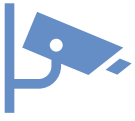


VISuite FR Face Recognition Product Datasheet



Features



Facial Recognition Engine

Ipsotek's VISuite FR utilises advanced Face Recognition algorithms to detect faces even in crowded scenes. Precise, accurate biometric information is created in the form of a unique FIR (Facial Identification Record) which can be stored and compared with a database of images for multiple applications.



Watchlist

The watchlist solution detects intruders whose faces have previously been enrolled in a Watchlist and provides the capability to raise an alarm or event when a match is found. There are two modes of operation or Watchlist Detection: assisted and non-assisted. Assisted operation is used at secured entrances or turnstiles where authorised personnel or VIPs are required to look towards a dedicated camera to gain access. Non-assisted operation is deployed in public places where the solution is detecting the faces of people in a crowd.



Face Mask Detection

VISuite FR detects people wearing face masks and can inform operators when someone is present without a face mask. An alarm is generated in the event of a violation occurring, which is important during the monitoring and enforcing of social distancing rules. Additionally, operators can review graphs and reports to visualise the statistics, location and frequency of violations.



Two-factor Authentication Access Control

VISuite FR can be used to provide a second level of access control verification for securing premises or sites. As part of this solution, each entry in the Access Control database will have a unique access control pass number and a face image enrolled. VISuite FR supports face enrolment into multiple watchlists, for example Staff, Visitor, and VIP. This allows different access control permissions or alarms to be configured.



Incident Response

VISuite FR actively monitors large networks of cameras and captures faces in real-time throughout the camera FOV. Advanced trackers and AI detectors are used to maintain a track on every face. Incident Response is an ergonomically designed GUI that allows an operator to upload a face and search through hours of video in seconds. Allowing a person to be tracked throughout the CCTV network.



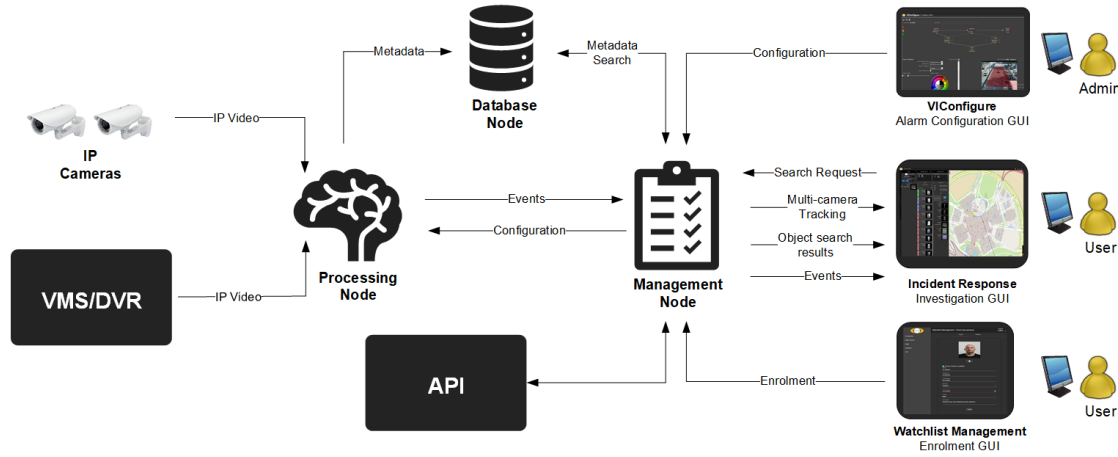
Demographics

Cameras that are used for other Facial Recognition applications can also be used to generate demographic reports. Using Ipsotek's reporting tool operators can create bespoke reports which display average values for estimations of age range and gender. Reports can be visualised by date, for example day, week, month, as well as per camera.

Features	VISuite FR Products		
	VISuite FR	VISuite FR Forensics	VISuite FR Investigation
Face Recognition	✓	✓	✓
Watchlist	✓	✓	✓
Hostile Reconnaissance	✓	✓	✓
Journey Time Measurement	✓	✓	✓
Multi Factor Authentication	✓	✓	✓
ID Search	✓	✓	✓
Face Mask Detection	✓	✓	✓
Augmented Reality	✓	✓	✓
Demographics Report	✓	✓	✓
Forensics Search		✓	✓
Tag and Track Multi-Camera Tracking			✓

System Architecture

Ipsotek's VISuite FR system architecture consists of Management Node(s), Processing Node(s), and Database Node(s) which manage rules and user interfaces, perform Face Recognition and provide event and FIR 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 the Video Stream of sufficient quality from an incumbent surveillance camera network.
Processing Node	A server that houses Nvidia GPUs. Highly-trained Neural Networks analyse the video stream, classifying objects and producing biometric FIR.
Database Node	A database that stores the produced biometric information 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	The GUI used to configure the system and define rules. VISuite FR 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 for people in real-time and retrospectively.
Watchlist Management	Operators can enrol individual's faces and information to watchlists. When a face is detected an alarm can be raised or a person admitted in a black/whitelist style.
API Integration	The API is typically used by VMS/PSIM systems to access live generated data and/or to query the database by 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 an unlimited system scalability, subject to number of servers and hardware requirements.

Supported Hardware

Ipsotek's VISuite V11 supports all Nvidia GPUs with Pascal Architecture or later. For further details of hardware supporting VISuite AI, please refer to [Ipsotek's Hardware Specification Datasheet](#).

3rd Party Integration

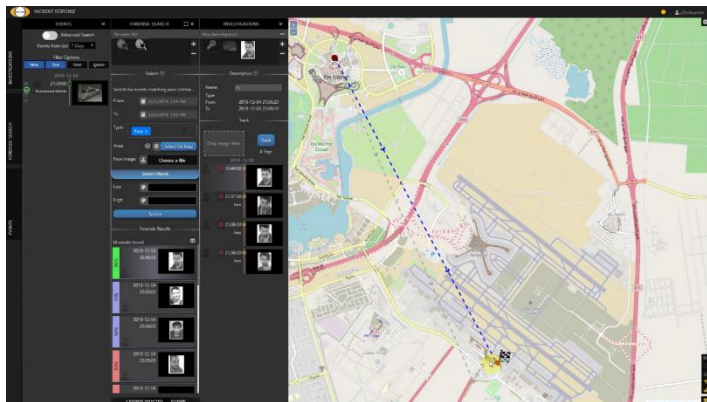
Ipsotek's VISuite FR has been integrated with many of world's leading security manufacturer's products. For a full up to date list of integrations please contact support@ipsotek.com

Rule Modules and Licenses

Type	Description	Application	VISuite FR	VISuite FR Forensics	VISuite FR Investigation
Face Detection	Detect faces and trigger when a face quality matches the detection requirements	Create a database of faces	✓	✓	✓
Face Recognition	Detect faces and match them to entries in the Watchlist database	Watchlist, VIP list, Staff Detection, Security Operation	✓	✓	✓
Face Mask	Detect if a person is wearing a mask or not	Health and safety, PPE, health buildings	✓	✓	✓
Unique Face	Detect unique faces and ignore faces that repeat	Counting unique visits per day	✓	✓	✓
Repeated Face	Detect faces observed multiple times within a set period	Hostile Reconnaissance	✓	✓	✓
Face Missing	Detect people hiding their faces	Security and safety	✓	✓	✓
Journey Time	Report the time since last observation of the face	Customer Experience Metrics	✓	✓	✓
Happy Face	Emotion Recognition	Customer Experience Metrics	✓	✓	✓
Face Blurring	Blur faces in the video based on a specific set of conditions	Compliance and privacy	✓	✓	✓
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

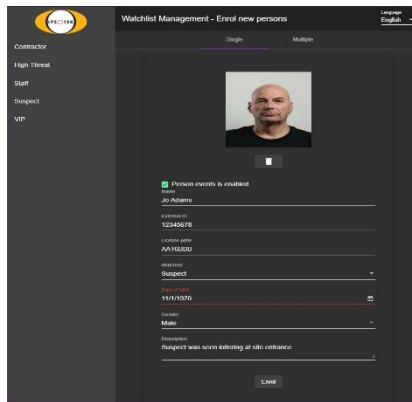
Incident Response



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

- The Forensic Search tool operates on the metadata provided by VISuite FR to scan through pre-analysed video and search for individuals based on appearance. Operators can quickly scan through hours of footage to locate 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. Individuals can be tracked across the network of cameras in real-time with their path overlaid on to a map to enhancing increased situational awareness.

Watchlist Manager



Unlimited size of watchlist databases (subject to hardware requirements):

- Multiple watchlists can be created, so different actions can be taken upon detection of the respective enrollees. For example, allowing access to staff members, highlighting the presence of VIPs, or high security alerts for known perpetrators.
- Matching thresholds can be set for individual watchlists.

Supported Cameras

- Visual cameras
- IR day/night cameras

For a full list of supported cameras please contact support@ipsotek.com

Face Mask Detection and Face Blurring

VISuite FR can provide solutions beyond identifying or finding individuals. FR can detect people wearing masks and can inform operators when someone is present without one. This detection can be used to monitor and enforce rules pertaining to face masks. Furthermore, FR detects the presence of people's faces and can pixelate their identifiable features to protect their privacy. This can even be performed on the same stream.



Kibana Reports

Customised reports and dashboards can be created, visually representing or quantifying detections from VISuite FR. For example, the dashboard to the left visualises the frequency that a face mask is, or is not, detected. This statistic can be expressed in various charts, and indicate the location of violations. Valuable insights can be gained from analysing the data in this way.

Performance

- Minimum 20 pixels inter-eye distance
- Recommended 32 pixels inter-eye distance
- Pitch angle within 45°, subject to sufficient facial landmarks being visible
- Can analyse unlimited number of faces in the scene

For further details regarding environmental considerations and Facial Recognition performance, please refer to [Ipsotek's Camera Selection and Configuration Guidelines](#) document.

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