



# SMART PATROL SOLUTION

Eyes of AI



# Cupola360: AI-Friendly 360° Camera Solution



## Patrol Camera

- > First-person perspective
- > Real-time in-chip stitching technology for 5.7K/4K videos
- > Zero distortion, AI-friendly
- > Perfect for smart 360 applications with immersive experiences



## Traditional Fisheye CCTV

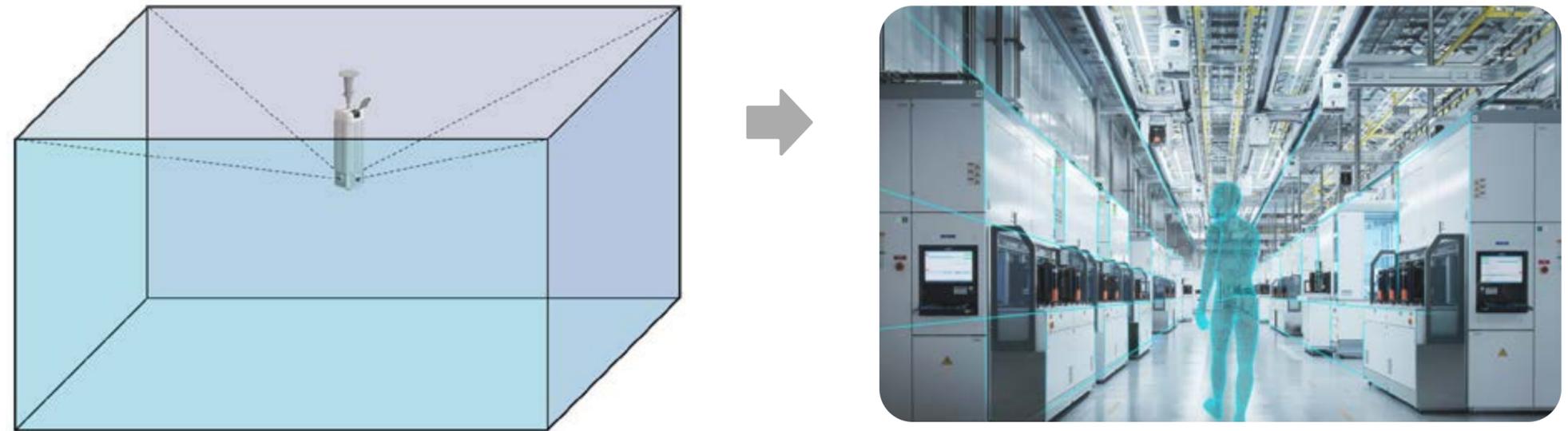
- > Image distortion caused by optical limitation
- > Non-linear image distortion, challenging for AI applications



# Realistic Spatial Experience

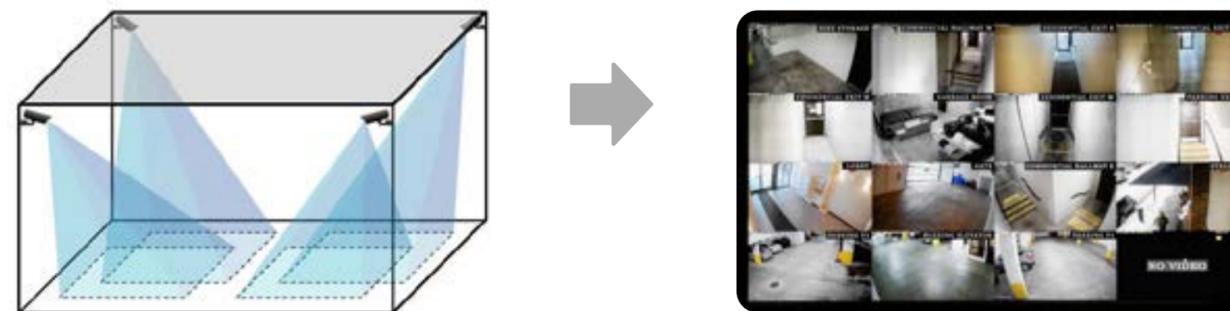
## Patrol Camera Installation

- > Spherical 360° coverage with spatial continuity
- > Superior immersive spatial experience without blind spots



## Traditional Camera Installation

- > Discrete camera viewpoints without spatial continuity
- > Poor spatial experience with blind spots

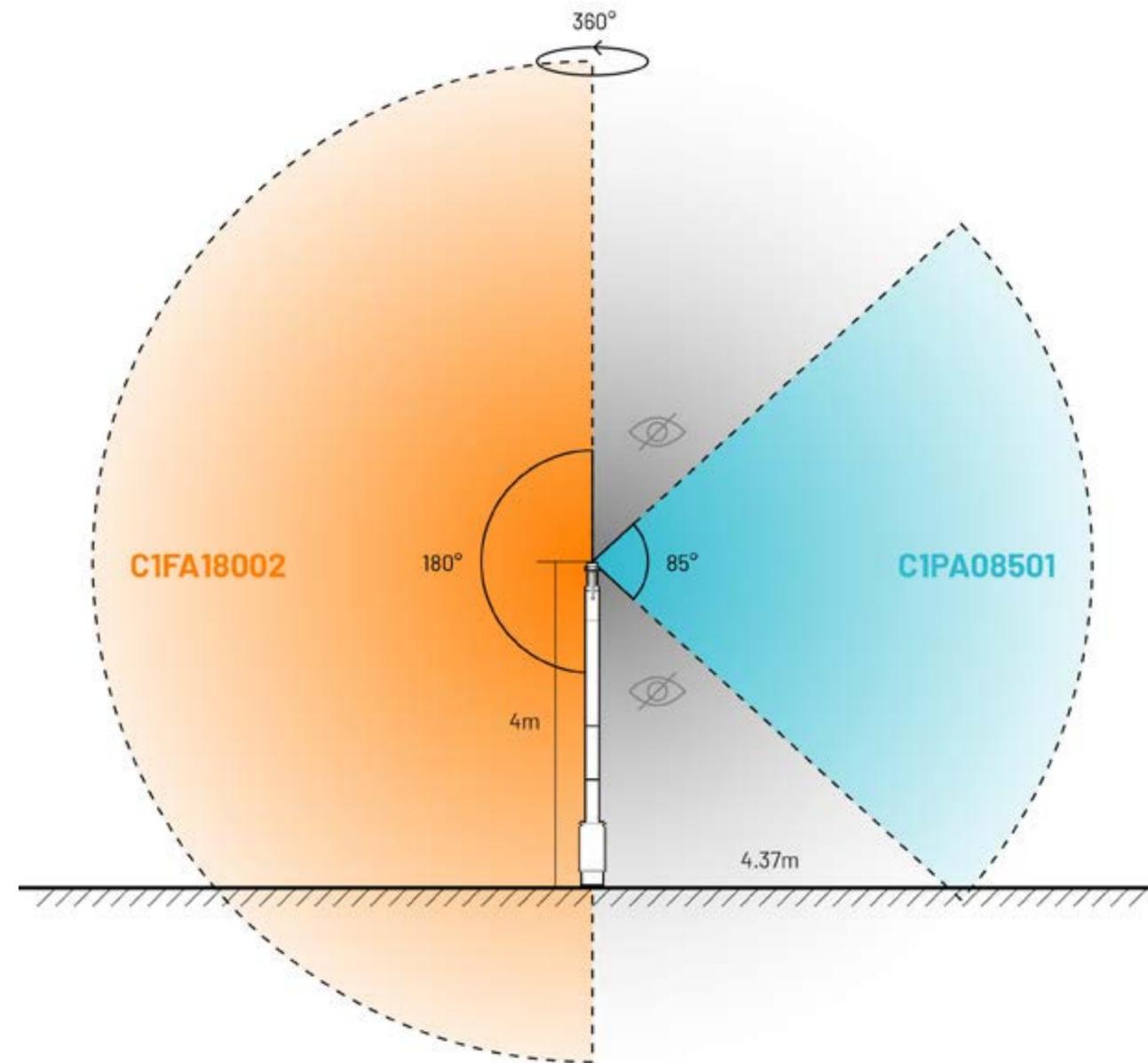


# Field of View Comparison



**C1FA18002**

360° (Horizontal) x 180° (Vertical)



**C1PA08501**

360° (Horizontal) x 85° (Vertical)

# Smart Patrol: A New Style to Audit, Patrol & Manage Projects

## Cost-effective and highly efficient

- > Remote 360° audit and patrol powered by Cupola360
- > Facilitates project management for clients
- > Monitor real-time status visually
- > Predict and identify events with AI
- > Conclude follow-up actions rapidly and remotely



## Traditional Audit and Patrol

### Costly and inefficient

- > Must travel to be on-site to receive status
- > On-site visits require a lot of preparation beforehand
- > Must travel back and forth to identify issues and solutions
- > Identify follow-up actions only after visits



# How Smart Patrol Benefits Your Factory

## + To increase

- > **Operational Visibility & Efficiency**  
Remote management with real-time 360° view anywhere, anytime
- > **Data Accessibility**  
Easy access to status updates and KPI management with OSD
- > **Project Tracking Efficiency**  
Simplified customer access to real-time manufacturing processes

## - To decrease

- > **Operational Costs**  
Improved patrolling and monitoring efficiency, saving time and resources
- > **Security Risks**  
Enhanced protection of sensitive data with customizable access controls
- > **Contamination and Safety Risks**  
Reduced need for physical presence

	Patrol Camera	Traditional CCTV
FOV Coverage	Spherical 360 degrees	Up to 150 degrees
Resolution	8K / 5.7K	4K / 2K
Number of Lenses	4	1
360° FOV Requirement	One Camera	Multiple Cameras
Installation Cost of 360° FOV	Low	High
Power consumption	Low	High
Maintenance effort	Low	High
Image Stitching	In-Chip	None / Software / External Hardware
Zero Distortion	V	X
Ingress Protection	IP66	None or IP67
Multi-Stream Output	Up to 9	X
Dynamic ROI Switch	V	X
Support Cupola360+ Patrol App	V	X
Real-time 360 Autonomous Patrol	V	X
360 Image Platform for Service Customization (AI and Event API)	V	X

# Easy-to-Use Cupola360+ Software Kit

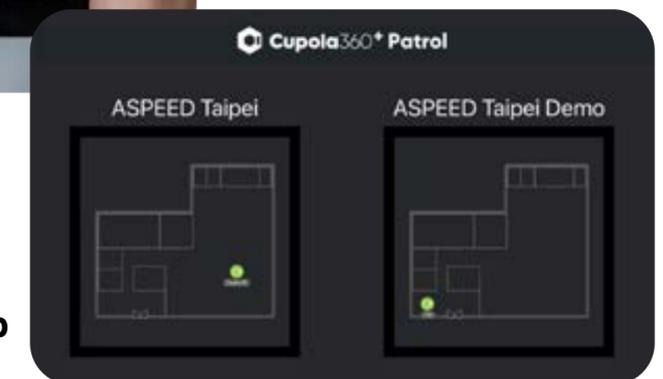
## GUI-based & web-based solution

- > Drag-and-drop deployment
- > Camera configuration
- > Real-time patrol with 360° live feeds
- > Compatible with all Patrol cameras



**Cupola360+ Camera Deployment Tool**

**Cupola360+ Patrol App**



# On-Screen Display: More Than Being There



**On-Screen Display (OSD)**, integrated with Cupola360 cameras, overlays text and graphics directly onto video streams in real-time, providing essential information and relevant data on the video feed.

OSD can be applied across various applications, including smart factories, smart cities, smart tourism, and smart retail, to improve operational efficiency, enhance user experience, and ensure safety.

## Smart Manufacturing

- > **Process Monitoring**  
Real-time data on production lines (machine status, counts, etc.).
- > **Quality Control**  
Displays inspection results directly on video to ensure high standards.
- > **Safety Compliance**  
Shows safety instructions, alerts, and emergency info in hazardous areas.
- > **Maintenance Alerts**  
Highlights schedules and alerts for machine servicing to prevent downtime.



## Smart City & Tourism

### > Traffic Management

Real-time display of traffic conditions, congestion levels, and incident alerts on surveillance feeds.

### > Environmental Monitoring

Overlay environmental data, including air quality, noise levels, and temperature.

### > Information Displays

Show historical facts and background stories at tourist attractions, museums, and historical sites.

### > Interactive Tours

Enhance virtual tours with real-time information and multimedia content for an interactive experience.



## Smart Retail

### > Loss Prevention

Display alerts for suspicious activities, aiding quick security response.

### > Customer Analytics

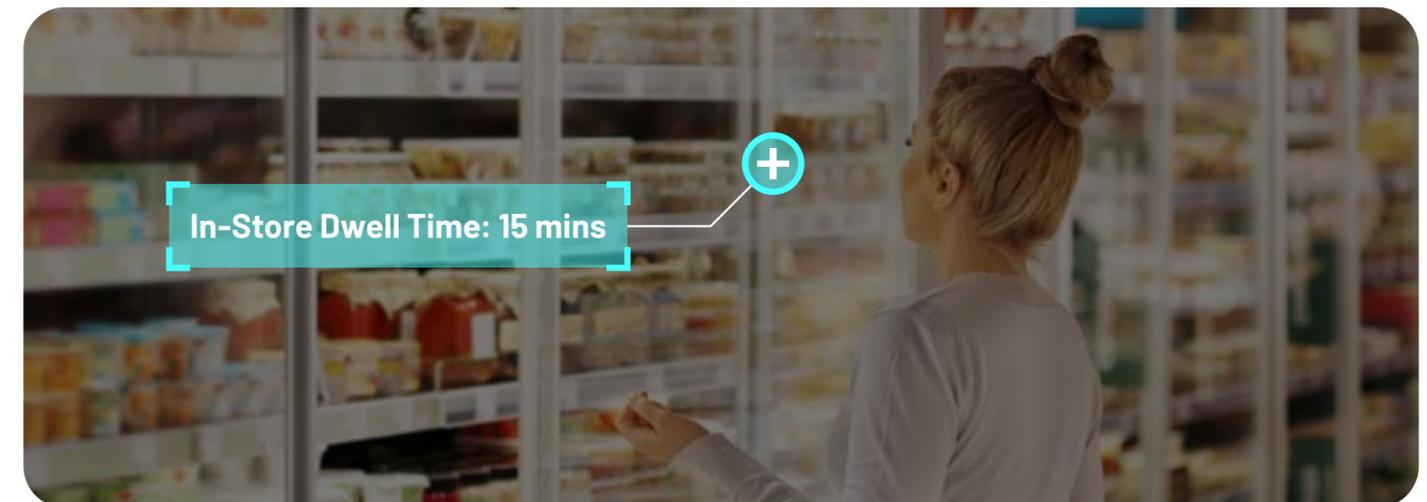
Show customer behavior data (foot traffic, dwell times) to optimize store layouts and marketing strategies.

### > Inventory Management

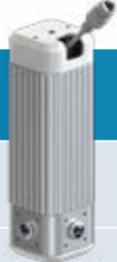
Overlay stock levels and product information in storage areas to manage inventory efficiently.

### > Queue Management

Provide real-time information on queue lengths and wait times at checkout counters to enhance customer service.



# Patrol Camera Series Specifications

	RX1000P 	RX1000F 	RX2000 
<b>Dimensions</b>	102 x 114 x 62mm	68 x 68 x 200mm	68 x 68 x 215mm
<b>Weight and Color</b>	720g / Silver	1030g / Silver	1130g / Silver
<b>Power</b>	RJ45, PoE 802.3at Class 4	RJ45, PoE 802.3at Class 4	RJ45, PoE 802.3at Class 4
<b>Communication &amp; Control</b>	Compatible with ONVIF (Profile S)	Compatible with ONVIF (Profile S)	Compatible with ONVIF (Profile S)
<b>Optical Feature</b>	360° x 85° FOV	360° x 180° FOV	360°x 180° FOV
<b>Video Resolution</b>	3840 x 1920 @30fps 1360 x 5760 @15fps	3840 x 1920 @30fps 2880 x 5760 @15fps	7680 x 3840 @15fps 5760 x 2880 @30fps
<b>Multi-channel Output</b>	5 video streaming (15fps)	5 video streaming (15fps)	9 video streaming (30fps)
<b>Streaming Protocol</b>	RTP/RTSP/RTMP	RTP/RTSP/RTMP	RTP/RTSP/RTSPS/RTMP
<b>Audio Input</b>	Microphone x 1	Microphone x 1	Microphone x 1
<b>Operating / Storage Temperature</b>	-10° to 50°C / -20° to 60°C	-10°C to 50°C / -10°C to 50°C	-10°C to 50°C / -10°C to 50°C
<b>Protection</b>	IP08 housing with IP66 sealing	IEC60529_IP66	IEC60529_IP66
<b>IoT Protocols Supported</b>	-	-	MQTT, MODBUS, REST API
<b>Edge AI Features</b>	-	-	People counting, virtual fencing, fire & smoke detection, PPE detection (helmet, vest, mask), vehicle flow monitoring, license plate recognition, etc.

# Smart Patrol Ecosystem

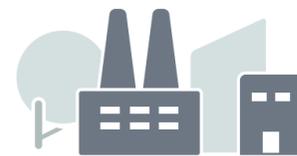
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Remote Patrol/Navigation



Autonomous Patrol/Navigation



Smart Factory



Smart City



Remote Audit



Immersive Management

AI Partner

SI Partner

ODM Partner

Distributor Partner

Solution Partner

Cupola360+ Patrol App

Patrol Camera

## About ASPEED Technology

Founded in 2004, ASPEED Technology Inc. is a leading fabless IC design company headquartered in Hsinchu, Taiwan. With a focus on niche markets, ASPEED specializes in Cloud & Enterprise Solutions, including Baseboard Management Controller (BMC) SoC, Bridge IC, and PFR SoC, and Smart AV Solutions, including AVoIP SoC, Cupola360 Spherical Image Processor and Cupola360+ Software Kit.

ASPEED is devoted to developing innovative technologies in order to quickly respond to customer needs. In 2016, ASPEED acquired Broadcom's Emulex Pilot™ remote server management chip business and it's currently the world's No. 1 BMC SoC provider. Also, ASPEED expanded its product portfolio by launching Cupola360 Spherical Image Processor and Cupola360+ Software Kit in 2018. Recognized as a trusted and reliable partner for customers, ASPEED has been awarded "Forbes Asia's 200 Best Under a Billion" for ten consecutive years since 2014.



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