



AT EASE · AT SPEED · AT SCALE

AI-powered thermal imaging for temperature screening

ARUP

What's our solution?

Highly smart, best value

Since the Covid-19 outbreak, many businesses have been looking for a fast, easy, non-invasive and reliable method to detect elevated human body temperatures to safeguard their premises. However, many find it challenging to perform large-scale temperature screening at speed.

Infrared thermography has proven itself as an effective monitoring method for detecting elevated body temperatures which may indicate the presence of a fever. As such, the use of infrared as a screening tool to help detect people with a potential fever may contain or limit the spread of viral diseases.

With our bespoke AI technology embedded within a thermal imaging camera, our solution can detect human facial features from thermal images and measure the forehead temperature with a market-leading level of accuracy. Our technology can also recognise individuals wearing spectacles, facial masks and other headgear, enabling our clients to reliably

detect those with fevers even in busy crowds. Our AI technology can also provide status reports and real-time updates via a computer dashboard with the rate of people flow and number of persons with fever detected.

The solution reduces the cost on performing manual checking, and a specialist is not necessary to operate the system. It can be easily deployed and operated as a check-point at the entrance of any building, including office lobbies. Governments and private sector clients alike are benefitting from our AI powered thermal imaging solution which is a cost-effective and reliable means of helping protect public health.



The AI solution is part of Arup's in-house developed Neuron system – a central platform enabled by IoT and AI that analyses real-time data from a building's different systems to provide performance insight.

How it works?

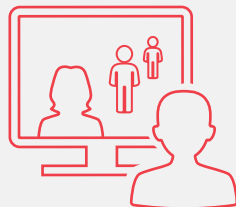
Easy to deploy and operate

Our system comes complete with thermal camera, software with frame grabber, and computer terminal. Our system is designed with flexibility to host multiple cameras, such that multiple detection zones can be monitored from a single command center.



STEP 1

Individuals are remotely monitored as they pass the screening check-points



STEP 2

Operator looks at the colour monitor that shows audible and visible colour alarms when an individual shows an 'out of norm' temperature



STEP 3

For an individual who has elevated body temperature, the algorithm will keep track of the moving person and display the photo of that subject



STEP 4

Operator will identify the individual who has elevated body temperature, and send that person to a separate line for further screening by a designated employee with hand-held temperature scanner

Why using it?

Multiple benefits



REMOTE MEASUREMENT

The solution incorporates distance analytics and compensates accordingly (as temperature measurements reduce with distance). It can measure temperatures accurately up to three metres from the camera.

REAL-TIME MASS SCREENING

Infrared thermography provides a visual map of skin temperatures in real time. The cameras produce images in real time and the total evaluation process takes less than one second.

RELIABLE RESULTS

Our solution measures the skin temperature of scanned subjects and calculates the average. Our algorithm is optimised for fever detection by automated and frequent recalibration procedures.

AUDIBLE ALARMS

Sound alarms can be set to go off when a certain temperature threshold is exceeded. These functions make it easy for an operator to instantly decide whether the subject needs to be referred for further examination.

SEE IT, KEEP IT

Our solution is configured to automatically detect the human body temperature above the shoulders, and the value of forehead temperatures is displayed on the monitor in real time and can be stored for future reference. The display dashboard itself can be tailored to suit different needs and scenarios.



HARDWARE

FOV	51.3° x 39.6°
Focus	fixed
Frame Rate	25 Hz
Size	54 x 25 x 79 mm
Operating Temperature	-20 °C to +60 °C
Storage Temperature	-40 °C to +70 °C
Power Supply	No battery, DC 12 V
Encapsulation	IP67
Mount/Handle	standard tripod mount

MEASUREMENT

InfraRed Resolution	384 x 288 pixels
Sensitivity	<60 mk
Temperature Range	-20 - 120 °C

We shape a better world

Arup is the creative force at the heart of many of the world's most prominent projects in the built environment and across industry. Working in more than 140 countries, the firm's designers, engineers, architects, planners, consultants and technical specialists work with our clients on innovative projects of the highest quality and impact.

FURTHER INFORMATION

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