Powered By NVIDIA

MALONG

THERMALNET

AI-Based Dual Camera Hazard Screening System
MLTNSX01

- Multiple High-Value AI Models Integrated
- Privacy-First: PII/Faces Blurred in Real-Time
- Large-Scale Screening (Up to 150 People/Min)
- Secure, Enterprise Alerting & Dashboard

Introduction

ThermalNet is an AI-based dual camera thermal + computer vision screening system that can be utilized by enterprises to help people stay safe during epidemics. Powered by multiple world-class AI models, the system can accurately detect and alert on potentially dangerous temperature levels *combined* with PPE, occupancy, and social distancing compliance. This is a ready-to-deploy system, integrating all key elements: sensors, AI computing device with pre-loaded software, and a touch screen for monitoring & control.

Dual Camera System
(Visitor-facing)

Touch Screen For Visual Monitoring & System Control
(Operator-facing)

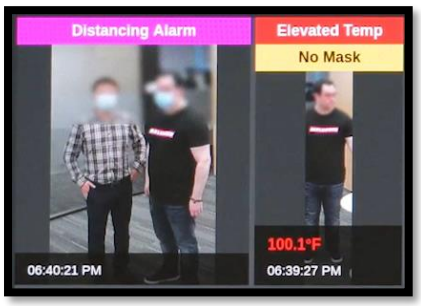
AI Computing Platform with Pre-Loaded Software

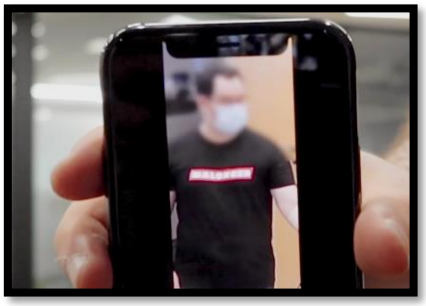
THERMALNET

Key features

AI FEATURES – FULLY INTEGRATED FOR SMART ALERTING

- **High temperature** detection (even at high volume)
- **Social distancing** detection (how far is configurable)
- **Mask wearing** detection (for surgical, N95, and DIY)
- **People counting** (inflow/outflow to manage volume)
- **Coughing / sneezing** and more in the roadmap, available via secure over-the-air model updates.



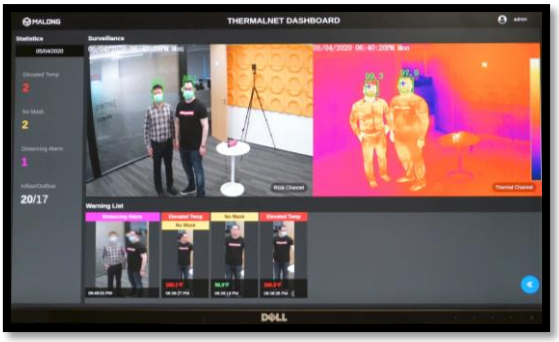


PERSONAL PRIVACY PROTECTION BUILT-IN

- PII/faces in alerts are blurred automatically, combined with non-blurred body portraits
- No personal identifiable information about any visitor is collected, distributed or stored
- The device can work stand-alone without any network connection. Secure out of the box.

EASY TO USE

- Operator-free built-in UI/controller with dashboards for config and monitoring.
- Configurable alert notifications which can trigger based on multiple conditions (e.g. high fever *and* no mask).
- Slack/API alerting integration for secure, easy team mobilization and collaboration

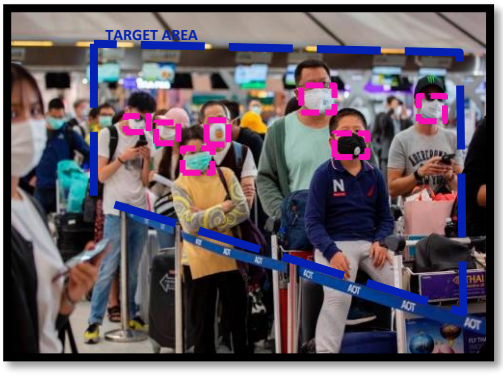


RUNS OUT-OF-THE-BOX, BUT ALSO CUSTOMIZABLE

- Can be set up on tripods, carts, or ceilings
- Optional black body radiator for continuous thermal calibration which improves accuracy
- Enable onsite and remote device config with optional 4G modem (or LAN integration).
- Customizable to use existing infrastructure, e.g. IVA computation on existing NVIDIA T4 server.

HIGH PERFORMANCE

- Accuracy with Black Body: ≤ ±0.54°F (±0.3°C)
- High volume capacity, up to 150 people/min
- Use dashboard to set up custom target zones to minimize noise
- Automatically adjust based on ambient temperature conditions



THERMALNET

Product Specifications

A. Dual Camera System

Category	Feature	Specification
IR Camera	Sensor type	● Uncooled infrared focal plane sensor
	IR resolution	● 400 x 300
	Video resolution	● 704 x 576
	Pixel size	● 17μm
	NETD	● 40mK
	Focal length	● 8mm
	FOV	● 46°×35°
	Frame rate	● 50/60Hz
Visible camera	Resolution	● 2,000,000 pixels, 1920 x 1080
	Focal length	● 2.8 ~ 12mm
	SNR	● > 55dB
	WDR	● > 120dB
	Frame rate	● 1080P/30fps
Temperature measurement	Range	● 14 ~ 122°F
	Accuracy	● ≤ ±0.54°F (ambient temperature 61 ~ 90°F)
	Calibration	● Built-in and external black body, automatic calibration
Environmental adaptability	Work temperature	● 14 ~ 122°F (suggested ambient temperature 61 ~ 90°F)
	Storage temperature	● -4 ~ 140°F
	Work humidity	● < 90% (non-condensing)
	Shock	● 30g 11ms, IEC60068-2-27
	Vibration	● 10Hz ~ 150Hz ~ 10Hz 0.15mm, IEC60068-2-6
Camera head interface	Network interface	● 2 RJ45, visible light 100M, infrared 1000M
Camera head power	Input voltage	● DC 12V
	Input power	● ≤ 12W
Physical characteristics	Camera head size	● 212 x 182 x 136mm
	Weight	● 2.12 kg

B. AI Computing Platform with Pre-Loaded Software

Category	Feature	Specification
Computing features	GPU	● NVIDIA Jetson Xavier (512-Core GPU w/ Tensor Cores)
	CPU	● 8-Core ARM v8.2 64-Bit CPU, 8 MB L2 + 4 MB L3
	Memory	● 32 GB 256-Bit LPDDR4x | 137 GB/s
	Storage	● 32 GB eMMC 5.1 Flash Storage
	Vision accelerator	● 7-Way VLIW Vision-Accelerator Processor
	Video encoding	● 8x 4K @ 30 (HEVC)
	Video decoding	● 12x 4K @ 30 (HEVC)
Environmental requirements	Power	● +13 ~ +19V DC Input @ 8A
	Work temperature	● -40°F to 185°F
	Storage temperature	● -13°F to 176°F
	Humidity	● 95% RH, -14°F ~ 149°F

THERMALNET

Category	Feature	Specification
Ports	Display	● 1x HDMI
	Ethernet	● Ethernet 2x Gigabit Ethernet (10/100/1000)
	USB	● 6x USB 3.0 Type A (Integrated USB 2.0) ● 1x USB 2.0 Type A/1x USB 2.0 OTG Micro-AB
	I2S Bus	● 1x I2S Bus(+3.3V Level)
	SPI Bus	● 1x SPI Bus(+3.3V Level)
	Serial	● 1x RS-232
	Serial	● 2x RS-485
	Mini-PCIe/mSATA (4G MODE)	● 1x Mini-PCIe (PCIe & USB 2.0) Full Size
	M.2 KEY M DISK	● 2240&2280 Size Disk Share
	USB WIFI MODE	● Standard USB WiFi Mode
	CAN Bus	● 2x CAN Bus Link
	SIM Card	● Mini SIM Card Slot
	Misc.	● 1x System Control ● 1x POWER Control ● 1x I2C Link(+3.3V I/O) ● 3x GPIO(+3.3V Level)) ● 4x LED STATE
Software features	Software modules	● Monitoring dashboard ● System configuration & calibration dashboard ● Intelligent video analytics pipeline ● User account control
	OS	● Ubuntu 18 LTS
	Software environment requirement	● NVIDIA Drivers ● NVIDIA CUDA 10 ● NVIDIA Docker Container
	Alert types	● Visitors with elevated temperature ● Visitors not wearing a mask ● Visitors violating social distancing ● Visitor counting on inflows/outflows
	Alert message	● Full body portraits of targets ● Alert type ● Time & date ● Temperature (optional)
	Configurable alert conditions	● Temperature check on/off ● Temperature alert thresholds ● Mask check on/off ● Social distancing check on/off ● People counting alert on/off
	Alert media	● Monitoring dashboard ● Slack integration ● Alert API
	Integration features	Provide RESTful API to enable integrating the following features: ● Real-time alerting ● Statistical analysis ● System configuration & calibration ● User account control

THERMALNET

C. Touch Screen For Visual Monitoring & System Control

Feature	Specification
Product Description	● Dell 24 Touch Monitor - P2418HT
Device Type	● LED-backlit LCD monitor - 24" - touchscreen
Native Resolution	● Full HD (1080p) 1920 x 1080 at 60 Hz
Input Connectors	● HDMI, VGA, DisplayPort
Response Time	● 6 ms (gray-to-gray)
Diagonal Size	● 24"
Brightness	● 250 cd/m²
Aspect Ratio	● 16:9
Pixel Pitch	● 0.275 mm x 0.275 mm
Contrast Ratio	● 1000:1 / 8000000:1 (dynamic)
Color Support	● 16.7 million colors
Weight	● 6.88 lbs

D. (Optional) Black Body Radiator for Continuous Thermal Calibration

Feature	Specification
Default temperature	● 104°F
Black body target surface uniformity	● ≤ 0.18°F
Temperature stability accuracy	● ≤ ±0.36°F
Emissivity	● 0.98
Input voltage	● AC 110 ~ 220V 50Hz

Ordering Information

Available for Orders Today, Shipping Worldwide. Contact: bd@malong.com

ThermalNet Pro MLTNSX01-P	Software Capabilities - Supports elevated temperature detection, mask detection, people counting, social distancing, and analytics - Built-in Slack integration, API, remote dashboard management Dual Camera System - IR camera and visible camera integrated into cart or tripod - Accuracy: ≤ ±0.54°F with Black Body, without: ≤ ±0.9°F AI Computing Platform - NVIDIA Jetson AGX Xavier 512-Core GPU and 65 Tensor cores Touch Screen - 24" Full HD (1080p) 1920 x 1080 at 60 Hz Wireless Networking - 150Mbps 4G modem, with WiFi
ThermalNet Basic MLTNSX01	Software Capabilities - Support elevated temperature detection only - Local dashboard management Dual Camera System - IR camera and visible camera integrated into cart or tripod - Accuracy: ≤ ±0.54°F with Black Body, without: ≤ ±0.9°F AI computing Platform - NVIDIA Jetson TX2 256-Core GPU Touch Screen - 24" Full HD (1080p) 1920 x 1080 at 60 Hz
Black Body Radiator MLTN-IRBB01	Black body, default temperature 104°F, target surface uniformity ≤ 0.18°F, Temperature stability accuracy ≤ ±0.36°F, emissivity 0.98

Disclaimers:

- Malong makes no claim of ThermalNet being a medical device; its readings are only to be used as a reference.
- Malong reserves the right, without notification, to make changes in product design or specifications.