



LOGISTICS

·SOLUTION CATALOG·

<https://www.irayple.com/en/home>



COMPANY PROFILE

Zhejiang HuaRay Technology Co., Ltd. is a company dedicated in research & development, manufacturing, and sales & marketing of machine vision and autonomous mobile robot (AMR) products. With focus in smart manufacturing technologies and logistics innovation, we are committed to creating and delivering value for our customers by enabling a smart factory transformation.

As a national high-tech enterprise, HuaRay aims to bring the latest technological innovations to our valuable customers. More than 60% of its employees are dedicated in R&D, and the company has filed over 500+ patent applications. With its investment in R&D, HuaRay has developed deep know-how in its embedded software, image optimization, recognition algorithms, network transmission, navigation, positioning, scheduling, motion control, and other technical fields.

HuaRay' s products and solutions are widely applied in various industries such as logistics, automotive, 3C, lithium battery, photovoltaic, semiconductor, pharmaceutical, and so on. Our machine vision products include industrial area scan cameras, line scan cameras, smart cameras, vision sensors, 3D cameras, and lenses. These products have been used for code recognition, OCR, vision measurement, positioning, defect detection, etc. In addition, our autonomous mobile robot (AMR) products include latent lift, forklifts, and sorting robots are widely used for warehouses and material handling applications.

CORPORATE OVERVIEW



600 +
R&D Engineers



500 +
Patent Applications



50 +
Covering Countries and Regions

CORPORATE CULTURE

Customer-oriented and committed to customer success

Enabling a smart factory transformation

Provide customers with high quality products and solutions

Values

Mission

Vision

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❏ Six-side Scanning Solution



The independently developed six-side DWS adopts the "5+1" configuration to achieve "all-round & no dead Angle" operation. The system is designed to obtain the parcel volume information in real time while dynamic code reading in order to simplify the loading and unloading process thus to greatly improve the automation level and sorting efficiency for logistic operation.

⊗ Solution features

- Use self-developed area and line scan cameras, flexible setup to fit different applications, achieving six-side code reading
- AI-enabled powerful decoding capability for dirty, wrinkled, reflective barcodes often seen in logistic operation
- Modular design and flexible to adapt to real complex application scenarios
- Optimized code reading accuracy to reduce manual intervention, thus to improve the overall operation efficiency

💡 Product performance

- Overall efficiency $\geq 6,000$ pieces/hour
- Decoding rate $\geq 99.9\%$
- Volume accuracy $\geq \pm 10\text{mm}$
- Min. size of barcode accuracy up to 8mil

📦 Application scenario

Large distribution center dynamic automatic sorting system



❏ Single Piece Separation System (SPSS)



The Single Piece Separation System is usually used to separate pile of parcels into single piece before code reading, so that the system can read every individual parcel.

The system uses deep learning based 3D camera and speed difference between different mechanical parts to separate parcels from each other. The SPSS can effectively separate parcels to eliminate manual work, reduce error rate, and greatly improve parcel handling efficiency.

⊗ Solution features

- Smart camera with embedded intelligent algorithm to reduce the dependency on industry PC
- Deep learning based algorithm, stable and accurate positioning easy for algorithm training and upgrade
- Advanced separation mechanism, even spacing and support package rotation
- Support separation of various parcel types and various adhesive forms
- Easy deployment, one-click calibration, and easy installation & maintenance

💡 Product performance

- Efficiency: 10,000 pieces/hour
- Separation success rate $\geq 99\%$
- Package height can be as low as 1mm
- Support transmission line speed: 0~2.5m/s
- Support package types: cartons, soft bags, envelopes, etc
- Flexible interconnection with external systems and supports TCP interconnection

📦 Application scenario

Large distribution and e-commerce transfer center dynamic sorting system



Small Piece Fast Hand



Huaray Small piece Fast Hand is a compact DWS solution developed by HuaRay Technology. The core components are self-developed static 3D camera and code reader. Using a simple fast hand device, place the package on the weighing table and you can complete the code scanning, weighing, and volume measurement at the same time with a snapshot image. The application of Small Piece Fast Hand can greatly reduce manual work with handheld PDA or electronic scale for data acquisition and entry thus to improve the overall efficiency.

⊗ Solution features

- Easy to deploy, camera light source integrated design
- Code reading, volume measurement, weighing, alarm function four-in-one
- Compact, designed for small parcels
- Easy to operate

📦 Product performance

- Barcode accuracy up to 0.2mm
- The max. package size is 400 x 400 x 400mm
- Static measurement length and width accuracy±5mm
- Weighing range 0~20kg, weighing accuracy±10g

📦 Application scenario

- Logistics branch manual small parcel processing
- Small/large distribution center manual small parcel processing



iRAYPLE Code Reading Portal



iRAYPLE Code Reading Portal is used to scan the codes of packages inbound and outbound the warehouse. This allows for a comprehensive display of large stacks and triggers an alarm for unrecognized codes, thereby improving the efficiency of warehouse detection.

⊗ Solution features

- Supports multiple cameras for large stack image stitching
- Self-developed intelligent camera enables fast and accurate decoding
- Accurately recognizes the way bill, false reading alarms trigger
- Read and save the code to ensure traceability
- Supports multi-protocol and WMS system integration

📦 Product features

- Code Reading rate $\geq 99.9\%$
- Way bill recognition rate ≥ 99
- Package speed $\leq 2\text{m/s}$
- Applicable maximum package size L3000mm xW2000mm xH2000mm

📦 Application scenario

- Warehouse inbound and outbound package code reading



7000 Series Logistics Code Reader

High Resolution, Large FOV & DOF

- Built-in deep learning algorithm, efficient and powerful algorithm performances
- Support software trigger/hardware trigger/free run mode etc.
- Industrial GigE interface, 1Gbps bandwidth
- Support RS232/RS485, 3 Opto-isolated input, 3 Opto-isolated outputs
- Support DC 24V power supply, adapt to industrial application
- Support abundant codes, 1D: CODE128/EAN/CODE39/CODE93/CODEBAR/ITF25, 2D: DM/QR etc.



Model	RH7B00MG000E	R7B50MG000E
Resolution	5120x3840	5120x5104
FPS	15fps	12fps
Sensor Size	1"	1.1"
Shutter	Rolling	Global
Ethernet Port	Code-A,GigE	
GPIO	12pinIO,RS232,3 Opto-isolated input, 3 Opto-isolated output	
Connector	2 Industrial connectors support GigE and GPIO	
Lens Type	C-mount	
LED Indicator	System,network,trigger	
Trigger Mode	Software trigger/hardware trigger/free run	
Power Supply	DC24V input,suitable for industrial application	
Power Consumption	<8.0W@DC24V(light not included)	
Dimension	117mmx69mmx43mm(lens mount &connector not included)	
Weight	<550g	
Temperature	Operation Temperature-20°C~+50°C,Storage Temperature-30°C~+70°C	
Humidity	20%~95%,no condensation(with lens cover)	
Certification	CE/FCC	
Decoding	1D:Code128/Code39/Code93/EAN etc.;2D:QR/DM etc.	

Line Scan Code Reader

All-in-one design, intelligent decoding

- Uniform and high brightness light source
- Clear image, high resolution, embedded algorithm, fast decoding
- All-in-one design, easy debugging and deployment
- Support Max. conveyor belt speed up to 3m/s
- GigE interface



Main Model	ESL5081ME-00
Mono/Color	Mono
Decoding	1D: Code128/Code93/EAN etc. 2D: QR/DM etc.
Working Distance	1300mm
Field of View	1200mm
Max. Conveyor Speed	3m/s
Resolution	8192x1
Line Rate	35k
Protection Level	IP40
Transmission Distance	≤100m
Recognition Rate	≥99.9%
Trigger Model	External photoelectric trigger
Light Type	Integrated high brightness LED light source
Ethernet Port	GigE
Communication Port	GigE, IO
LED Indicators	Power, network, trigger
GPIO	1 Opto-isolated input
Power Supply	DC48V
Power Consumption	200W
Dimension	699x115x314mm
Package Dimension	790x374x211mm
Net Weight	6KG
Operation Temperature	-20°C~+50°C
Operation Humidity	20%~95%RH,no condensation
Storage Temperature	-20°C~+70°C

Ultra-brightness Strobe Light

Ultra-brightness design meet high speed demands

- Designed for high speed logistics application
- Uniform and bright LED light
- Integrated design
- Power camera and light in one step, easy wiring
- Strobe operation, low power and long service life



Model	DH-SL6500B-S-B-E	DH-SL6500B-A-B-E
Type	LED light	
Spectrum	Visible light	
Color Temperature	6500K	
Trigger Type	Strobe control by camera	
LEDs	65 high-brightness LEDs	
Dimension	203.2mm*180mm*210mm	
Net Weight	2.4kg	
Gross weight	2.8kg	
Power Supply	DC48V	
Power Consumption	≤169W(instantaneous power 408W)	
Operation Temperature	-30°C~+50°C	
Operation Humidity	10% ~ 90% (no condensation)	

High-performance Strobe Light

High-performace light meet flexible applications

- Adopt high-performance LED, reduce light pollution & power
- Advanced stable current technology
- Adopt high-performance MCU
- Adopt 32 high-brightness LEDs
- Support strobe mode
- Support constant mode



Model	LED332W2-RC6E
Light Type	LED light
Spectrum	Visible light
Color Temperature	6500K ±200K
Trigger Type	Strobe & constant control by camera
LEDs	32 high-brightness LEDs
Dimension	265mm*129.5mm*55.5mm (bracket not included)
Net Weight	1.8kg
Gross Weight	3kg
Power Supply	DC24V
Power Consumption	≤110W
Operation Temperature	-30°C~+50°C
Operation Humidity	10% ~ 90% (no condensation)

3D Industrial Camera

Large FOV, high accuracy



- Pre-calibration during production and support high speed output 3D volume data in mm-level
- Flexible adjust Working Distance and Field of View
- Integrated 3D calibration kits
- Measurement range 1000mmx1000mmx2000mm(WxHxL)
- 3D measurement precision 5mmx5mmx5mm
- Output volume measurement point cloud, length, width and height, integral volume format
- Abundant interfaces, RJ45/IO/encoder
- Industrial M12 connector, IP65 protection Level
- Wide range power supply input, adapt to DC12V/24V applications
- Directly output volume data to host computer and lower computer

Model	Near FOV (mm)	Far FOV (mm)	Precision (mm³)	WD (mm)	Scale (mm)	Laser Grade	Dimension (mm)
D5201MG100E	1000	2200	5x5x5	1000 ~1800	10000	CLASS 1	370x65.6x150

3D Stereo Camera

Embedded algorithm, excellent performance



- Built-in high-precision volume measurement and 3D position algorithm
- Integrated design, compact size, cost-effective
- Uniform and reliable speckle laser module
- Superior optical filter design, strong anti-ambient light
- Built-in aviation connector, abundant IO interfaces
- 4 indicators display debugging and status monitoring
- M12 connector, IP65 protection level
- Support multi-camera cascade operation

Model	Near FOV (mm)	Far FOV (mm)	Z precision (mm³)	WD (mm)	Laser Grade	Interface
*DS5131MG30CE	590×540	3880×3960	1m@±2mm	600 ~3500	CLASS 1	GigE

Note: Models with symbol “*” are latest released products;

Logistics Software



Based on years of knowledge accumulation in the logistics industry, the software integrates visual code reading, parcel weighing, OCR recognition, 3D volume measurement, so as to improve the overall operation efficiency in distribution centers.

The software supports the unified management, unified configuration, remote authorization, and efficient remote upgrade. The software enables smart and convenient operations, which greatly improves digitalization and reduces costs for logistics customer.

Platform Features

- Modular design, including barcode configuration module, third-party device integration module, 3D volume measurement module, and weighing module
- Support flexible deployment for various demands
- Support offline/online uploading of reports
- Friendly C# developed operation UI
- SDK package adopts C/C++, easy for secondary development on multiple platforms

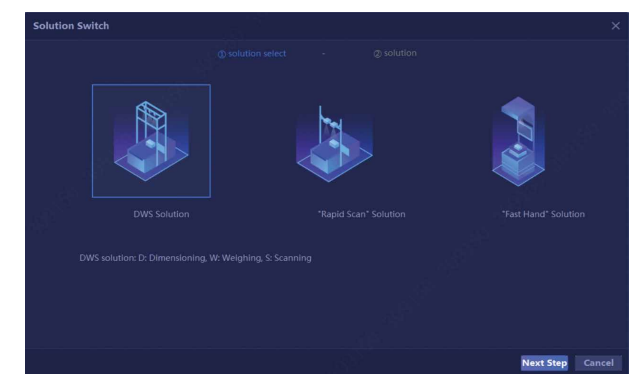
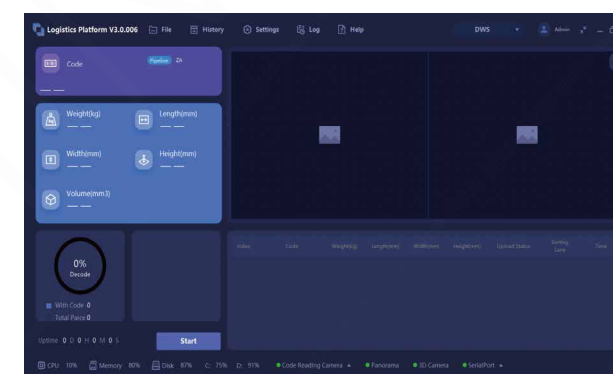
Logistics Operation Platform

To better monitor device status and serve the customers, Huaray Tech has developed the logistics operation platform to monitor the operation status of the products. Remote monitoring significantly reduces device maintenance cost and improves the operation efficiency.



Logistics SDK

- Owing to the various application experience in complex scenarios. The logistics software provides customers with independent SDK for secondary development in meeting complex applications
- Huaray Logistics SDK is developed based on the GenlCam standards, featuring good scalability.
- Streamlined external interfaces, facilitating secondary development.
- Provides C++ and C# interfaces.



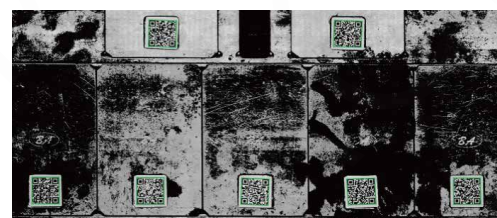
Logistics Algorithm



Huaray Tech owns its own algorithm team in which 20% of team members have a doctoral degree. Huaray Tech also sets up multiple postdoctoral mobile research stations, and owns multiple code reading patents. Huaray algorithms, which are all developed independently, feature a high fault tolerance rate and a high recognition rate.

1D Code

- Support reading 1D codes: Code128, Code39, Codabar, Code93, EAN8, EAN13, Interleaved 2 of 5, UPCE, UPCA, GSI-128, Industrial 12 of 5, standard 2 of 5, Matrix 2 of 5, China post, Code 11, and MSI
- Support decoding 1D codes at accurate 0.9 pixels
- Support the perspective of above 45 degree angle
- Recognition rate in complex scenarios more than 99%
- Capable of resisting complex background texture, distortion, shelter, scratch, dirt, uniform lighting



2D Code

- Support decoding 2D codes at accurate more than 2 pixels
- Support the minimum of 5 gray level contrast
- Support the perspective of above 45 degree angle;
- Capable of resisting complex background texture, distortion, shelter, scratch, dirt, uneven lightning and other interferences



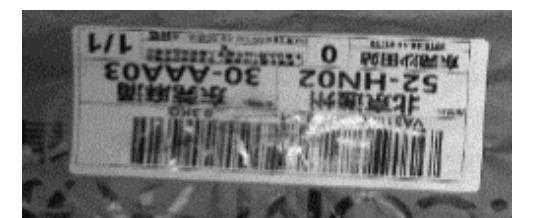
Express Sheet Recognition

- Provide the sheet positioning and sheet area capturing
- Provide the sheet imaging quality evaluation
- Support recognizing characters on sheets, such as the name, phone number and address
- Support recognizing characters at minimum 15 pixels

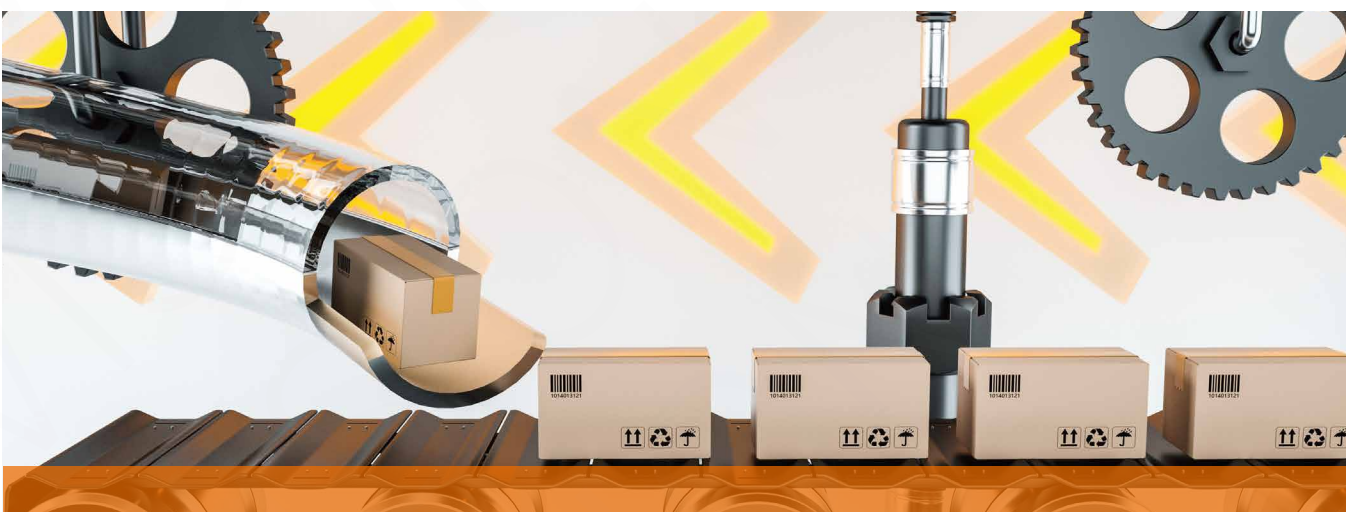


Parcel Detection

- Detect parcels present or not
- Precisely position parcels
- Trace the trajectory of parcels and count parcels
- Segment parcels with small gap
- Alert no read parcels



Cases



CNE EXPRESS
递一物流

SF EXPRESS
顺丰速运



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BEST EXPRESS



KYE 跨越速运
KUAYUE-EXPRESS

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Empowering Intelligent Manufacturing and Business Efficiency

※ This manual will provide accurate information as far as possible, but there may still be errors,for reference only.
Product information is subject to update without prior notice, and our company is not responsible for the resulting liability.

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