

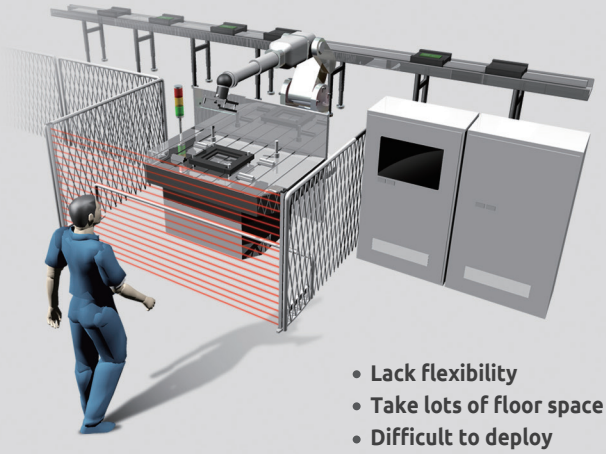
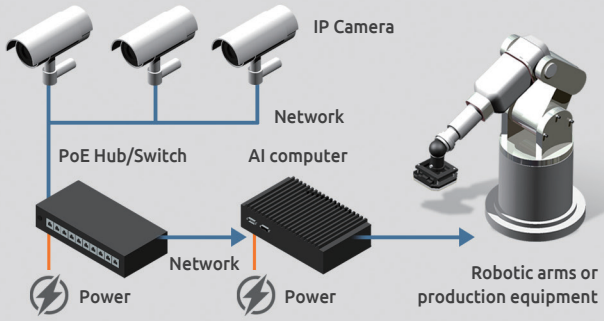
USE CASE

ADLINK's AI Machine Vision Solution Efficiently Assists Manufacturers in Monitoring Site Safety

Safety light curtains no longer meet the needs of modern factories

In modern smart factories, people often work in potentially hazardous environments with dangerous mechanical equipment such as robotic arms, punching machines, metal cutting equipment, and automated welding lines. Accidental errors that occur while operating such machines may cause personal injury. To prevent accidents, most factories use safety light curtains; however, safety light curtains occupy lots of floor space, are difficult to deploy, and lack flexibility. As deep-learning hardware and software continues to mature, powerful and flexible AI algorithms, along with smart cameras, are becoming increasingly feasible as security monitoring solutions.

Comparison of current on-site safety monitoring solutions:

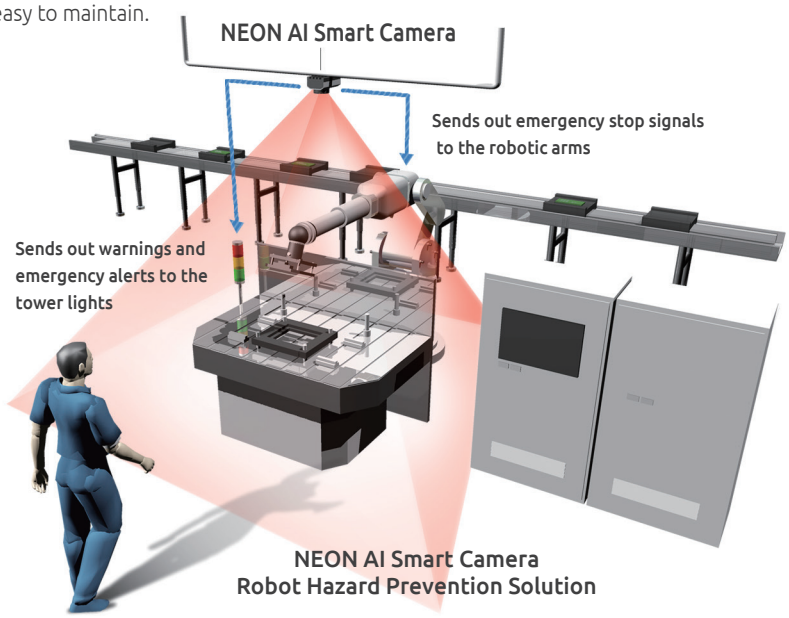
Safety Light Curtains	Machine Vision-Based Solutions
	
• Lack flexibility • Take lots of floor space • Difficult to deploy	• Flexible • Powerful • Complex cabling, high bandwidth, delays

Machine vision-based solutions are typically equipped with IP cameras and AI modules, which although flexible and easy to deploy, have complex cabling and require considerable bandwidth. Bandwidth and floor space are critical in factories and other manufacturing environments. Additionally, the mode of operation often experiences delay issues. Compressed images from cameras are first transmitted over a local network to a computer, which then executes network packet analysis and AI calculations after decompressing the image stream. This process is prone to interruption and delay, and is not suitable for situations that require immediate response. For example, some industries require the time between abnormal occurrence and shutdown to be shorter than 150ms. For such environments, safety light curtains cannot meet these requirements.

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The NEON-2000-JT2 all-in-one AI smart camera saves bandwidth, minimizes delays, and integrates easily

To address these problems, ADLINK launched the NEON-2000-JT2, an all-in-one AI smart camera with integrated image components, an NVIDIA® Jetson™ TX2 AI module, and industrial-standard I/O. The NEON-2000-JT2 captures images and performs all operations on the camera side before sending the results and further instructions to related equipment such as robotic arms. Additionally, the NEON-2000-JT2 subverts overlapping mode and replaces the need to compress images, transmit to the computer over the network, and allow the computer to decompress the images and perform calculations. The NEON-2000-JT2 is an all-in-one solution that minimizes delays, reduces space and bandwidth requirements, and is easy to maintain.





Compared with safety light curtains, the NEON-2000-JT2 is flexible, reduces space requirements, and is easy to deploy. Additionally, the NEON-2000-JT2 can perform positive interventions or send warnings before errors occur. The NEON-2000-JT2 is suitable for security monitoring at special entrances and exits in high-risk areas such as construction sites.

In addition, on-site security monitoring system installations often encounter problems such as insufficient cabling and space, hardware compatibility issues, and limited network bandwidth. The NEON-2000-JT2 not only saves space and reduces cabling, but also provides a variety of I/O interfaces to facilitate integration. By integrating the camera and computing module, the NEON-2000-JT2 returns only the results determined by the AI, rather than the image stream data, and responds immediately. The NEON-2000-JT2 substantially reduces calculation latency and fundamentally solves the problem of insufficient on-site network bandwidth.

The NEON-2000-JT2 increases production efficiency

The NEON-2000-JT2 helps increase production efficiency in labor-intensive manufacturing industries such as food and beverage, consumer goods, and farming and agriculture, where quality assurance and inspection are critical to production success. One customer leveraging an ADLINK AI machine vision solution for product inspection was able to inspect 50x more product and achieve 95% inspection accuracy, 3x more than was previously possible. ADLINK expects customers to see even greater results with the NEON-2000-JT2 series.

ADLINK's new all-in-one AI smart camera series does part of the AI machine vision development and integration so customers can focus on production efficiency. ADLINK's current PoC customers greatly benefit from pre-installed integrations with other camera manufacturers such as Basler and combined GPU module integration, which saves development time.

The NEON-2000-JT2 is designed with ease of use in mind. The AI-enabled smart camera includes an integrated sensor and GPU module, FPGA-based DI/O, a pre-installed deep learning software set, and ready-to-use sample code for quick AI vision application development. The NEON-2000-JT2 is safety-certified by both the CE (European Commission) and FCC (United States Federal Communications Commission) and is validated for shock, vibration, and temperature stability for worry-free reliability.

Learn more about ADLINK AI smart camera solutions:
https://www.adlinktech.com/tw/NEON_AI_Smart_Camera

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