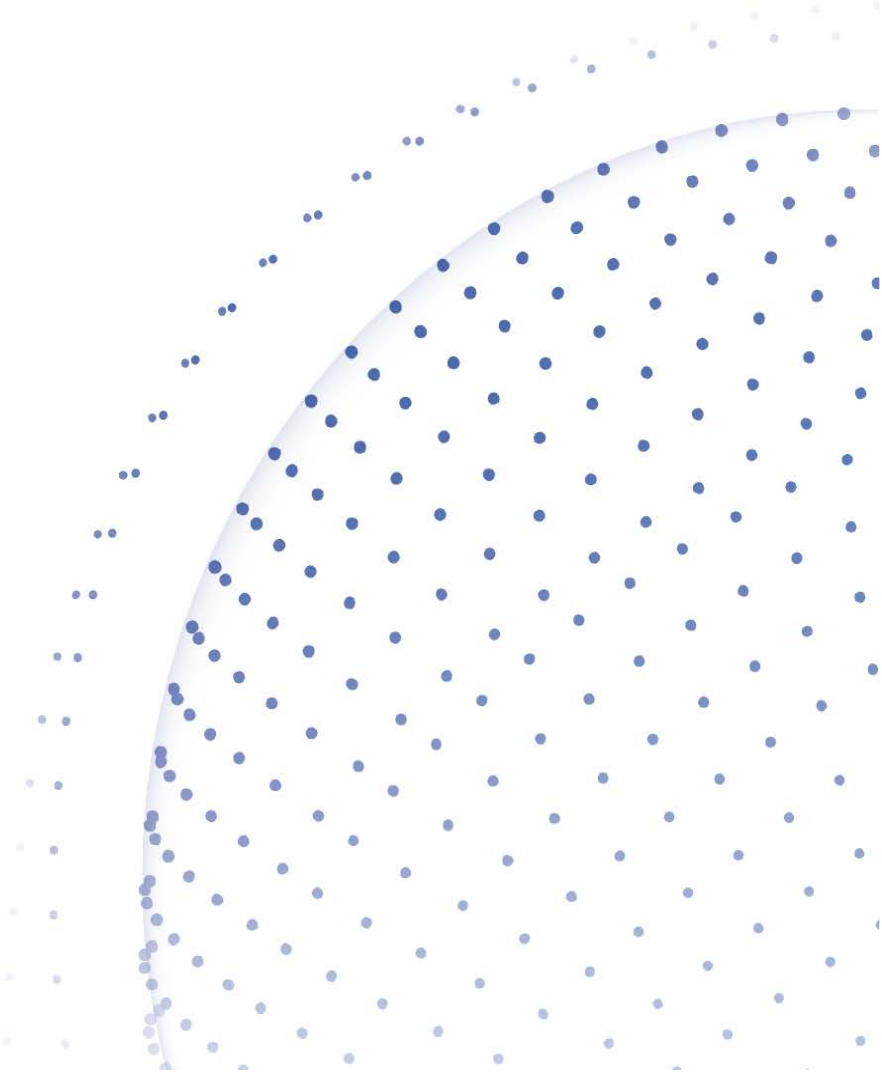
Ming Ji Intelligent Body Temperature Detection and Analysis System - Mini

User Manual



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Contents

1. Preparation before Installation

Ming Ji Mini is a temperature measurement device suitable for indoor environments and requires semi-coordination, which means the temperature results would be better if the tested person stand in front of the camera for at least 0.5 seconds.

1.1 Site survey

To ensure the best performance, the following installation instructions should be followed.

1) It is required that the visible light channel has sufficient illumination, and avoid backlighting, strong reflection, strong light changes, blocking and high temperature interference.

2) The installation area needs to be relatively isolated and stable from the surroundings, and try to avoid outdoor or outdoor connected scenarios. The product is not suitable for environment with strong airflow, electromagnetic interference or vibration.

3) The depression angle of camera should be less than 15 degrees, and camera elevation is not recommended.

4) The optimal ambient temperature of the device is 0-40°C.

1.2 Equipment Preparation

For software operation, user has to prepare a monitor, HDMI cable and mouse, or a computer to connect with video analysis host. Some functions such as library import can only be done with computer, and some functions such as Bluetooth binding only be operated on the monitor. There will be detailed instructions below.

2. Installation

2.1 Equipment inventory

When received the package, please count the equipment according to the following list.

Table 2-1Packing List of Ming Ji Mini

S/N	Product	Model	Amount	Unit
1	Video Analysis Host	MegBox-B2R-411-CW (INT)	1	Piece
2	Quality Certificate		1	Piece
3	Warranty Card		1	Piece
4	Bluetooth antenna		1	Piece
5	220V Power cable		1	Piece

6	Dual-light Camera	MegEye-TC1V-72DW-X3617 (INT)	1	Piece
7	Blackbody	Meg-HT-02-01	1	Piece
8	Ethernet Cable		2	Piece
9	Camera Power Cable		1	Piece
10	Power Adapter		2	Piece
11	Screw Driver		1	Piece
12	Packing Box		1	Piece
13	Device Inner Lining		1	Set
14	Tripod		1	Piece

2.2 Equipment Installation

After unpacking, all the equipment are shown as follows.

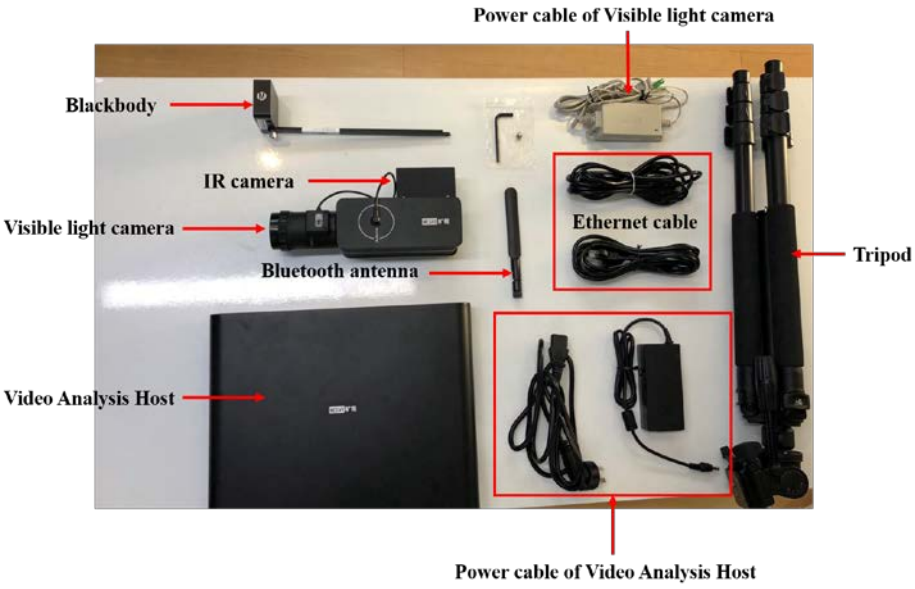


Figure 2-1 Ming Ji Mini Equipment introduction

Equipment installation includes three parts: blackbody and dual-light camera assembly, camera and tripod assembly, and equipment connection.

Step 1: Dual-light camera and blackbody assembly

Use the provided screwdriver and screw to fix the blackbody to the camera. Note: Please do not fully tighten the screw in this step, tighten after adjusting the blackbody angle.

Figure 2-2 Dual-light camera and blackbody assembly

Step 2: Dual-light camera and tripod assembly

Fix the tripod adapter to the camera, then fix the camera to tripod.

Step 3: Equipment connection

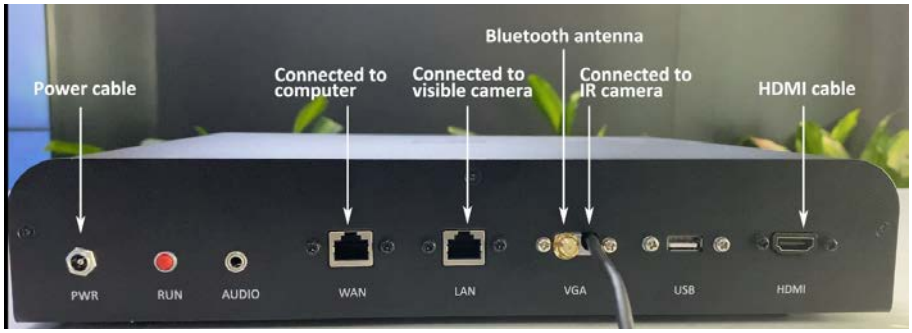


Figure 2-3 Video analysis host port description

1) Use network cable to connect visible light camera to LAN port of video analysis host.
2) Use network cable to connect computer to WAN port of video analysis host.
3) Use a HDMI cable to connect monitor to video analysis host.
4) Connect a mouse to the USB port of video analysis host.
5) Connect the data cable from video analysis host to type-C port of IR camera.
6) Connect the power cable of visible light camera.
7) Connect 220V power cable to video analysis host.
8) Connect Bluetooth antenna to video analysis host.

After all the cables are connected, power on the camera and video analysis host.

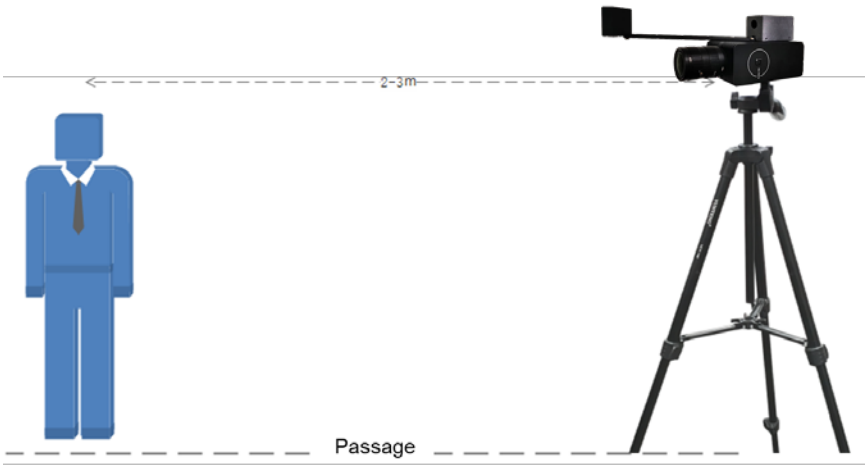
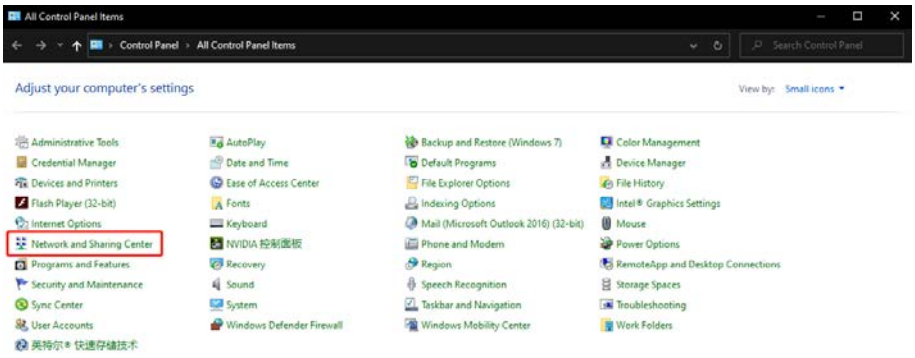


Figure 2-4 Installation diagram

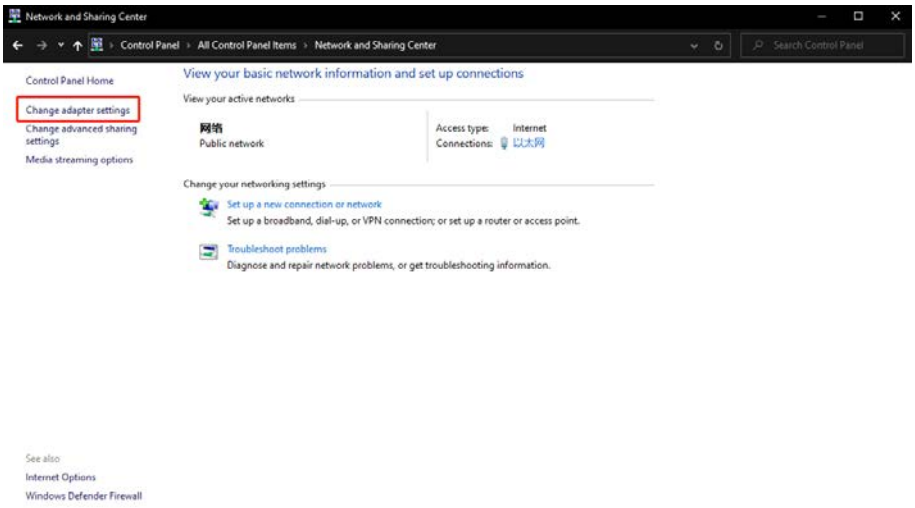
3. Configuration

3.1 Computer Configuration

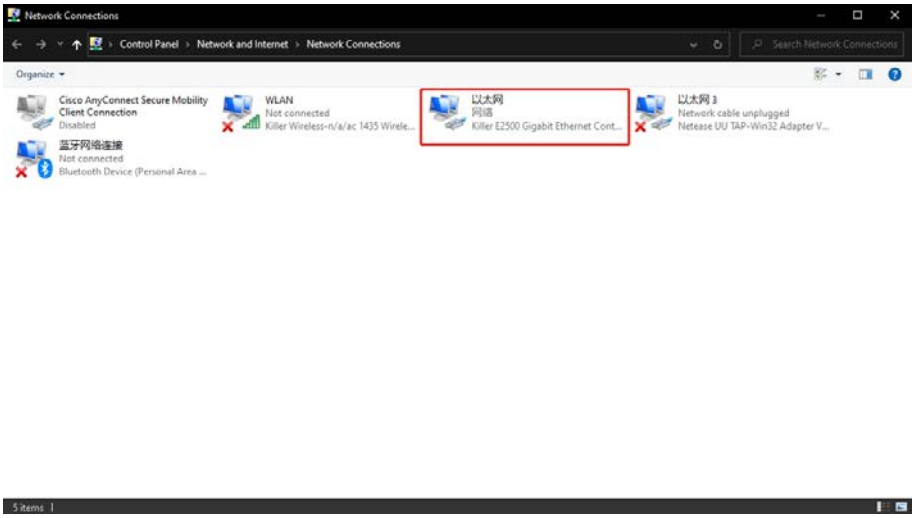
To access the software, computer ip configuration is needed to ensure in the same LAN with video analysis host. Open the computer's control panel and click on Network and Sharing Center as shown below:



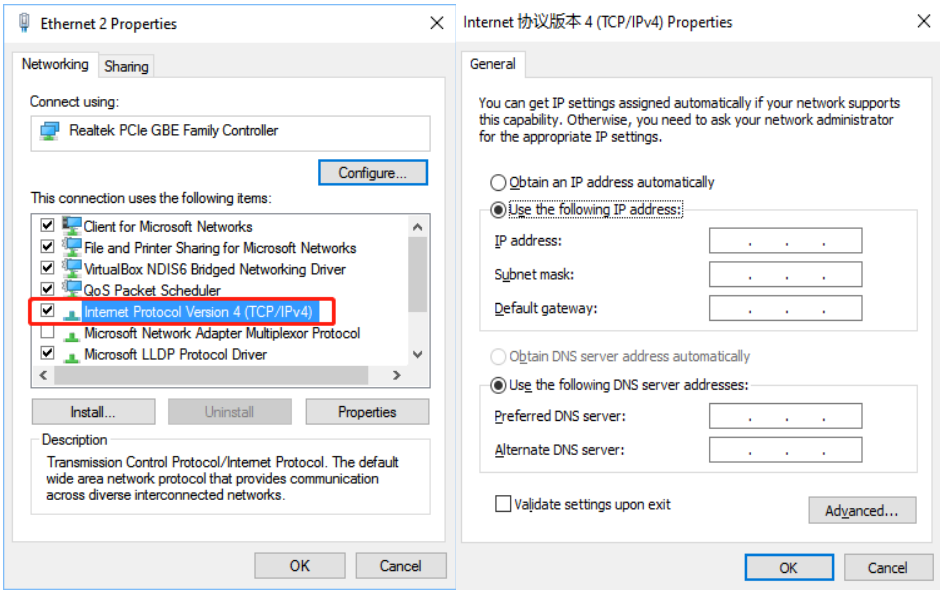
Click the Network and Sharing Center button to enter the following interface:



Click the Change Adaptor Settings button to enter the following interface:



Right-click the local connection and click 'Properties' button, double-click Internet Protocol Version 4 (TCP IPV4) to enter the following interface:



Input the following IP address:

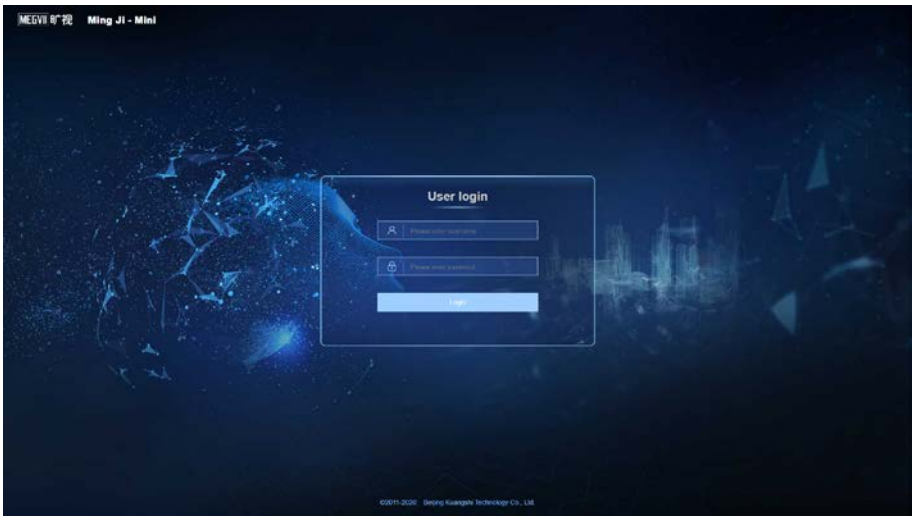
IP address: 192.168.1.200

Subnet mask: 255.255.255.0

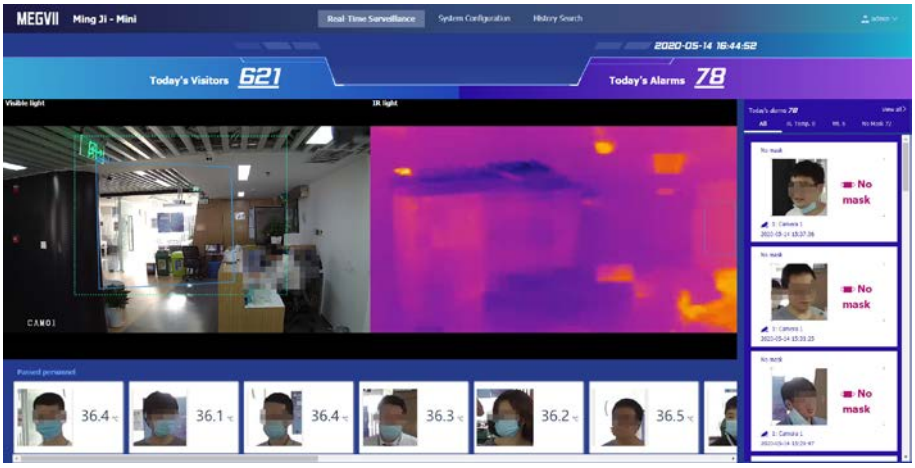
3.2 Login

Note: Please use Chrome browser to login to Ming Ji system.

Open Chrome browser and enter the IP address of video analysis host (192.168.1.9 by default) to enter login interface. Username is admin, password is admin123.



After login, the homepage shows as below.



In this page, the visible-light video is shown on the left side and IR video on the right.

3.3 Dual-light alignment

Click System Configuration->Algorithm->Dual-light alignment to align visible light and infrared light.

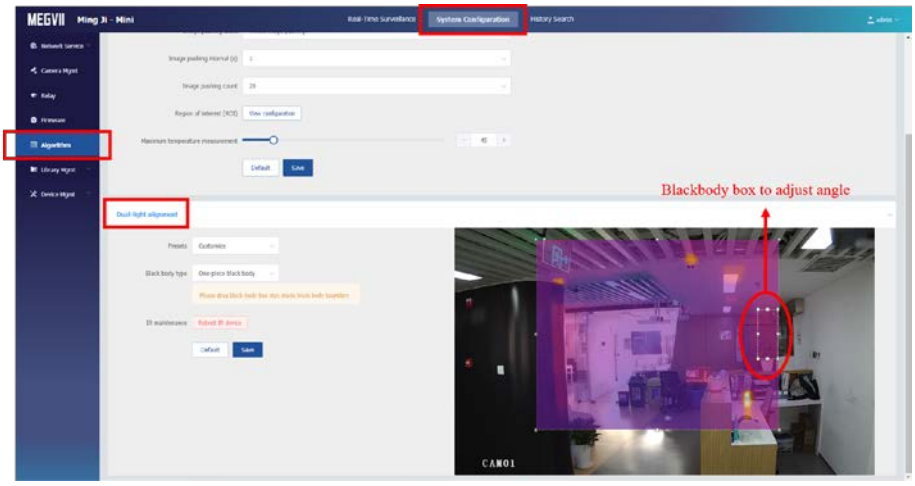


Figure 3-1 Dual-light alignment page

Ask someone to stand in front of the camera, drag the position and adjust the size of infrared picture, to completely overlap the imaging picture in visible light camera and infrared camera. Adjust the width of blackbody box to approximate 1cm, then drag it stay inside and near the boundary of infrared picture, finally press ‘save’ button.

Figure 3-2 Dual-light alignment

3.4 Blackbody Angle Adjustment

Blackbody is a calibration device and a standard temperature source, and IR camera performs real-time calibration based on blackbody temperature. In the infrared imaging, there is a blackbody box, which should be completely covered by the imaging of blackbody.

There is a battery cover on the back of blackbody, please rotate the rod of blackbody slowly to cover blackbody box with one of the marginal area, shown as the red boxed area in the figure below. Finally tighten the blackbody rod with screwdriver.

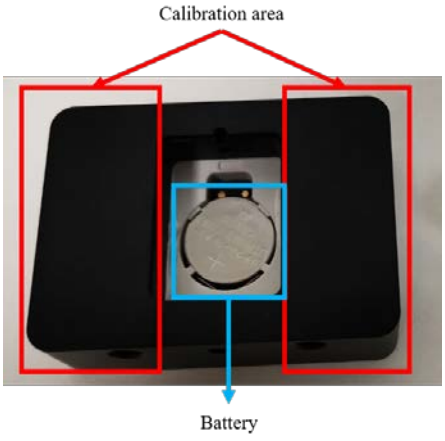
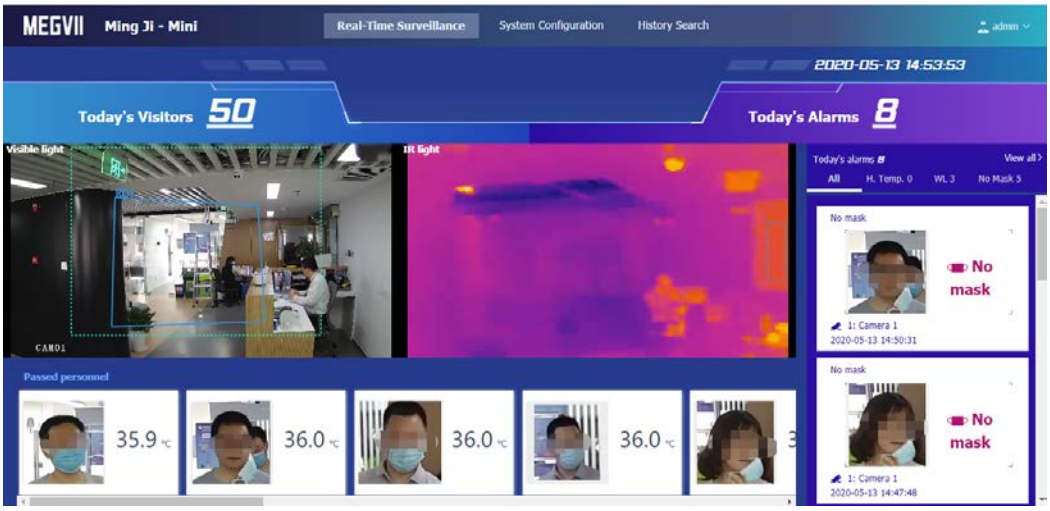


Figure 3-3 Blackbody battery cover

Figure 3-4 Blackbody angle adjustment

4. Software Functions

4.1 Real-time Surveillance



1. Real-time statistics of today's visitors.
2. Real-time statistics of today’s alarms, including: high temperature alarm, whitelist alarm, and no mask alarm.
3. Real-time captured image display.
4. Real-time alarm display.

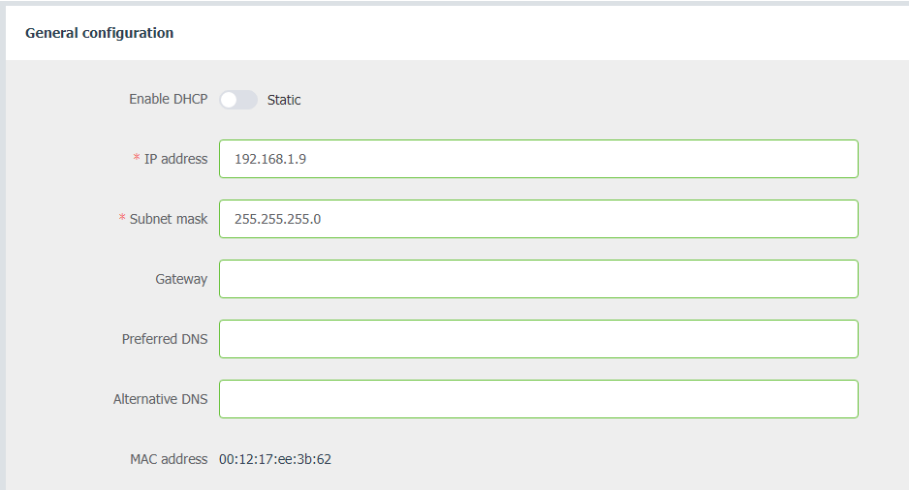
4.2 System Configuration

4.2.1 Network Service

4.2.1.1 Network

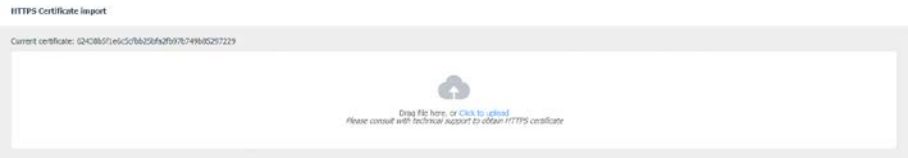
1. General configuration

IP configuration of video analysis box: support DHCP and static IP settings. The default IP address is 192.168.1.9.



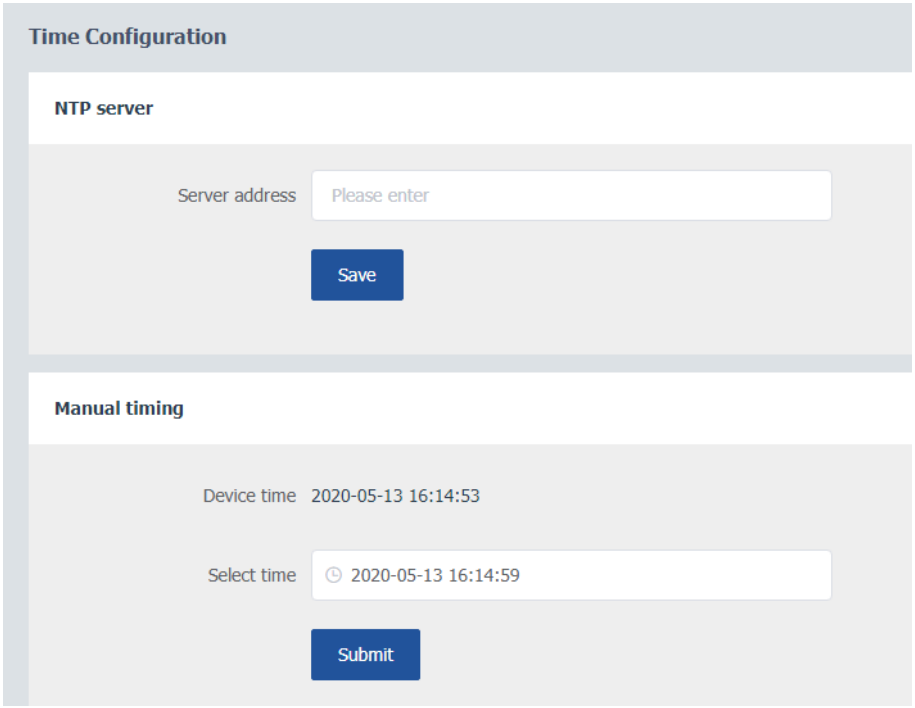
2. HTTPS Certificate import

This function is used to upload HTTPS certificate to the system.

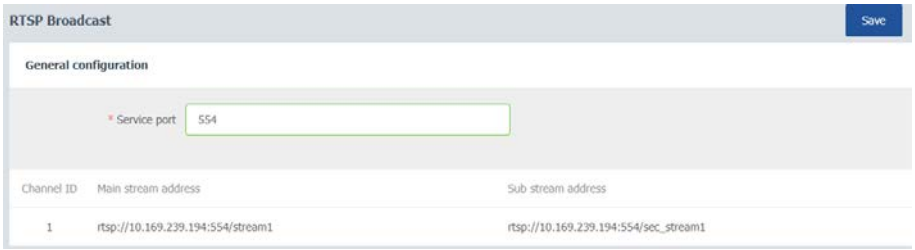


4.2.1.2 Time

The NTP server is used to synchronize time from a NTP server to video analysis host automatically. Manual timing is used to configure the time of video analysis host manually.

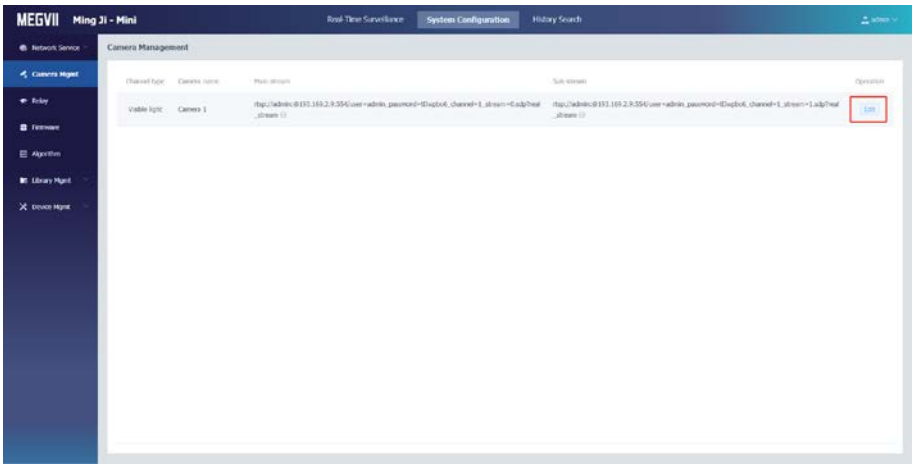


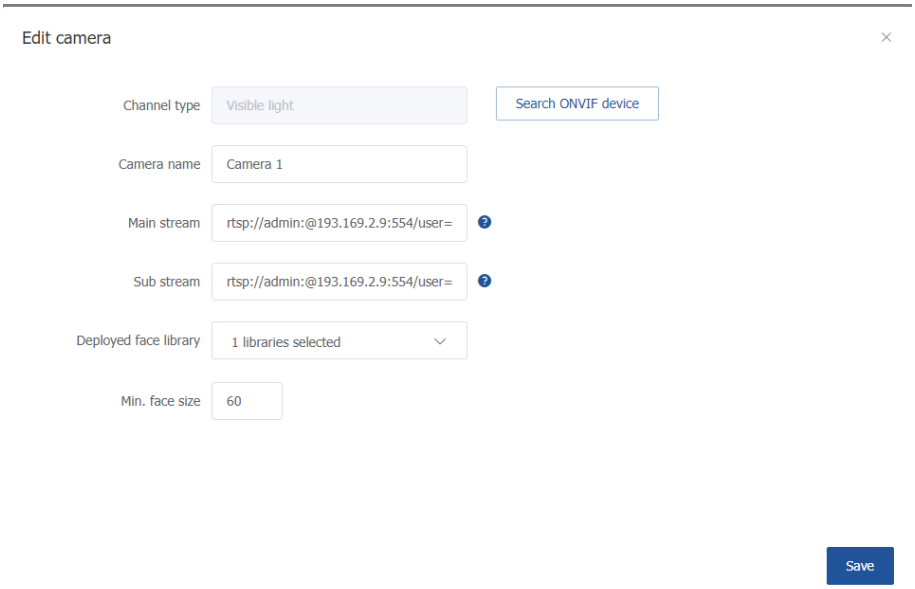
4.2.1.3 RTSP Broadcast



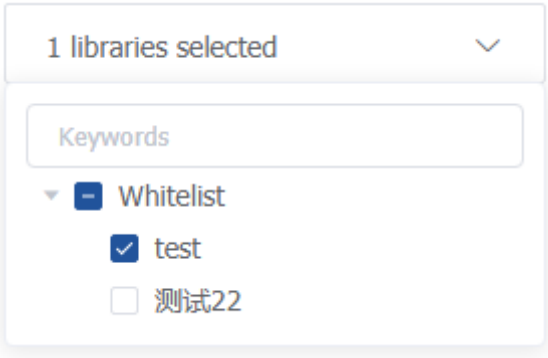
4.2.2 Camera Management

Click ‘edit’ button to enter ‘edit camera’ page.





Click the drop-down box of ‘deployed face library’ and select face library, and save. Then once the person in the selected whitelist appears in the camera, he will be recognized, and the system sends out a whitelist alarm.

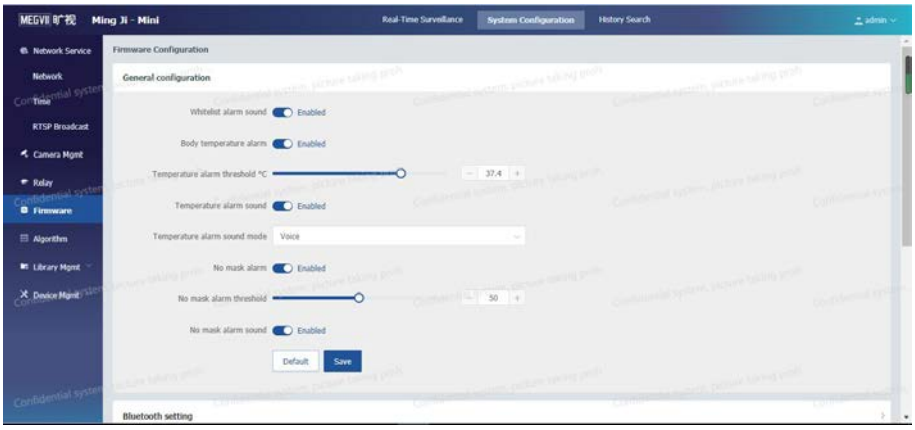


4.2.3 Firmware

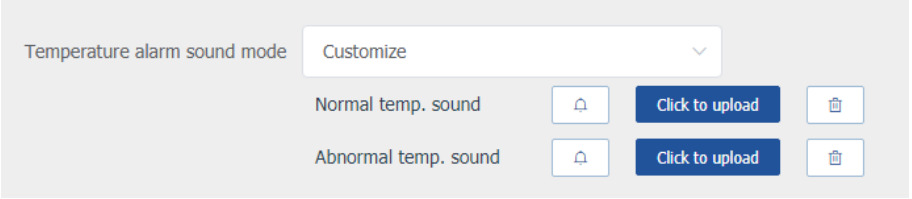
Note that if there is no special need, please do not change the factory default settings.

4.2.3.1 General configuration

In this page, user can turn on or off the sound of whitelist alarm, body temperature and no mask alarm sound. User also can configure the temperature alarm threshold and no mask alarm threshold.



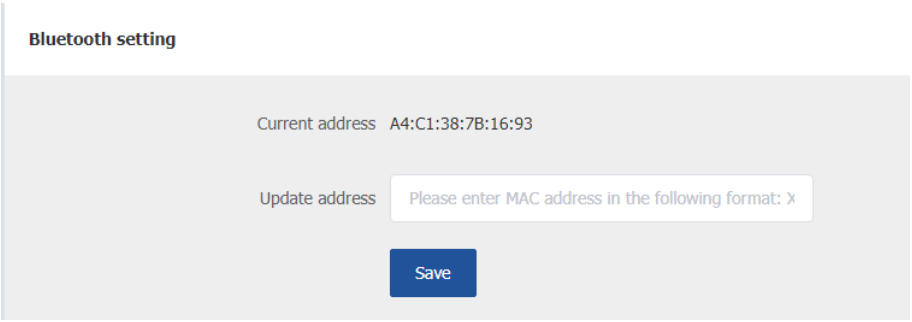
User can customize the sound of temperature alarm, click to upload a local audio file.



4.2.3.2 Bluetooth settings

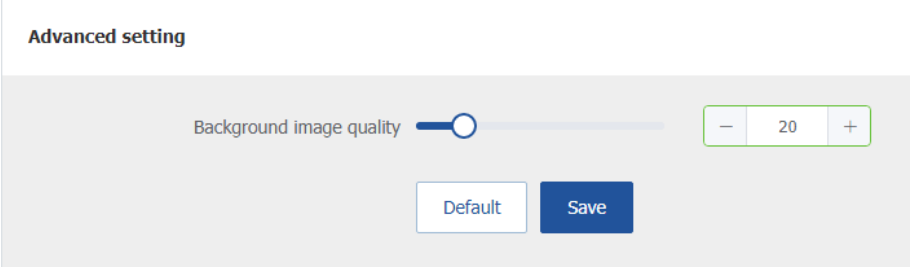
Current address: displays the current MAC address of the Bluetooth device. For example, A4:C1:38:7B:16:93.

Update address: Enter the Bluetooth mac address to be updated.



4.2.3.3 Advanced setting

Background image quality: default value is 20.



4.2.3.4 Watermark settings

These parameters are used to configure the text format of watermark.

4.2.4 Algorithm

4.2.4.1 General settings

Capture mode: high quality mode and full capture mode.

Push mode: background and captured image, Captured image only.

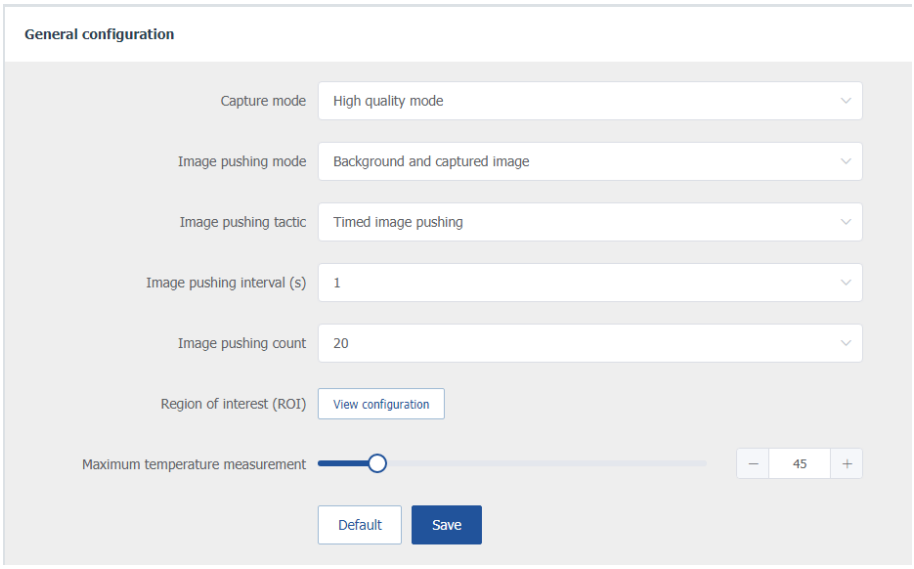
Image pushing tactic: timed image pushing, Best quality pushing.

Image push interval (seconds): 0.5s~4s.

Image pushing count: 4, 5, 6, 7, 8, 9, 15, 20.

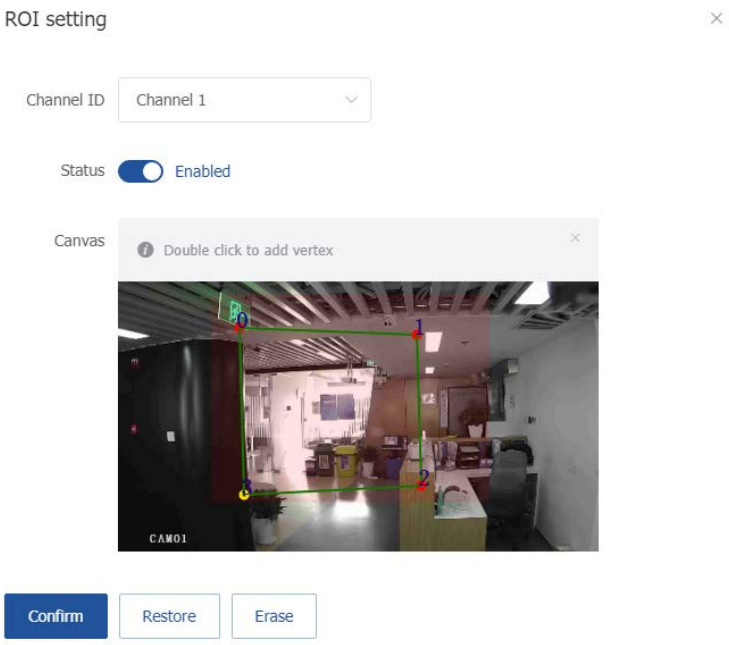
Region of interest (ROI): configure the Region of interest of visible light camera. Faces appear outside this region will not be captured.

Maximum temperature measurement: if the measured temperature is higher than this value, the system will prompt abnormal temperature.



Region of interest Configuration method of ROI:

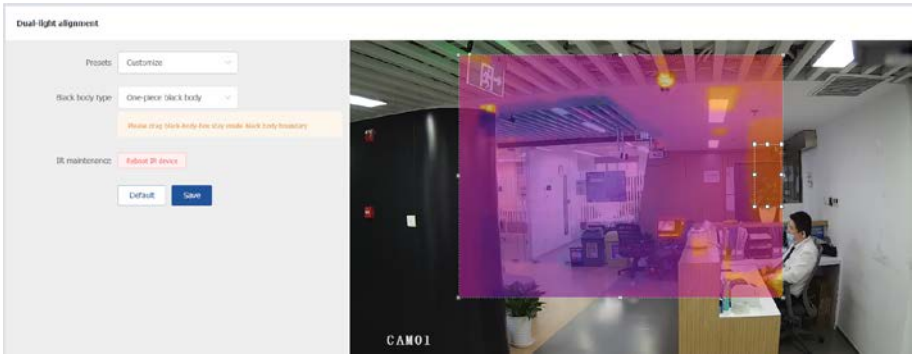
Click ‘view configuration’ button to open ‘ROI setting’ page. The button ‘Status’ is used to enable or disable ROI setting. Then double click to add vertex to draw a polygon as camera ROI. Then press ‘Confirm’ button on ‘ROI setting’ page and ‘Save’ button on ‘Algorithm Configuration’ page to take effect.



4.2.4.2 Dual-light alignment

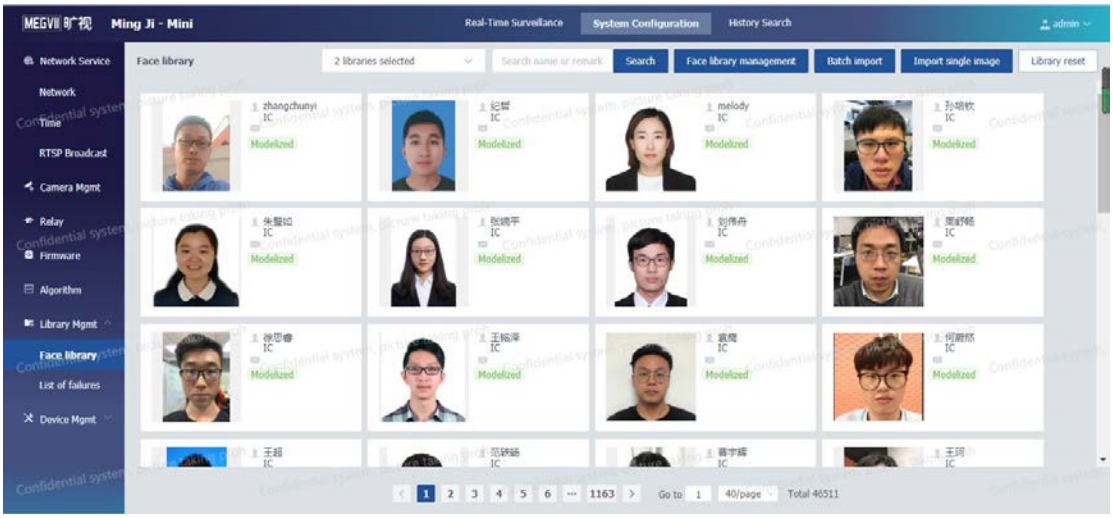
Dual-light alignment is used to align visible light and infrared light, to get an accurate temperature. During configuration, one person can stand in front of camera at a certain distance of approximate 3 meters, then drag the position and adjust the size of infrared picture, to completely

overlap the imaging picture in visible light camera and infrared camera. Then drag blackbody box stay inside and near the boundary of infrared picture, and finally press ‘save’ button.



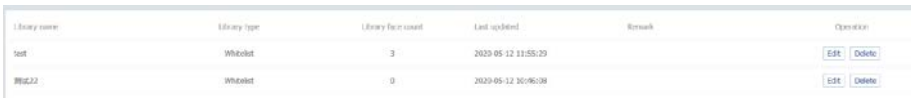
4.2.5 Library Management

4.2.5.1 Face Library



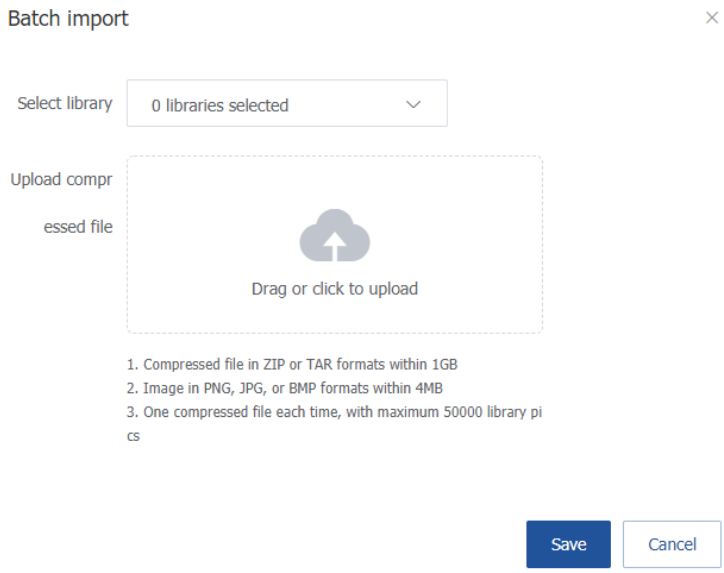
1) Face library management

Click ‘face library management’ button to enter the face library management page, then all the existed face libraries will be shown here.



Click ‘new library’ button to create a new library. Enter the library name, alarm threshold and remark information. Threshold recommendation: 90 for comparison without wearing mask and 66.5 for comparison for people wearing masks.

2) Batch import



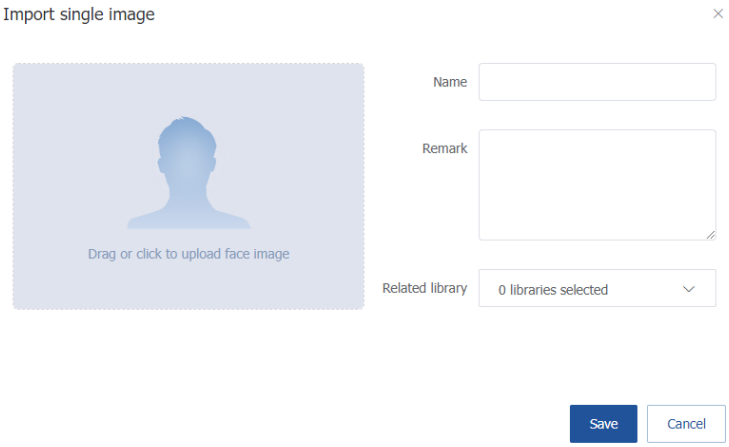
1. Supports ZIP or TAR format, the size should not exceed 1GB, and the number of photo should not exceed 50,000.
2. Supports PNG, JPG and BMP images, and the size of a single image should not exceed 4MB.
3. Click the select library drop-down box, select the library to be imported, drag the compressed file into this area, and click the save button.

Note:

1. The same person can only exist in one library, and two libraries cannot be imported at the same time.
2. The system will take the photo name as person name automatically, so name the photos with person name before import.

3) Individual image import

1. Click or drag the face image, and enter the name and remark information manually.
2. Click to select the library to be added.
3. Click the save button to complete the import.



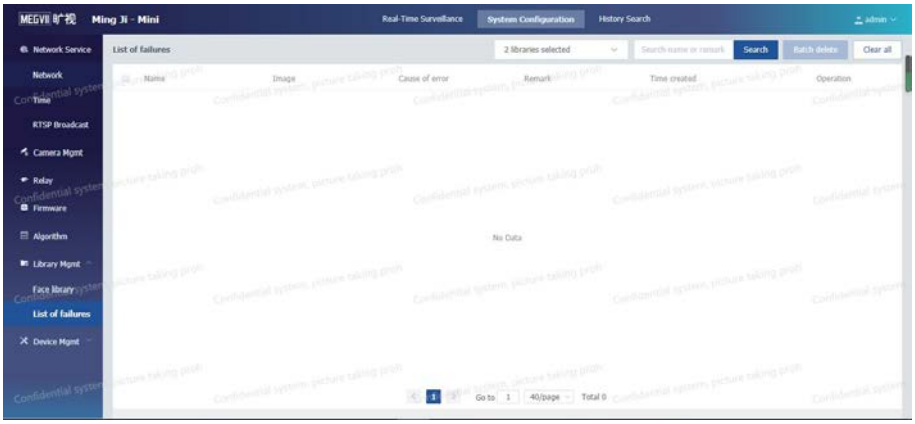
4) Library reset

Click the bottom library reset button to delete all library information.

5) Search in the library

Support selection of library, and search by name and remark.

4.2.5.2 List of Failures



Display a list of images that failed to be imported, including name, image, cause of error, remarks, time created and operation. Supports single deletion, batch deletion and clear all.

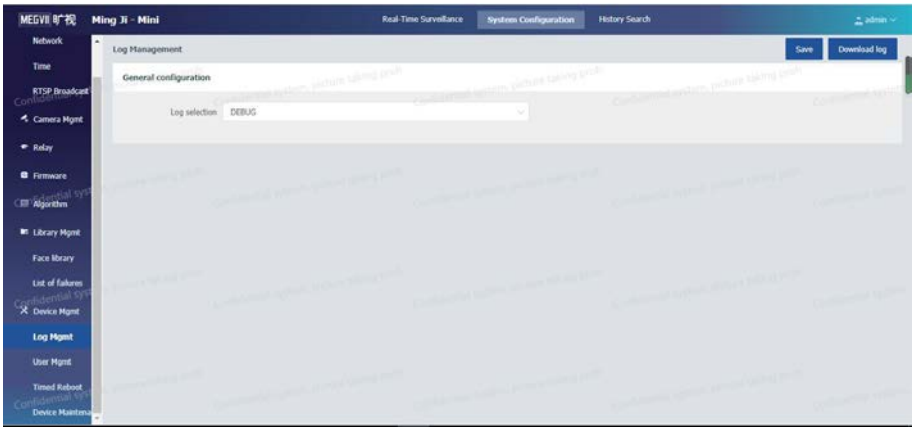
Click the batch delete button and select the failed information to be deleted. User can delete multiple pieces of failed images information.

Click clear all to delete all failed images information at once.

Supports selecting library, search by name and remark.

4.2.6 Device Management

4.2.6.1 Log Management



Click the log management button, select the type of log to be exported, and click ‘save’ button , then click ‘download log’ button to download.

4.2.6.2 User Management

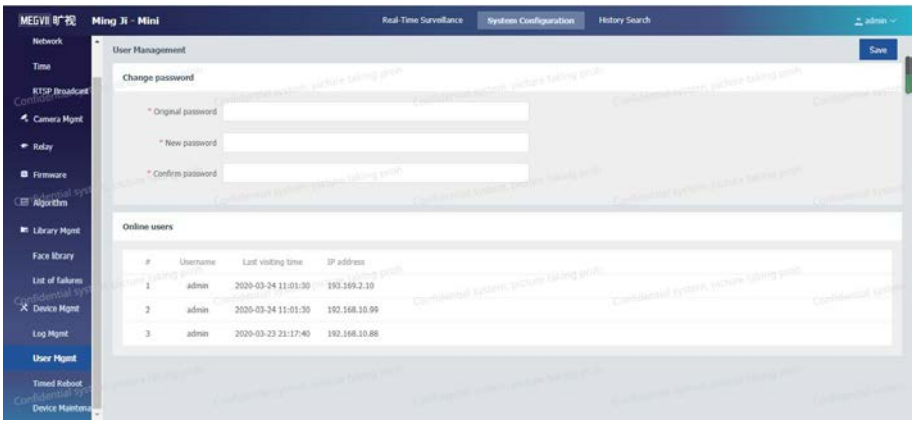
1) Change password

Manually enter the original password, new password, and confirm password, and click ‘save’ button to complete the password modification.

The default password of the system is admin123.

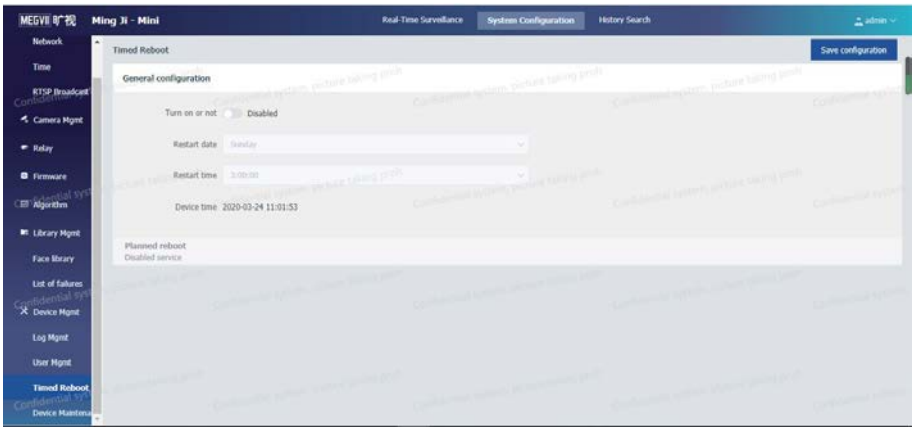
2) Online user

Monitor all the currently online user, and username, last visiting time and IP address are listed.

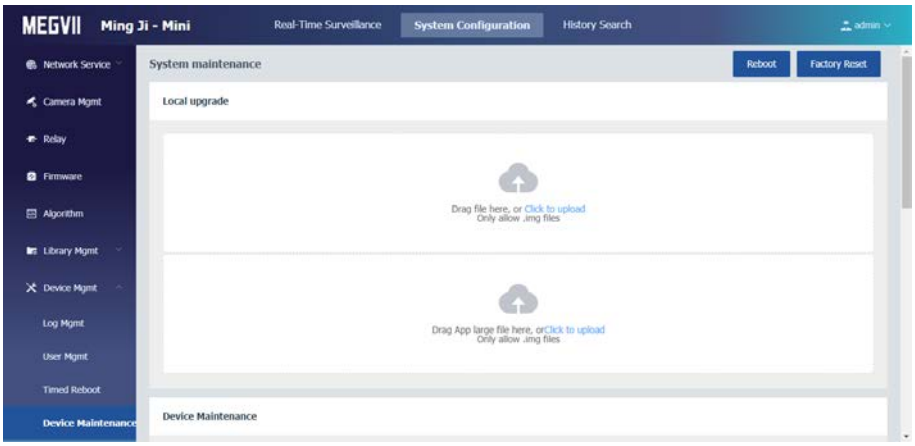


4.2.6.3 Timed Reboot

Click the enable button, select the restart date and time, and click ‘save configuration’ button to create a scheduled device restart schedule.



4.2.6.4 Device Maintenance



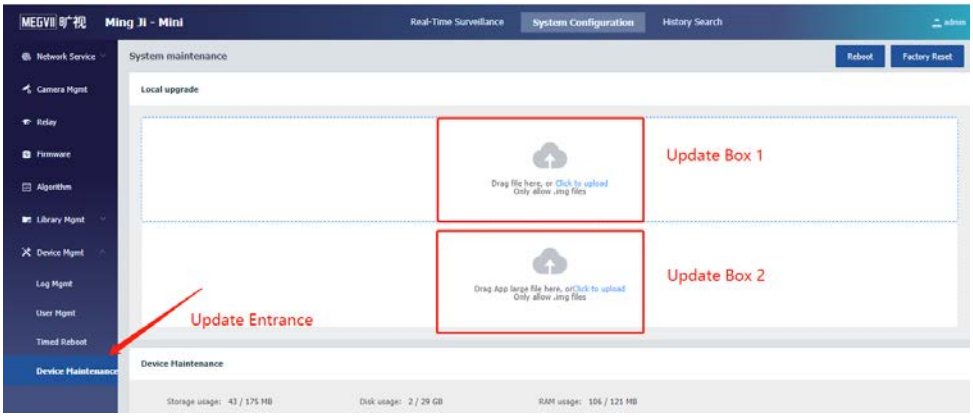
Click ‘reboot’ button, then the device will restart immediately.

Click ‘Factory Reset’ button to restore all configurations to default factory configuration. Please use this feature with caution.

1) Local upgrade

Get the software package from MEGVII technical support team. The software includes three parts, namely “V2.0.4-THERMO,B2R_FW_2020_0513_ENG_RC”, ussthermal-2.4.2, webview-0.0.1. Note that the software names here are only examples, and they vary with version.

Drag V2.0.4-THERMO,B2R_FW_2020_0513_ENG_RC into upgrade box 1, webview-0.0.1.img into upgrade box 2, and finally ussthermal-2.4.2 into upgrade box 2.



2) Device maintenance

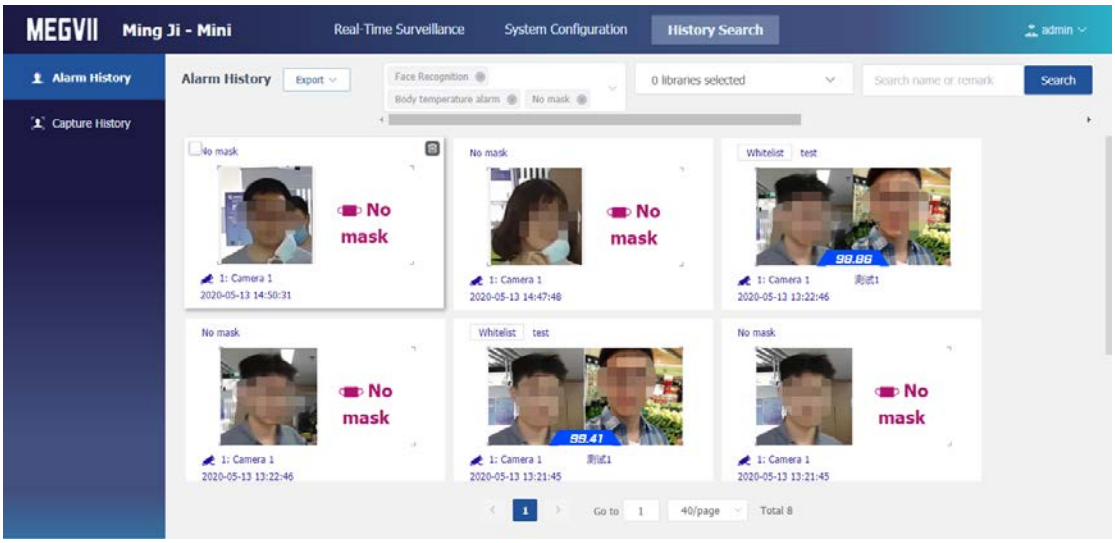
View the device information of current device

3) Version information

View the software version, firmware version, algorithm version, and algorithm model of the current device.

4.3 History Search

4.3.1 Alarm History

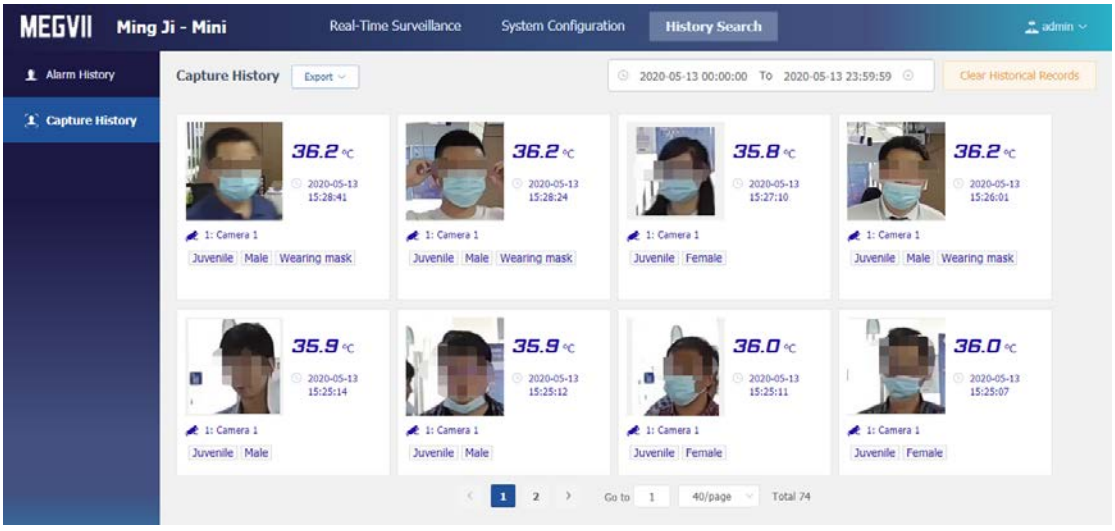


Alarm history search: select alarm type, library, name or remark and time. Alarm types includes face recognition, body temperature and no mask.

Export: click the ‘export’ drop-box to select file type ‘Excel’ or ‘CSV’, then the alarm history will be exported into a compressed file. Each compressed file size is less than 4GB.

Clear historical Records: click this button to clear all the alarm history.

4.3.2 Capture History



Capture history search: click the start and end time to select, and then click OK button.

Export capture history: click the ‘export’ drop-box to select file type ‘Excel’ or ‘CSV’, then the

capture history will be exported into a compressed file. Each compressed file size is less than 4GB.

Clear record: click this button to clear all capture records.

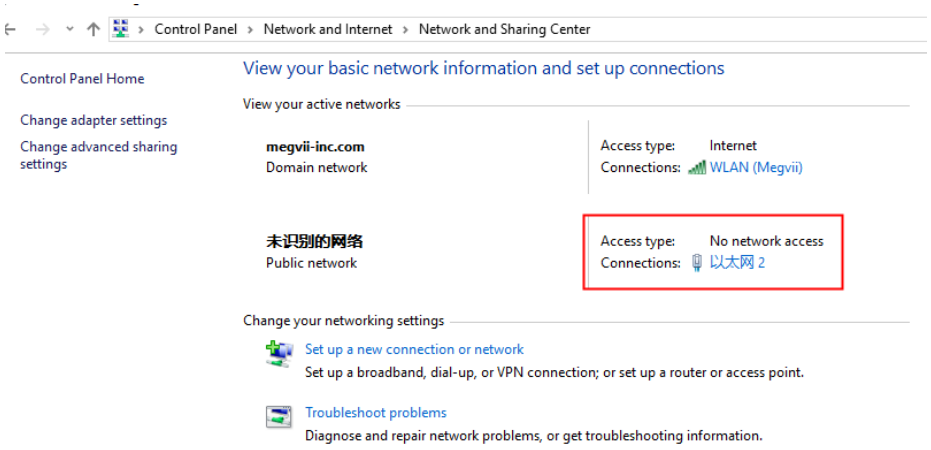
5. FAQ and Troubleshooting

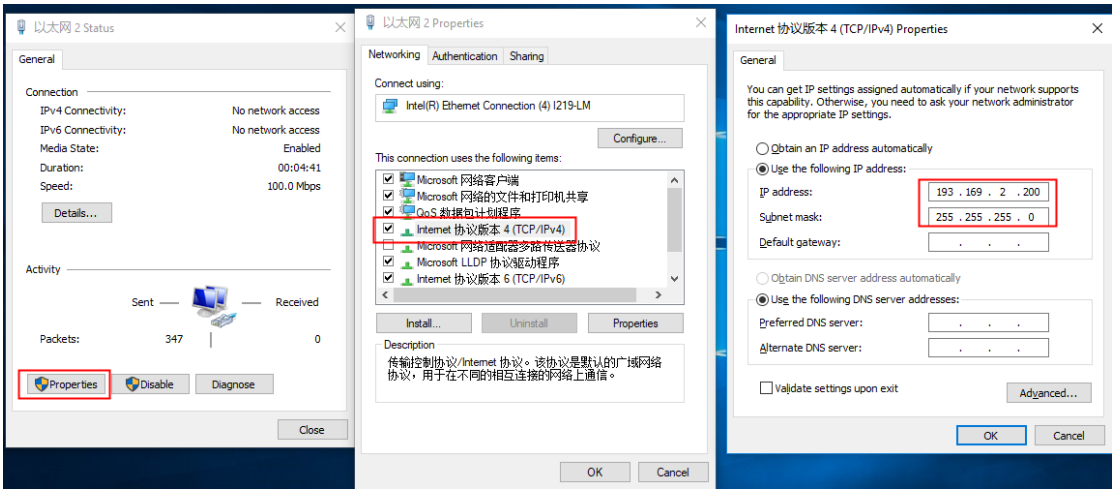
5.1 Visible Light Camera Setting

Note: This method is only applicable to Windows OS computer, and make sure the IE version is above 6.0. If you use a non-IE browser or do not allow the IE browser running ActiveX to access the WEB management interface, you cannot modify the configuration and view the video stream.

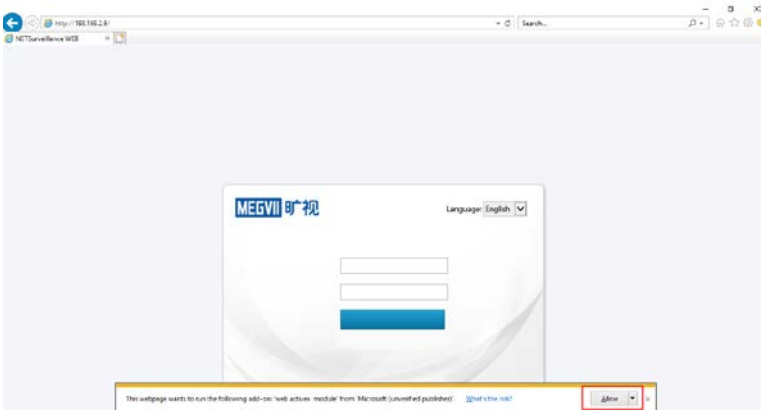
Step 1: Connect the visible light camera to computer using a network cable.

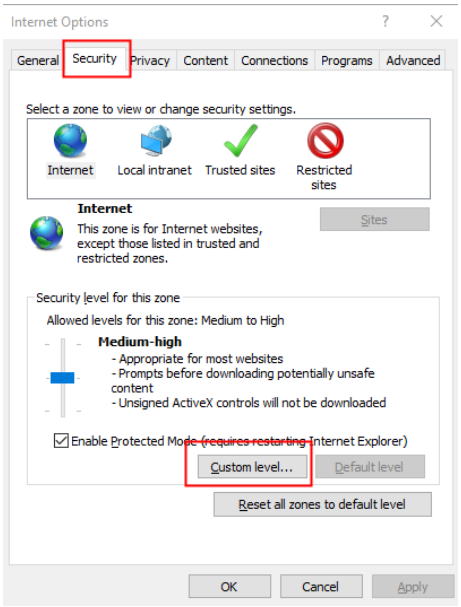
Step 2: Modify the computer IP to the same network segment of the visible light camera. The default IP of the visible light camera is 193.169.2.9, so the computer IP can be set to 193.169.2.200, and the subnet mask is 255.255.255.0.

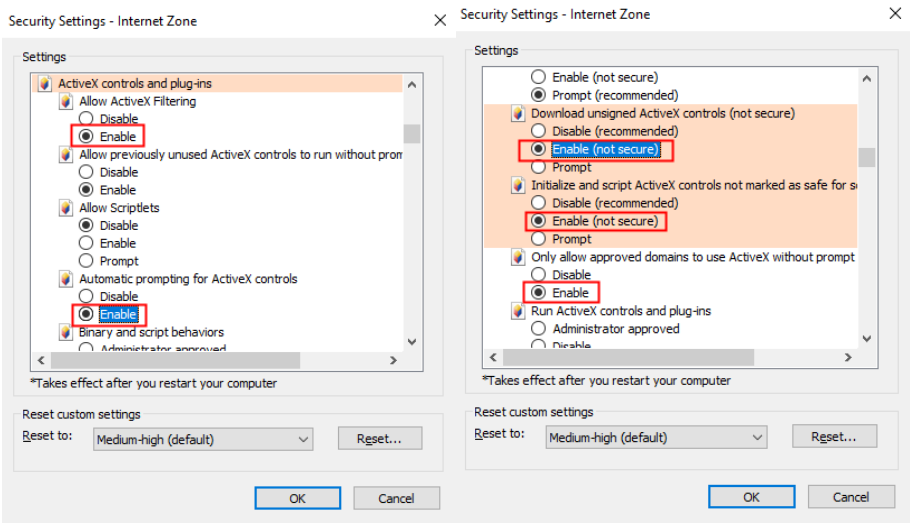




Step 3: Open the IE browser and set the ActvieX control options, as shown below.

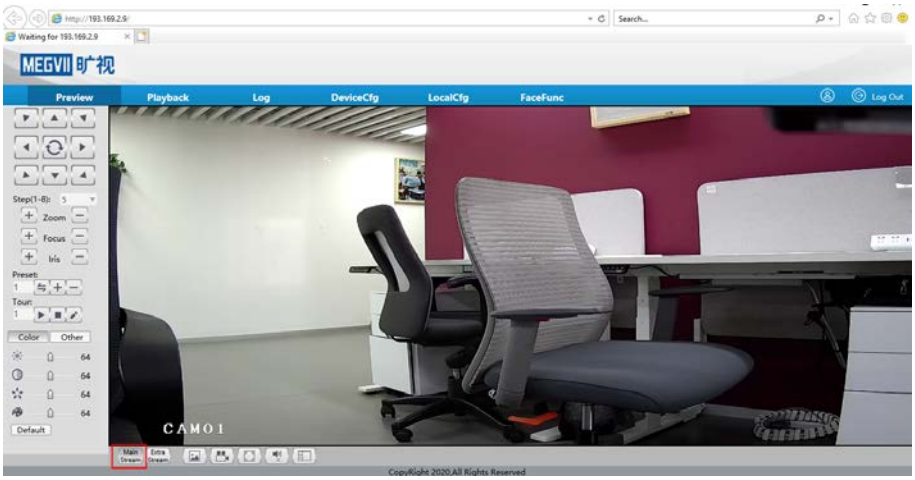






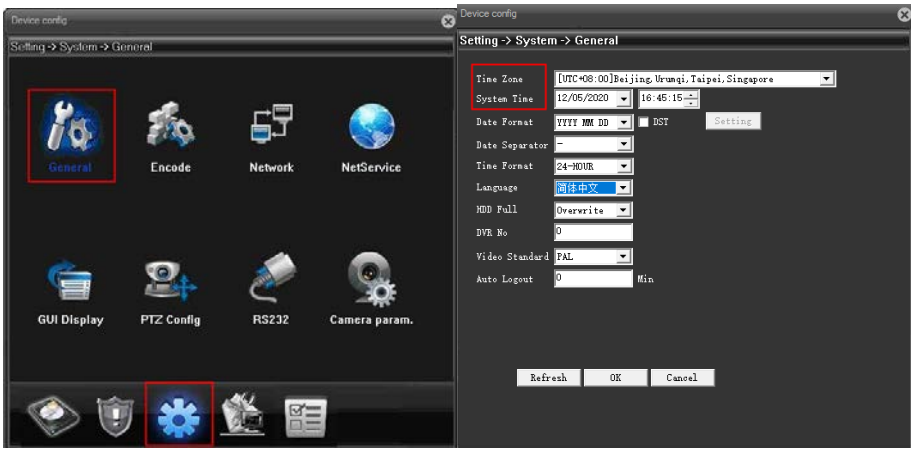
Step 4: Enter the IP address (193.169.2.9) of the camera in the address bar, such as 193.169.2.9. If the computer uses this camera for the first time, a prompt to download the plug-in interface will appear. Download and install the plug-in. After the installation is completed, restart the IE browser and enter the camera IP address. Enter username "admin" in the login window, and the password is

null.

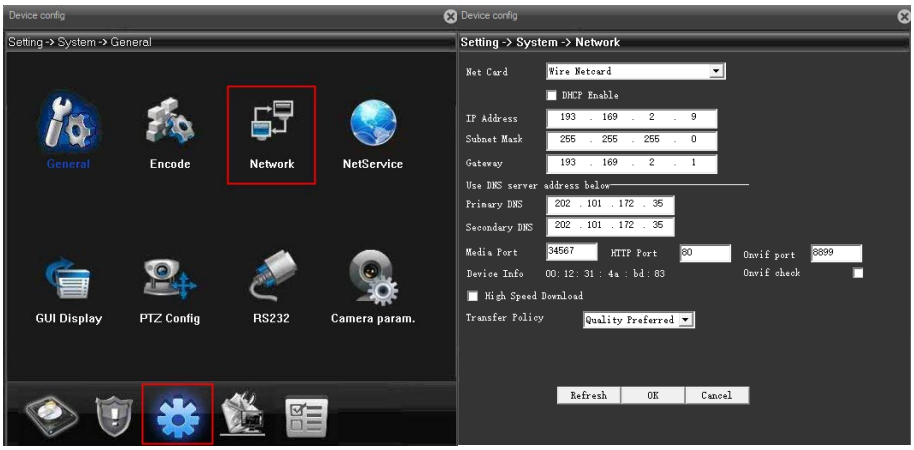


Camera settings

Set time zone and time. On the WEB management interface, click [Device Configuration] -> [Settings] -> [General] in the navigation bar to set the time zone and time. After configuration, click OK.

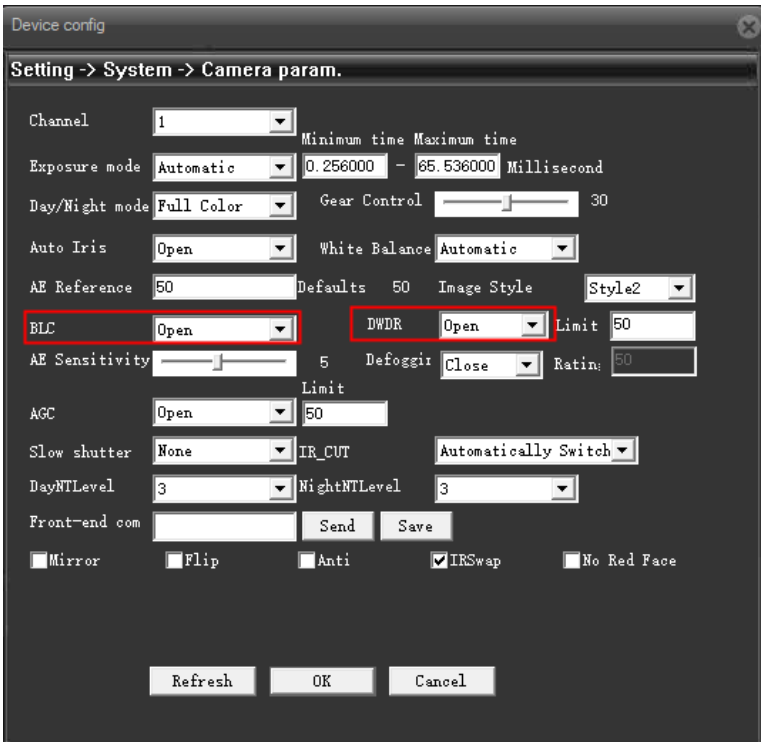


Configure IP address. On the WEB management interface, click [Device Configuration] -> [Settings] -> [Network] in the navigation bar to configure the network. After configuration, click OK.



Set camera parameters. On the WEB management interface, click [Device Configuration] -> [Settings] -> [Camera Parameters] in the navigation bar to configure camera parameters. After configuring, click OK.

For backlighting scenario, you can set the BLC and DWDR to “Open” to get a better image.



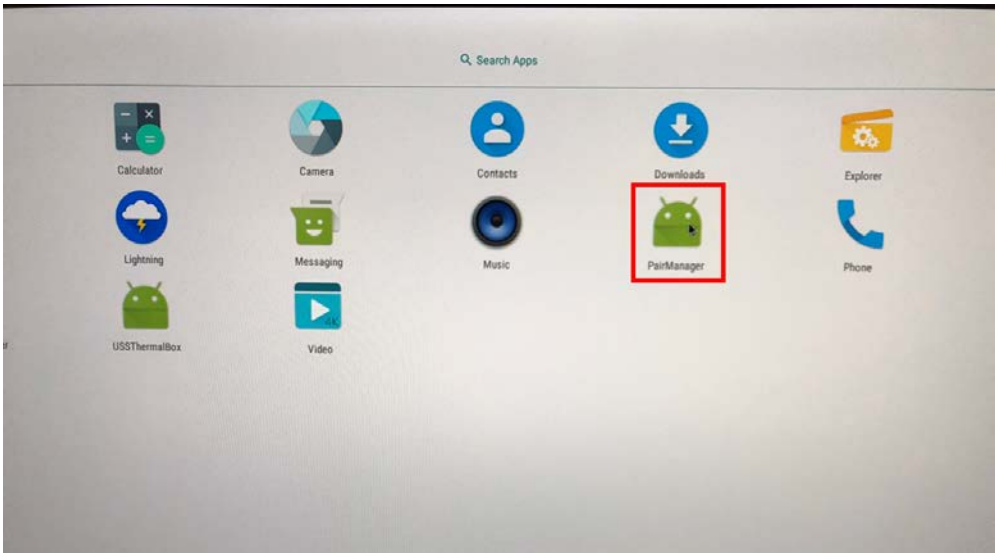
5.2 Blackbody Bluetooth Connection Failure

First, confirm the Bluetooth antenna is connected.

Next, check if the MAC address shown in ‘Firmware’-‘Bluetooth setting’ is the same as the MAC address on the label posted at the bottom of blackbody or not. If same, input the MAC address again.

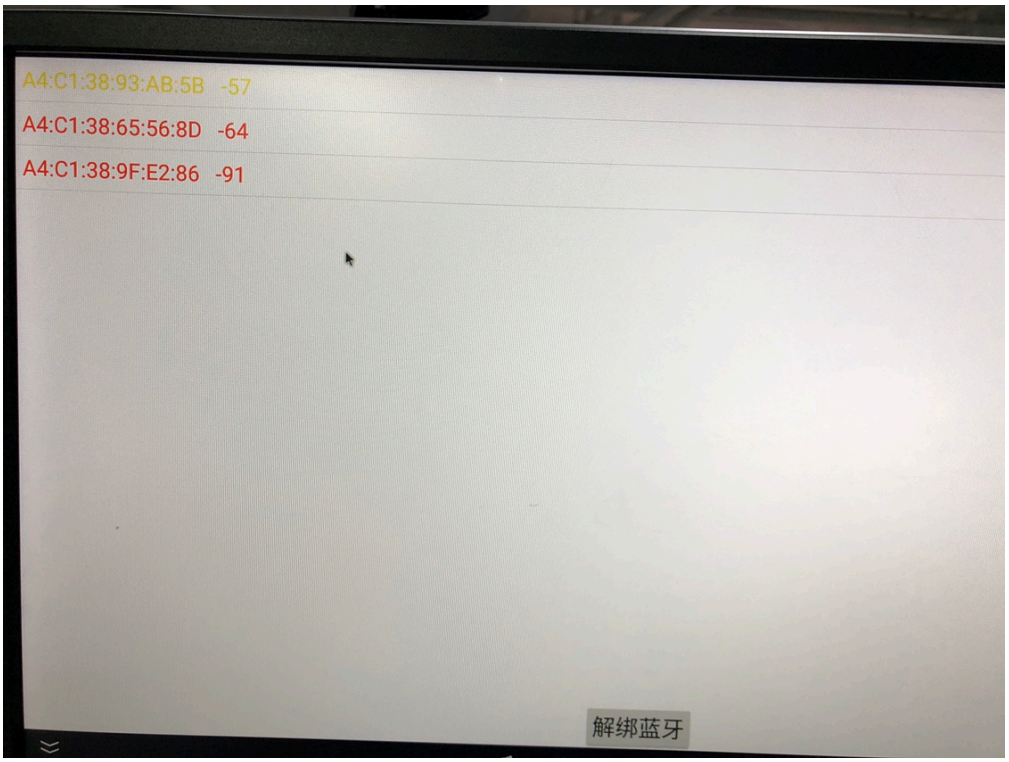
If the Bluetooth connection still fails, connect a monitor and mouse to the host. Then right click

the mouse to return to app page.

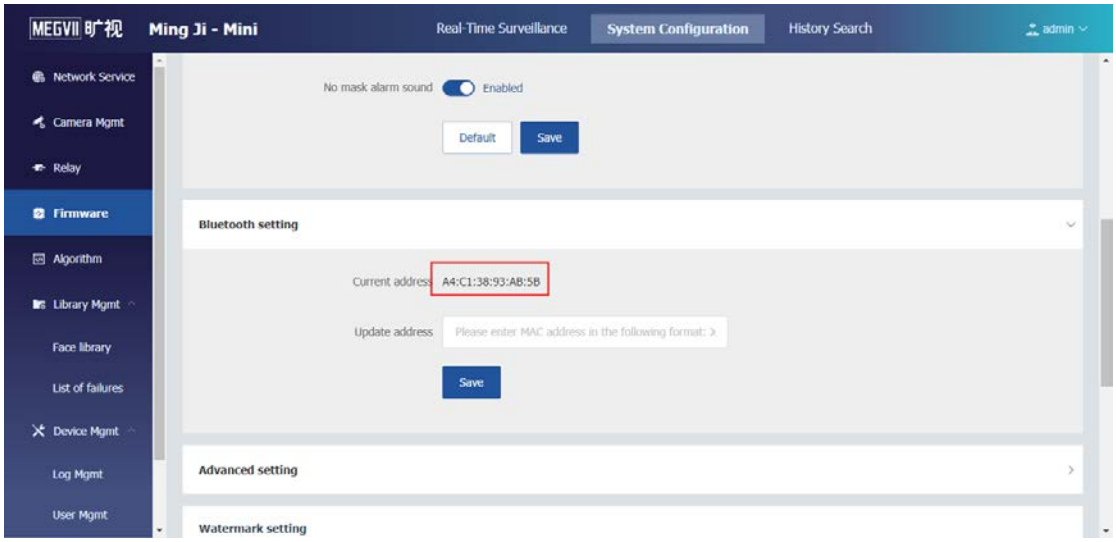


Left click “PairManager” to search all the available blackbody, then the results will be listed with MAC address. Left click “解绑蓝牙” to unbind Bluetooth.

Choose the correct address shown on the label posted on the bottom of blackbody, and double left click to bind.

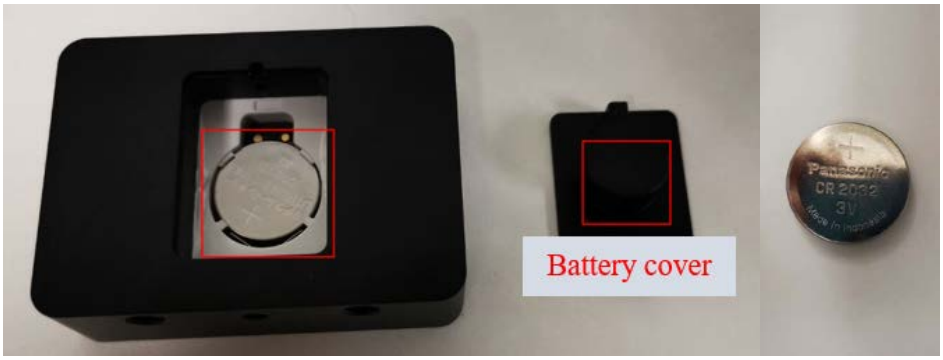


In System Configuration->Firmware->Bluetooth setting, user can see the current bound Bluetooth.



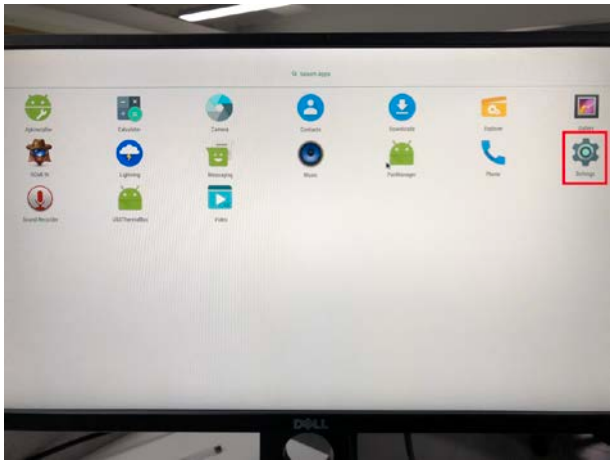
5.3 Blackbody Battery Replace

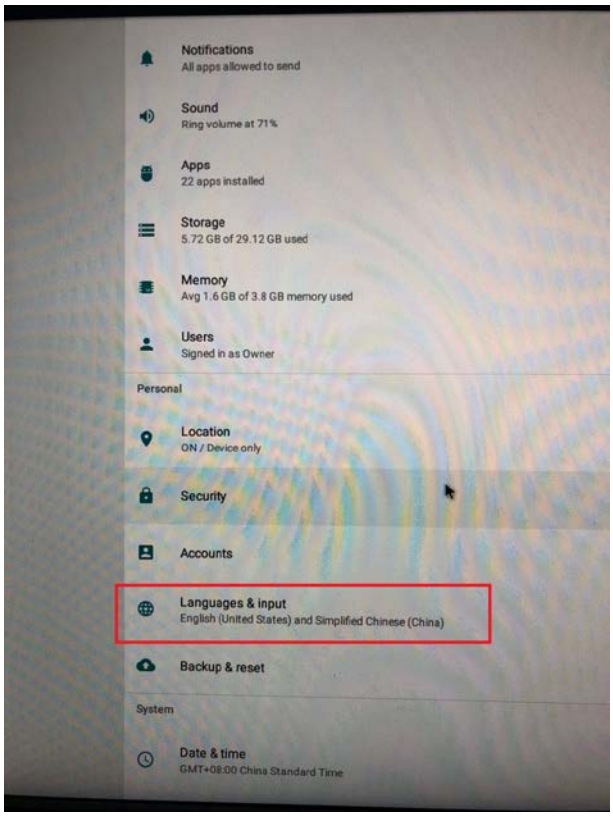
On the top and bottom of blackbody, there are two screw holes. Use a screwdriver to remove the screw. Then remove the battery cover to replace new battery. Only one 2032 button battery is needed for each blackbody.

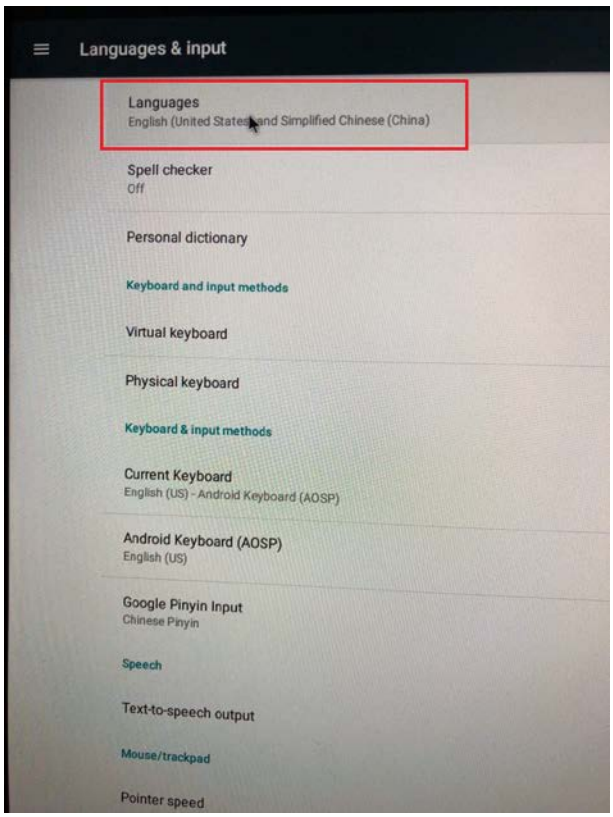


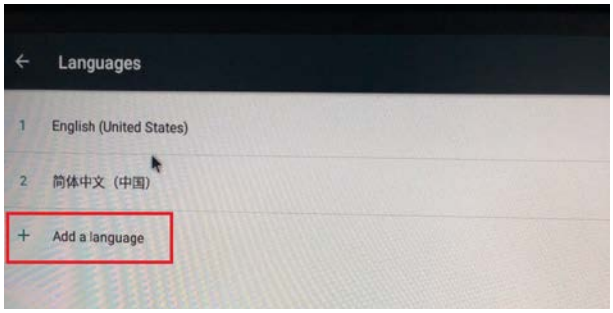
5.4 Android System Language Setting

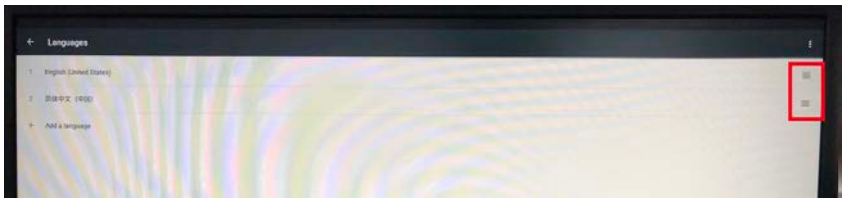
Connect a mouse, monitor with HDMI cable to the host. Right click the mouse to return to app page. Click Setting->Languages & input -> Languages -> Add a language, and select a language in the list, then drag the sort icon of the selected langue to the top, and it will take effect immediately.




Notifications
All apps allowed to send
Sound
Ring volume at 71%
Apps
22 apps installed
Storage
5.72 GB of 29.12 GB used
Memory
Avg 1.6 GB of 3.8 GB memory used
Users
Signed in as Owner
Personal
Location
ON / Device only
Security
Accounts
Languages & input
English (United States) and Simplified Chinese (China)
Backup & reset
System
Date & time
GMT+08:00 China Standard Time


Languages & input
Languages
English (United States) and Simplified Chinese (China)
Spell checker
Off
Personal dictionary
Keyboard and input methods
Virtual keyboard
Physical keyboard
Keyboard & input methods
Current Keyboard
English (US) - Android Keyboard (AOSP)
Android Keyboard (AOSP)
English (US)
Google Pinyin Input
Chinese Pinyin
Speech
Text-to-speech output
Mouse/trackpad
Pointer speed





5.5 FAQ

1. Q: Why some people only have captured images but without any measured temperature?

A: Because the face appears outside the IR imaging and inside visible light imaging, so the system cannot measure temperature. Configure a ROI in the area of IR imaging for visible light camera.

2. Q: Why the temperature measurement result delays for 5 seconds or more?

A: Maybe because the image pushing tactic of algorithm configuration is best quality pushing, so the system will push the final result after a track ends. Change it into timed image pushing and test again.

3. Q: Why there is no whitelist alarm after I created a whitelist?

A: After user created a whitelist, user has to go to camera management, press ‘edit’ button, and select the whitelist in ‘Deployed face library’, then the whitelist alarm function will take effect.

4. Q: Why face images on clothes or in cellphone can be captured and have measured temperature?

A: Ming Ji system doesn’t support live detection function.

5. Q: Why the visible light picture disappears but IR picture are normal?

A: First check the power and network of visible light camera, then check the network configuration in Ming Ji software. If the system is used locally, please confirm the DNS configuration is null.

Q: Why the IR camera keep emitting sound regularly?

A: The sound is made when internal components of IR camera calibrate every few seconds.

Q: Why the visible light camera only shows time but without any image?

A: Most probably because the cable between aperture to camera is not correctly connected. This cable should be connected from top to bottom.

Figure 5-1 Failure of visible light camera

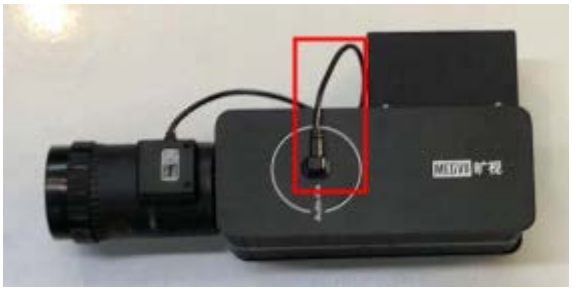


Figure 5-2 Correct connection of cable between aperture to camera

Note：Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.