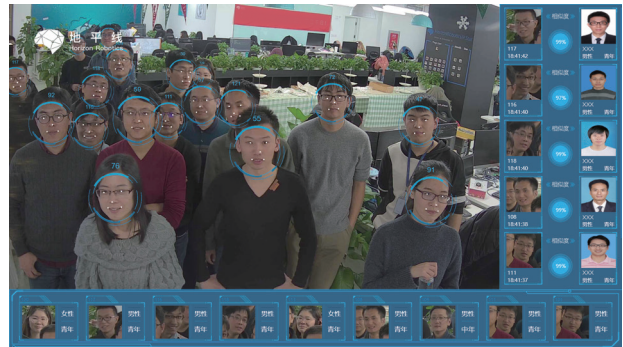# The Art of Cabling

Our earnest range of solutions and products derived from a conscientious understanding of the industry's requirements.

Hermesys
The Art Of Cabling

1) Face Capture and Recognition System

【System Overview】

With in-depth knowledge of the industry, Hermesys has integrated its self-developed embedded AI computer vision chip ----Sunrise processor, together with the industry-leading face recognition technology to build a complete face capture and recognition system. By achieving accurate face capture and recognition among the crowd, this system can be applied to different scenarios in surveillance business such as crowded pathways, access control and security management for large events.

【Product Features】

Face capture:	Face recognition:
* Face detection based on deep learning can locate human faces efficiently * Capture the best face image through multi-object face tracking, facial pose analysis and face image quality analysis * Multi-attribute recognition: identify the age and gender of faces	* Feature extraction based on deep learning * Quick comparison against the object library

【Highlights and Advantages 】

Face capture:	Face recognition:
* 200 maximum facial capture per frame * Face detection at 1080p full-frame rate * High capture rate (99%) & low recapture rate(0.3%) * Face-based ISP adjustment * Low power consumption, typical power 1.5W	* Deep learning model built on hundred million level database * Support 30 cameras access and process * Ten million level face image database for search and comparison

【Application Scenarios】

| Transportation hub | Entrance and exit of park and scenic area | Crowded high street | Intersection, checkpoint |

2) Surveillance Video Analytic System

Hermesys has integrated video coding, smart analysis and storage management into one surveillance video analytic system that can be applied in real-time processing, content index and analysis of surveillance videos. Currently, in addition to the front-end surveillance video analytic system built on Sunrise processor, an embedded AI computer vision chip developed independently by the company, Hermesys offers a complete FPGA-based solution that incorporates front end and server side. Customized high-performance video structural analysis solutions are also available to support computing platforms like ARM, FPGA, BPU and GPU.

▌ Surveillance Video Analytic System Based on Sunrise Processor

【 System Overview 】

Based on Sunrise processor, an embedded AI computer vision chip developed by the company, Hermesys uses the cutting-edge CNN algorithm as the core to build a high-performance and low-power front-end video analysis solution targeting at people, cars and non-motor vehicles. This solution enables surveillance cameras to process real-time data locally and can be applied in security and pan-security areas such as stations, schools, business, buildings and check-points.

【 Product Features 】

* Multi-object detection: locate cars, pedestrians and non-motor vehicles accurately and efficiently.
* Multi-object tracking: mark, distinguish and track objects showing in the image.
* Detect and identify the license plate, model, brand and color of vehicles.
* Categorization of pedestrian attributes: support basic facial landmarks (gender and age), and features of clothing and items carried by people.

【 Highlights and Advantages 】

* High-performance object detection and attribute identification
· Real-time processing: 1080P@30fps, 720P@60fps · Detect up to 200 objects per frame · Detection rate > 99%, average false alarm rate per frame < 0.1
* Low power consumption and low cost
· Typical Power 1.5 W, no need for active cooling design
* Flexible scalability
· Compatible with multiple IPC master chips including 3516A, 3519A and 8009 · Programmable Deep Neural Network model enables capture of human faces and vehicles, recognition of license plates and function of surveillance video analysis in different scenarios.

FPGA-based Surveillance Video Analytic System

【 System Overview 】

With a collaborative design of BPU architecture and relevant algorithm, Hermesys has developed an FPGA-based surveillance video analytic system that possesses a DNN prediction engine. By running multiple neural network models, this system can detect, track and identify attributes of human faces, pedestrians and vehicles from indoor and outdoor surveillance videos. With video decoding, smart analysis and storage management all integrated into one system, Hermesys can provide customers with customized solutions and services.
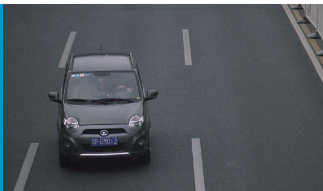
【 Product Features 】

* Multi-object detection: locate cars, pedestrians and non-motor vehicles accurately and efficiently.

* Multi-object tracking: mark, distinguish and track objects showing in the image.

* Vehicle and attribute identification: detect and identify the license plate, model, brand and color of vehicles.

* Categorization of pedestrian attributes: support basic facial landmarks (gender and age), and features of clothing and items carried by people.

【 Highlights and Advantages 】

* Powerful processing capability

· Able to detect, track and identify human faces, pedestrians, vehicles and license plates at the same time
· Support 16-20 cameras access and real-time processing simultaneously
· Support 720p@200fps and 1080p@120fps video processing with 30 objects in each frame

* Strong recognition capability	* High precision
· Face detection supports 30*30p face image as the minimum threshold · Support face tilt angle of less than 90 degrees	· Face capture rate can be up to 98.6% · False capture rate is as low as 0.7% · Recapture rate is down to 120%

【 Application Scenarios 】

Scenario 1: apply to major checkpoints

Able to capture vehicle image, identify license plate and vehicle brand

Scenario 2: apply to smaller intersections

Able to identify license plate and vehicle brand, capture images of pedestrians and recognize their attributes
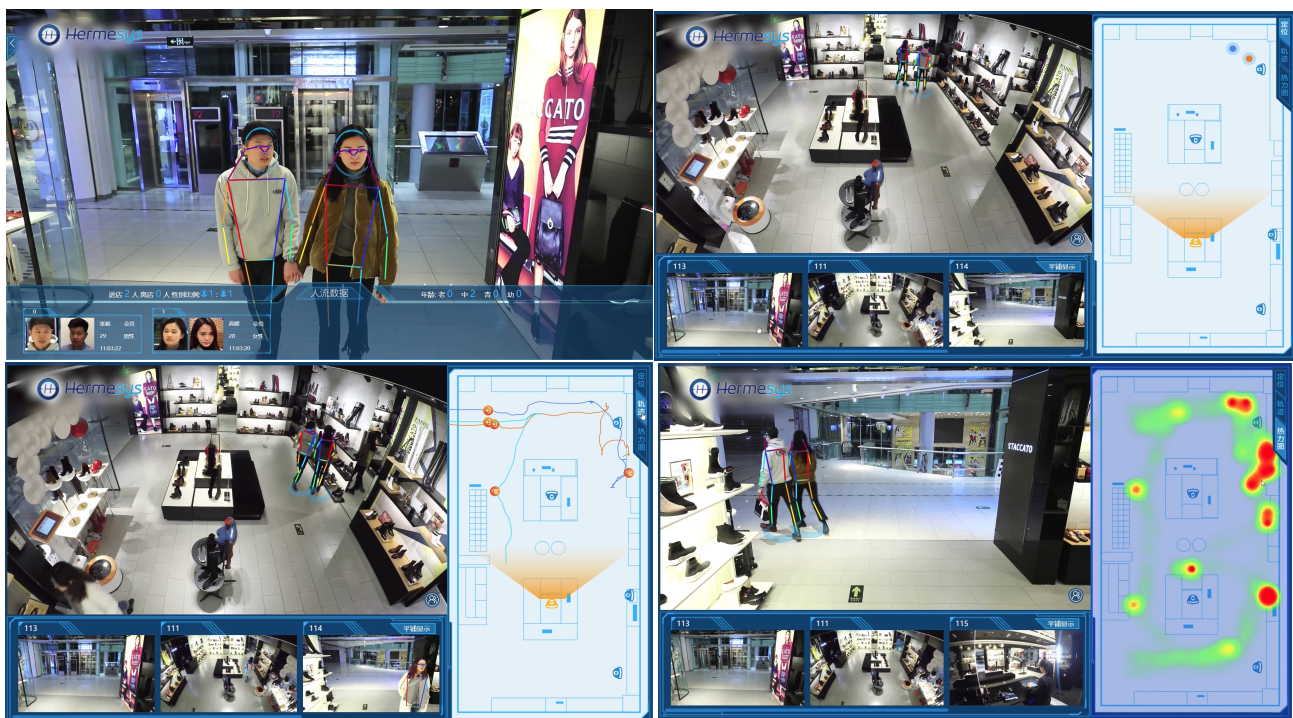
Smart Business Solution l Understand your business better

【 Solution Overview 】

Hermesys offers a self-developed smart business analysis system which combine the cloud and the device. The system can collect statistics from the nearby commercial cameras and analyze the customer distribution, numbers, actions, ID and other characteristics. Based on the analysis, the business could have a better understanding of the relationship between person and person, person and scenario and person and goods.

By structurally analyzing offline operation data following people-oriented principle, this system makes it more effective for management mechanism to perceive the nature of business operation, provide guidance for sales and marketing, and improve the operation efficiency to offer customers a better shopping experience.

【 Product Features 】

* Customer traffic analysis

· Traffic statistics: statistically analyze customers' browsing time, conversion rate and traffic at entrance, cashier, access control area and product display area
· Customer profiling: statistically analyze customers' age, gender and behavior patterns
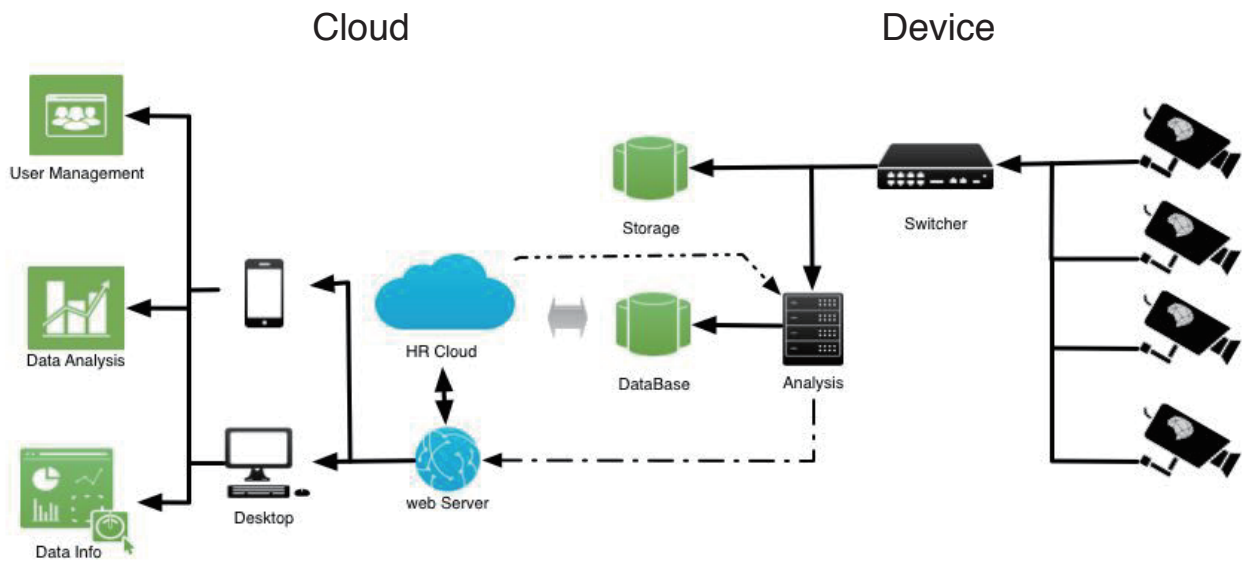· Move tracking: analyze the spots customers linger in and their moving track

* Customer ID management

· Customer group in the mall——multi-level management: VIP members – targeted shopping guide; regular customers – convertion; new customers – register and convert them into fans
· Customer group in the mall——precise targeting: cashier, store entrance

* Analysis of customers and goods

· SKU purchase conversion through analysis of customer's browsing time, their interests, and the products they have touched, tried and paid for
· SKU image recognition

【 Technical Architecture 】

Cloud   Device

【 Highlights and Advantages 】

*   Deep learning training system targeting at business scenarios
*   An integrated architecture combining algorithm + chip + cloud
*   Modularized solutions available for stand-alone use and scalability

【 Application Scenarios/Cases 】

* Application case of shopping mall   * Application case of retail store

Hermesys

The Art Of Cabling

**Hermesys Ltd
(London, UK)**

New Burlington House,
1075 Finchley Road,
London - United Kingdom,
NW11 0PU
Tel: +44 20 36086477
info@hermesys.it

**Hermesys Ltd
(Shanghai, China)**

Suite 427, Apolo Building
1440 Yan An Road,
 Shanghai
P. R. China, 200001
Tel: + 86 21 61031655
info@hermesys.cn

**Hermesys Pte Ltd
(Singapore)**

42, Emerald Hill Road,
Singapore
229318
Tel: +65 6692 1168
info.asean@hermesys.it

www.hermesys.it