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Face Recognition with Temperature Screening device

DJS-F10

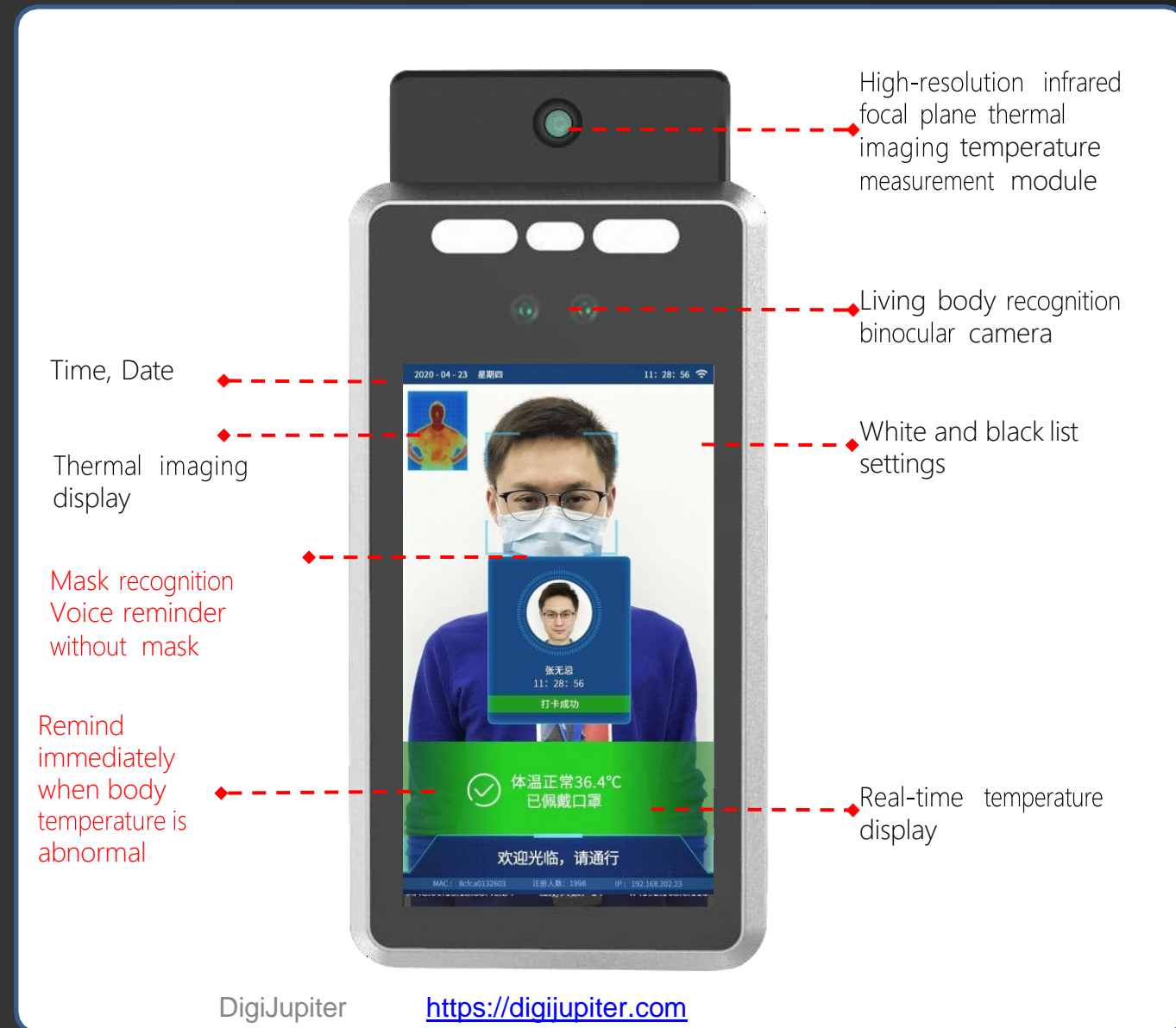DigiJupiter https://digijupiter.com
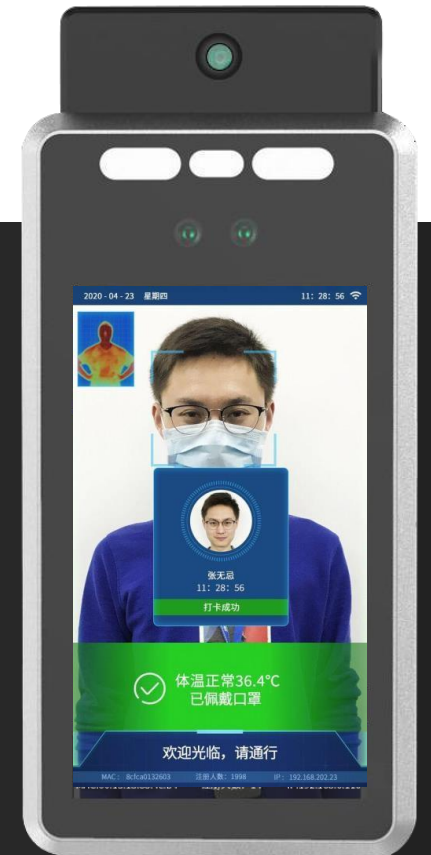
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DJS-F10

DJS-F10 uses professional infrared modules and top face recognition algorithms, with strong face recognition performance, fast recognition speed, ultra-long distance, high temperature measurement accuracy, non-contact, supports for mask recognition and other advantages. It supports 1: 1 and 1: N face comparison and search, supports reminders of not wearing a mask and abnormal body temperature, which can achieve true non-sense passage under high flow.

High-resolution infrared focal plane thermal imaging temperature measurement module

Living body recognition binocular camera

Time, Date

Thermal imaging display

White and black list settings

Mask recognition Voice reminder without mask

Remind immediately when body temperature is abnormal

Real-time temperature display

2020 - 04 - 23 星期四   11: 28: 56

张无忌
11: 28: 56
打卡成功

体温正常36.4℃
已佩戴口罩

欢迎光临，请通行

MAC : 8cfca0132603   注册人数：1998   IP : 192.168.202.23

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DJS-F10

Application Scenario

DJS-F10 truly realizes high-efficiency automatic and non-inductive recognition, sign-in or passage in crowded places, and can be widely used in office, community, school, factory, subway, exhibition and other related scenes.

Face recognition access control   Face Attendance \ Conference Sign-in   Face recognition gate

Office building

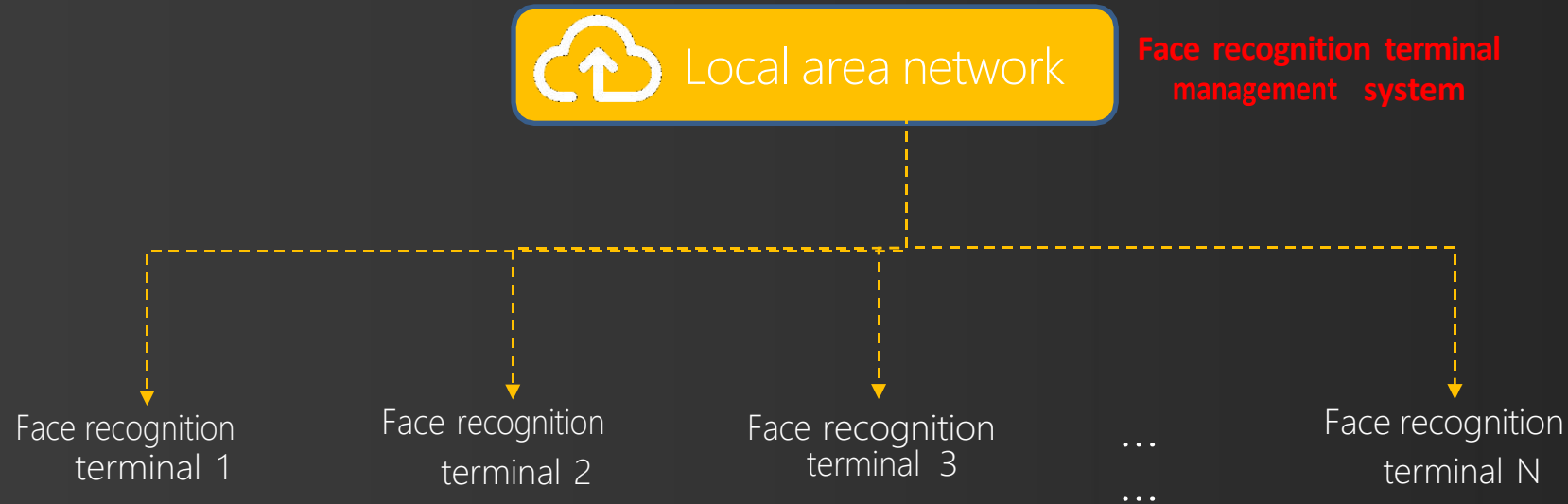Residential building

School

Factory

Subway

Store

DJS-F10

Solution Architecture

Local area network

Face recognition terminal management system

Face recognition terminal 1

Face recognition terminal 2

Face recognition terminal 3

...
...

Face recognition terminal N

The DJS-F10 can remotely manage and set the access rules, personnel, and terminals through the face recognition terminal management system. It realized the safe, efficient and unified traffic management and control of terminal machines and passengers, so is suitable for different application scenarios.

Common infrared temperature measurement solutions

Infrared temperature measurement scheme	Pyroelectric infrared detector	Small area array thermopile detector	Infrared focal plane area array thermal imaging	Large area infrared focal plane area array thermal imaging
Resolution	Single pixel	16 *16 ~ 32 *32	120 *90 ~ 256 *192	384 *288 ~ 1080P
Effective pixels in forehead area	Single pixel	4 ~ 8	Hundreds to more than two thousand	——
Recognition distance	A few centimeters, the cooperation of special lenses can be expanded to a few meters	0.5-1m	0.4 ~ 1.5m	2 ~ 10m
Recognition time	Millisecond	About 1 second	<1 second	<1 second
Accuracy	no	> ± 0.5	< ± 0.5	± 0.5, ± 0.3 (black body)
price	1 ~ 10	10 ~ 100	Hundreds to thousands	10,000 ~ 50,000
Advantage	Low price and low power consumption	Relatively low price	Area array imaging, with more effective pixels, more area temperature information, and high temperature measurement accuracy, can reach less than 0.3 after processing and debugging, and is less affected by the environment.	Suitable for long distances, large scenes, multiple targets temperature measurement scene
Disadvantage	Induction mainly, interfered by various heat sources and light sources, mainly used for infrared induction switches, automatic doors, smart home	Single-point temperature measurement after multi-point averaging is greatly affected by the environment and distance, recognition time is long, and the smoothing effect is poor. Because there are too few effective pixels in the forehead area (4-8), when wearing a mask, the temperature of the mask will affect the result. People need to stand still and close to	Compared with the small area array thermopile solution, the price is higher.	The price is expensive, and it is not suitable for the attendance access control scene.

array thermal imaging.Infrared focal plane area array thermal imaging scheme is a necessary condition for the realization of non-sense rapid passage due to its advantages of long recognition distance, short recognition time, high recognition accuracy, small environmental impact and cost-effectiveness.   DigiJupiter   https://digijupiter.com

Comparison between thermopile detector solution products and **DJS-F10**

Infrared temperature measurement scheme	Thermopile detector solution products	DJS-F10
Resolution	16 *16 ~ 32 * 32	120 * 90
Total pixels	256 ~ 1024	10800
Infrared temperature measurement	Single point temperature	Thermal imaging overall temperature
Frame rate	low	high
Recognition distance	0.5 ~ 1m	0.5 ~ 1.5m
Recognition time	About 1 second	<300ms
Accuracy	± 0.5	< ± 0.3
camera	Ordinary binocular camera	Ultra wide dynamic binocular camera
Does it require cooperation	Need to stand still, take the initiative to approach	No need
environmental impact	Big	small
Use environment	Indoor only	Indoor / outdoor
Face Library	30000	50000 max
ISP image processing	No	Have
Face image data processing	CPU	NPU

DJS-F10 adopts infrared focal plane area array thermal imaging scheme. Compared with the thermopile scheme, the key index: total pixel points, temperature measurement accuracy, recognition distance, recognition time, environmental impact, etc. all show the advantages of suppression.

Furthermore, the traffic efficiency is more than five times higher than that of the thermopile solution under high precision. It realizes the real senseless passage.

Product advantages

High-precision temperature measurement without fear of temperature difference

DJS-F10 adopts infrared focal plane area array thermal imaging scheme, with 10800 pixels, which is much higher than the 256/1024 total pixels of thermopile, so as to achieve high precision temperature.

Compared with the accuracy of thermopile infrared temperature measurement of ± 0.5 ℃, DJS-F10 can achieve an accuracy of < ± 0.3 ℃. In addition, DJS-F10 is not afraid of temperature difference, even in different environments with large temperature difference, it can still maintain the accuracy level of < ± 0.3 ℃.

DJS-F10 :
120*90=
10800

32*32= 1024

16*16

=256
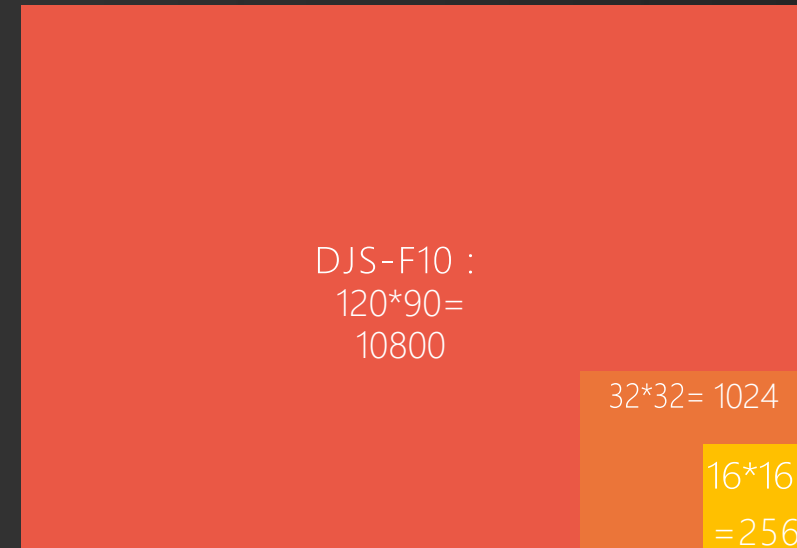
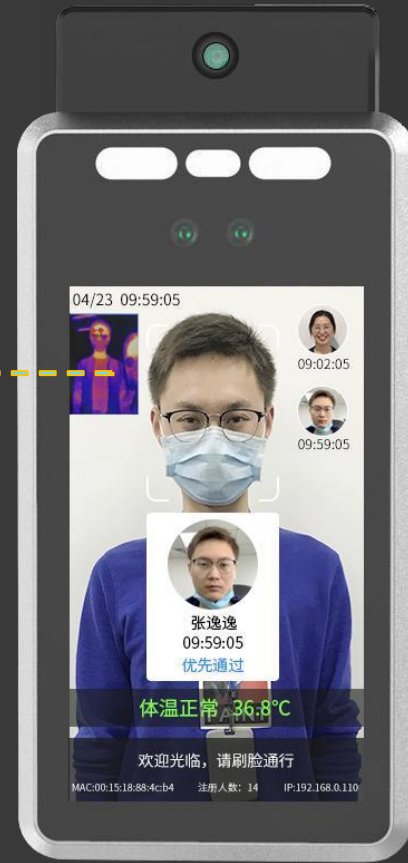*Comparison of total pixels of different infrared temperature measurement schemes

High-precision temperature measurement without fear of temperature difference

Single point temperature measurement

DJS-F10
Thermal Imaging

Body temperature display

体温显示：36.4°C

Indoor 25°C

Body temperature display

体温显示：36.2°C

Outdoor 32°C

DJS-F10 still maintains <0.3 temperature measurement accuracy in different environments

Product advantages

Strong face recognition performance

DJS-F10 has built-in world-leading face recognition algorithm, with high precision and fast speed, and supports accurate recognition under multi-face, side face, semi-occlusion and blur conditions.

NPU face image data processing

Unlike the thermopile solution that uses the CPU to process face information, the DJS-F10 uses an embedded neural network processor that professionally processes massive amounts of face image data : NPU, which is faster.

Support multi-person recognition

DJS-F10 can recognize 10 faces at the same time, ensuring high traffic efficiency.

Face recognition accuracy:

99.99% (1: 1, FRR 1%)

Living body detection accuracy: 0.01% (Dummy false recognition rate) Living detection distance:

0.5-2m

Recognition speed:

<300ms (2W face database)

Intelligent Recognition: Support 1: 1 face comparison Support 1: N face search

Mask recognition:

Face recognition rate:

> 92% (2K library)

Temperature measurement distance:

0.4m ~ 1.5m(recommended within 1.2m)

remind:

Reminder without mask Abnormal temperature reminder

Product advantages

Maximum 50000 face library

The size of the face database directly affects the contrast speed of the face. The DJS-F10 is based on the 20000 face database, and the recognition speed is less than 300ms. It also supports the expansion of the face database to 50000, which is much larger than the maximum 30000 of the thermopile solution. The face database can fully meet the needs of face recognition scenes.

Online / offline mode can be switched

DJS-F10 supports both online and offline modes, and can switch the recognition mode by itself. In offline mode, face recognition can be achieved without internet connection.

No need to wait and cooperate

The temperature measurement personnel do not need to enter the identification frame, do not need to cooperate with the terminal to stand still, and can perform temperature measurement in real time without waiting.

50000

Largest face library

Online / Offline

Product advantages

120DB ultra wide dynamic

Unlike ordinary binocular cameras used in thermopile solution products, the DJS-F10 uses a 2 million pixel living body recognition binocular camera, built-in fill light, 120DB ultra-wide dynamic, no fear of backlighting and dark light environments.

IPC video surveillance function

Remote video monitoring can be performed through the terminal camera and the background.

Built-in high-performance ISP

The built-in high-performance ISP can restore the scene details under different optical conditions and ensure the image quality.

Recognition distance

Due to the limitations of infrared detectors, thermopile solution products generally have a recognition distance of 0.5-1m and an optimal recognition distance of 50cm. The DJS-F10 supports a recognition distance of 0.5-1.5m, which has a larger range and does not require personnel to cooperate.

Detection distance 2 Meters

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Interface and definition

interface A interface B interface C interface D interface E

PUSH
NO/NC
GND
12V+

DC12V

RJ45

USB

UART
/RS232

Line group		Function group	Line sequence	Terminal name
A	4 pin	Lock control signal	1	PUSH_OUT
			2	LOCK_NONC_12V
			3	GND
			4	12V OUT
B	5.5mm Round socket	power supply	1	12V in
			2	GND
C	RJ45	Ethernet	1	Ethernet
D	TypeA USB socket	USB Host	1	5V
			2	DN
			3	DP
			4	GND
E	2 pin	Optional Wiegand / RS232 / UART	1	D0 / TX
			2	D1 / RX

Rich interface, worry-free installation

DJS-F10 has a full specification tail cable to meet the needs of most scenarios, with relay control to open the door, including power,

USB, RJ45, lock control and Wiegand / RS232 / UART (*).

*Wiegand / RS232 / UART multiplex an interface, optional.

Technical parameters and appearance

Basic parameters	
Main control chip	High-performance AI SoC (4-core A7 + NPU + DSP)
RAM	1GB DDR3 high-performance memory
Memory	8GB high-speed eMMC onboard
Identification requirements	
Recognize height	1.2 ~ 2.2 meters, adjustable angle
Recognition distance	0.5 ~ 2 meters, depending on the lens
Face angle	30 degrees left and right, 30 degrees up and down
Interface	
Alarm input	2 alarm inputs
Alarm Output	1 alarm output
power supply	DC 12V
Network Interface	1 RJ45 10M / 100M adaptive Ethernet port 1 2.4G wifi module
USB interface	1 USB 2.0 interface
Wiegand interface	1 Wiegand interface

Exquisite appearance, three bases are optional

DJS-F10 7-inch aluminum alloy shell, exquisite atmosphere, wear-resistant and corrosion-resistant, provides three types of bases, wall-mounted, upright and desktop, and the device supports an adjustable angle of 60 degrees to meet the installation needs of different scenarios.

60°Adjustable

Upright   **Hanger**   **Desktop**