COVID-19 Response: Smart Cameras and Fever Detection

A general review of new and adapted camera technology to prevent the spread of COVID-19

Even before the current global pandemic, startups and established companies were experimenting with real-time monitoring of facilities. As the strategies for long-term virus control come into focus, the applications for AI and smart cameras are becoming more clear. Some companies are well-established in building and operations mangaement and leverage smart cameras; however, now they have pivoted to apply their technology in their COVID response efforts. Other startups are responding to this opportunistic market, as nearly all establishments will need to implement some level of crowd monitoring.

Pros and Cons of AI and Smart Cameras

This technology actively scans people and crowds to determine density, crowd size, and given the recent outbreak of COVID-19, identify indivdiuals with a fever. Fever-detection, or thermal imaging, is the feature gaining the most attention. However, experts have cautioned that this technology-based approach is not a panacea. There are potential drawbacks, as well as benefits, to deployment. A study out of Iceland showed that 50 percent of those testing positive were asymptomatic. Moreover, temperature detection efficacy is questioned since thermal cameras are only reading surface temperatures and not internal body temperature.

Organizations should carefully consider the pros and cons before investing valuable resources in this type of technology. We have done preliminary research on some of the companies that have begun offering thermal imaging cameras in the marketplace. It is not an exhaustive list, but we hope it will provide some context to any news and PR seen elsewhere.

DISCLAIMER: This resource is for informational purposes only and is not an endorsement of any technology or company's products/services.

Company	Location	Availability	Product Description	Cost
Athena Security: Adapting current platforms ARTICLE	Austin, Texas	Pending after March announcement to roll out new cameras	Develops smart cameras to identify weapons, workplace accidents, and more. Specialized in gunshot detection. Not FDA approved for body temperature scanning. COVID: Plans to roll out a fever detection system using thermal infrared cameras and an algorithm to detect a person's temperature on a point near the eye known as the inner canthus, the hottest part of the face. If a temperature is detected, the camera sends an immediate alert to the business owner or individual monitoring the space. According to the company, the system is accurate at reading a person's body temperature up to a half degree Celsius.	$9,000 per camera

EAIGLE: adapting current platforms DEMO	Toronto - Waterloo	Market-ready	Offering an Intelligent Video Analytics Platform based on AI for indoor/outdoor real-time occupancy monitoring for smart facility applications. COVID: technology can perform crowd monitoring, people counting, and real-time body temperature monitoring. The system uses AI to monitor numerous cameras at once, seamlessly counts people and monitors body temperature in real time and automatically sends an alert to security personnel if it detects someone with a fever.	$15-20k per entrance
Feevr (X.Labs): developed for thermal detection	California	Market-ready, but has been under scrutiny for accuracy issues.	Feevr is a quick and effective artificial intelligence (AI) based system for screening and detecting individuals with elevated temperature in a crowd. The solution enables the user to identify individuals with a fever efficiently and effectively. A fever is an indicating symptom of an infectious disease like COVID19 (Coronavirus). Feevr is non contact based which prevents the chances of cross infection.	$1,250 per kit
FLIR	Oregon	Market-deployed	Well-established thermal imaging company with FDA approval. FLIR has manufacutred and sold thermal body scanners since 2002 and has products for contactless scanning.	$600 - $2000 per camera/scanner
InVId Tech	Long Island, NY	Market-deployed	On-board temperature detection algorithm; One IP address two channels, Accuracy within 0.54°F (0.3°C), Body detection, up to 16 Targets, Response Time 30ms, 17 color controls. Careful to note that this product is not a medical device and cannot be used to diagnose COVID cases.	$13,000 per device. SEC-BODYTEMCAMP1
KanKan AI (Remark Holdings) PR Article	Las Vegas & China	Face recognition ready. Thermal detection readiness is unclear.	KanKan reported a recent upgrade to its thermal detection AI products on March 3, 2020 though the capability is not on their website. COVID: Allows for non-contact fever screening, which is more efficient and faster than manual methods and which reduces the risk of cross contamination from human contact. Facial recognition includes mask detection can be used to enforce compliance with health and regulatory laws on a real-time basis. Allows for traffic monitoring, crowd monitoring, intrusion detection and other monitoring and detective functions.	NA
Kogniz: adapted current platforms ARTICLE	California	Market-deployed. Currently deployed with 12 customers	Offering a suite of products that use computer vision and AI to enhance security, safety and efficiency in any physical environment. Kogniz processes video in real-time to recognize people, objects and activities using facial and object recognition technologies. COVID: Scans crowds in real-time and identifies anyone with an elevated temperature; the solution then alerts company personnel in real-time so that any individual with a fever can be isolated as needed.	$10k per device

SenseTime: adapting current platforms ARTICLE	China	Market-ready	Uses computer vision and AI company to companies in education, healthcare, smart city, automotive, airports, communications, retail and entertainment. COVID: Thermal cameras can be deployed at airports, and train and subway stations, as well as office buildings, to help detect people whose body temperature exceeds 37.3 C among the crowd. It also developed an intelligent medical imaging evaluation system to help doctors diagnose pneumonia.	NA

Additional Articles and Resources

- CDC Guidelines for Temperature Checks for "Critical Infrastructure" which is a good reference for public-serving organizations. https://www.cdc.gov/coronavirus/2019-ncov/community/critical-workers/implementing-safety-practices.html
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