

Features



Hybrid AIVA approach

VISuite AI benefits from a versatile GPU-powered deep learning engine. Our AI solution provides customers with highly customised object classification, detection, and tracking capabilities for projects with broad operational requirements. Combining AI object classification with predefined rules and cognitive intelligence allows for an easily configurable system without compromising accuracy or results.



Patented Scenario Based Rule Engine

The core Video Analytics component of VISuite AI is Ipsotek's patented Scenario-Based Rule Engine (SBRE), a powerful tool that precisely defines behaviours of interest, replicating the way they would unfold in dynamic and complex real-world environment. This allows operators to calibrate alarms to only be raised on specific behaviours or scenarios, minimising false and nuisance alarms.



Incident Response Graphical-User-Interface (GUI)

VISuite AI actively monitors large networks of cameras and tracks objects in real-time throughout the scenes. Advanced trackers and AI detectors are used to maintain a track on every individual, vehicle, or object to generate rich and accurate metadata unique to each object in the scene. Incident Response (IR GUI) is an intuitive user interface that allows operator to define an event and then search through hours of video in seconds, and to track persons and vehicles across multiple overlapping and non-overlapping cameras.



Custom Neural Network Training

Ipsotek VISuite AI uses neural networks to detect and classify a range of different objects. Through VISuite's deep learning capabilities, bespoke neural networks can be trained to detect novel objects on a project-by-project basis. Objects can be differentiated with great accuracy, from people, luggage, and cars, to mobile phones, helmets, and bicycles.



Kibana Visual Reports

VISuite AI continually produces structured metadata from the unstructured data of video. Ipsotek can create custom reports for the purpose of visualising the data collected in real-time and retrospectively when investigating historic data. These reports can be designed according to the requirements of the end user, such as histograms, bar charts, pie charts, and heatmaps. Dashboards can also be created to view multiple reports simultaneously.



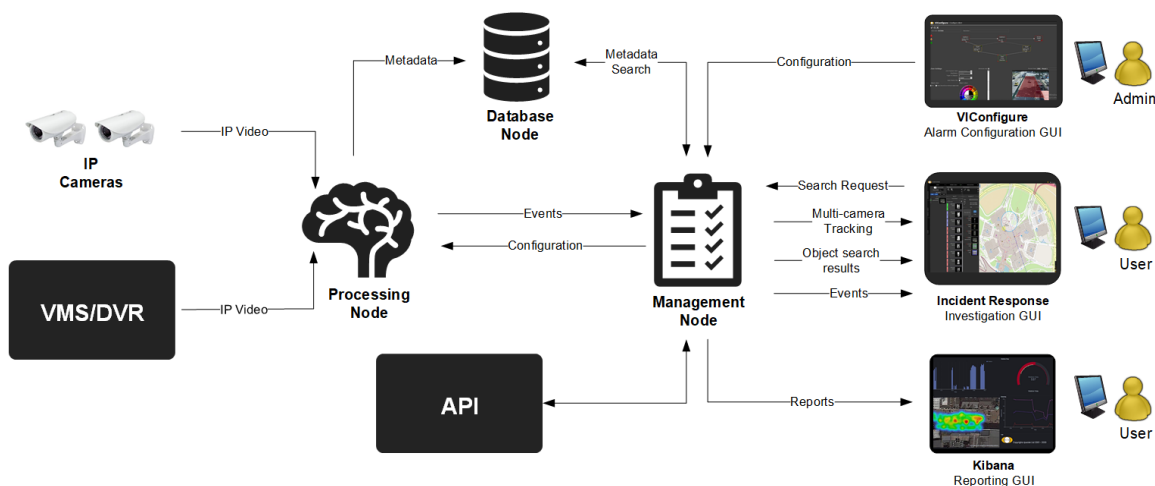
GIS Maps and GPS Coordinates

Large scale networks of fixed and PTZ cameras can be fully calibrated using Ipsotek's VISuite. This calibration is linked with the GPS location of the camera and allows the analytics engine to calculate the GPS coordinates of each tracked object. A PTZ camera can then automatically pan, tilt and zoom on that location. Once the location is displayed on a map, and a PTZ is focussed on the event, operators are provided with greater situational awareness to efficiently manage incidents.

Features	VISuite AI Products		
	VISuite AI	VISuite AI Forensics	VISuite AI Investigation
Artificial Intelligence	✓	✓	✓
AI Based Classifier	✓	✓	✓
AI Based Tracking	✓	✓	✓
AI Based People Counter	✓	✓	✓
Up to 32 Rules per Camera	✓	✓	✓
Geo Tagging	✓	✓	✓
Live Alarms	✓	✓	✓
Visual Reports	✓	✓	✓
Forensics Search		✓	✓
Tag and Track Multi-Camera Tracking			✓

System Architecture

Ipsotek's VISuite AI v11 system architecture consists of Management Node(s), Processing Node(s), and Database Nodes(s) which manage rules and user interfaces, perform Video Analytics and provide event and metadata storage respectively. These Nodes can be deployed in a distributed manner and/or coexist on the same physical or virtual server.



System Component	Description
IP Camera	VISuite can analyse a Video Stream with sufficient quality from an incumbent surveillance camera network.
Processing Node	A server that includes Nvidia GPU's. Highly-trained Neural Networks analyse the video streams, classifying objects and produce metadata describing behaviours in the scene.
Database Node	A database that stores the produced metadata. Can be installed on the same machine as the processing node, or a dedicated machine.
Management Node	Federates and manages the processing and database nodes. Configuration is sent to the wider system from the management node, whereas events raised by the processor and database queries are received as an output.
VIConfigure	This GUI used to configure the system and define rules. VISuite AI licensing model enables up to 32 rules to be applied to a camera channel through a perpetual software license.
Incident Response	Ipsotek's Incident Response GUI which assists operators to investigate, track and search threats both in real-time and post-event.
Kibana Reports	Operators can create bespoke graphs/charts/reports to visualise the output of statistical metadata in the Kibana frontend.
API Integration	The API is typically used by VMS/PSIM systems to access live generated data and/or to query the database with parameters such as events by date, time, or location.

Scalability

VISuite's modular composition allows nodal roles to be installed in various locations. This allows for unlimited system scalability, subject to the number of servers and hardware requirements.

Supported Hardware

Ipsotek's VISuite AI v11 supports all Nvidia GPU's with Pascal Architecture or later. For further details of hardware supporting VISuite AI, please refer to [Ipsotek's Hardware Specification Datasheet](#).

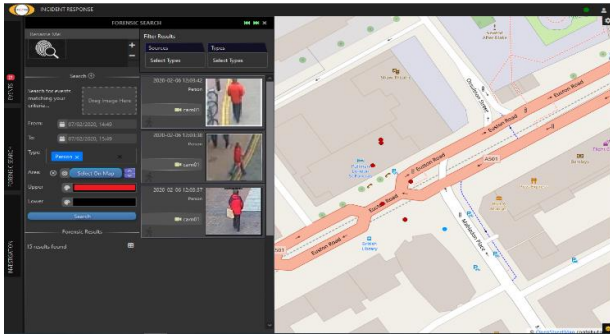
3rd Party Integration

Ipsotek's VISuite AI has been integrated with many of world's leading security manufacturer's products. For a full up to date list of integrations please contact support@ipsotek.com

Rule Modules and Licenses

Type	Description	Application	VISuite AI	VISuite AI Forensics	VISuite AI Investigation
 In Zone	Detects object(s) moving within a zone	Intrusion Detection, Tracking, Counting, Object Classification	✓	✓	✓
 Zone Intersection Counter	Counts the Number of times an object crosses the zone	Loitering	✓	✓	✓
 From Zone A to B	Detects object(s) moving between two zones	Illegal Turns, Object Counting/Classification, Intrusion Detection	✓	✓	✓
 In Zone A NOT B	Detects object(s) moving in Zone A which is NOT in Zone B	Vehicles driving on motorway hard shoulder	✓	✓	✓
 In Zone A AND B	Detects object(s) moving in Zones A and B simultaneously	Restricting object(s) movement to a virtual pathway	✓	✓	✓
 Appears In Zone	Detects object(s) appearing within a zone	Abandoned Vehicle, Exiting Buildings	✓	✓	✓
 Disappears In Zone	Detects object(s) disappearing within a zone	Returning to a Vehicle, Entering Buildings	✓	✓	✓
 Enters Zone	Detects object(s) entering a zone	People Counting, Intrusion Detection	✓	✓	✓
 Exits Zone	Detects object(s) exiting a zone	People Counting, Asset Protection	✓	✓	✓
 Travels In Zone	Detects object(s) that travel a specified distance inside a zone	Intrusion Detection	✓	✓	✓
 Traversal Time and Speed	Detects object(s) traversal time and speed between Zoned A and Zone B	Collect Statistics, Speed Detection	✓	✓	✓
 No Track Zone	The system will cease tracking objects that enter this zone. The output of this zone is always false	Force termination of tracks at certain areas in the image	✓	✓	✓
 Dwell Time	Queue and Dwell time	Queue Management and Dwell Time Measurement	✓	✓	✓
 Proximity Detection	Detect objects that get too close to each other	Social Distancing enforcement	✓	✓	✓
 Proximity Zone	Detect objects that get too close to each other	Social Distancing enforcement	✓	✓	✓
 Proximity Advanced	Link two zones and measure proximity between objects detected by these zones	Abandoned object or Vehicle, Dynamic Intrusion	✓	✓	✓
 People Counting	Ingress and egress people counting from a perspective camera	Large venues, Crowds, Queue Management	✓	✓	✓
 AI Detector	Use AI to detect specific object classes and their direction	Detect in high accuracy an object based on shape	✓	✓	✓
 AI Counter	Use AI to detect and count all objects of one or more types	Crowd density measurement	✓	✓	✓
 Change Detection	Detects a change in the scene for the period of the background update and then it is reset	Video Motion Detection (VMD) with Classification	✓	✓	✓
 Object Introduced	Detects stationary object after a specified period of their introduction	Abandoned package, Parked vehicle	✓	✓	✓
 Object Removed	Detects stationary area after a specified period of an object's removal	Museum Theft and Asset Protection	✓	✓	✓
 Direction of Motion	Detects the motion direction of objects or pixels within a scene	Flow Violation	✓	✓	✓
 Colour Detector	Triggers when a certain shade or colour is detected	Filter object(s) by colour	✓	✓	✓
 Overcrowding	Detects the percentage of a zone(s) that is occupied by objects	Area overcrowding and partial presence of an object	✓	✓	✓
 Congestion	Detects the percentage of a zone(s) that is occupied by stationary objects	Vehicle Congestion, Crowd Congestion, Partial presence of a stationary object	✓	✓	✓
 Activity	Activity detection based on movement	Crowd Density Measurement	✓	✓	✓
 Smoke	Detects Smoke	Video Smoke Detection	✓	✓	✓
 Crowd Behaviour	Look for abnormal crowd behaviours	Detection of panic, mass movement	✓	✓	✓
 Crowd Density	Estimate crowd numbers in highly crowded spaces	Health and safety, event management and planning	✓	✓	✓
 Parking management	Detect vehicles in parking bays and report availability or occupancy	Car Park management, Parking bay occupancy monitoring	✓	✓	✓
 Auxiliary Inputs	External input triggers from 3 rd party systems or another camera	Multi-camera alarms, RFID, Relay contact, XML over IP, ANPR	✓	✓	✓
 No Video	Detects Missing video signal	Fault detection	✓	✓	✓
 Poor Video	Detects if the Video Signal is too poor to use	Video signal fault, poor scene illumination	✓	✓	✓
 Scene Change	Detects a scene change	Camera movement or Scene change (video switch)	✓	✓	✓
 Out of Preset	Trigger when a camera is out of preset for more than an acceptable time	Tampering with camera, camera no on preset	✓	✓	✓
 Disabled	Disables the Zone, the output is always false	Sustain the state of a condition	✓	✓	✓
 Forensics Search	Appearance based searching	Content based video retrieval		✓	✓
 Tag and Track	Multi-camera tracking	Tracking of individuals across multiple cameras for security or safety applications			✓

Graphical User Interface Incident Response



Forensics and Tag and Track Search Criteria

- Camera Selection
- Proximity
- Time Period
- Behaviour
- Object Class (Appearance Based or AI Based)
- IR day/night cameras
- Thermal cameras

Visual Reports & Dashboards

- Custom reports to visualise data collected in real-time
- Investigate historic data
- Bespoke Dashboards to visualise data simultaneously

Performance

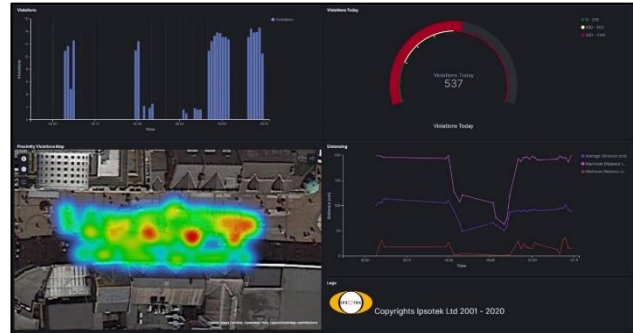
- Unlimited number of cameras for simultaneous search
- Unlimited number of detection targets
- Unlimited number of detection areas

Object Classification

VISuite AI v11 offers both appearance based and non-AI based object classification for triggering alarms and events. Classification can also take in to consideration object colour, speed, width, depth and height.

Both Forensics Search and Tag and Track are part of Ipsotek's Incident Response GUI:

- The Forensic Search tool operates on the metadata provided by VISuite 11 to scan through pre-analysed video and search for individuals based on appearance. Operators can quickly scan through hours of footage to find a suspect.
- Tag and Track is a patented and award-winning Video Content Analysis based tracking system that operates on a network of overlapping and non-overlapping cameras to track a "tagged" individual. Suspects can be tracked across the network of cameras in real-time with their path overlaid on a map enhancing increased situational awareness.



Appearance-Based Object Classes	AI Object Classes
Bicycle, Bus, Crawl, Group, Lorry, Motorbike, Package, Person, Running, Van	Airplane, Backpack, Bicycle, Bus, Car, Child, Crawl, Dog, Fire, Fire Extinguisher, Gun, Forklift, Group, Handbag, Helmet, Knife, Laptop, Mobile Phone, Motorbike, Package, Person, Ship, Smoke, Suitcase, Stroller, Train, Truck, Van, Vest, Wheelchair

VISuite AI v11 is being continually trained for new AI Object Classes. For details of Ipsotek's latest AI Object Classes please contact support@ipsotek.com

Supported Cameras

VISuite AI v11 supports the following camera types: Visual, IR day/night, Thermal and PTZ. A standard feature included with VISuite AI v11 is the automatic PTZ control of a camera to track an object via GPS coordinates or dynamically via the cameras protocols.

Contact Us

Ipsotek Ltd UK & Europe	(+44) 2089718300	sales.uk@ipsotek.com	Tuition House, 27-37 St George's Road, Wimbledon, London SW19 4EU UK
Ipsotek DMCC Middle East & Africa	(+971) 45515102	sales.me@ipsotek.com	2001, X2 Tower Cluster X, JLT, PO Box 214607. Dubai. UAE
Ipsotek QFZ LLC, Qatar & Kuwait,	(+974) 66639329	sales.me@ipsotek.com	Business Innovation Park, Ras Bu Fontas, W2-L1, Doha, Qatar
Ipsotek PTE Ltd, SEA and APAC,	(+65) 65139723	sales.apac@ipsotek.com	60 Paya Lebar Road, #11-30 Paya Lebar Square, Singapore 409051

www.ipsotek.com