



SOLUTION BRIEF

SMARTER BUILDINGS

AI-Powered Video Analytics Enhances Facilities Management and Security

Benefits of AI-powered video analytics for building systems may enable the ability to:

- Improve safety and security
- Generate insights around usage patterns and trends
- Manage and optimize building spaces more efficiently
- Efficiently control climate, water, lighting and energy usage
- Support police and emergency services

Digital technologies have helped to improve the functionality and safety of buildings and businesses are now leveraging video analytics systems powered by artificial intelligence (AI) to enhance their premises. The applications go beyond improved security measures, enabling better decision-making in many areas of a building's operation.

Whether part of a security or CCTV system, public safety monitoring, or body-worn cameras, video surveillance has long been a useful and cost-effective means of protecting people, buildings, and valuables.

For decades, we've relied on rule-based image processing that's guided how we deploy resources, design solutions, and adopt technology. But AI and machine learning (ML) are quickly opening up new fields of application for camera technology and image processing and transforming the security and facilities management landscape.

The growing capabilities of AI-driven camera technology has given rise to smarter buildings, beyond the traditional means of access control and surveillance. An intelligent ecosystem of connected devices – including security cameras, which are already present in almost every commercial property – have the potential to make businesses not only more secure and safe for visitors and staff but also provide the kinds of operational insights about which building operators used to dream.

Building Management

By integrating AI with existing building systems and IoT devices, building owners are able to generate insights around usage patterns and trends that can improve a building's environment and operations. This has the potential to increase efficiency, and optimize space and asset utilization, providing metrics on the use, and condition of everything from the building's infrastructure, security, physical surroundings, climate, water, and energy usage, to an occupant's satisfaction.

By deploying a structure of smart sensors, data can be collected from water, power and HVAC systems instantaneously. Motion sensors pick up on physical movement, helping businesses understand how rooms and spaces are used. By detecting the presence of people or objects in real time, these high-detection sensors allow organizations to control lighting systems and identify which areas get the most use, or know which desks or meeting rooms are available at any one time. In a large organisation, being able to use space more efficiently can lead huge cost savings, not to mention increased productivity.

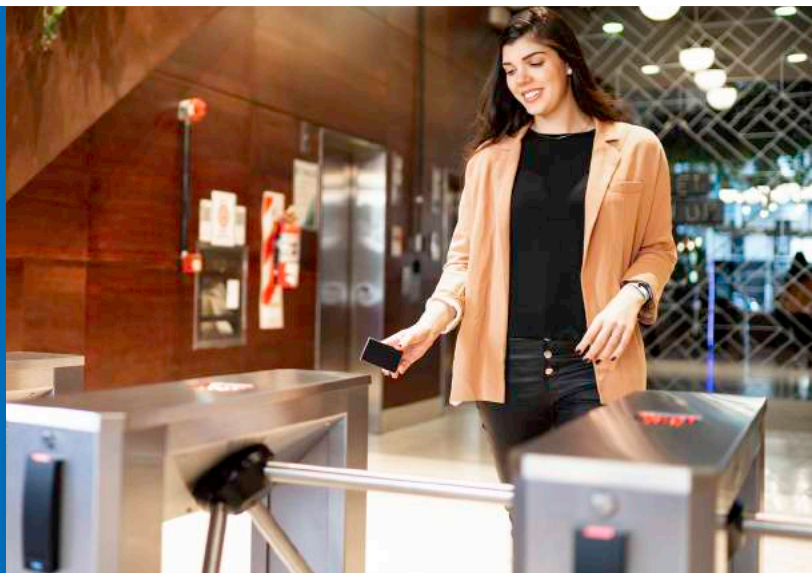
As workplaces evolve to deal with people leveraging hybrid working models, it is more important than ever for businesses to understand how their space is used. When employees can work from home, a

fixed office, a hot desk or a beanbag in the communal kitchen, how do employers effectively plan how much space they need and for what purposes? Video cameras and sensors can provide the data needed by employers and building operators to make those decisions.

Multi-camera systems can calculate the number of people located in a room, on a floor or within a building at a certain time, detecting if a crowd is gathering around a certain location and provide real-time data on dwell times. These metrics can then be used to better understand visitor flow and occupancy trends, giving the opportunity to improve space usage. It also offers an indication of revenue opportunity, optimizing workforce planning and opening hours and providing the possibility to inform visitors about peak times or when premises are at full capacity.

Entrance systems can also double up as a sophisticated authentication method. By integrating AI with existing systems, intelligent cameras can collect high-level face detection analytics to identify tailgating and ensure that access keys, cards and fobs are used only by the rightful owner. This combination of a camera and access control system provides better safety for, and management of, personnel and reduces the risk of trespassing and identity theft.

These measures afford building owners and managers complete transparency and control of their buildings' systems





SMART WIRELESS SOLUTIONS

SMART Wireless Computing's system-on-module (SoM) solutions are designed to integrate seamlessly into surveillance and other cameras to bring AI-powered video analytics to facilities managers, operators and system integrators.

The SMART Wireless Inforce 6403 SOM

is a compact computing module that integrates 4K UltraHD (HEVC) video capture capability and playback support with advanced AI to enable on-device camera processing and machine learning, such as face detection and object tracking.

Based on the Qualcomm® QCS610 SoC, the Inforce 6403 delivers superior image processing, high-bandwidth connectivity, and low power consumption to drive power efficient use cases that need integrated connectivity and machine learning such as body cams and dash cams.



The SMART Wireless Inforce 68A1 SoM

is designed to provide the highest performance for compute-intensive network edge IoT camera applications. Based on the Qualcomm® QCS8250 SoC, the Inforce 68A1 combines support for multiple high-resolution cameras concurrently.

High bandwidth connectivity via 802.11ax DBS Wi-Fi 6E and Bluetooth 5 enables high performance connected camera networks.



On-site Surveillance

AI-powered platforms significantly reduce the number of false positives, allowing security teams to take a more cost-effective approach to staffing. With intelligent video surveillance, companies can deploy a lean team of remote monitors to screen several locations to capture data-rich video, while on-device learning analyses recorded data and triggers appropriate actions – bringing myriad benefits to commercial spaces.

Similarly, wearable video recording devices can also play a vital role in keeping buildings safe. Connected bodycams open a world of possibilities, from live streaming to control rooms and two-way-radio to AI-driven features like suspect identification. Capable of capturing, saving, and exporting full HD video from multiple viewing streams, bodycams serve as an essential frontline safety measure for security personnel.

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