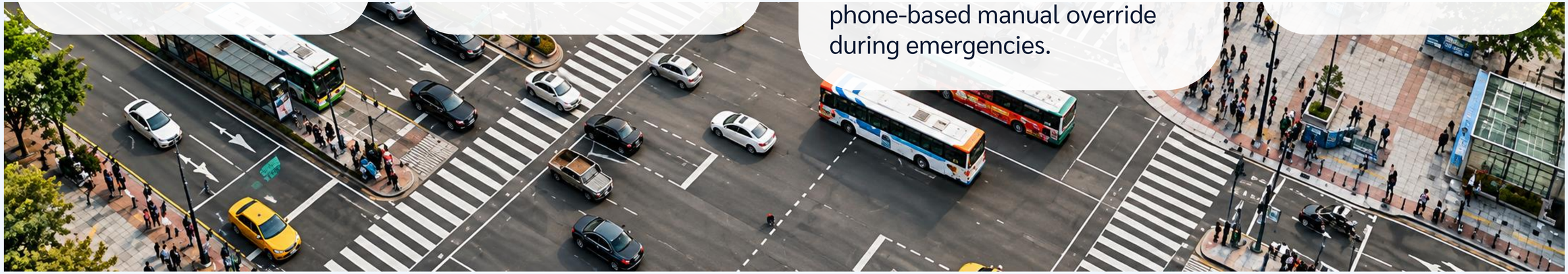
Control

Real-time adaptive optimization, AI-enabled fail-safe traffic light controllers, priority for emergency and other priority vehicles, and phone-based manual override during emergencies.

04

Outcomes

30% less travel time
25% fewer stops
15% less fuel
15% fewer emissions



iOmniscient

Environment Management

Detect road-level conditions and damaging events



HAZARDS

Detect rising floods and smoke or fire despite partial obscuration.



POLLUTION

Understand pollution at road level for cyclists and pedestrians.



DAMAGE

Detect dumped garbage and graffiti, and determine who did it.

iOmniscient

Kerbside Parking

Make occupancy and duration visible

AVAILABILITY

Determine vacant kerbside parking spots and inform drivers.

DURATION

Measure how long vehicles park.



iOmniscient

Pedestrian Safety

Understand behavior and conditions at crossings



Incidents

- Detect slips and falls at crossings.
- Support safer driver and pedestrian movement.

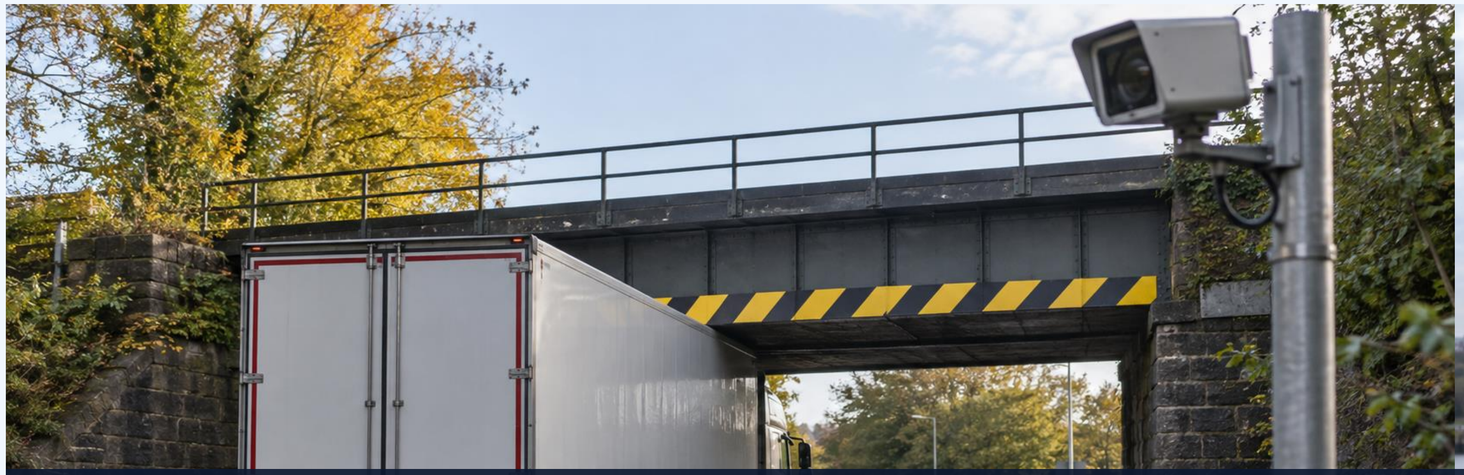
Crossing behavior

- Count crowds at traffic junctions.
- Detect jaywalking and trespassing.
- Identify very slow crossings that may conflict with vehicles.

iOmniscient

Infrastructure and Assets

Protect bridges and roadside furniture





HEIGHT

Protect bridges from over-height vehicles.

SECURITY

Protect bridges from terrorist attacks. Detect suspicious objects that may put infrastructure at risk.

CONDITION

Detect damaged signs and roadside furniture.

iOmniscient

Autonomous Emergency Response

Optional automated response for road incidents can reduce response time by over 80%





01 Detect

A camera or microphone detects a road incident, such as a fire.



02 Find

Identify the nearest appropriate responder, such as the fire brigade.



03 Direct

Tell the responder where to go and what action to take.

iOmniscient

Event Management and Camera Health

Manage incident evidence and diagnose camera problems

Alarms and notifications

Notify, acknowledge and view alarms.
Send email alerts and use event-based recording.

Evidence and operations

Manage archives and reports across cameras.
Operate remotely, centrally or standalone on the network.

Camera diagnostics

Detect network or power loss, focus problems,
camera movement, sabotage, vandalism
and low visibility such as fog.



iOmniscient

Deployment and Configuration

An open system with configurable infrastructure and specialist applications



Complete solution

Use existing cameras and optimize their views for analytics. iOmniscient can supply cameras, IoT devices, servers and other infrastructure.

Configuration and options

Radar speed measurement, near misses, LPR, specialist applications and customized GIS are configurable options. Average-speed enforcement needs LPR at two points. Some enforcement functions cannot share a camera with other analytics.

©2026 iOmniscient Corporation

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

enquiries@iomni.ai

©2026 iOmniscient Corporation

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.





iOmniscient