face Intellect

Facial Recognition and Face Search with Intellect Enterprise

To resist intruders, you must be able to find them. Axxon's Intellect integrated Facial Recognition module notifies operators when it spots a human face within the video frame. It automatically detects and captures the image of that person and compares it to known photos of persons of interest. You can use this detection tool to create a database of employees or other individuals: a camera situated in an entrance can record all who pass through the turnstile and save images of their faces to a database.

Facial Recognition module

This module automatically compares an image chosen by the face capture module with images stored in a database. Identification algorithms, powered by the Cognitec engine, guarantee high probability of correct recognition and quick search of databases containing hundreds or thousands of images. The Facial Recognition module integrates with various biometric systems for identifying human faces, from checkpoints to criminal databases.

- Identifies people regardless of facial hair, hairstyle, eyewear, aging or angle, and in a variety of background conditions
- A non-intrusive, contact-free process, unlike other biometrics
- Works in "real street" conditions
- Compatible with legacy databases
- Real-time notification about recognized persons
- Easy integration with existing systems
- Real-time notification of identity matches and alerts
- Automatic synchronization with user database
- Integration with access control systems
- Recognition algorithms powered by Cognitec SDK v 8.8 and VeriLook
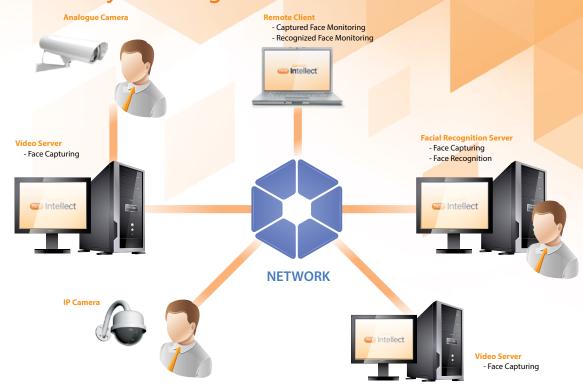
Face Search module

The Face Search module, powered by the Cognitec or VeriLook engine, creates a database of all faces captured by video cameras and lets you search the database for similar faces. To search, indicate a frame in the video archive containing a face, indicate a link (URL) to an image, or upload an image of a face to the system. The results are displayed as a list of photographs sorted by similarity. This module makes your search in video footage for persons of interest dramatically faster, as well as collecting statistics on capture by various cameras.

Diverse Applications

Intellect's Facial Recognition and Face Search modules are designed for use at public places, airports, stadiums, border control zones, prisons, critical infrastructure, and military sites.

- Restricted access objects requiring the highest level of security. Traditional access control systems cannot prevent an unauthorized person from using an access card. The Facial Recognition module authenticates a card holder automatically, by comparing the face in the video frame with the image in the database.

- Face identification at border crossings (Intellect Enterprise can connect to external databases with images of terrorists and wanted criminals), with simultaneous cross-check of facial image to passport/ID.

- The Face Search module is a great time-saver for investigation and search activities based on video footage.

Face Intellect System Diagram

Analogue Camera

Remote Client
- Captured Face Monitoring
- Recognized Face Monitoring

Video Server
- Face Capturing

Facial Recognition Server
- Face Capturing
- Face Recognition

NETWORK

IP Camera

Video Server
- Face Capturing

Face Intellect Technical Specifications

Verification mode	1:1 match of biometric traits captured by the Face Capture module against the face of one person in the database
	The calculated similarity level is used to make a yes/no verification decision
Identification mode	One-to-many match of bio-metric traits captured by the Face Capture module against a set of faces in the database
	Returns a list of photographs sorted by similarity
	Size of the returned match list can be limited
	The Face Capture module can be configured to detect all visible faces within an image
Image format support	Reading • JPG, JPG2000, PGM, PNG, BMP, ISO 19794-5
	Writing • JPG, PGM, BMP, ISO 19794-5 Grayscale and color image

Facial Recognition engine is robust against	• Pose (+/- 15° deviation from frontal image) • Minor partial face occlusion • Beard and hairstyle changes • Wearing glasses (except dark sunglasses) • Moderate lighting changes
Portrait characteristics	• Eye detection at predefined confidence levels • Glasses detection • Exposure determination • Closed eyes determination • Head size and position determination • Rotation, cropping, downs-caling to fit
Performance	• 200,000 template compari-sons per second • Generates 5 templates per second
Hardware requirements	• CPU: Intel Core 2 Duo 3.0 GHz • RAM: 1 GB

Disclaimer

Like any biometrics, Facial Recognition by its nature cannot guarantee 100% accuracy of recognition. The remaining uncertainty must be taken into account by the customer, who can compensate for these inherent challenges operationally and through other measures.

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