MVT Camera

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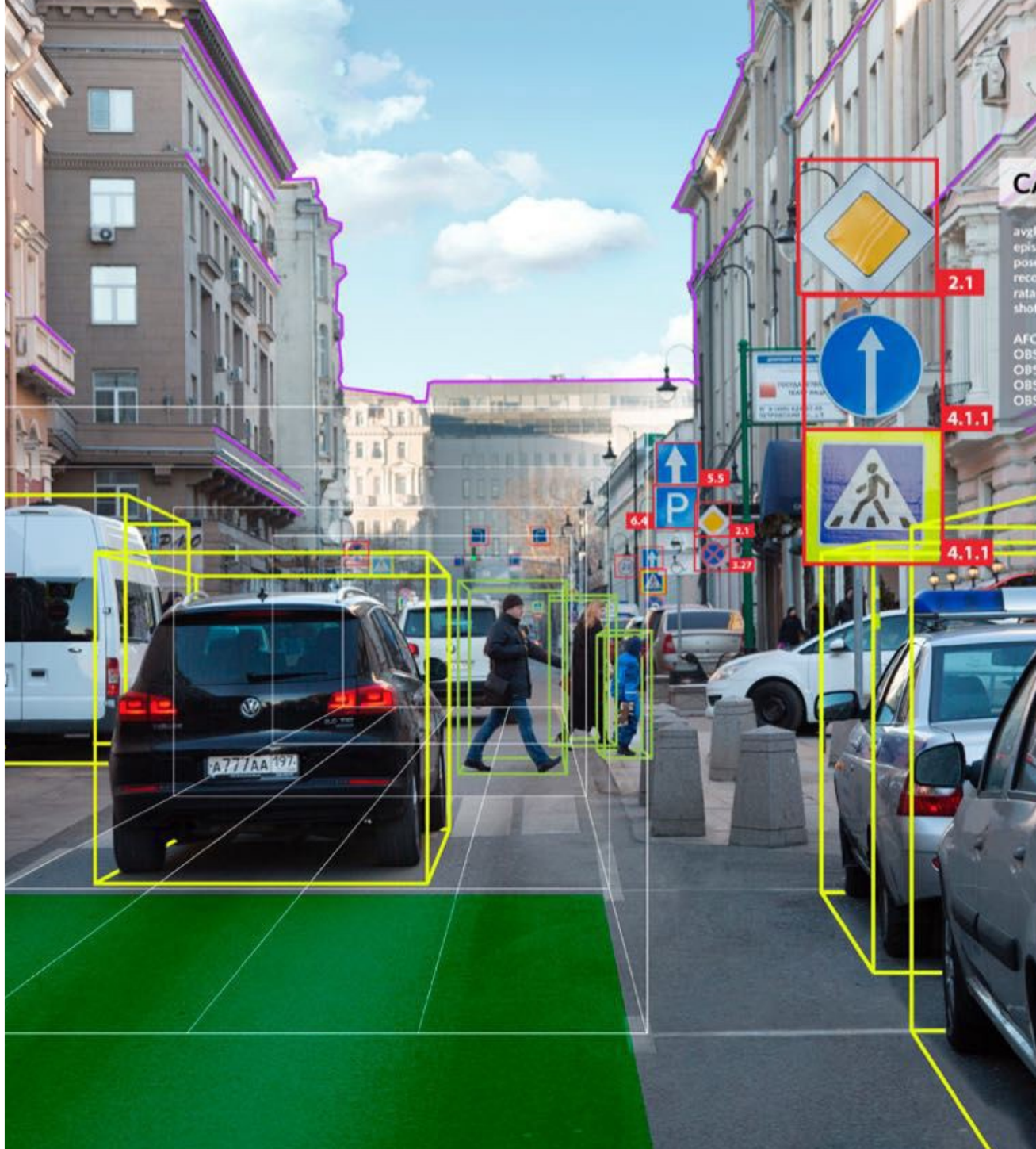
Problem Statement

- Standard imaging systems perform functions similar to that of the human eye and therefore cannot uncover hidden issues in things around us.
- Standard imaging systems do not perform well under lowlight conditions or in the absence of light.
- Measuring conditions like heat or temperature of objects around us and inferring results from them is a tedious process and cannot be solved by standard imaging systems.



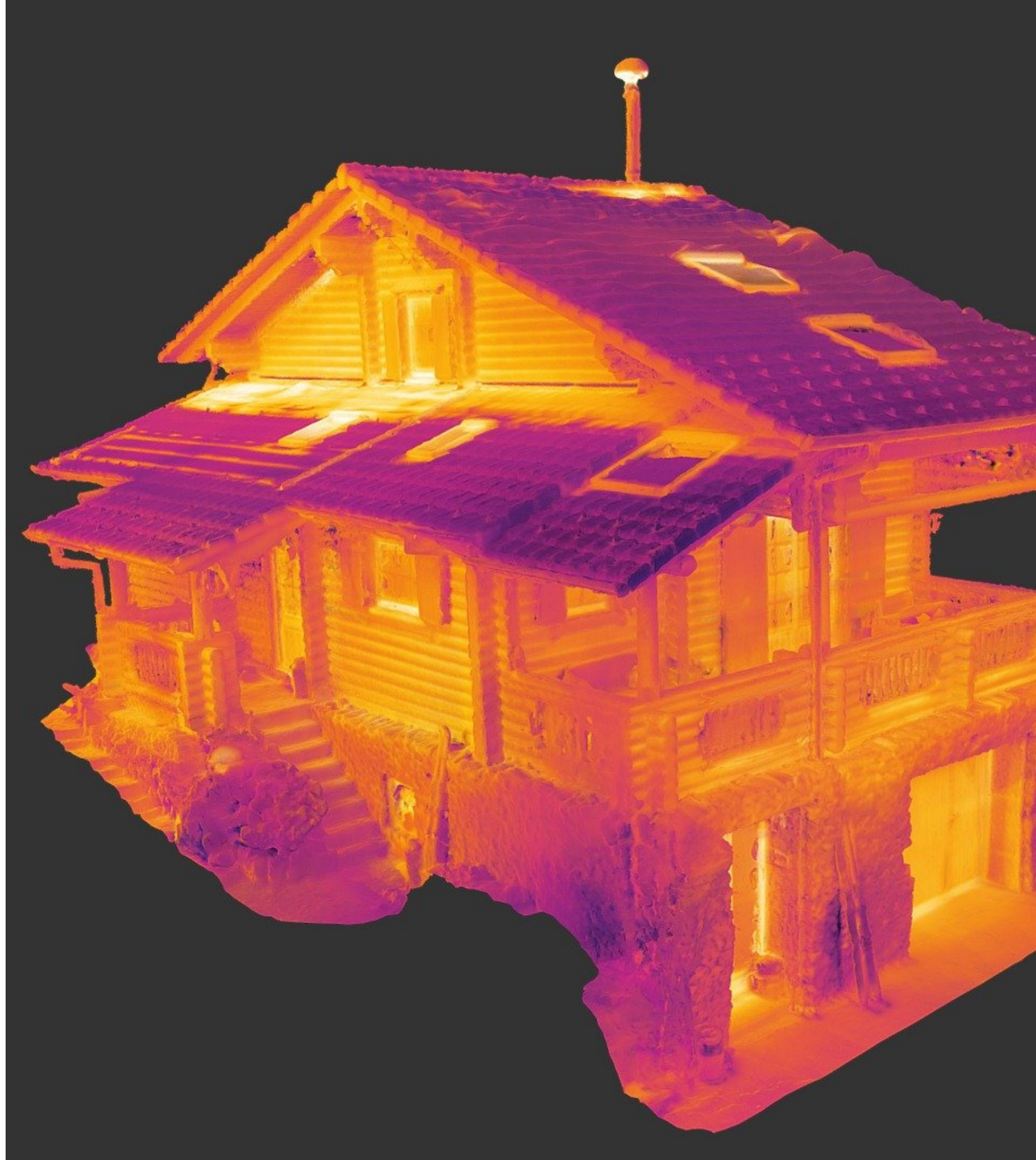
Our solution

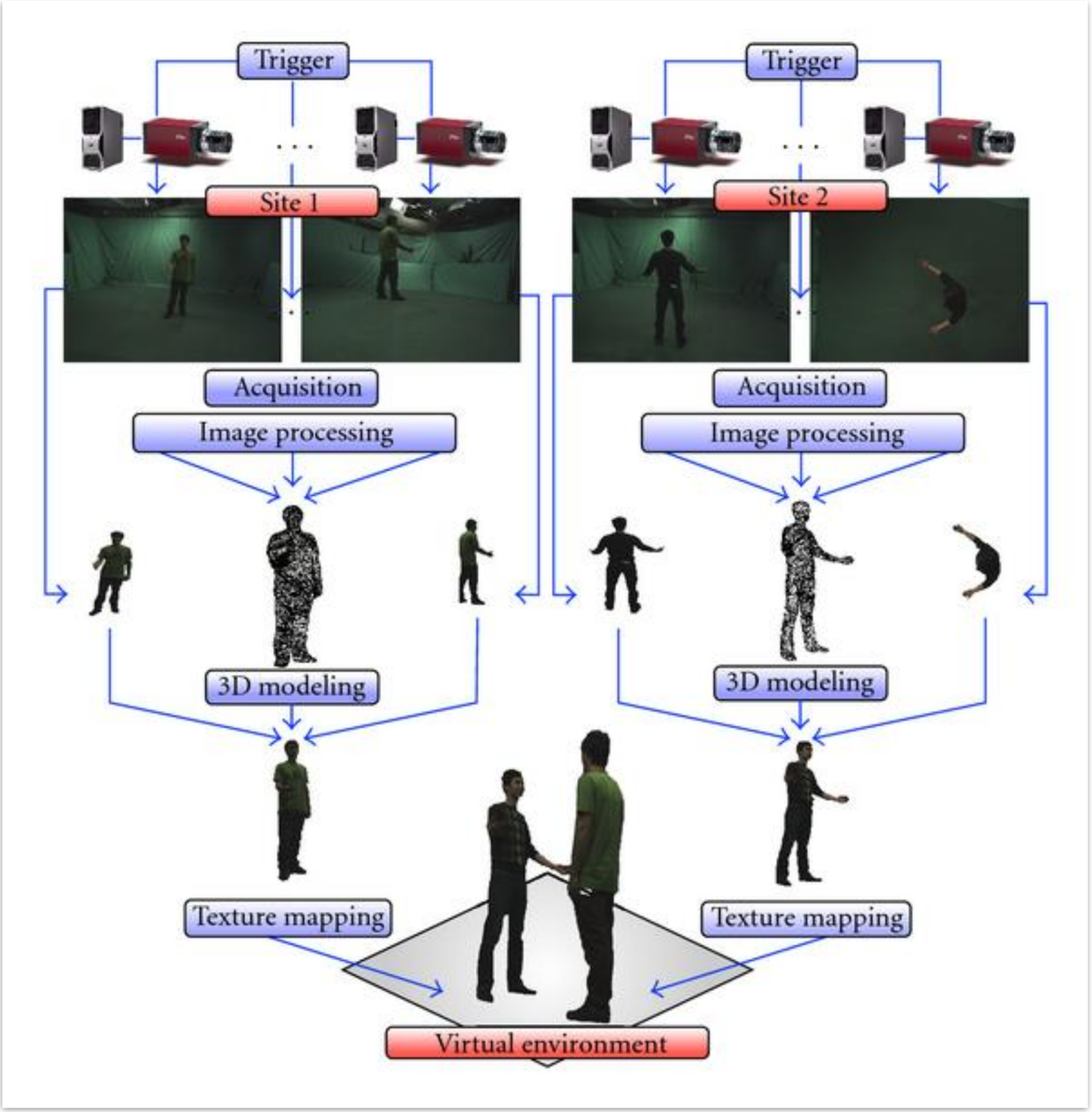
The proposed MVT Camera performs the following:

- Tracking of subject
- Mapping and reporting
- Measuring temperature
- Measuring oxygen saturation levels
- Measuring intoxication levels
- Detecting sneezing/coughing
- Object detection/ face identification

Live 3D Thermography

- Use of multiple cameras at different positions to continually map a 3D environment.
- Enables live 3D surveillance, tracking source of heat transmission, fault detection, etc.
- Improves accuracy across different applications.




Trigger
Trigger
Site 1
Site 2
Acquisition
Acquisition
Image processing
Image processing
3D modeling
3D modeling
Texture mapping
Texture mapping
Virtual environment

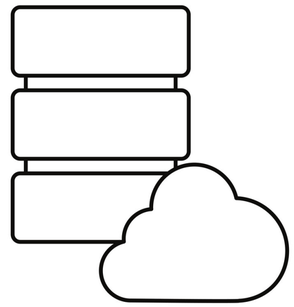
Block diagram

Thermal Camera Setup

ADC

Analog to digital converter

Mobile device (optional)



Cloud infrastructure

Market and use cases

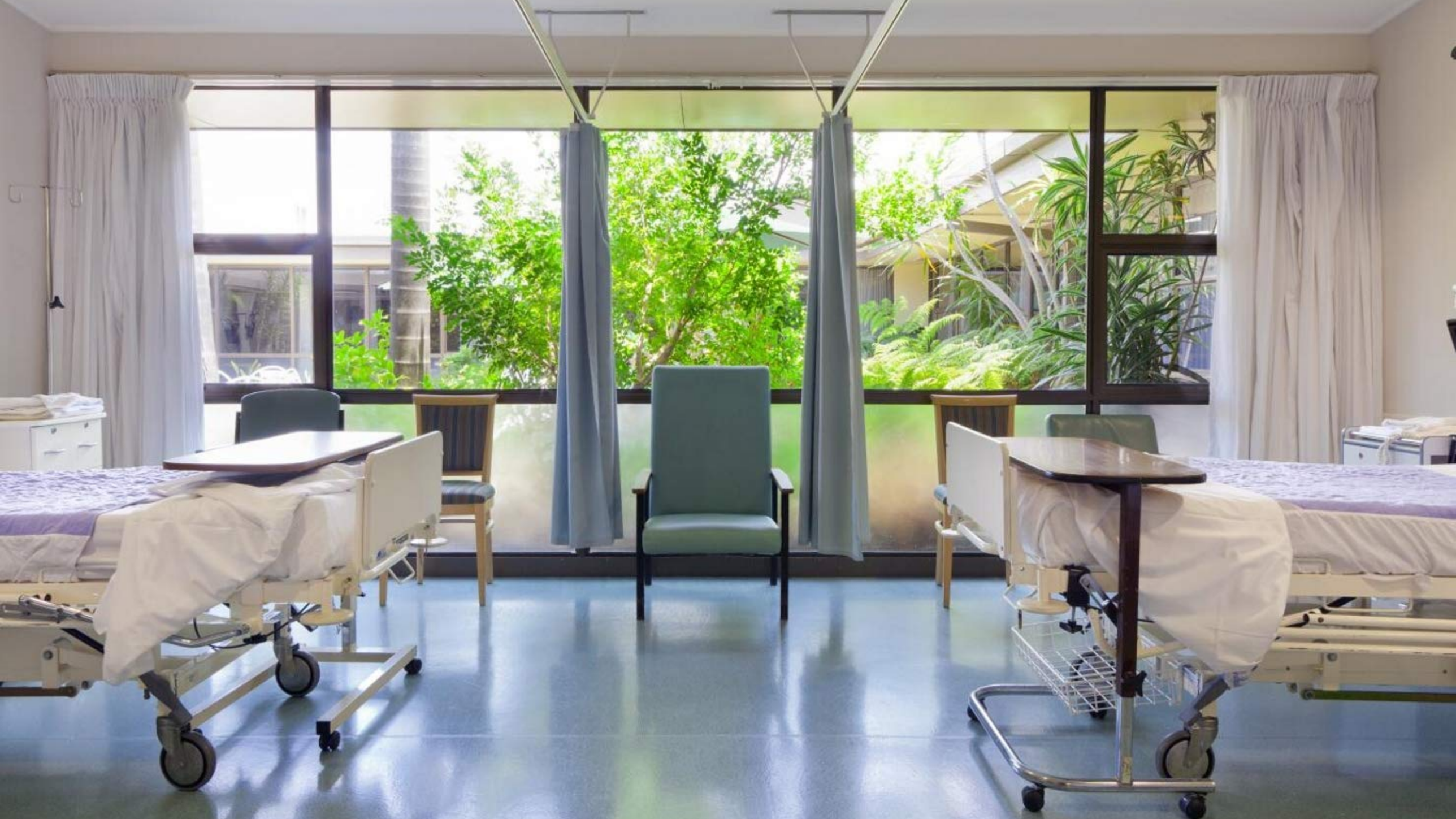
COVID Period

- Fever screening
- Oxygen saturation
- Sneezing/coughing
- Mask detection
- Exposure of subject to potential risks tracking
- Mapping and reporting
- Vaccination drive

Wildlife Conservation

- Forest fire detection
- Animal count
- Migration pattern
- Highway passage protection
- Illegal hunting/ poaching

Medical Facilities



- Preliminary screening,
- Detection of peripheral vascular diseases,
- Early breast cancer detection
- Diabetic foot pathology detection
- Inflammation
- Circulation issues

Agriculture

- Detection of plant diseases
- Pest intrusion detection
- Predicting water stress in crops
- Planning irrigation scheduling
- Predicting fruit yield
- Evaluating the maturity of fruits
- Bruise detection

Other use cases

- Offices/ factories - apart from health related preliminary screening, alcohol detection, and predicting device heating up
- Homes - apart from health related preliminary screening of guests, intrusion detection, overheating of home appliances, gas leaks
- Roads - speeding/failing to yield, not wearing seatbelt/ not wearing helmet, passenger limit on two-wheelers, license detection, alcohol detection

Unique Selling Proposition

- Non-invasive, non-contact, and non-destructive nature of the technique to determine the temperature distribution of any object or process of interest in a short period of time, even in the absence of light.
- Does away with the tedious task of reviewing long hours of footage to obtain information accurately without any human error.
- Multifunctional system with multiple applications across different industries.
- IP strategy: Draws from various single function systems and integrates them to perform more complex tasks that haven’t been done before, thereby qualifying for a patent application.

Opportunity

- Market Size: Includes all healthcare institutions, offices, factories, homes, agricultural and wildlife conservation sectors, and government bodies handling public places.
- Competitive landscape: Current competitors include systems that perform singular functions solving less complex tasks, mostly only in 2D.
- Timing: Current COVID period demands increased security measures worldwide, thereby requires organisations to adopt more advanced security systems.

Roadmap

Duration (months)	Milestone Targets
0-2	Research and development
2-6	Prototype development
6-8	Optimisation

Financials

Head	Amount (Rs)	Justification
Raspberry Pi (4)	24000	Thermal camera interface
Thermal Camera (4)	40000	Thermal image sensing
Cables and adapters (4)	12000	Connections between components
Microphone (4)	8000	Detection of sneezing/ coughing
Standard camera (4)	10000	Object detection and identification
Monitor	3000	Processed live feed
Cloud infrastructure	10000	Storage of data

Team

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