



Established in 2003, e-con Systems has grown into a leading OEM camera solution provider with a wide global footprint. It provides end-to-end camera solutions like MIPI camera modules, GMSL cameras, USB 3.1 Gen 1 cameras, stereo cameras, and more. Over the years, it has been reimagined how cameras are used in applications such as retail, medical, industrial, agriculture, smart city, etc.

So far, e-con Systems has built 350+ product solutions - shipping over 2 million cameras to the United States, Europe, Japan, South Korea and many more countries.



www.e-consystems.com

Markets they serve



Mobility



Warehouse Robots



Smart Traffic / ITS



Smart Surveillance



Humanoid Robots



Drones



Dental Imaging

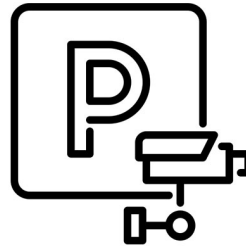


Other Markets

Fields of application (Selection)



Healthcare



**Parking lot
Management**



Retail



OEM Use Case: Healthcare

Embedded Vision: Remote Patient monitoring

Initial situation

Today's healthcare systems are under tremendous pressure - from handling increased patient load to dealing with a shortage of health workers. Hence, cameras are becoming increasingly significant in modern patient care journeys. Imaging technologies help medical device manufacturers to enable healthcare providers and practitioners' new ways to examine, diagnose, monitor, and treat patients with limited resources – and in a contactless manner, which has been a crucial lesson learned following the recent pandemic



OEM Use Case: Healthcare

Embedded Vision: Remote Patient monitoring

What the client needed

The client was looking for a cost-effective camera solution to enable the device to monitor a patient's room for safety and behavioural analysis. When placed inside the care unit, it should capture the patients' movements and send the data through the network to a remote station. The device ensures that the patient's bed is within the camera's FoV while being mounted on a wall about 15 feet away.

The solution

An off the shelf See3CAM CU135 camera, compatible with the client's own platform was then customised to reflect the needs of this critical application. This included integrating a motorized IR filter holder for 24-hours streaming and a compact lens to cover field of view and zoom requirements.

Key camera requirements

- High-resolution with HDR capability
- Streaming 24 hours - day (room light) & night (dark or low-light)
- Zoom, pan, and tilt capabilities
- Low-light and IR performance
- USB3.0 interface



See3CAM CU135, 13MP USB camera



OEM Use Case: Healthcare

Embedded Vision: Remote Patient monitoring

Compliance

Electronic devices used in medical environments must meet stringent safety and performance standards. This custom camera solution was certified for Class B Level emissions and immunity compliance measures

Results and benefits:

This embedded vision solution enabled a remote monitoring system that provided 24/7 real time monitoring of patients within a critical care environment. Not only has this improved patient care, but it has also done so in one of the most challenging medical scenarios possible. Where clinical intervention is not immediately needed, it has created a safer working environment for critical care staff.

- 5000+ COVID patients monitored in 97 hospitals (March-April 2020)
- 20,000+ patients monitored across multiple hospitals
- 50,00,000+ monitor hours clocked.



See3CAM CU135, 13MP USB camera with board



OEM Use Case: Healthcare

Embedded Vision: Remote Patient monitoring

The QUAD Advanced Systems and e-con Systems partnership offers end-to-end camera solutions to meet the needs of the medical and healthcare industry.

e-con Systems has a strong foothold in the medical device industry – having empowered clients to integrate unique camera solutions for medical applications in ophthalmology, dentistry, dermatology, lab equipment's, microscopy, assistive technology, Point-of-care, patient care, and patient monitoring.



Your Advanced Systems team are here to help you with your OEM integration requirements. Work with us to develop solutions that take advantage of these intelligent, embedded vision systems that are driving significant improvements by delivering enhanced data and insights that directly contribute to world-class industry experiences.

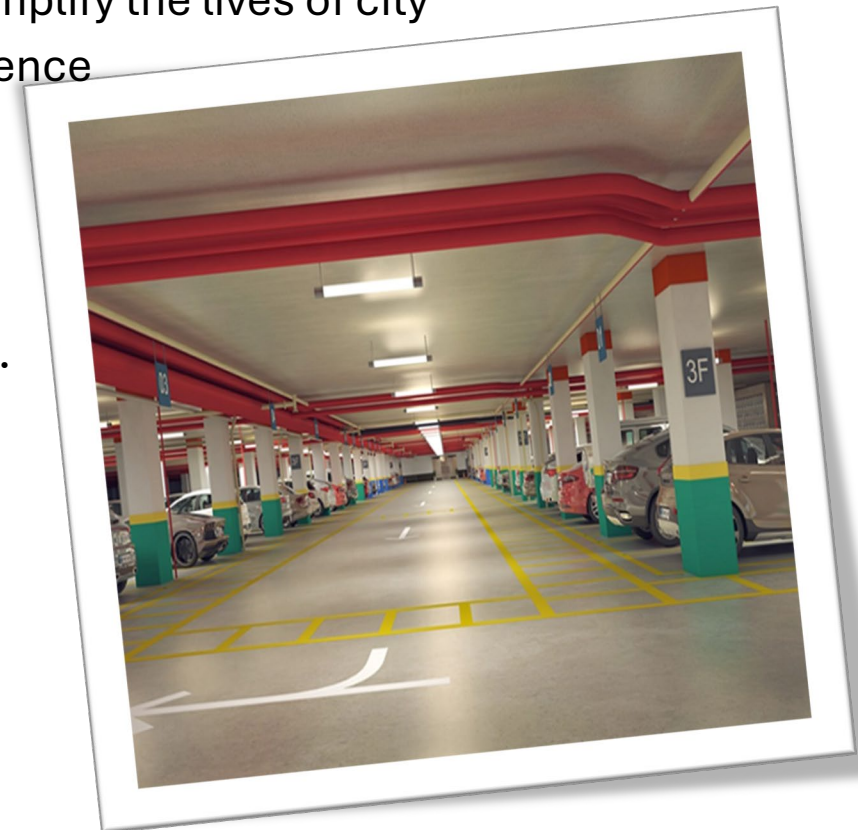
OEM Use Case: Parking lot Management

Embedded Vision: Enabling Smart Parking Technology

Initial situation

e-con Systems helped a top smart parking technology provider, based in Germany, to select and integrate an intelligent camera system. Their cutting-edge solution went a long way to simplify the lives of city administrations and private companies while alleviating the daily inconvenience faced by citizens related to parking.

In the process, they strengthened vehicle detection, improve parking space utilisation and associated revenue whilst providing enhanced real time information on parking availability through enhanced driver communication.



OEM Use Case: Parking lot Management

Embedded Vision: Enabling Smart Parking Technology

What the client needed

To provide the benefits of parking automation for the city administration and the motorist, e-con Systems and the smart parking technology provider realised that much of the improvements would be facilitated through embedded vision – and the appropriate integration of the right camera.

In this case, the camera needed to be fitted on top of street lighting poles for it to capture the images of the parking lot and specific parking spaces on the ground.

However, this solution meant that the height of the camera installation was a major challenge since it was outdoors, meaning that it should be able protected against inclement weather and its performance should also be largely unaffected by lighting conditions.



OEM Use Case: Parking lot Management

Embedded Vision: Enabling Smart Parking Technology

The solution

e-con Systems selected See3CAM_CU130, a USB Camera module with a 13MP custom lens. The high-resolution camera sensor in the module gave us the ability to ensure dynamic optimization for low-light performance.

See3CAM_CU130's auto functions (auto white balance, auto exposure control) and complete image signal processing pipeline made it a perfect fit for the client's smart parking lot solution. It was also equipped with an S-Mount lens holder for a wide-angle M12 lens.

e-con Systems worked closely with the client to identify the right lens for the off-the-shelf See3CAM_CU130 camera module. Camera settings and ISP were optimised to be fully compatible with the chosen lens.

Key camera requirements

- Synchronized multi-camera support for seamless parking lot monitoring
- High resolution, with wider FOV to capture maximum number of parked cars
- Complete support for vision libraries
- Support for both uncompressed and compressed MJPEG formats
- Driver optimised to provide higher NVIDIA processor board performance



OEM Use Case: Parking lot Management

Embedded Vision: Enabling Smart Parking Technology

Results and benefits:

- Off-the-shelf camera solution – shorter product development cycles
- End-to-end vision capabilities for a smart parking solution to help city administrators
- Cost-effective and customizable integration despite FOV requirements based on unique
- Camera positioning to take into account different lighting conditions

Smart Parking in action

Finding parking is a daily frustration for motorists, wasting time, fuel, and adding to congestion. For operators, it means lost revenue and inefficiency.

Embedded vision smart parking solves this by delivering real-time availability data:

- Motorists save time, reduce stress, and cut emissions.
- Operators optimise space use, boost revenue, and improve customer satisfaction.
- Cities ease traffic flow, reduce pollution, and integrate with wider smart mobility systems.

Smart parking transforms a common pain point into a win-win for drivers, operators, and the urban environment.



OEM Use Case: Parking lot Management

Embedded Vision: Enabling Smart Parking Technology

QUAD Advanced Systems and e-con Systems have formed a strategic partnership to deliver end-to-end camera solutions tailored for a range of transportation applications. By combining their expertise, the two companies strengthen their position within a key industry sector and provide innovative tools that solve many problems associated with aspects of road, and rail transportation.

Intelligent embedded vision is transforming applications including parking lot management, tolls and traffic management, smart cities and public law enforcement using advanced camera technology.



Your Advanced Systems team are here to help you with your OEM integration requirements. Work with us to develop solutions that take advantage of these intelligent, embedded vision systems that are driving significant improvements by delivering enhanced data and insights that directly contribute to world-class industry experiences.



OEM Use Case: Retail

Embedded Vision: AI vision driving digital signage

Initial situation

e-con Systems helped a US-based provider of retail kiosks and digital signages with a High dynamic Range (HDR) camera that leverages biometric facial identifiers to serve personalised content to service station visitors. The solution had to withstand unpredictable outdoor conditions. Complex optical customisation was required due to the physical constraints of the application but was still delivered within a short product development cycle.





OEM Use Case: Retail

Embedded Vision: AI vision driving digital signage

What the client needed

The customer required a next-generation, interactive self-service kiosk for petrol delivery that could operate entirely unmanned, reducing staffing costs and improving efficiency. A critical success factor was the integration of an AI-powered camera system capable of advanced facial analysis, including biometric identifiers for secure customer authentication.

This capability not only ensured reliable identification but also unlocked new revenue opportunities. By analysing customer emotions and behaviours, the kiosk could deliver highly relevant information and personalised advertising in real time.

Operationally, a major challenge was ensuring operability in outdoor environments. It had to be able to meet lighting and other imaging aspects related to different weather patterns.



See3CAM CU20 HDR camera



OEM Use Case: Retail

Embedded Vision: AI vision driving digital signage

The solution

The most appropriate solution was the See3CAM_CU20, a 2 MP HDR camera which comes with a wide operating temperature range (-40°C to 85°C). It also had a wide vertical FOV to recognise people up to 30-feet away and then deliver personalised user experiences, including promotions.

Key camera requirements

- Ability to operate in a wide operating temperature range
- High resolution - 1080p with YUV format
- Easy to integrate with AI algorithms for facial recognition

Customisation

A complex solution to enable the camera to work with a coverage of 2-8ft within a 2ft working distance. The camera was mounted and rotated through 90-degrees to get the full FOV on the vertical side before then rotating the image through 90-degrees within in the application.

This enabled:

- A wider FOV that eliminated any chance of image blur
- Quick integration to AI algorithms for anomaly detection



OEM Use Case: Retail

Embedded Vision: AI vision driving digital signage

Compliance

The completion of pre-compliance emission testing processes helped clear FCC certifications that require electronic devices to operate safely and not to interfere with other communications.

Results and benefits:

The introduction of the self-service kiosks have enabled faster transactions, and an improved customer experience. But for the business they have opened up a range of new revenue streams personalised to the customer based upon the data, behaviour and emotions of that individual.

- Seamless customer experience in unattended kiosks
- Fully certified to stay compliant with industry regulations
- 50,00,000+ monitor hours clocked to date





OEM Use Case: Retail

Embedded Vision: AI vision driving digital signage

QUAD Advanced Systems and e-con Systems have formed a strategic partnership to deliver end-to-end camera solutions tailored for retailers using self-service kiosks and digital signage. By combining their expertise, the two companies strengthen their position within a key industry sector and provide innovative tools that enhance customer engagement.

Intelligent embedded vision is transforming retail by enabling digital signage solutions powered by advanced camera technology. These systems support people counting and demographic analysis, capturing valuable image data that allows retailers to deliver personalized advertisements based on factors such as gender, age, and viewing time.



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