2020
FACE RECOGNITION SOLUTION

Alcon solution May. 2020

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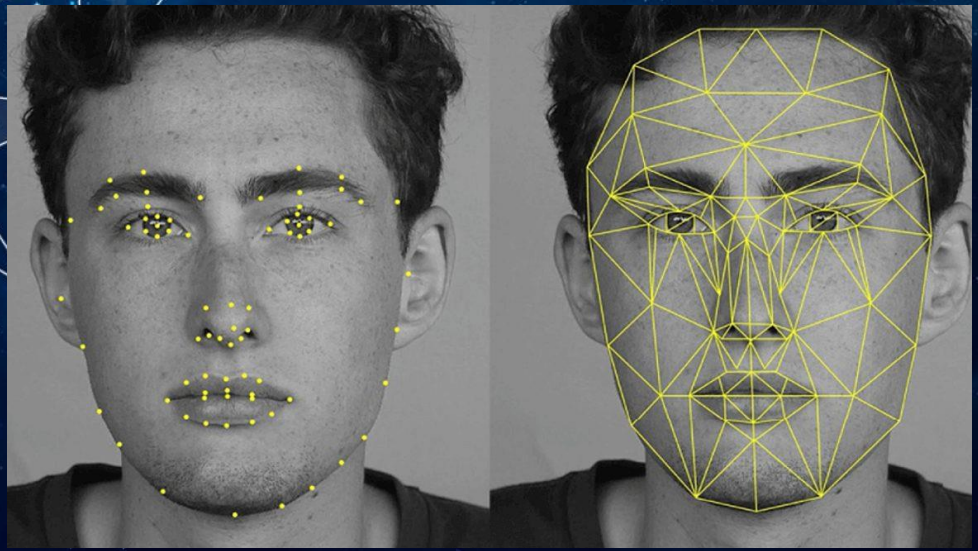

01 BACKGROUND

Technical background, product background

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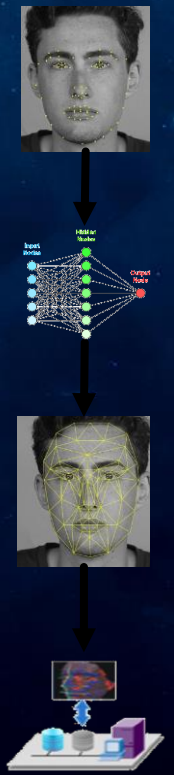
BACKGROUND

Biometric system is preferred for people identification due to its reliability and accuracy. Face recognition is required more and more in video surveillance system.

With development of Neural Network (NN) technology in AI area, face images could be trained in different distance and angle and face model can be built by algorithm, which improves accuracy and speed of recognition.

Based on deep-learning algorithm face recognition products in Alcon are designed for capture and recognition face in real time.

With a lot of experience in safe-city level projects, Alcon has ability to provide whole solution for our customers.

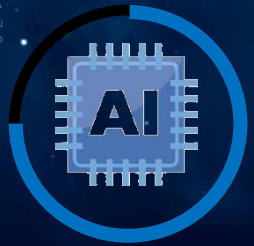


BACKGROUND

Alcon face recognition system includes three kinds of working mode: the front-end analysis, back-end analysis and collaborative analysis. With high-speed automatic recognition capability, system is wildly used for public security, smart community, access control, attendance, bank VIP customer identification and other practical scenarios application requirements.

BACKRGROUND

Strong ability to deal with data



AI Algorithm

Face library with high security level

Recognition products with powerful functions

·World-class chip manufacturers

·Trained algorithm with enough data

·Open for integration

·Maturing algorithm

·Provide pictures with high quality

02 SOLUTION FEATURES

Solution feature, Product overview

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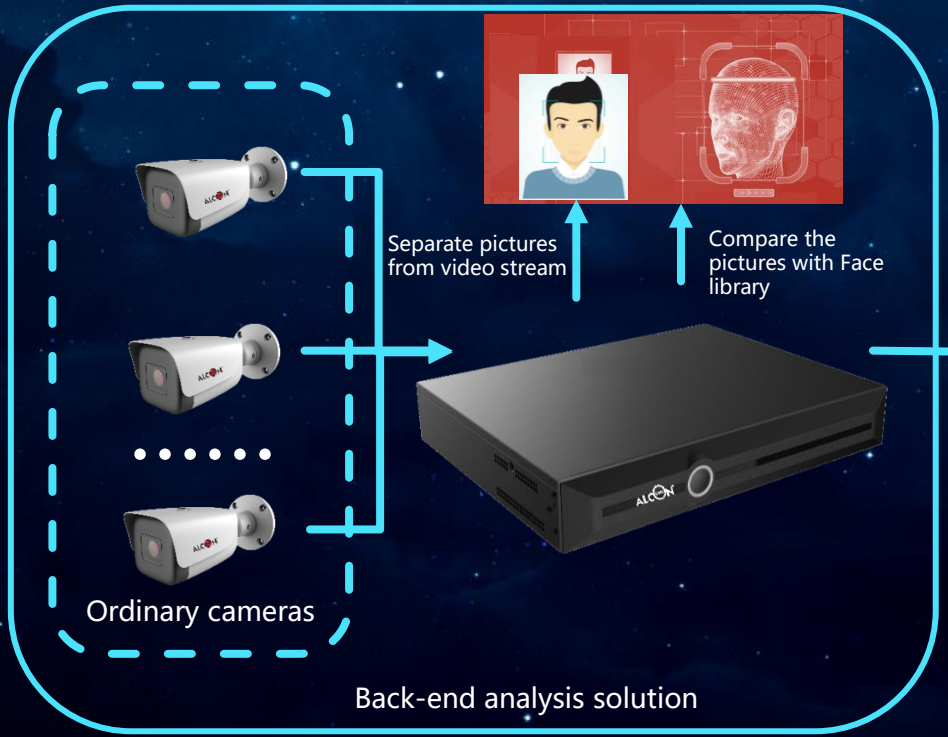
SOLUTION STRUCTURE



Suitable for scenario

·Required channel for **analysis<8 at the same time**

· Economic solution for SMB

PRODUCT OVERVIEW

MODEL

AL-NVR5020FR-8DRAID
AL-NVR5040FR-8DRAID
AL-NVR5080FR-8DRAID

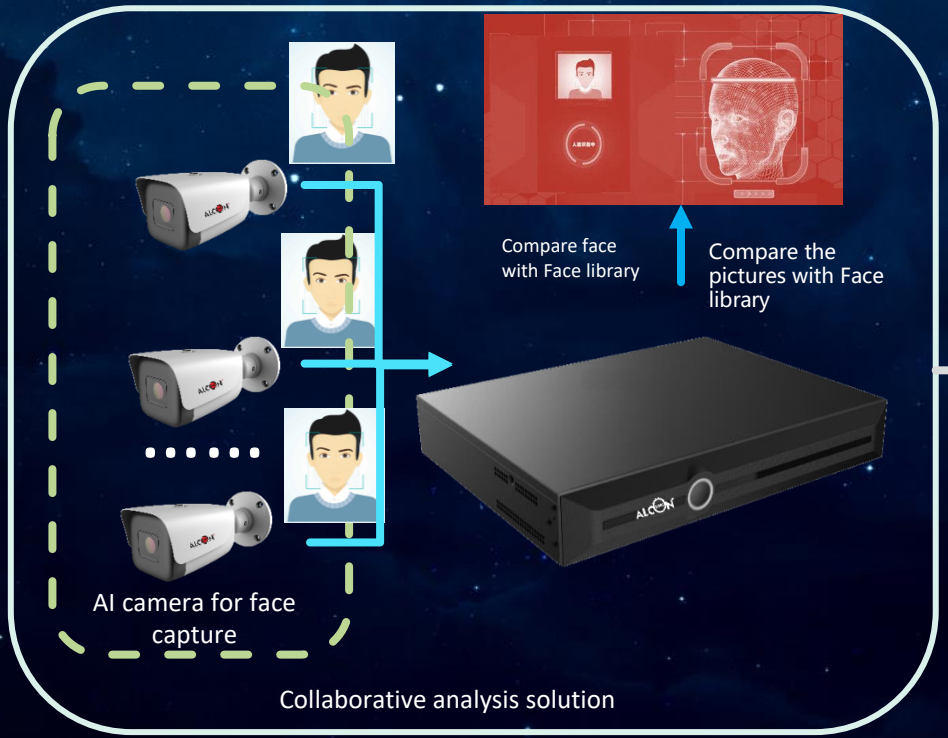
32 Bases facial pictures; **10k** facial pictures
Analysis **8-ch video stream, 16-ch picture streams**
Alarm trigger by black/white list
Management face library

MODEL

AL-NVR5005FR-1D
AL-NVR5010FR-2D

32 Bases facial pictures; **10k** facial pictures
Analysis **1-ch video stream, 5-ch picture streams**
Alarm trigger by black/white list
Management face library

SOLUTION STRUCTURE



Suitable for scenario

·Required channel for **analysis<16 at the same time**

· Economic solution for SMB

PRODUCT OVERVIEW

AI-2MP-Fixed-Capture
AL-50001-MPC-HD2LRFCDK

AI-2MP-Fixed-Capture
AL-50002-MPC-HD2LRFCDK

Face capture models

Operation mode: Capture face, intelligent monitoring for optional, default capture face

Capture quantity: 1 (default), 2, 3 for optional

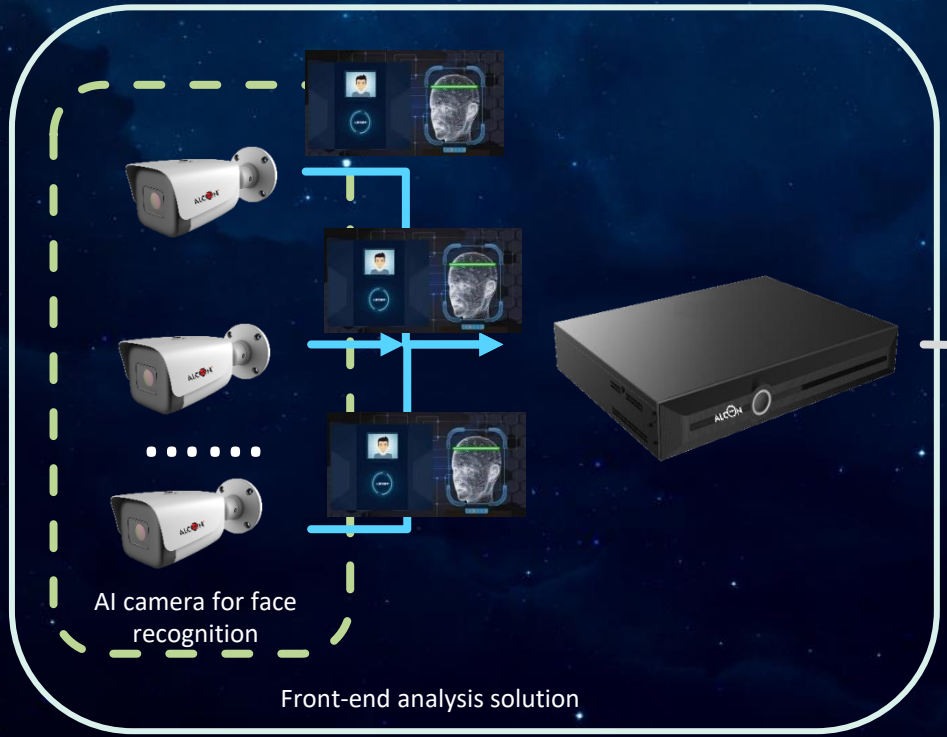
Error rate: ≤0.5%

Face capture accuracy: ≥97% (crowd 10~15 persons) ≥98% (crowd≤10 persons)

Min. pixel of face capture: default 80, 19-1920 for optional

Detect faces at the same time: ≤32

SOLUTION STRUCTURE



Suitable for scenario

·Required channel for **analysis>16 at the same time**

· High ability solution for SMB

FACE RECOGNITION MODELS

Face capture, intelligent monitoring for optional

Capture quantity: 1 (default), 2, 3 for optional

Error rate: ≤0.5%

Face capture accuracy: ≥97%（crowd10~15 persons）≥98%（crowd≤10 persons）

Min. pixel face: default 80, 19-1920 for optional

Face library: 32

Face picture in Face library: 5000

Face recognition accuracy:≥95%（ordinary scenario）≥99.9% (specified scenario)

Detect face at the same time: ≤32

03 APPLICATION

Application of solutions，typical scenarios

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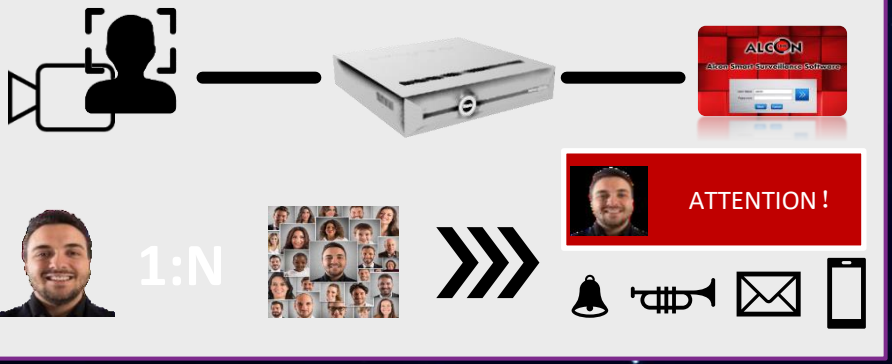
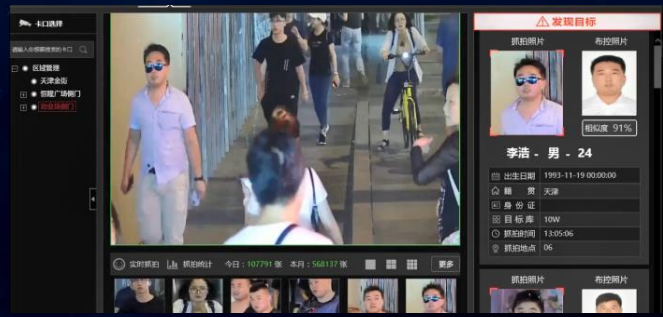
APPLICATION – Blacklist

AL-50001-MPC-HD2MVFRUDK
AL-50002-MPC-HD2MVFRUDK
AL-50002-MPC-HD2LRFRDK
AL-50001-MPC-HD2LRFRDK
AL-NVR-500X-FRxx…

In system blacklist can be configured. When people appears in controlled area, alarm will be triggered, then administrator will receive alarm on NVR, computer client and mobile client, so that can stop suspect immediately. (Scenarios: custom, public security, business center, shopping mall, bank school…)

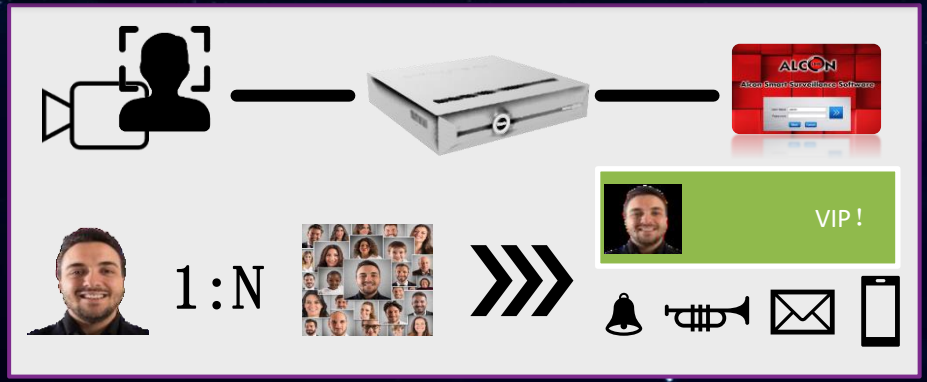




APPLICATION – VIP clients

AL-50001-MPC-HD2MVFRUDK
AL-50002-MPC-HD2MVFRUDK
AL-50002-MPC-HD2LRFRDK
AL-50001-MPC-HD2LRFRDK
AL-NVR-500X-FRxx…

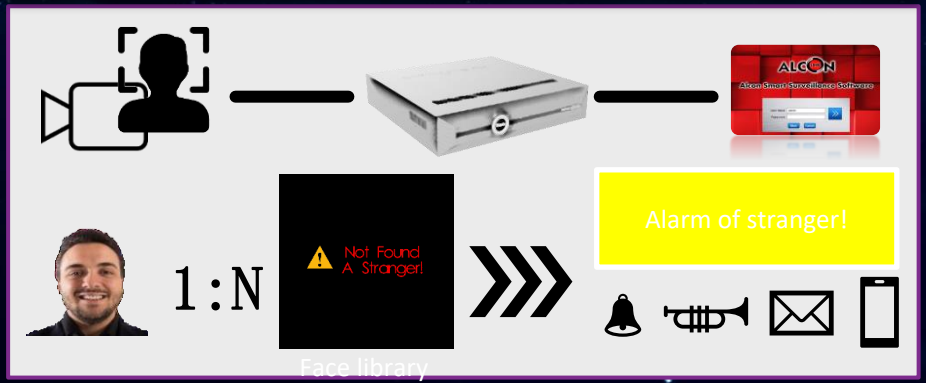
In system whitelist can be configured. When VIP client appears in controlled area, alarm will be triggered, then administrator will receive alarm on NVR, computer client and mobile client, so that user can welcome their VIP and provide service in time. (Scenarios: bank, business center, mall…)



APPLICATION – Stranger detection

AL-50001-MPC-HD2MVFRUDK
AL-50002-MPC-HD2MVFRUDK
AL-50002-MPC-HD2LRFRDK
AL-50001-MPC-HD2LRFRDK
AL-NVR-500X-FRxx…

In system whitelist can be configured. When people beyond whitelist appears in controlled area, alarm will be triggered, then administrator will receive alarm on NVR, computer client and mobile client, so that user can take action according to current situation. (Scenarios: business center, school…)

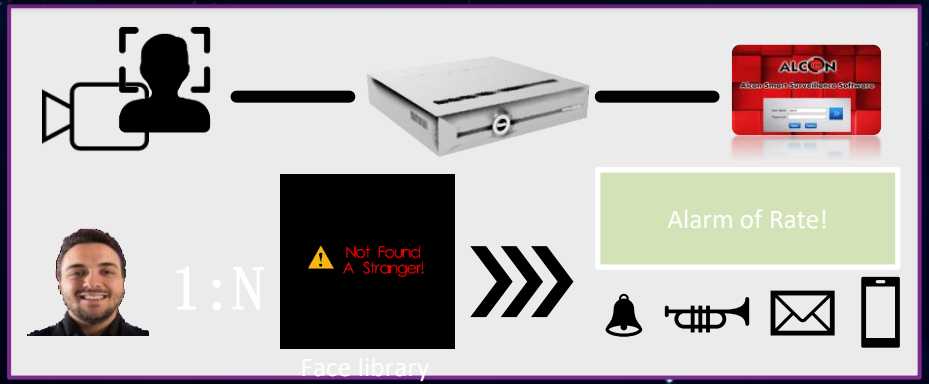


做一个新的视频

APPLICATION – Alarm of rate

AL-50001-MPC-HD2MVFRUDK
AL-50002-MPC-HD2MVFRUDK
AL-50002-MPC-HD2LRFRDK
AL-50001-MPC-HD2LRFRDK
AL-NVR-500X-FRxx…

In system whitelist can be configured. When people beyond whitelist appears in controlled area exceeding specific frequency, alarm will be triggered, then administrator will receive alarm on NVR, computer client and mobile client in order to beware of danger early. (Scenarios: public security, bank, business center, mall, school…)

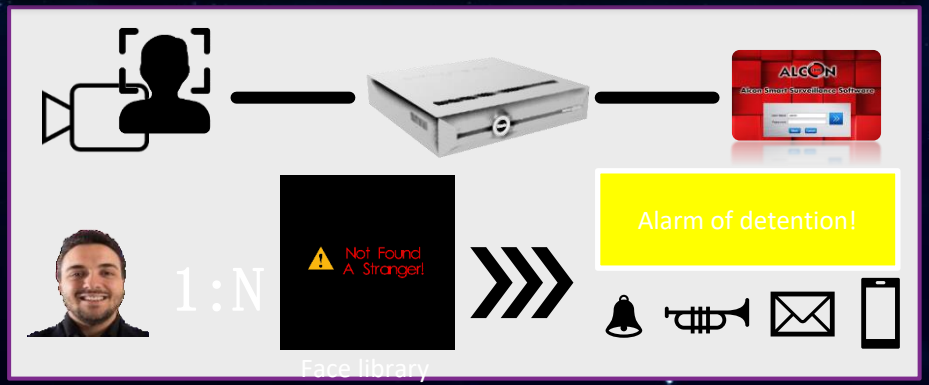


做一个新的视频

APPLICATION – Alarm of detention

AL-50001-MPC-HD2MVFRUDK
AL-50002-MPC-HD2MVFRUDK
AL-50002-MPC-HD2LRFRDK
AL-50001-MPC-HD2LRFRDK
AL-NVR-500X-FRxx…

In system whitelist can be configured. When people beyond whitelist appears in controlled area exceeding specific time, alarm will be triggered, then administrator will receive alarm on NVR, computer client and mobile client in order to beware of standing sentry. (Scenarios: public security, bank, business center, mall, school…)



做一个新的视频

APPLICATION – Check-in by face

AL-50001-MPC-HD2MVFRUDK
AL-50002-MPC-HD2MVFRUDK
AL-50002-MPC-HD2LRFRDK
AL-50001-MPC-HD2LRFRDK
AL-NVR-500X-FRxx…

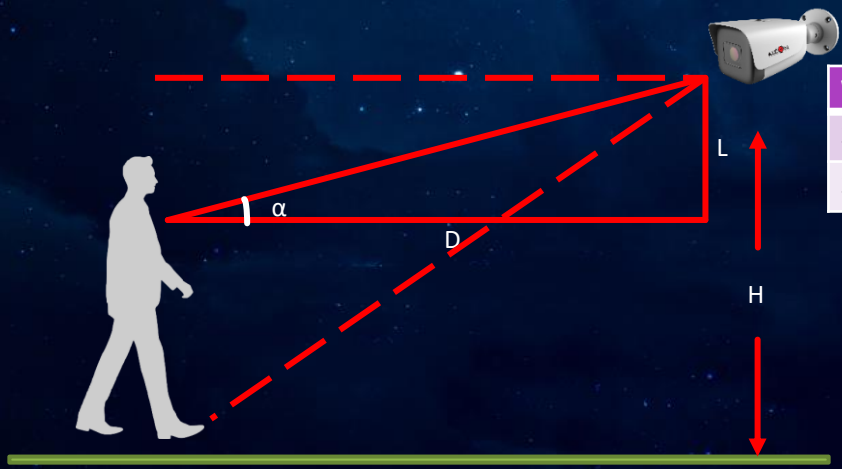
In system whitelist can be configured. When people in whitelist appears in controlled area, NVR will record the time of entrance/exit. It can be widely used into office or conference.

	A	B	C	D	E
1	Face Library Name	Name	Attendance Count	03-15	03-16
2	STAFF	Pillar	4	2	2
3	STAFF	Andy	8	6	2
4	STAFF	Alan	12	8	4
5	STAFF	Juana	8	4	4

04 INSTALLATION

Product installation and points of attention

INSTALLATION – Product installation



Width	Focal length	Distance	Height	Angle
2.5m	6mm	5.7m	2.5m	10°
2.5m	12mm	11m	3.5m	10°

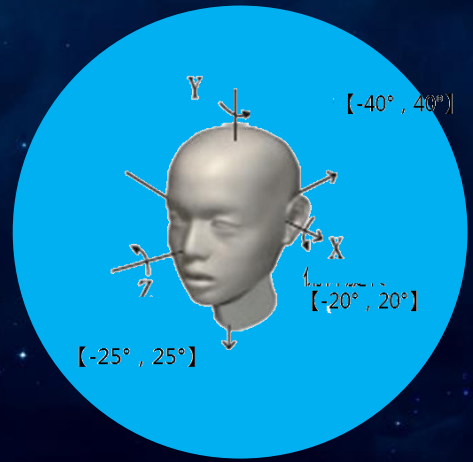
- Width of monitoring range should be less 2.5m
- α＜15°
- L=tanα=H-（Height of person-Height of head）
- H=tanα*D+1.5m
- 1.5m =Average height of person –Average height of head

INSTALLATION – Product installation

Sideways angle
-40°-40°

Tilt angle
-20°-20°

Rotation angle
-25°-25°



05 RELATED SOLUTIONS

Integrated solutions

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RELATED SOLUTIONS

- Integration with turnstiles/barriers
- Control access to industrial park/ building/office
- Check attendance by face recognition

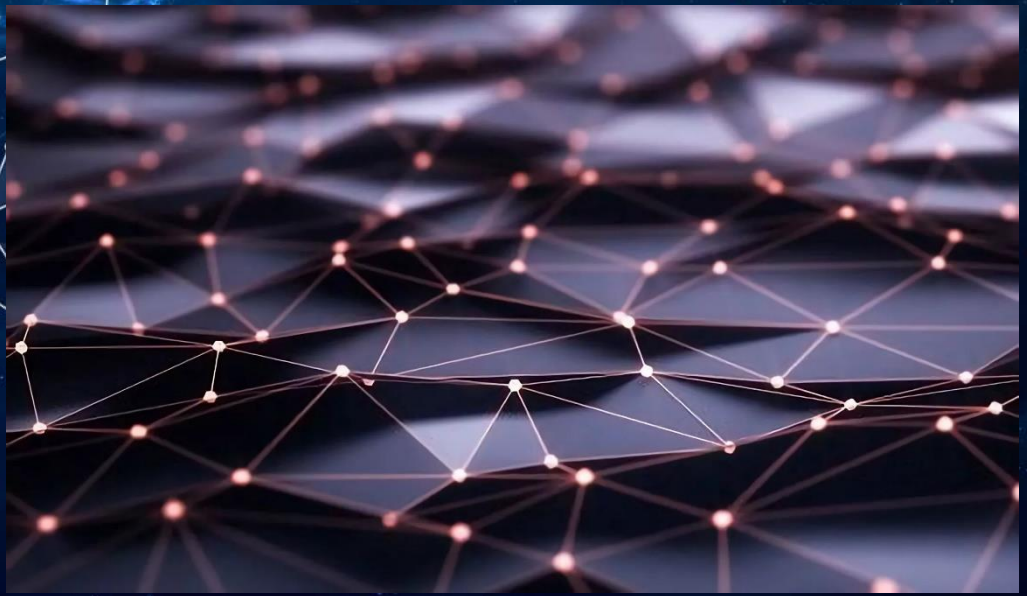
Face Recognition in office building

Face recognition in upscale neighborhood

- Face recognition system integration with system access control.
- Control access to apartment
- Widely be used in upscale neighborhood, prevent strangers outside; double check limits of authority by face recognition

Face recognition in classroom

- Face recognition system integration with system attendance.
- System Automatically checks attendance during class. Professors don’ t have to waste time doing roll call.



06 PRODUCT COMPARISON

Key advantages and key features

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PRODUCT COMPARISON—Key advantages

Alcon

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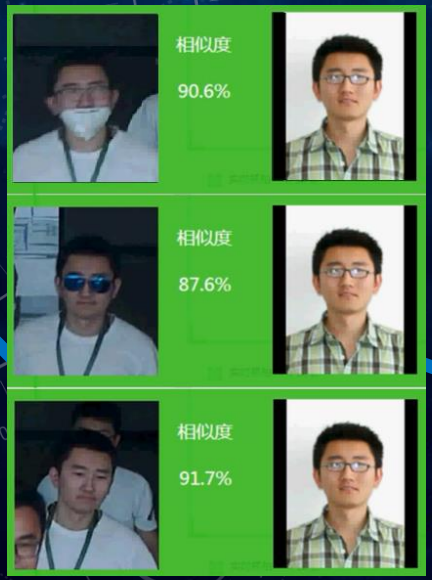
	Alcon	Hik
1	Motorized lens，convenient to adjust focus	Fixed lens
2	Starlight level product，Min. illumination Color: 0.001Lux	Starlight level product，Min. illumination Color: 0.001Lux
3	Face detection at the same time:≤32	Face detection at the same time:≤30
4	Support early warning, efficiently frighten intruders	Without warning function
5	Power supply: DC12V±20%/PoE; convenient to install; no need to buy extra power supply	Power supply: DC36V; need to buy specific power supply
6	Support to recognize face with mask	Doesn’ t support to recognize face with mask

SUPER STARLIGHT

Based on advantage of 7*24 full color super starlight camera in Alcon, accuracy of face capture and face recognition has been raised a lot.

According to our test in company, compared with normal cameras accuracy of recognition has been raised more than 20%.



Camouflage detection

Alcon face recognition system supports recognize various facial characteristics. People in mask, sunglasses won’ t affect accuracy of facial recognition.

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