Innovative video analytics from Araani increase fire safety in critical environments.

SmokeCatcher succeeds where traditional smoke detectors fall short.

Organization:
Araani BVBA

Location:
Kortrijk, Belgium

Application:
Fire prevention

Axis partner:
Araani BVBA

Mission

In their quest for the most reliable solution for fire safety in critical environments such as the petrochemical industry or waste processing units, the Kortrijk-based firm Araani developed the SmokeCatcher software. This innovative software had to surpass traditional smoke detectors that often have to deal with late reports or false alarms.

Solution

Araani is the first company that uses smart video analysis for smoke detection. They opted for Axis network cameras with Axis' Lightfinder technology, which are able to produce quality images even in very low light. Because the software runs locally on the cameras themselves, images are also processed considerably faster than on a server. The network cameras run on an open platform that is easily integrated with external systems, such as fire control centers.

Result

Contrary to a classic smoke detector, this sensor does not need to come into physical contact with smoke, resulting in a much earlier detection of potential danger and also making it usable in high-ceilinged rooms. This new system also has far fewer false alarms. In addition, the video images make it considerably easier to trace the cause of the fire. The idea to deploy cameras for smoke detection is as innovative as it is logical. It is a solution for many of the problems which traditional smoke detectors have to deal with. The first problem is formed by the often harsh circumstances in which such a detector needs to operate, explains Pieter Claerhout, Araani CEO: "Often these detectors are affected by dust, moisture or toxic gases, which cause them to malfunction and regularly send false alarms, which eventually leads to personnel shutting the whole thing off. With a visual smoke detector, that problem becomes significantly smaller."

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> "We tested several cameras in a wide variety of light conditions before developing our technology. The quality of the Axis cameras made them the best option by far."
>
> Pieter Claerhout, Araani CEO.

The use of video images also enables faster smoke detection, adds Maggy Baetens, Founder and General Manager of Araani: "Compared to traditional smoke detectors, the smoke does not need to make contact with a sensor in order to send an alarm report. This could lead to interventions that are several minutes faster, often making the difference between the first few flames and a raging blaze." The response speed is even faster due to better communication between camera and control center: people now know exactly where the smoke is detected instead of 'somewhere in the building', as is often the case when using traditional smoke detection.

Last but not least, the combination of Axis cameras and SmokeCatcher software gives you a better view of who or what caused the fire. "As many as 50% of big fires are due to malicious intent, but with traditional smoke detectors that is really hard to prove. Thanks to this camera, the chances of discovering the true cause of the fire immediately increase significantly."

A niche market with major potential

Araani primarily focuses on the niche market of what is known as critical environments like the ones we often find in the petrochemical industry, processing industry or waste processing plants. "We also see more opportunities in different industrial environments or even in shopping malls," says Pieter Claerhout. "The general challenge in high-ceilinged rooms is stratification. This is when the smoke plume does not reach the smoke detectors or gets there too late, because cold air cools the smoke and prevents the smoke from rising.

There is even bigger potential here, as proven by the recent survey by the International Association of Public Transport (UITP): an overwhelming 63.8% of the interviewees expressed interest in the application of video analytics for fire and smoke detection*.

The perfect combination: SmokeCatcher and Axis Lightfinder cameras

To ensure optimal detection with minimal false alarms, the image quality of the cameras used is crucial. "High-resolution images with sufficient light are required to notice the smoke through our analytics software. The P and Q series of Axis are highly qualified for that," says Maggy Baetens. The light-sensitive cameras with Light-finder technology can detect colors in low light and are capable of excellent noise suppression. "We tested several cameras in a wide variety of light conditions before developing our technology. The quality of the Axis cameras made them the best option by far."

Araani has even more reasons to choose Axis, Pieter Claerhout adds: "Axis is global leader in the market of IP cameras, so we are assured of the very best products and global availability. The Axis cameras also integrate perfectly with external systems; the I/O port even allows the camera to connect with the fire control center, which in its turn can notify the control center of the fire department.

Axis also has built-in intelligence in de camera itself so we can run our software on the camera itself instead of on a server. That too can save valuable time." Finally, Pieter Claerhout also praises the extended partner program at Axis: "Both technically and commercially, they provide us with excellent support and are also on-board every time for mutual marketing promotions."

In continual pursuit of improvement

Araani continually works to improve the algorithms in the SmokeCatcher software in order to make smoke detection even more powerful and robust. Maggy Baetens: "To do so, the software uses an extensive video library to which we add reference material constantly. This process of continued optimization is part of our Quality Assurance program, where we constantly look for ways to make our SmokeCatcher more intelligent without losing any detection speed.

More information can be found at:
www.araani.com

www.youtube.com/watch?v=CazpoD9XyBk