

Elevated Bodytemp Screening



Identifying individuals with an elevated body temperature – in a moving crowd

Identifying individuals with an elevated body temperature

- During pandemic threat
- Monitoring the level of feverish people during non-alarm times
- Limit the spread of diseases
- Also
 - Quick first diagnostic at ER
 - Stop people performing high-risk work when sick
 - Stop contagion in sensitive jobs
- ...



Stand-alone system

- Table or wall mounted
- Detachable camera unit
- Remote
 - Start-up
 - Configuration
 - Download of data
 - ...



Our solution (Patented)

- **Visual and thermal camera**
 - Visual camera – to track faces and display photo
 - Thermal camera to perform measurements
- **Multiple person tracking & screening**
- **Eye-corner temperature measurements**

The closest indication of the actual body temperature



Body Temp Screening

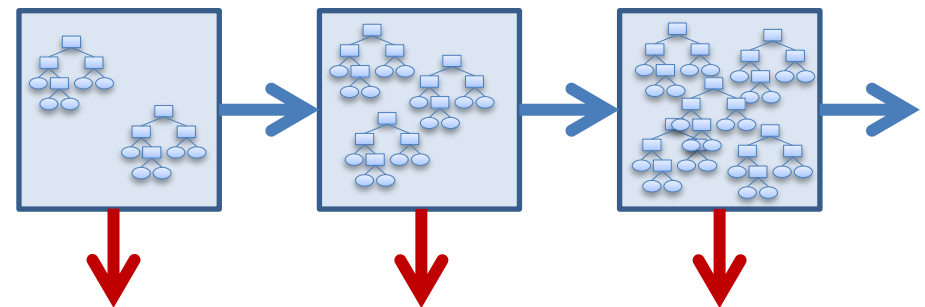
- Completely automatic
- Easy set-up
- Measure multiple individuals concurrently – as they walk by
- No extra queueing for the screening station
- Alarms sent to mobile device
- Can run unattended for statistical data collection or alarm level monitoring



Technical Features

- Face detection
- Multi-face tracking
- Face analysis
- Camera correspondence
- Temperature measurement

State-of-the art algorithms for face detection based on boosted cascades of decision forests.



[View more on Decision Trees](#)

Technical Features

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Keeps track of multiple faces so that we get one alarm per face, not one per image.

Uses a single-hypothesis multi-target tracking algorithm based on global nearest neighbour association and Extended Kalman filters.

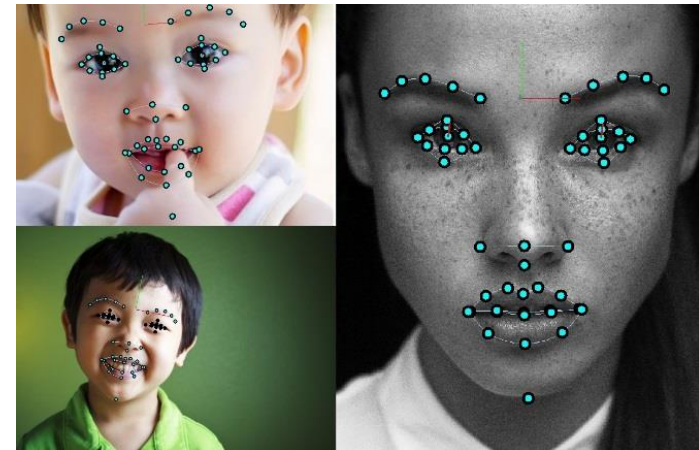


Technical Features

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Robustly finds the inner eye corners and thus the preferred measurement area as well as angle of the face towards the camera.

Algorithm based on state-of-the-art feature extraction and machine learning methods (regression forests and neural networks).



Technical Features

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Needed to determine where the measurement area is in the thermal image based on the visual image.

Camera calibration establishes a homographic or affine geometric transform.

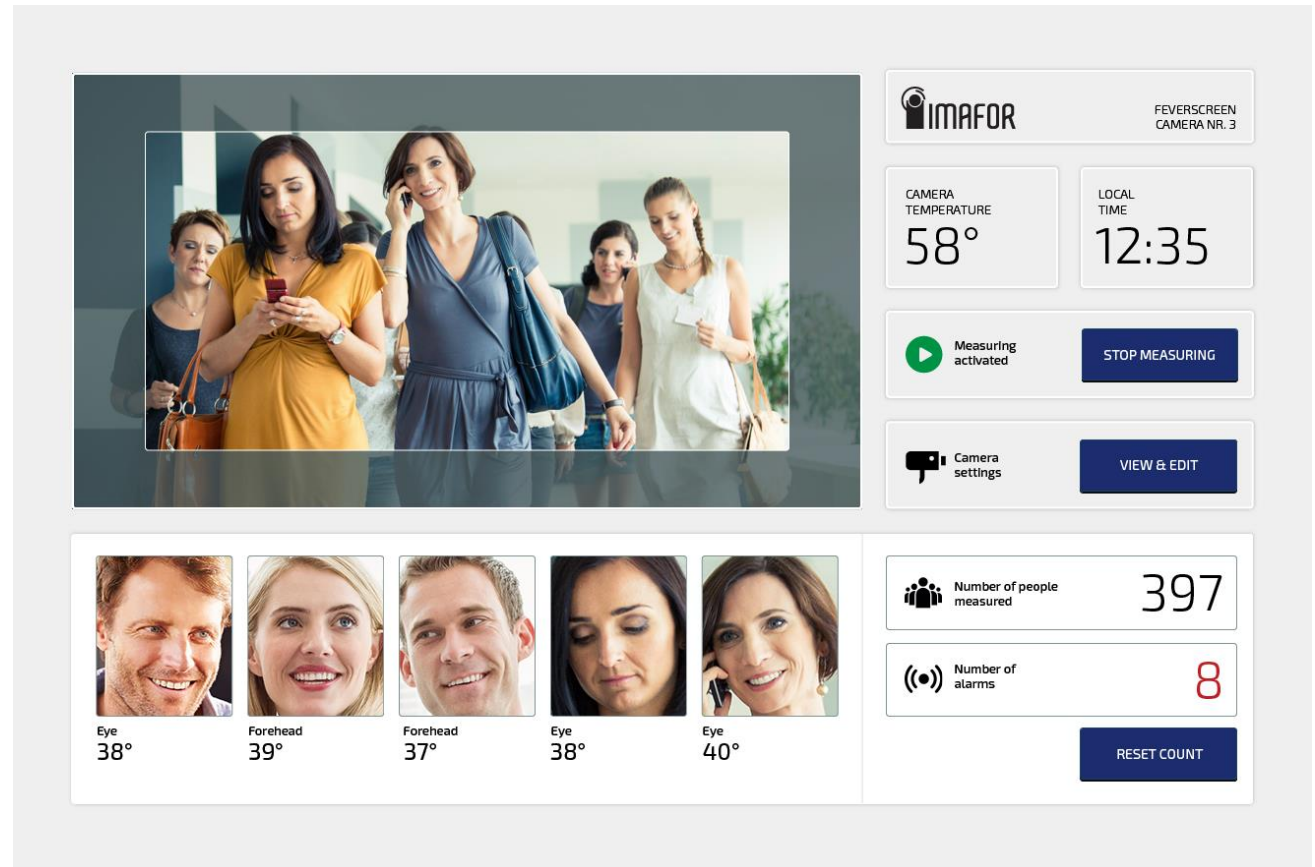
Technical Features

- Face detection
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- Temperature measurement

Extract temperatures from thermal image and compare to temperature reference or iteratively updated statistical measures, that is, give alarms for individuals warmer than a certain threshold or warmer than the crowd.

User Friendly Interface

Easy-to-operate
user interface –
requires very little
training



The screenshot displays the IMAFOR FEVERSCREEN user interface. At the top left is a large video feed showing a group of people. To the right of the video are several control panels:

- IMAFOR FEVERSCREEN CAMERA NR. 3**
- CAMERA TEMPERATURE 58°**
- LOCAL TIME 12:35**
- Measuring activated** (with a green play button icon) and a **STOP MEASURING** button.
- Camera settings** (with a speech bubble icon) and a **VIEW & EDIT** button.
- Number of people measured 397**
- Number of alarms 8** (with a bell icon) and a **RESET COUNT** button.

Below the video feed, there are five individual temperature readings for different people:

Measurement Type	Temperature
Eye	38°
Forehead	39°
Forehead	37°
Eye	38°
Eye	40°

User Friendly Interface

Simple
adjustment of
temperature
threshold etc

CAMERA SETTINGS

SAVE SETTINGS CLOSE X

Align visual & IR Camera

START

Temperature measure units

Fahrenheit
 Celsius

Offset

Offset for temperature reference

Offset for eye measurement

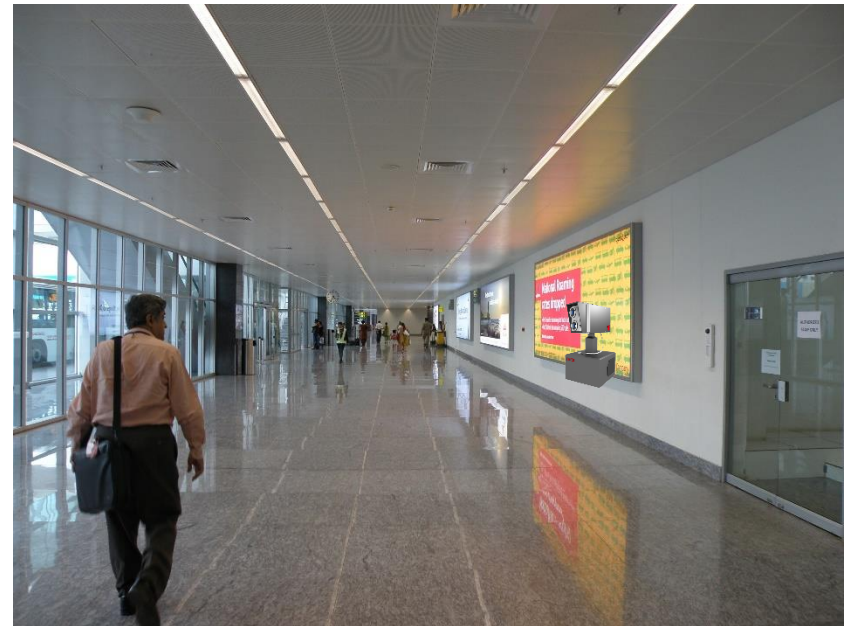
Offset for forehead measurement

Measurement

Absolute
 Relative
 Auto

Unattended Mode

1. Count total number of passengers and number of passengers with elevated temperature
2. Tracks the alarm-level in the area
3. Possible to coordinate across several locations (cloud solution)
4. Provide early warning and analysis of pandemic spread



Imafor - Identifying elevated body temperature

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