APPLICATION STORY

COMPACT FLIR THERMAL IMAGER MAKES THE AIRPORT CHECK-IN COUNTER AREA A SAFER PLACE

Compact FLIR AX8 thermal imaging camera integrated into ENGIE Services anti-intrusion system

It might seem like a fun thing to do at the airport at first, but entering a conveyor belt system at the baggage claim area is actually very dangerous. Every year again, accidents happen with children entering the baggage conveyor belt at the check-in counter area and getting injured by the pushers, diverters or other moving parts of the baggage handling system. Airports all over the world are therefore increasingly looking for solutions to address this safety concern. ENGIE Services (formerly known as Cofely Services), a global specialist in operating and maintaining airport facilities, has developed an innovative anti-intrusion system, based on thermal imaging cameras from FLIR and smart pattern recognition software.

The FLIR AX8 is a small, affordable thermal sensor that provides continuous temperature monitoring and alarming capabilities to protect critical equipment.

The pressure on airport personnel to prevent people from entering the baggage distribution system can be high and as a result it can seriously obstruct their normal job. But there's more than a safety concern. There have been cases of people entering the baggage system from landside to airside as well, causing serious security breaches. Be it for safety reasons or security breaches, anti-intrusion systems at airports present a growing demand.

Anti-intrusion system for baggage handling

Ghislain Riendeau, ENGIE Services' site manager at the Montreal Airport, Canada, was part of an investigation team, after incidents with people entering the conveyor belts had occurred. Mr. Riendeau had heard of similar situations happening at various locations around the world. After extensive research, the team of Mr. Riendeau found no specific solution for this problem. The challenge was then to find a solution that would be both effective and cost-efficient. Subsequently, Ghislain Riendeau created an R&D department, led by automation expert David Casaubon, for the development of a detection solution that would meet those requirements.

The anti-intrusion system developed by ENGIE Services uses the FLIR AX8 thermal imaging camera to monitor the conveyor. When an object whose temperature is above a certain threshold passes under the camera, the image is recorded.

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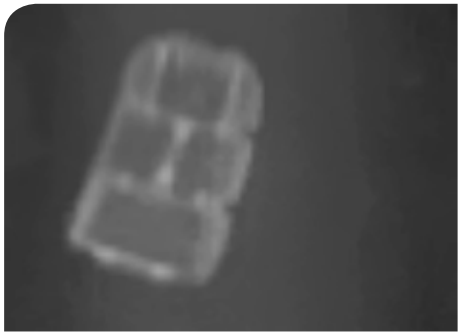
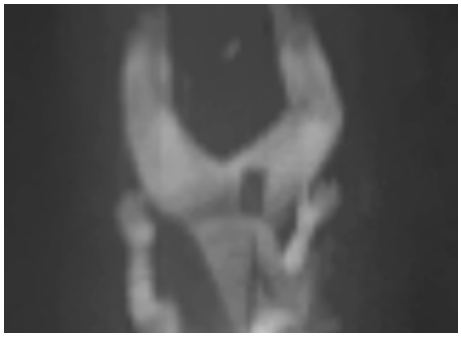


Hot bag: a bag was heated before being dropped in the baggage handling system. No alarm is triggered.



An intruder entering the conveyor belt and carried in the baggage handling system: an alarm is triggered (This situation was staged.)

Then, a shape detection system analyzes the recorded image. The object of that image is compared to a statistical model of a bag. If the shape corresponds to the model, the object is ignored. Otherwise, the system triggers an alarm. This alarm can be used to trigger the conveyor belt to stop or can be sent to a control room operator who decides to take the appropriate measures.

Reliable people detection

Mario Tessier, from Canadian instruments distributor ITM Instruments Inc. recommended ENGIE Services to use the FLIR AX8 camera: "The combination of thermal imaging and pattern recognition is a very reliable way to detect people and results in a serious reduction of false alarms. Baggage can be warm sometimes, presenting little difference with human body temperature, especially after a period of lying in the sun. But the pattern recognition software can make a good distinction between a warm bag and a person."

"The anti-intrusion system is a very reliable way of preventing serious accidents within baggage distribution systems," says David Casaubon from ENGIE Services. "What we hear the most from control room operators is that they now also have a visual reference of what is going on on the conveyor belt. But also other airport personnel need to worry less about safety or security breaches and they can focus more on their own job."

The case for thermal

It's not that other technologies haven't been tried. "We could have used heat sensors or visible-light cameras to monitor the conveyor belt," says Mario Tessier, "but none of those technologies would have been as effective as the thermal imaging camera." Heat sensors can also pick up the heat of human being above a certain temperature threshold, but this technology cannot make use of pattern recognition software to make a distinction between a bag and a small person. Heat sensors also do not offer any visual reference, which can be so important for a control room operator. Visual cameras could make use of pattern recognition, but there the problem is that CCTV cameras do not always offer a good image when there are shadows or in badly lit spaces, which can result in a lot of false alarms. All of these issues do not affect thermal imaging cameras.

Thermal imaging camera for continuous condition and safety monitoring

The FLIR AX8 is a small (only 54 × 25 × 79 mm or 2.1 x 1 x 3.1 in.), affordable thermal camera that provides continuous temperature monitoring and alarming capabilities to protect critical electrical and mechanical equipment. The AX8 is used in situations where unplanned outages, service interruptions, and equipment failure need to be prevented, without the need for periodic manual scans. With its streaming video output, the AX8 not only offers live video of every installation, but it also provides automated alarming when pre-set temperature thresholds are exceeded as well as temperature trend analysis.

The AX8 is very cost-effective and in fact an ideal solution for baggage intrusion systems where multiple entries and exits need to be monitored. "In fact, the cost-effectiveness of the FLIR AX8 was one of the main reasons that ENGIE Services opted for this camera for integration into its anti-intrusion system," says David Casaubon. "But airports usually want their monitoring systems to be as discrete as possible too. The fact that the FLIR AX8 is so compact makes it interesting for integrators and airports alike to use thermal imaging cameras."

www.engieservices.net

For more information about thermal imaging cameras or about this application, please visit:

www.flir.com/automation