BOSHIYUAN

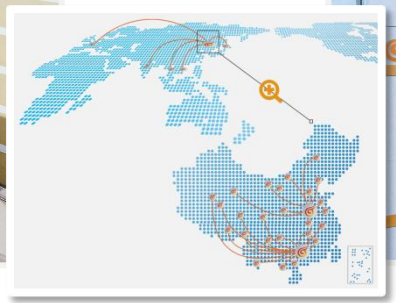
Sixth generation Mold Monitor

Product Introduction

Company Profile

Xiamen Boshiyuan machine vision technologyco.,ltd

Xiamen factory



Wuxi factory

Xiamen Boshiyuan is a high-tech enterprise specializing in the research and development, integration, and service of machine vision systems. Our company has independently developed and sold machine vision systems such as multi-phase integrated intelligent mold monitors, rapid measuring instruments with multiple fields of view, CCD algorithm universal platform, intelligent AOI full inspection standard machine, medical device hair foreign object detection non-standard machine, wafer semiconductor detection machine, etc. We are committed to providing more intelligent and accurate machine vision solutions for manufacturing enterprises.

The company's mold monitoring system in the segmented field has achieved an annual sales volume of over**10000** units, and its sales and service network covers 33 provinces and regions across the country. It has established factories in Xiamen and Wuxi, and now has 15 full-time agents and more than 30 cooperative distributors. After sales services have now achieved more comprehensive coverage in regions such as South China, East China, North China, and Southwest China.

Enterprise Map

CONTENTS

Product Introduction

BOSHIYUAN-Third generation Mold Monitor

Boshiyuan Star Products Mold Monitor

Mold monitor, also known as mold protector or mold electronic eye, is a non-contact modification solution that uses machine vision to monitor the operation of equipment by comparing and detecting image data in real time. It is a low-cost and more perfect solution for preventing mold pressing or other damage to user terminal equipment. It is easy to learn, use, flexible and versatile, and is not limited by industry or region.

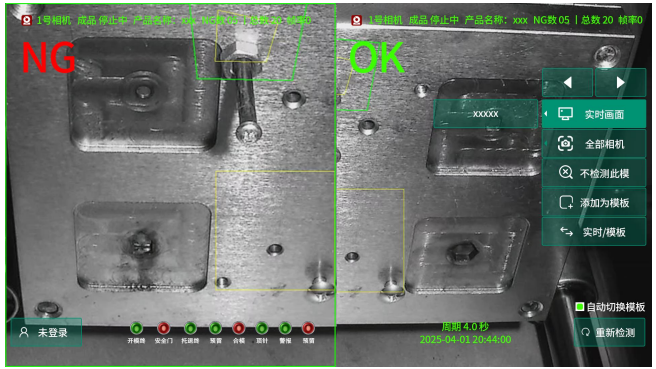
- Check if there is a shortage of raw materials for the products inside the mold
- Check whether the formed product adheres to the fixed mould
- Remove duplicate ejector pin actions
- Check if the temperature of the mold is within the required range
- Check whether the top pin, slider, and neutron of the mold have been retracted into place before the mold is closed
- Check whether the embedded parts are placed in place and deformed
- Check whether the formed product falls off normally before mold clamping and whether the robotic arm returns to its original position;

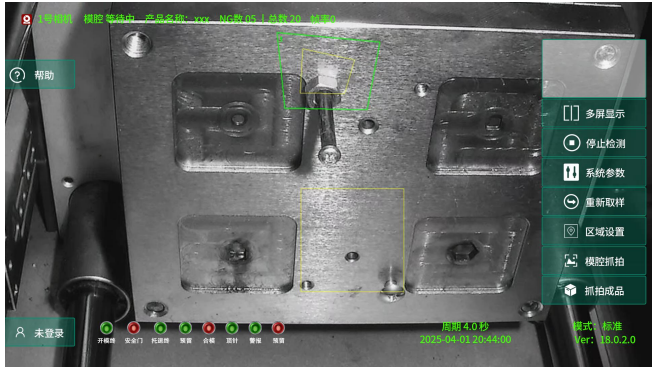
Configuration parameter

Mold Monitor Configuration parameter

Configuration name	Configuration parameter (The configuration will be updated irregularly, and shall be subject to the technical agreement or quotation.)
Screen size	14 inches
CPU model	N95/N97/N305（selectional）
CPU clockspeed	3.4GHz
Random-access memory	4GB
Memory	M.2-2280 64GB
Operating system	Linux-22.04
Graphics card	Intel UHD Graphics 24 EU
Rated voltage	DC 12V~35V(Wide voltage)
Overall weight	2kg
Front camera	2 million pixels丨120° wide-angle lens
Camera	2 million pixels(Ethernet camera)
shot	6 million pixels (customized)
Screen resolution	1920*1080
Frame rate	20
Camera sensitive	1/2.8" CCD

Mold monitor detection interface





Factory Quality control

Self-owned production workshop/assembly - testing - shipment - installation: one-stop service

Assembling

Certified Quality

26copyright registration certificates

Adjusting

Packaging

ISO9001 Certified

Core advantage

Sixth generation mold monitor - Core advantage

1
Significant upgrade of hardware
14-inch large screen/8-core CPU/ dual-material spliced design

2
The face recognition module was pioneered
Precise classification of account permissions and more convenient operation traceability

3
AI large model embedding
Adopt feature comparison - fearless of external interference

4
Brand-new UI design
More friendly human-computer interaction/more aesthetically pleasing interface

5
Big data management system
Remotely monitor all the machines in the workshop

6
Thermal imaging intracellular monitoring
Monitor mold temperature/Customize temperature control

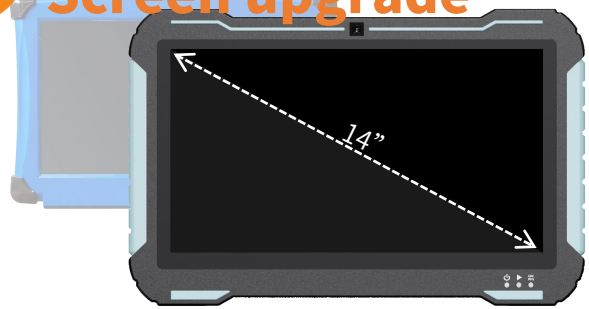
7
International leading detection accuracy
Self-developed complete image algorithm - BSYVisionLib
It can correct an error of 10mm

8
High-definition imaging/precise detection
Adopt a global exposure CMOS camera
The dynamic range is wider

9
One-to-many efficient linkage
In simple environments, one mold and maintenance machine can be matched
Multiple terminals

Significant upgrade of hardware

Screen upgrade



Screen size13.3"→14"

Screen to body ratio 57%→72%

CPU upgrade

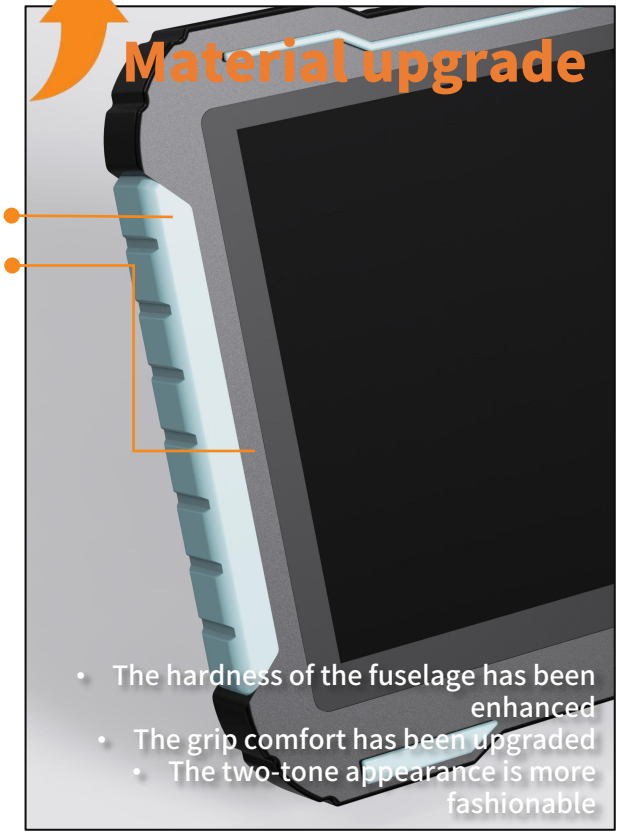
- intel
  - N95 3.40GHz
  - N97 3.60GHz
  - N305 3.80GHz

Configure quad-core and octa-core cpus for faster AI algorithm processing speeds

Material upgrade

TPE

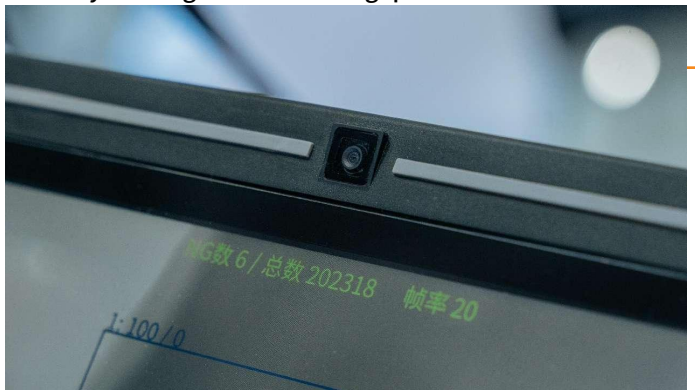
ABS



- The hardness of the fuselage has been enhanced
- The grip comfort has been upgraded
- The two-tone appearance is more fashionable

The face recognition module was pioneered

Industry-leading - Built-in 2-megapixel camera

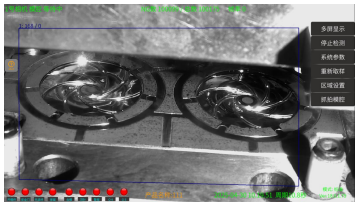


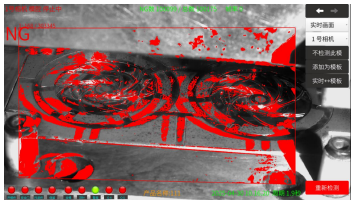
The system's first creation - facial recognition account creation and information management

Key management points of in-mold production monitoring	Face recognition system
Non-professionals made incorrect Settings in the background, resulting in the inability of the in-mold monitoring to accurately identify abnormal situations within the mold	Enter the face, create an independent account, and customize the operation permissions of the options in the system Settings to ensure that key Settings can only be operated by dedicated personnel
The system Settings have no historical operation records, and abnormal situations cannot be traced	You can operate the system only after logging in to your account. Every step is recorded
When an alarm occurs inside the mold, it is mistakenly judged as a false alarm by humans. Abnormal collected images inside the mold are added as false alarm templates, resulting in continuous mold pressing when this scene recurs	Non-professionals cannot operate the addition of templates. Ensure that the normal templates within the mold are authoritative

AI large model

The monitoring principle of traditional mold monitors on the market - pixel comparison





Imaging offset after simulating camera displacement - Large alarm within the detection box

After integrating the model of AI deep learning - feature comparison

The imaging offset after simulating the camera displacement - if the features within the frame remain unchanged, no alarm will be triggered

Training logic of AI models

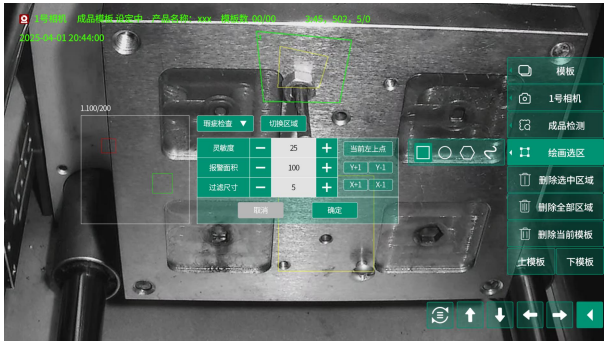
The model is trained by accumulating thousands of image datasets of different types, enabling it to have a strong feature extraction and recognition ability

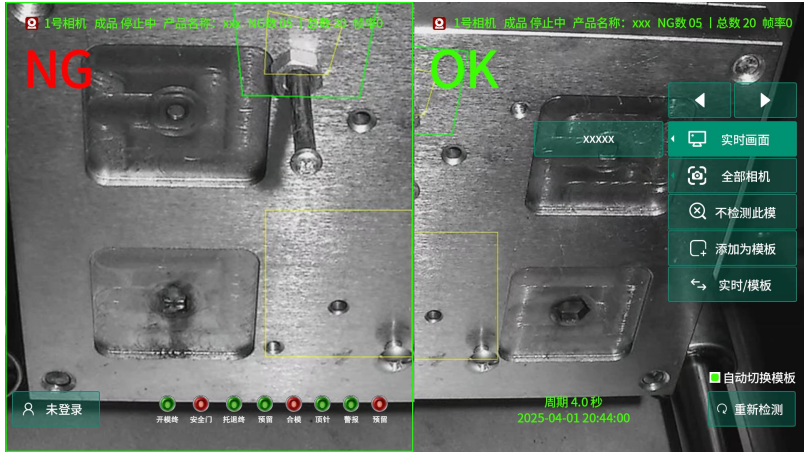
External interference situation	The drawbacks of pixel contrast	The advantages of feature comparison
Excessive vibration during mold closing causes the camera to shift	False alarm	does not trigger the alarm
The image of the prop mold changes color when the external natural light changes too much	False alarm	does not trigger the alarm
When the stamping die is recovered by the blanking die rod, it is lifted up, causing the material to shift up and down	False alarm	does not trigger the alarm

Brand New UI Design

Brand-new UI design

- A tech-savvy and simple style
- The display interface is clearer
- It is easier to operate





Data management system

Nowadays, the global industry is constantly advancing towards the 4.0 intelligent era. The digital management of in-mold production details in traditional injection molding/stamping workshops is also extremely urgent. However, often due to insufficient layout in the early stage of the workshop or outdated hardware versions, even if a mold monitor that can monitor in-mold production in real time is installed, achieving in-mold monitoring visualization. It is also impossible to truly advance towards intelligence

In response to this pain point, our company has newly installed a big data management system on the background data end of the sixth-generation mold monitor, enabling users' injection molding/stamping production to achieve a true intelligent transformation. In response to new workshops, this equipment can be directly adapted to provide big data collection and management for the workshop

One person on guard One terminal	When the mold is abnormal It can only be operated on-site
Equipment upgrade to intelligence High cost	Difficult to establish Data MES system
No network port layout	There are no data report statistics
The threshold for remote visual modification of terminals is high	.....

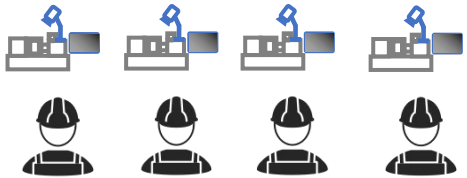
Smart Transformation

- Real-time multi-device Production monitoring
- Production detail diagram Integration
- Test report
- Remote parameter setting
- Detect /NG video backtracking
- Equipment NG Data report
- NG record statistics
- operation record/set
- All the equipment Data comparison
- System software Update log

Establish Manufacturing Execution System

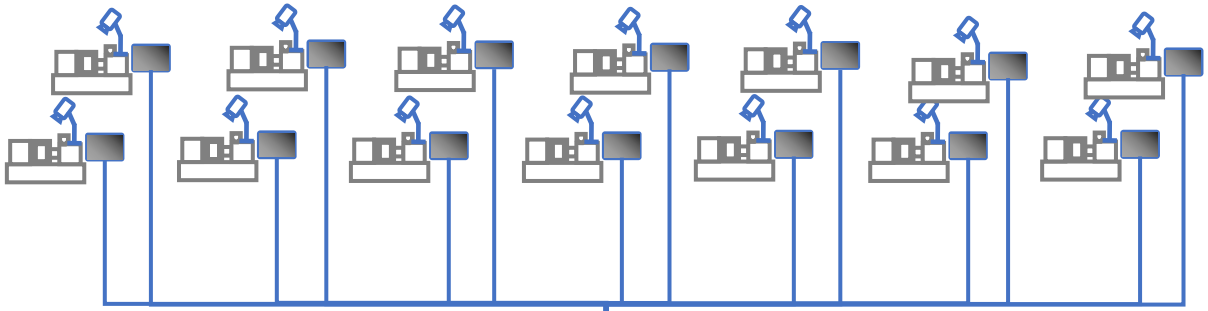
Data management system

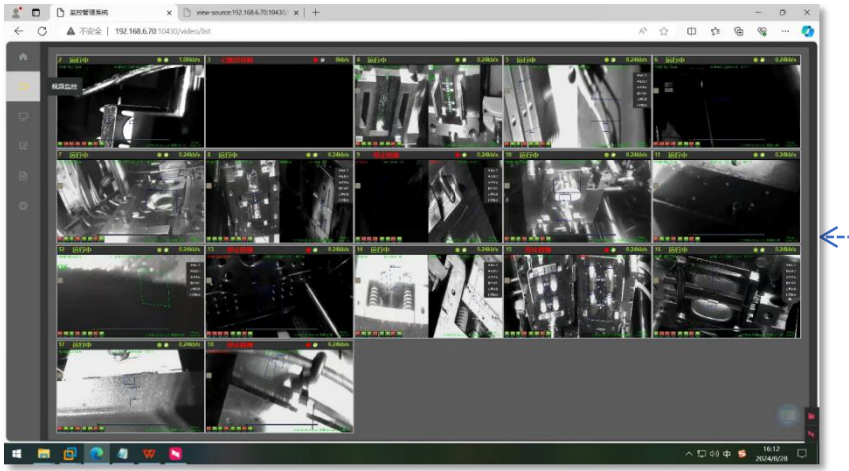
Remote visualization and integrated real-time monitoring of molds at the equipment



mold×N ▷ operator×N

Upgrade





mold×N ▷ operator×1

The real-time situation inside the mold is visually displayed

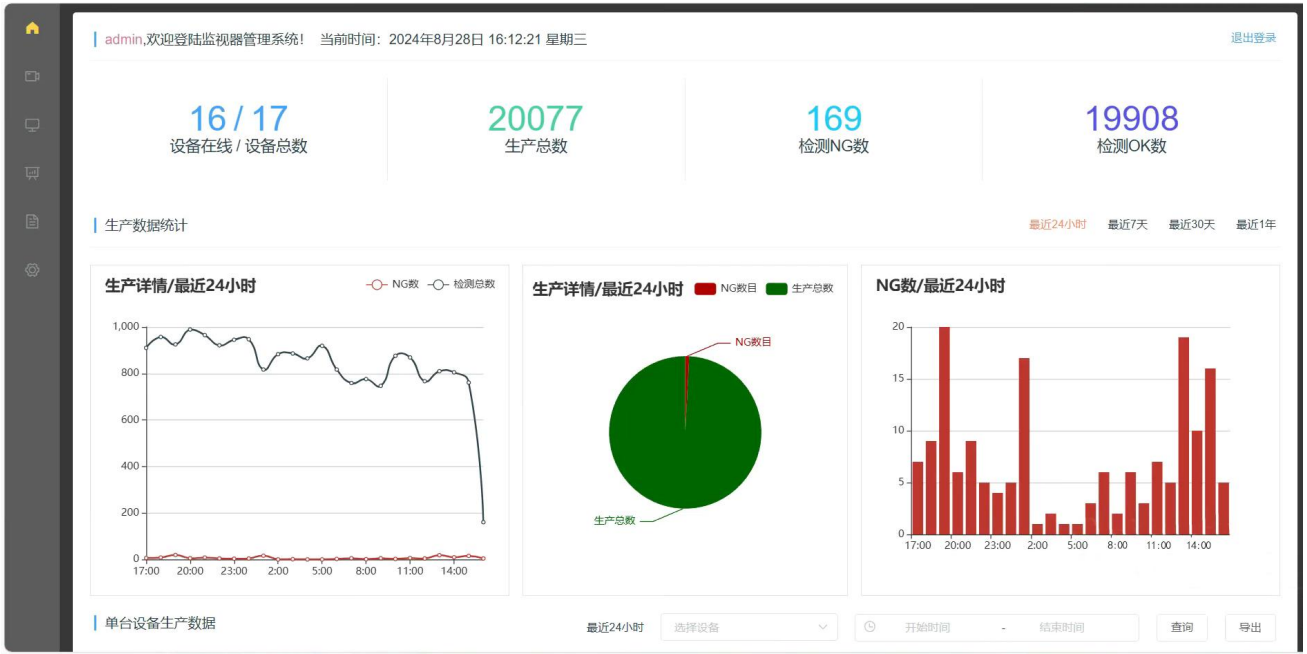
The labor cost has dropped significantly

Data management system

MES

The production data of the workshop is automatically statistically analyzed and graphically displayed

The overall operational stability of the workshop terminal and the rate of defective products are known



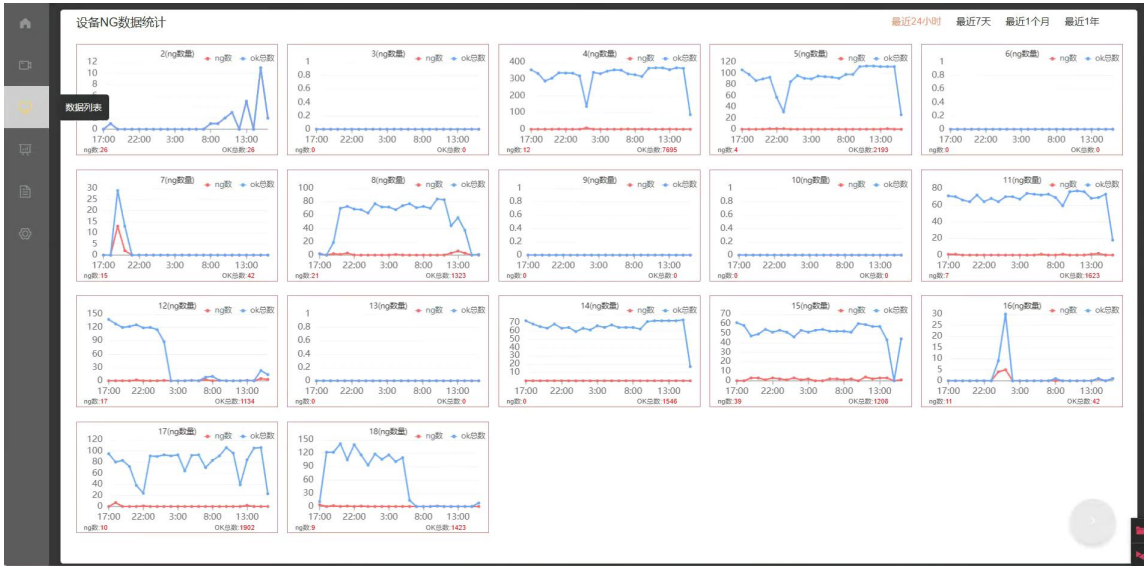
Statistics of the number of online devices

The total production volume at the workshop terminal / NG statistics

Terminal operation status
Real-time update

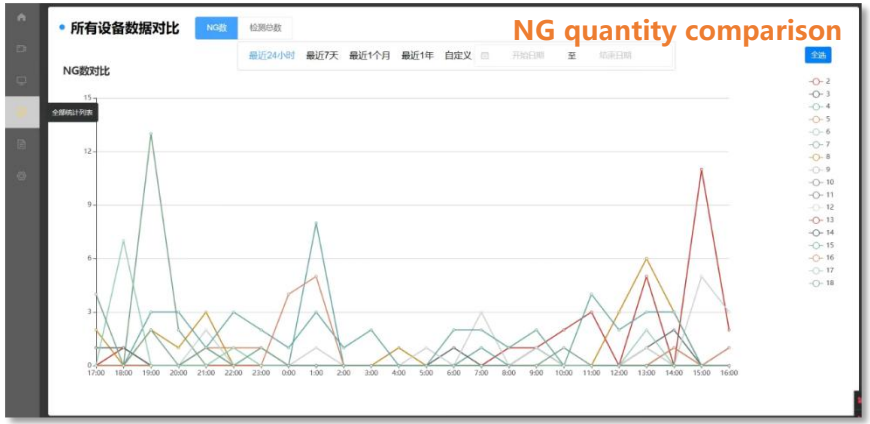
Data management system

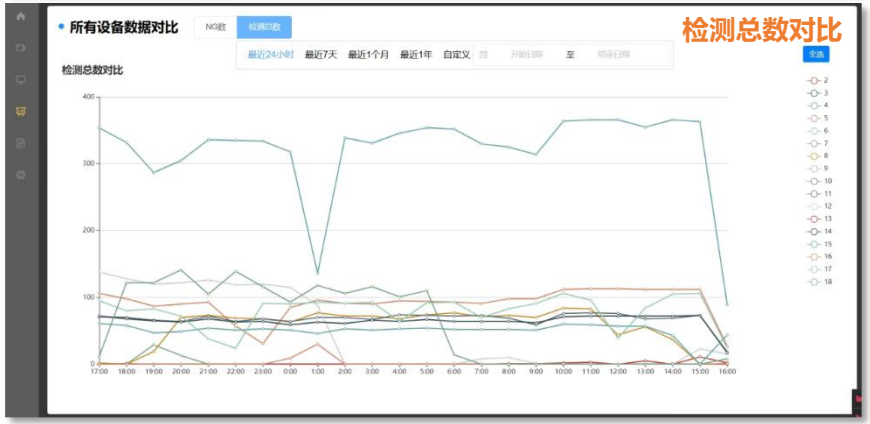
Each device can be customized for a time period - to display the total number of good and bad products



The real-time production status is clear and explicit
Managers can use the workshop kanban for intuitive management

Data management system





Each terminal is displayed side by side to the curve graph in terms of time

The total number of detections of all devices /NG data is automatically tallied

The time period for data recording can be freely selected

☑ The production stability of all equipment is clearly compared

☑ The production efficiency of all the equipment is clearly visible

☑ The yield of qualified products produced by a single device is easier to obtain

Data management system

Real-time production video

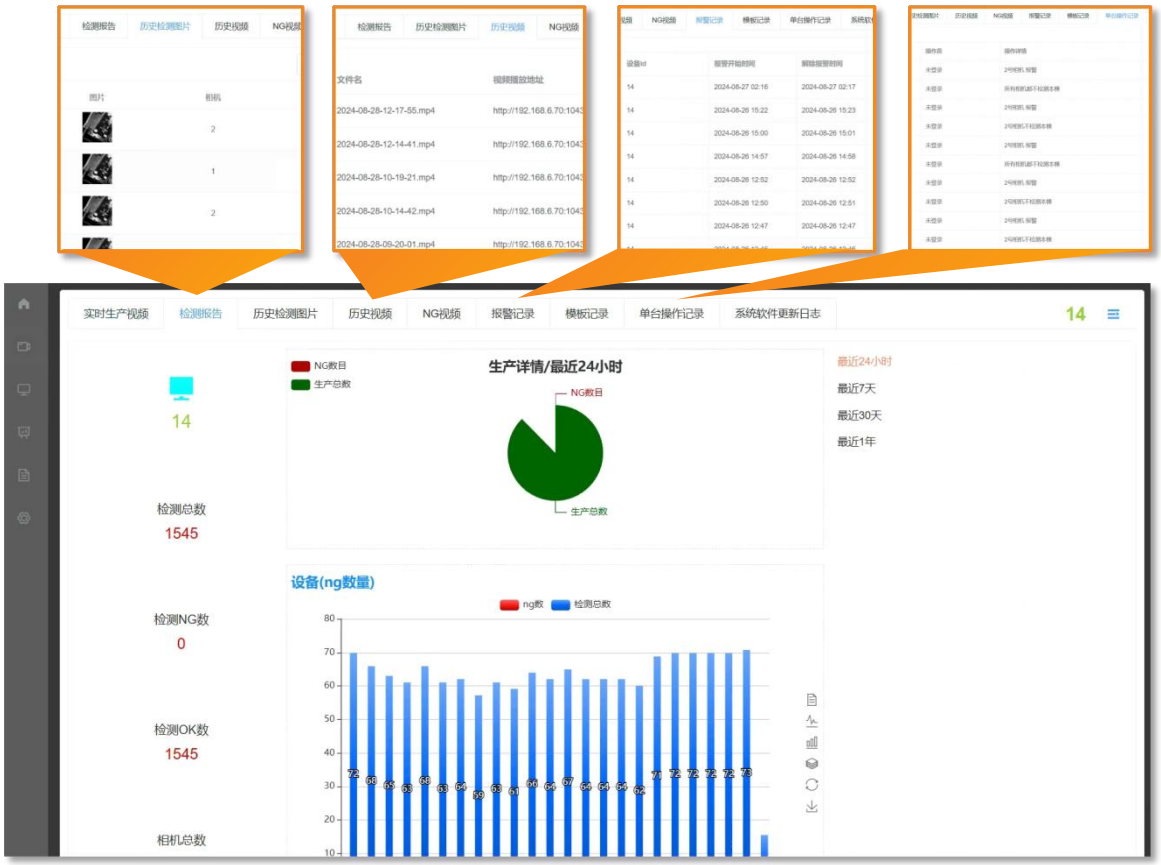
Check the opening and closing of the mold remotely and up close

Remote operation of mold monitoring parameter Settings

- The adjustment of detection sensitivity.alarm area and detection frame makes remote optimization more convenient

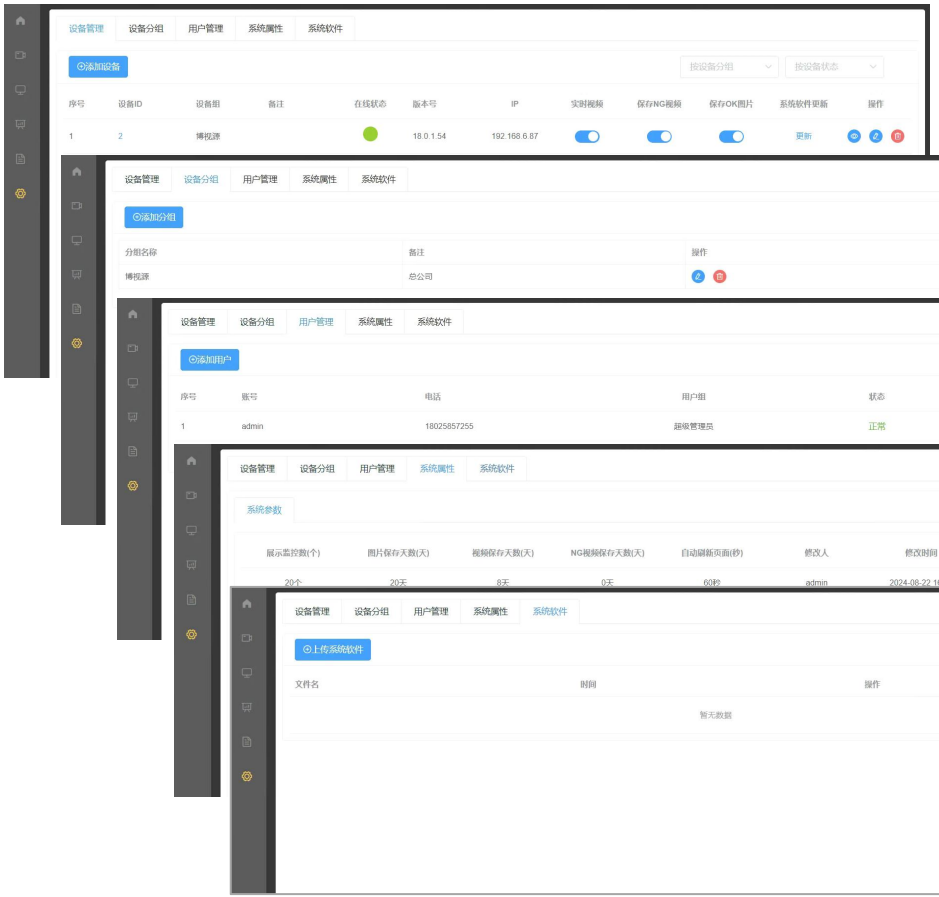
- Occasional false alarm，the cause can be identified immediately with the naked eye.and the terminal production line can resume production

Data management system



Real-time production video	The same as on-site operation
test report	Equipment production status retrospective
Historical detection picture	Detect image backtracking
Historical video	Detect dynamic backtracking of images
NG video	NG Problem retrospective investigation
alram record	Record the time from triggering the alarm to lifting it
model record	Template backtracking has been added
operation record/set	Details of equipment operation
System log update record	Check if it is the latest version

Data management system



equipment management	Batch within the system Manage equipment
Equipment grouping	In multiple workshop scenarios Group management is more convenient
User Management	Division of operator permissions Avoid unauthorized operations
System attributes	Manage data Preservation duration
System software	Software version display

Data management system

The data statistics and display of various dimensions of in-mold monitoring are highly integrated with mold monitoring equipment and terminal mold production

序号	设备id	在线状态	开模数(总数)	未通过数	NG率	平均生产周期(秒)	平均解除报警时长	报警次数	监视器工作时长(小时:分钟)	停机时长(小时:分钟)	数据更新时间	最新操作记录说明
1	10	●	0	0	0%	N/A	N/A	0	00:00	23:00	2024-08-28 16:14:47	手动关闭电源
2	11	●	1607	7	0.44%	46.99	83.79 秒	7	22:46	00:14	2024-08-28 16:14:47	2号相机添加了一张模板
3	12	●	1101	17	1.54%	57.57	34.15 秒	17	09:13	13:47	2024-08-28 16:14:47	1号相机添加了一张模板
4	13	●	0	0	0%	N/A	N/A	0	00:00	23:00	2024-08-28 16:14:47	修改了系统参数，模腔延时从130改为10，半自动 改为启用
5	14	●	1528	0	0.00%	49.97	N/A	0	23:00	00:00	2024-08-28 16:14:47	2号相机 报警
6	15	●	1149	38	3.31%	47.11	250.78 秒	38	20:45	02:15	2024-08-28 16:14:47	手动设置停止检测

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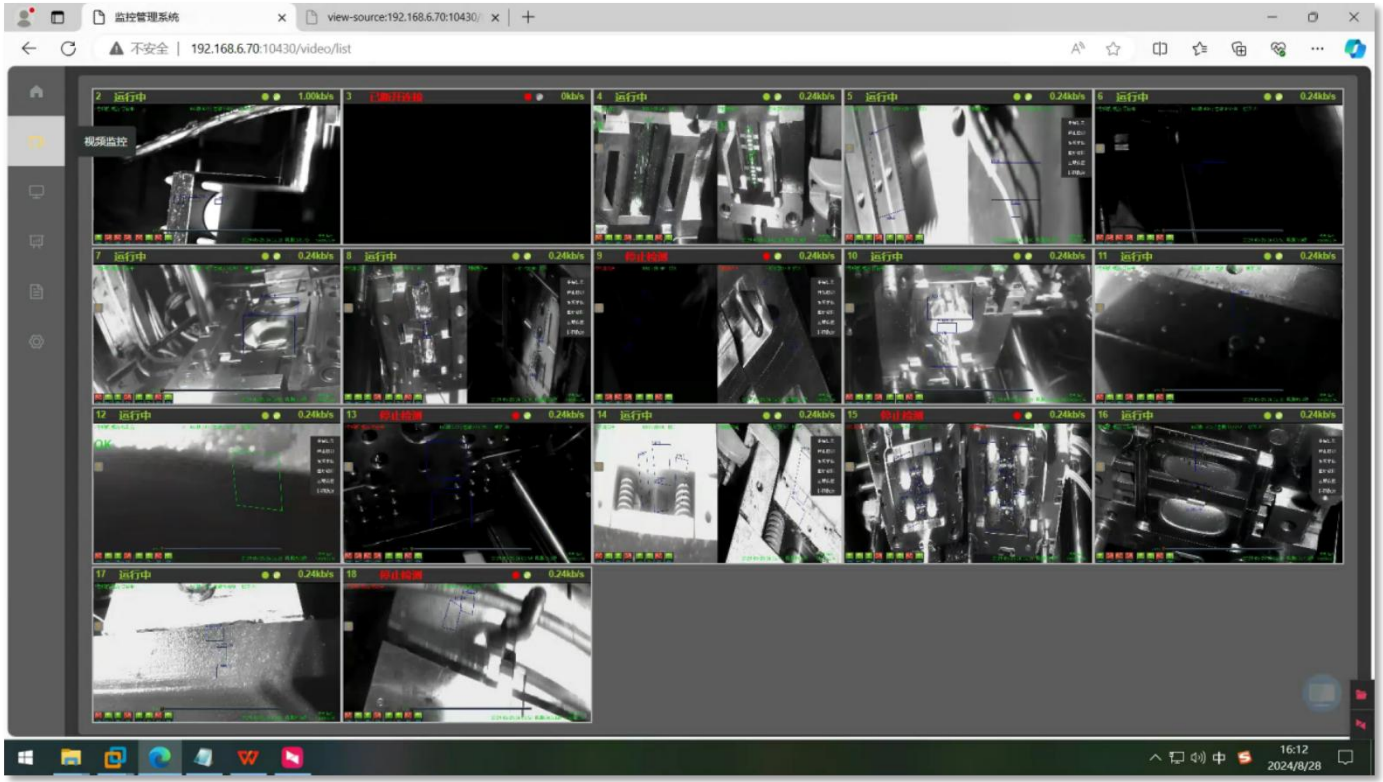
Data management system

Workshop Case Presentation - In-mold Monitoring for Injection Molding Production



Thermal imaging intracellular monitoring

Thermal imaging temperature detection adds one more dimension to mold monitoring

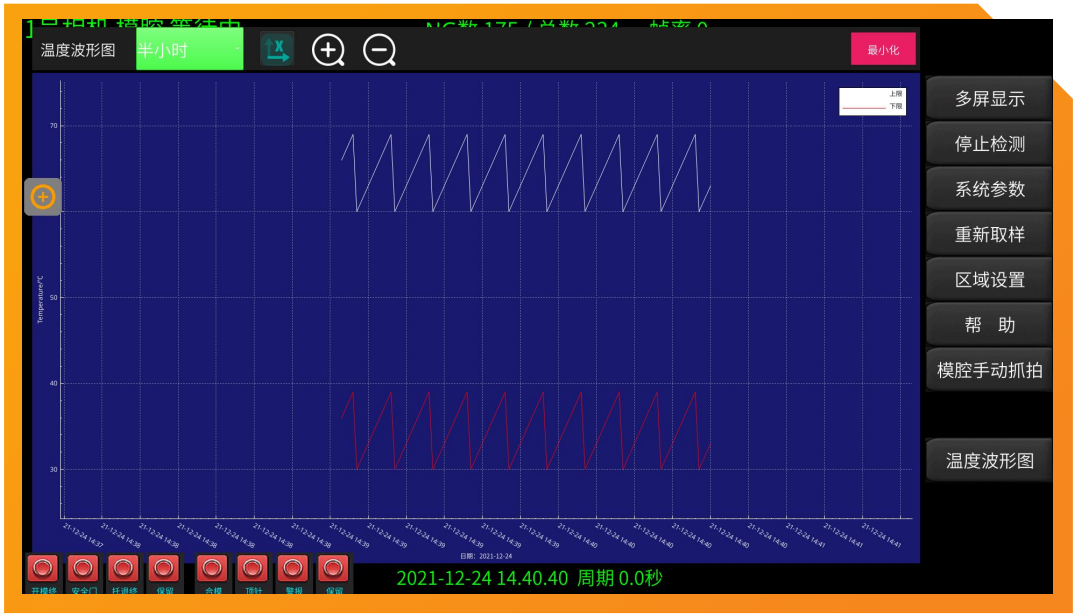
In the injection molding process, some materials have relatively high requirements for temperature. For instance, high-temperature sensitive materials such as engineering plastics PEEK/LCP/PPS and text-sensitive materials like TPE/FKM, when manufacturing various plastic products like optical fiber components, automotive sensor housings or mobile phone cases, if the temperature control is abnormal, it will lead to problems such as abnormal shrinkage rate, warping or deformation of the products. However, the installation of contact-type temperature monitoring devices incurs a high cost for equipment renovation.
Our company's self-developed thermal imaging mold monitor BSY-T900 is equipped with non-contact thermal imaging recognition. It can customize the temperature measurement area and alarm range, and is also compatible with traditional visual inspection systems for operation. It is a relatively perfect solution.

model	BSY-T900 Online temperature measurement thermal imager camera
sensor type	Vanadium oxide uncooled detector
resolution	384x288
Frame rate	50 Hz: 50 fps
Focal length of thermal imaging lens	6.8mm
Maximum aperture value	F1.0
Near shooting distance of thermal imaging	0.6m
The farthest distance for temperature measurement (0.1x0.1m)	6m
Field of view Angle	56°x41.7°
Palette	There are 15 colors including white, black, Fusion 1, rainbow, Fusion 2, iron red 1, iron red 2, dark brown, color 1, Color 2, ice and fire, rain, red, green, and dark blue
Temperature measurement accuracy	±2℃ or as read ±2℃
Temperature measurement range	-20 °C~150 °C or 0 °C~550 °C
Intelligent information superposition	10 dots Temperature measurement, 10 frame temperature measurement, 1 line temperature measurement
Maximum number of preview paths	20pcs
Video compression standard	H.265/H.264/MJPEG
Network port	1-RJ45interface10 M/100 M/1000 MAdaptive Ethernet port
Shell material	Aluminum-magnesium alloy
power input	DC 10~30V

Thermal imaging intracellular monitoring

Function in details

- Thermal sensitivity ⩽55mk
- Thermal response time＜15ms
- Non-contact temperature measurement
- Abnormal temperature alerts can be set
- 4 temperature modes (low temperature, medium temperature, high temperature, custom)



Automatically record each time Temperature measurement data

Measurement data is automatic. Generate the waveform diagram

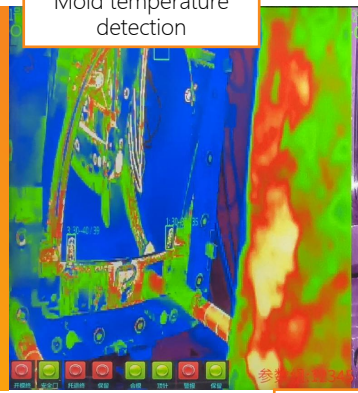
You can customize the time period for viewing Relevant waveform diagram

Thermal imaging intracellular monitoring

Case show

Toilet lid

Mold temperature detection

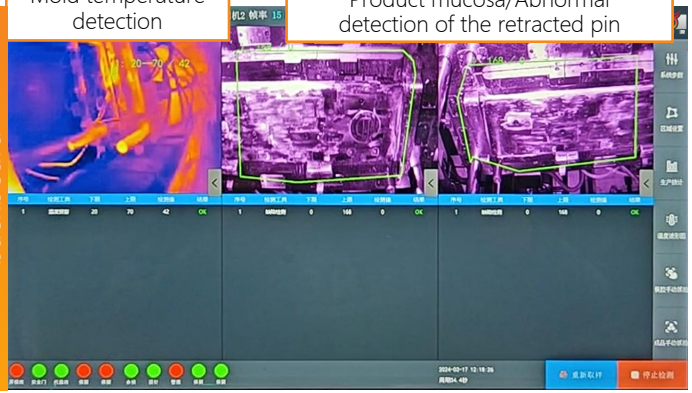


Abnormal detection of the retracted pin

Air conditioning backboard

Mold temperature detection

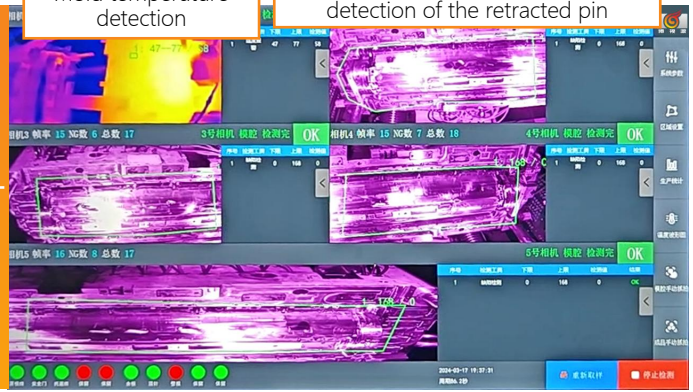
Product mucosa/Abnormal detection of the retracted pin



Air conditioning front cover plate

Mold temperature detection

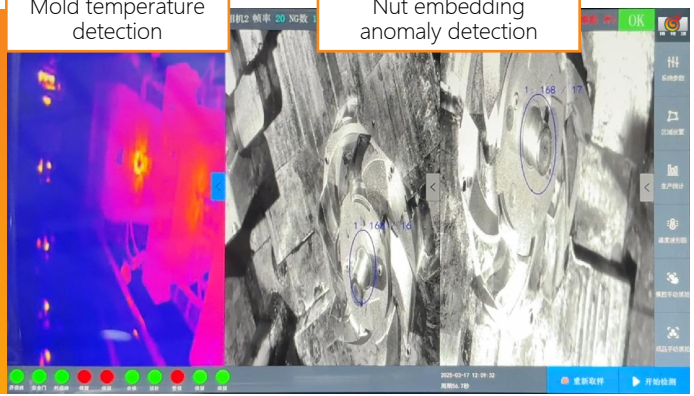
Product mucosa/Abnormal detection of the retracted pin



Fan blade

Mold temperature detection

Nut embedding anomaly detection



Other functions

Automatically generate the detection area and parameters - improve the accuracy of debugging, reduce the operation steps for users, and shorten the debugging time;

Foolproof one-click operation and beginner operation guide - The system comes with a one-click tutorial that automatically sets up relevant programs. Technicians only need to follow the set steps step by step to learn the basic functions of the Boshiyuan monitor without the need for manual training

Automatic correction when the mold opening stroke displacement deviation occurs - The self-developed moving mold drift correction algorithm has been verified in practice to correct an error of 10mm, and this function is most obvious in the old hydraulic press.

Automatic light compensation and correction - For reflective and overly dark areas, the self-developed light compensation algorithm can automatically identify the relevant areas and make automatic corrections to achieve overall brightness balance. This function is particularly effective for metal embedding.

The latest model matching algorithm based on contour can effectively solve the misalignment problem of embedded parts, the imaging of steel sheets, and the misjudgment caused by color difference.

The newly developed mold monitor corresponds to the in-mold monitoring system of multiple injection molding machines. It can be applied in relatively simple application environments to detect whether products have fallen off the mold normally, greatly saving the procurement costs for customers.

Optional function: Abnormal alarms from the monitor can send text messages to the designated technician's mobile phone to ensure efficient and real-time handling of abnormal alarms.

Thank you