Human Temperature Measurement

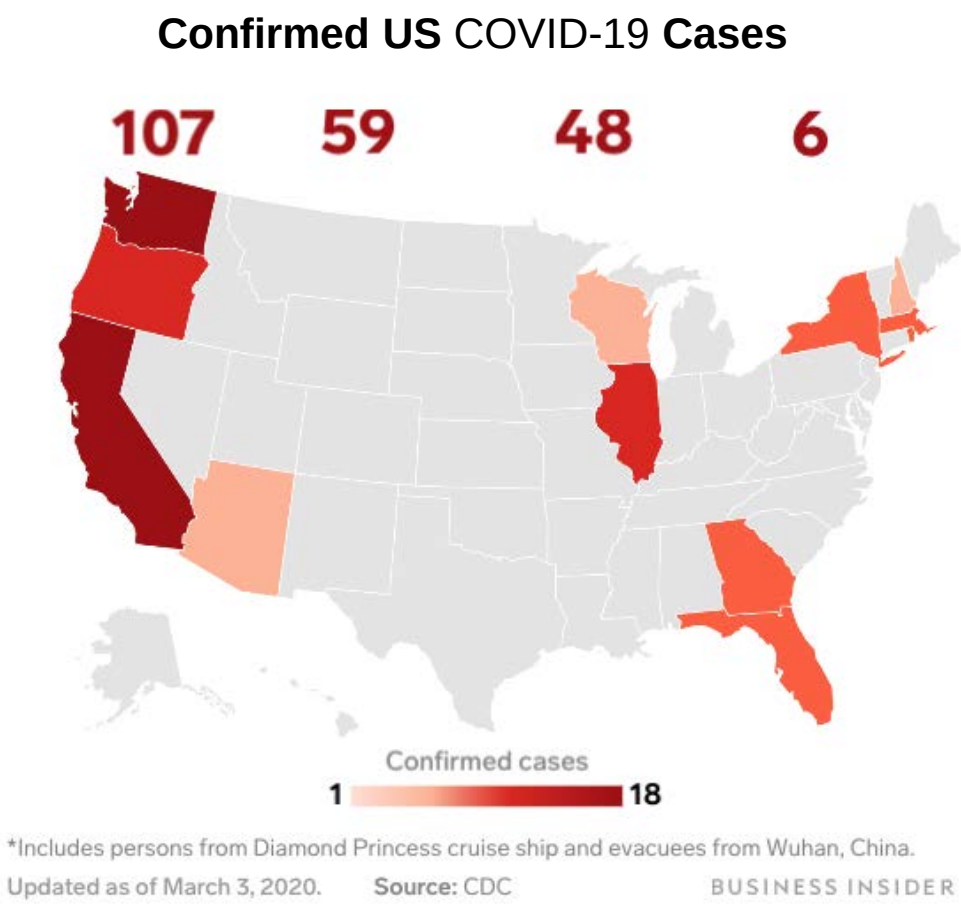
Thermal Solution

March 2020

Background

At the end of 2019, a new coronavirus broke out in Wuhan, China, which is characterized by human-to-human transmission, medical staff infection and community transmission. The disease has spread to China and around the world.

To date, at least 34,000 people have been infected by COVID-19 worldwide, and more than 700 people died within weeks of the virus first being identified.



Virus Identification

Since one of the key symptoms of the virus is a high fever, airport passengers are being screened with hand-held thermometers to look for individuals who should be quarantined.

However, hand-held thermometers used to detect a rise in body temperature can be time consuming, unreliable, increase manpower, and are unsanitary.

Hand-held thermometers can be unreliable due to skin temperature being colder than internal body temperature.

Current Challenges

- Low efficiency of thermometer and infrared detection gun
- Manual temperature measurement workload, high risk
- Manual recording is inefficient
- Personnel information collection is difficult

Virus Identification with Thermal

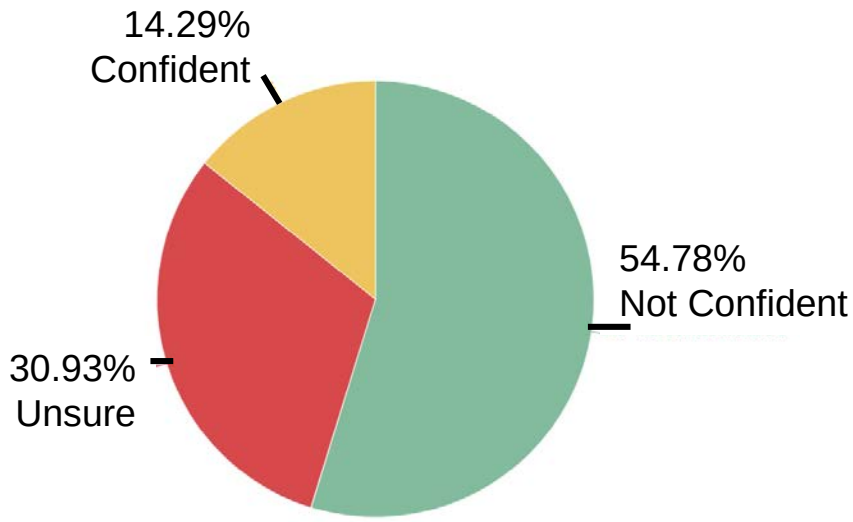
A faster, more sanitary way to identify a person in a large group with a fever is thermal imaging.

Screening areas at airports employ thermography tools to monitor large groups of passengers for possible symptoms.

Thermal Benefits

- Non-contact automatic temperature measurement
- Accurate, fast and multi-person detection
- Records abnormal temperature information automatically
- Captures person’s identity automatically

How confident are you that airports are doing enough to prevent the spread of COVID-19?



Airport-technology.com

Thermal Benefits

High Accuracy

- ±0.3℃ (with blackbody)

High Efficiency

- Non - contact temperature detection, quick screening
- Long distance, wide coverage and multi – person detection

Normal Human Body Temperature: -37ºC / 98.6ºF.

Low Cost

- Automatic early warning mechanism, saving manpower and reducing the risk of cross-infection

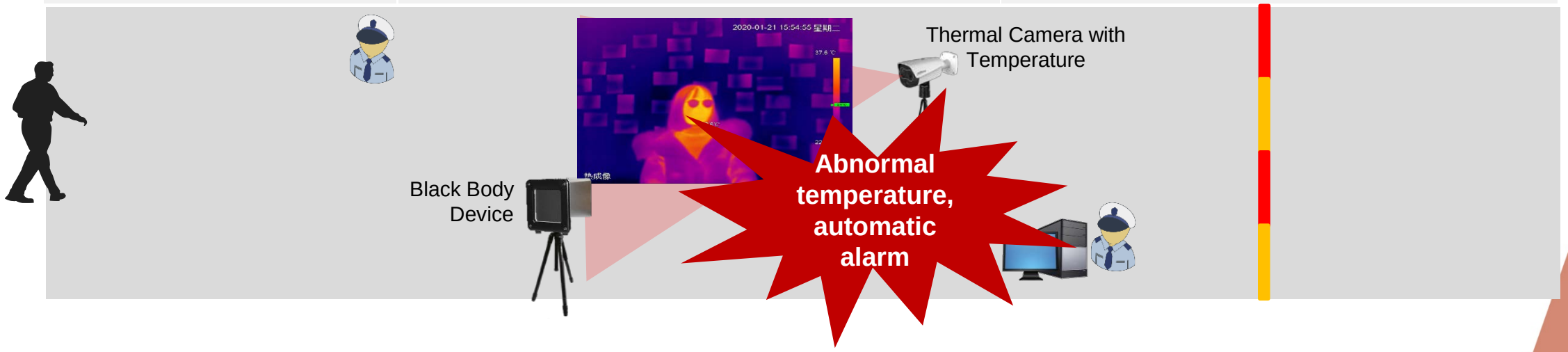
Strong Adaptability

- Applied to small scenes such as entrances and exits
- Large scenes such as airports and railway stations with dense personnel

Dating Back

- Realize the historical data backtracking, data analysis and so on combined with the platform

Screening Entrance	Temperature Measurement Area	Isolation Area



Body Temperature Thermal Dual-lens

- 256x192 VOx uncooled thermal sensor technology
- Athermalized Lens (thermal camera), Focus-free
- Visible: 1/2.8” 2MP progressive scan Sony CMOS
- Dual-lens:
  - Thermal 7.1mm / Visible 8mm
- Support ROI, Motion Detection, Color Palettes
- Support measure body temperature
- Temperature Measurement Accuracy: Max (±0.3° C, with black-body/ ±1℃, without blackbody)
- Active deterrence with white light & siren
- Built-in 2/2 alarm in/out
- Spectral Range：8μm~14μm
- NETD：<50 mK

DH-TPC-BF3221N-TB7F8-HTM

H.265 | PoE | IP67 | WDR 120dB | SD Slot | ICR D/N

BlackBody

- Working Temperature: 40ºC (environment temperature: +5.0ºC - 50ºC)
- Temperature Resolution: 0.1ºC
- Temperature measurement accuracy: ±0.2℃（Single point）
- Temperature stability: ±(0.1～0.2)℃/30min
- Effective emissivity: 0.97±0.02
- Power: 220VAC 50Hz
- Ambient temperature and humidity: 0~40℃/ ≤80%RH

JQ-D70Z

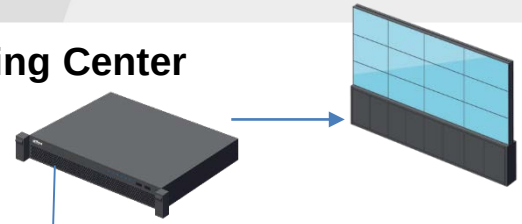
16Channel 1U 16PoE AI Network Video Recorder

- Industry embedded micro-controller
- 320Mbps (160Mbps when AI function enabled)
- 16-channel IP video access
- Up to 16-channel perimeter protection
- Up to 4-channel face recognition with normal IPC
- 1-8 PoE Ports support ePoE & EoC
- Up to 20 face databases with 100,000 face pictures in total
- 1 HDMI / 1 VGA video output

DHI-NVR5216-16P-I 4TB

FACE Recognition | FACE Capture | Human Capture | ANPR | Meta Data | Image Search | Blk List Alarm | People Counting | False Alarm

Monitoring Center



Standard

DHI-NVR5216-16P-I 4TB

TPC-BF3221-T
(Audible and visual alarm)

Blackbody
JQ-D70Z

Distance between camera and blackbody	Distance between the human forehead and the camera	Channel Width
9.8ft (3m)	9.8ft (3m)	4.3ft (1.3m)

Full Solution Components

Temperature Measurement

New

Blackbody

New

TPC-BF3221

Accessories

Camera Power Supply
DC12V 2A
DH-PFM320D-US

Tripod
VCT-999 *2 units required*

New

Connector
RQW026-00 *2 units required*

A set of temperature measuring equipment requires two tripods, two transfer parts, one for the camera and one for the Blackbody device.

Storage

New

DHI-NVR5216-16P-I 4TB

Switch
DH-LR2110-8ET-120

Display

DHL43-F600

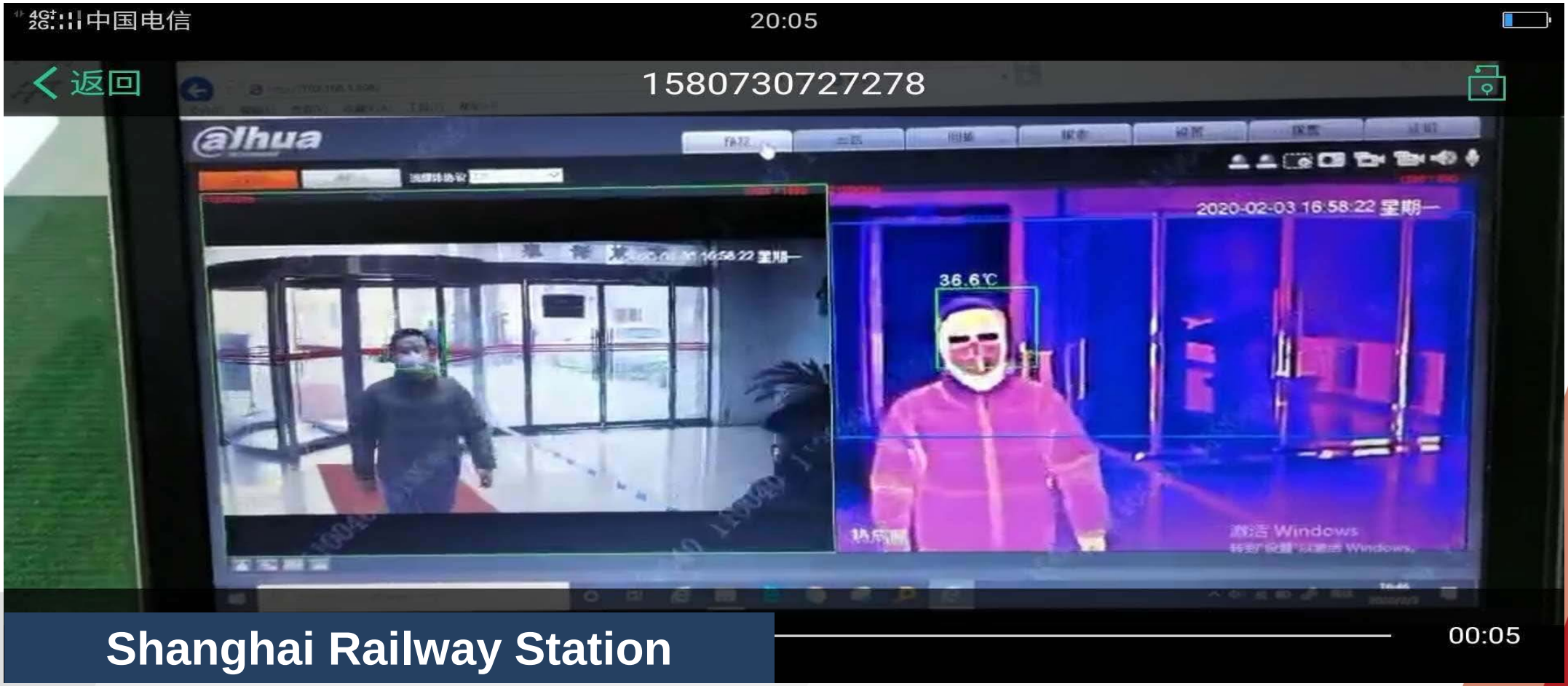
Applications

Dahua Thermal Solution

Combats Coronavirus II

Case Study

Dahua thermal human temperature measurement solution helps Shanghai railway station, one of the busiest railway station in the world, to realize rapid human body temperature measurement with dense crowds and find people with abnormal body temperature timely.



Shanghai Railway Station

Case Study

Hangzhou metro line 1 adopts Dahua thermal human temperature measurement solution at Hangzhou east railway station, one of the largest transportation hubs in Asia. Offers remote non-contact temperature measurement with high temperature measurement accuracy (±0.3°).

Hangzhou Metro