Anti-Counterfeiting Total Solution to OSI

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CTBTO PREPARATORY COMMISSION

INTRODUCTION AND MAIN RESULTS

Quantum Stealth Code is based on a kind of special ink made of nano-level particles extracted from rare earth. After being printed on the surface of items, the Quantum Stealth Code is invisible to the naked eye but could be visible only under a certain light with certain spectrum frequencies.

This work put forward an anti-counterfeiting total system solution composed of a Quantum Stealth Code system, a specially designed printer, and a customized handheld PDA reader, which would provide authentication of the origin and chain-of-custody management of any OSI equipment and samples, or other items that need proof of their authenticity.

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Technical Advantage of Invisible Quantum Anti-Counterfeiting Technology

Anti-Counterfeiting

The ultimate anti-counterfeit technology. Unique in the world and the technology constantly evolving.

Extensive Application

It can be utilized whenever needed.

High Compatibility

Seamless integration with your existing system.

Quick Identification

It can quickly identify the genuine of products and information of dealers.

Cost Efficiency

Can be used independently and no extra expenses for code.

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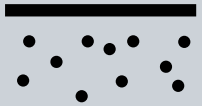
Advantages of coding form

	Bar code	QR code	Quantum Stealth Code
Code shape			
Information content	Dozens of characters	2000+ characters	2000+ characters
Reserved area	100%	70%	Only 10%
Reading speed	0.5 seconds	0.5-1 second	0.5 seconds
Applicable scene	Flat surface	Flat surface	flat/curve/rough... surfaces

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Testing equipment

Working principle

The acquisition head captures the reflected light from the code point after it is illuminated by the light source, detects and processes the image for analysis, locates the code point, and integrates the results with an AI model to perform decoding.

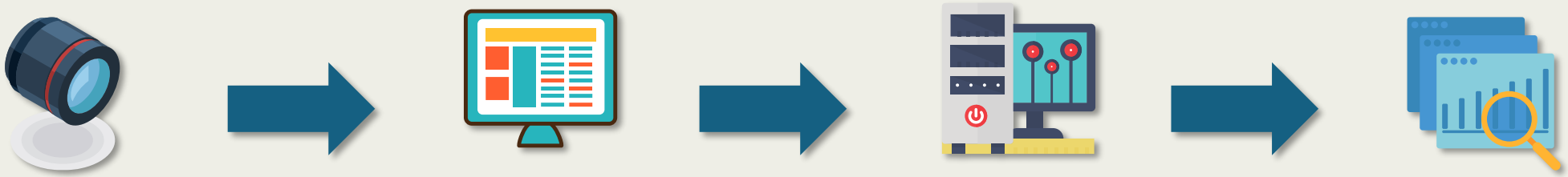

Image Reading (ORC technology)

Pre-treatment (Denoising/ Gray-scale inversion)

Calibration Position (corner points detection)

Decoding (correction and decryption)

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Testing Module

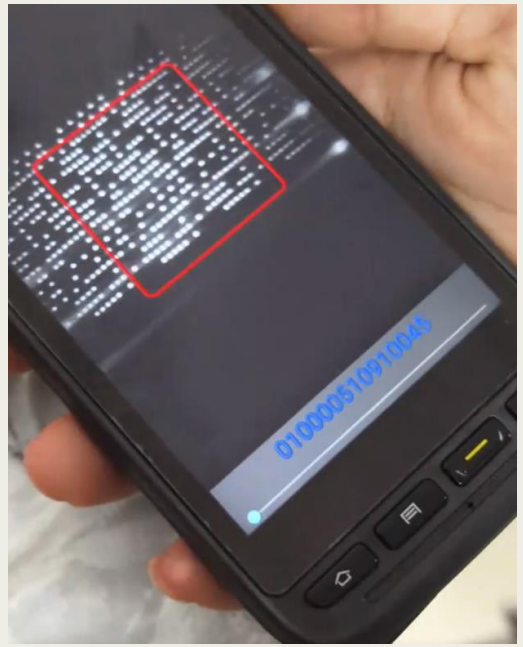
Integrated dedicated light source + camera,
Resolution ≥1280× 1024 pixels.

Computing unit

Equipped with a computing power model (accuracy 9 9%), 0.Dot matrix recognition and data verification can be completed within 5 seconds.

Characteristics

1. Interactivity: The assembly touch screen is equipped with real-time display of detection results and cloud data synchronization.
2. Durability: battery life ≥ 6 hours.
3. Scalability: The storage can be expanded and data export is supported to meet the archiving requirements.



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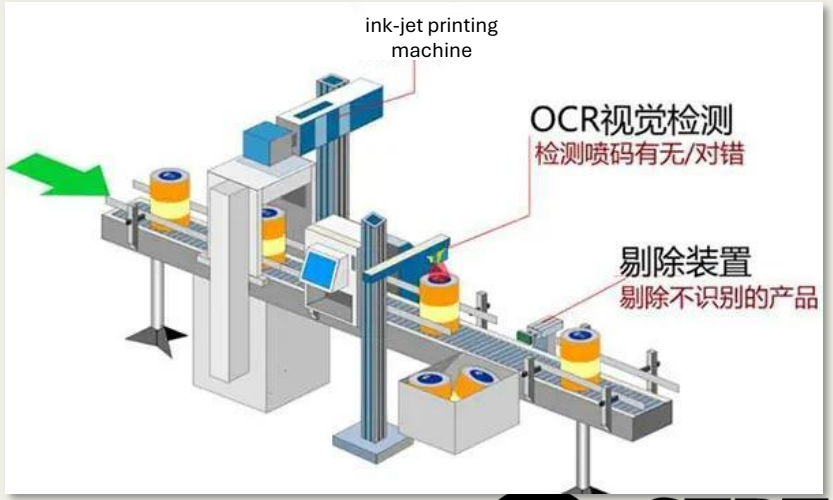
Items	Specification
Resolution ratio	≥2001920×1080 megapixels
Frame rate	Frame rate ≥30fps (corresponding to production line speed ≤60 m/min)
Misreading rate	＜0.1% (one in 1,000)
Detection speed	Single tank identification time ≤ 5 00ms
Suitable for production line speed	More than 40 cans per minute
Environment adaptation	Temperature: -20℃~80℃, Humidity: 0~95% RH (no condensation)
Expand	Supports industrial bus (PROFINET/EtherCAT), digital I/O (trigger/alarms), Ethernet (data upload) and can be linked to PLC system.



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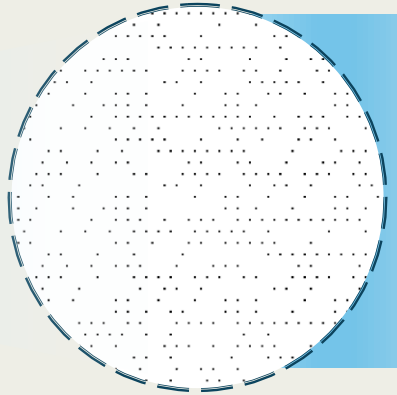
RN Sample COC Managerment System

1. A unique encrypted quantum stealth code is generated for each container to enable association with production traceability data. Furthermore, dynamic matching of circulation records can be achieved through the integration of RFID and quantum stealth code technologies.
2. The tamper-proof mechanism ensures that specialized detection equipment cannot collect or replicate the invisible dot matrix patterns. Regulatory authorities utilize dedicated scanning equipment to verify the integrity of the quantum stealth code and ensure data consistency.

Minimum detectable area
5 mm× 5mm



Zoom in on the dot matrix pattern

The dedicated equipment enlarges the pattern and recognizes it