Guangdong Boshi Yuan Intelligent Technology Co., Ltd., China
Dongguan Renye Automation Technology Co., Ltd., Guangdong Province, China

VISION INSPECTION

Mold-monitor

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Star products

Mold-Monitor

The mold-monitor, also known as the mold-protector or mold-electronic eye, utilizes machine vision for comparative and detection functions to perform real-time calculations on image data. It monitors equipment operation in real time, providing a non-contact solution to prevent molds from being crushed and ensuring no other damages occur inside the molds. It is characterized by its ease of learning and use, flexibility, and lack of industry or geographical limitations.

- Check whether the product is short of materials or has insufficient injection.
- Reduce unnecessary pin insertion times.
- Check whether the molding is adhered to the fixed mold.
- Detect mold temperature errors to prevent mold damage.
- Check whether the placement of the insert is skewed, off center, or missing, as well as whether it is deformed.
- Check whether the top pin, slider, and neutron of the mold have been retracted into place before the mold is closed.
- Check whether the molded product falls off normally before mold closure and whether the robotic arm returns to its original position.

Core advantages of mold-monitor

Widely applicable
Widely used in: medical/automotive/3C electronics/ home appliances/die-casting/stamping and other fields
Sales exceed **8000** units in 2024

BSYVisionLib Internationally leading algorithms+AI
Independently developed complete image algorithm -**BSYVisionLib**, achieving internationally leading detection accuracy and significantly improving production efficiency

High definition imaging efficient detection
Using CCD or global exposure CMOS cameras for high-definition imaging, quickly and accurately capturing the inside of the moldProduction situation, accurate recording of defect information, automatic correction of defect information, can correct 10mm error.

One to many efficient linkage
One mold monitor corresponds to the in mold monitoring system of multiple injection molding machines, greatly saving procurement costs.

Mold Monitor IoT Management System
It can integrate the status parameters of all mold monitors and real-time images of each camera, and transmit them to the central server for remote viewing and management.

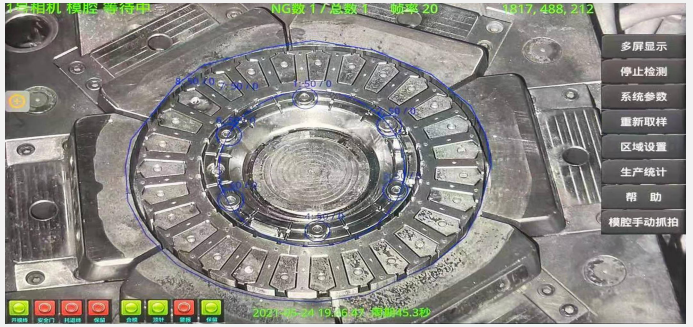
Thermal imaging temperature monitoring alarm function
By using an online thermal imaging camera and the thermal imaging module in the software, the mold temperature during the injection molding production process can be monitored, and any abnormal temperature will immediately trigger an alarm

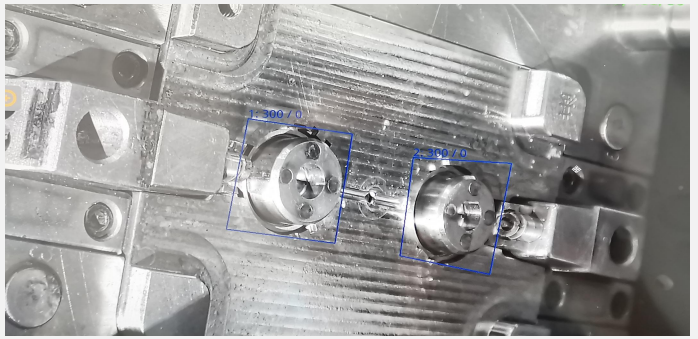
Configuration parameter

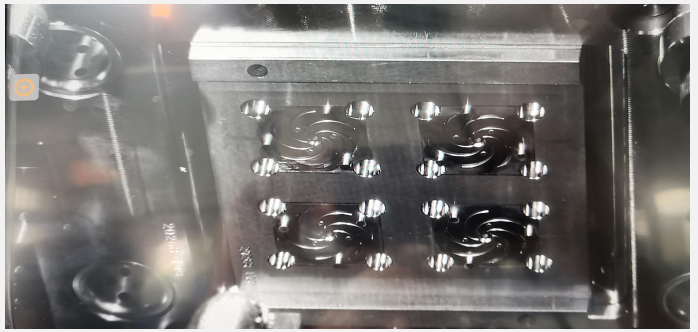
Mold-monitor configuration and parameters

Name of configuration	Configuration parameters
screen size	13.3 Inches
CPU model	J6412
CPU main frequency	2.6GHz
MB RAM	8GB
RAM	M.2-2280 256GB
Operating system	Linux
Graphics card	IntelUHD Graphics for 10th Gen IntelProcessors
rated voltage	DC 12V-35V(wide voltage)
Whole machine weight	1.6kg
Camera	6 million pixels (Ethernet camera)
Lens	6 million pixels (customized)
Screen resolution	1920*1080
Frame rate	20

▿ Mold monitor detection screen







Big Data Management System

Nowadays, the global industry is constantly advancing towards the era of 4.0 intelligence. Traditional injection molding/stamping workshops are also facing pressing problems during in mold production. However, due to insufficient layout in the early stage of the workshop or hardware equipment update costs, even if commonly used mold monitors are installed on the market and initial in mold monitoring visualization is achieved, they cannot truly transform into intelligence.

In response to this pain point, our company has upgraded and transformed our third-generation mold monitor, adding network modules and developing a big data management system, enabling users to achieve a truly intelligent transformation in injection molding/stamping production. In response to the new workshop, the equipment can be directly adapted to provide big data collection and management for the workshop.

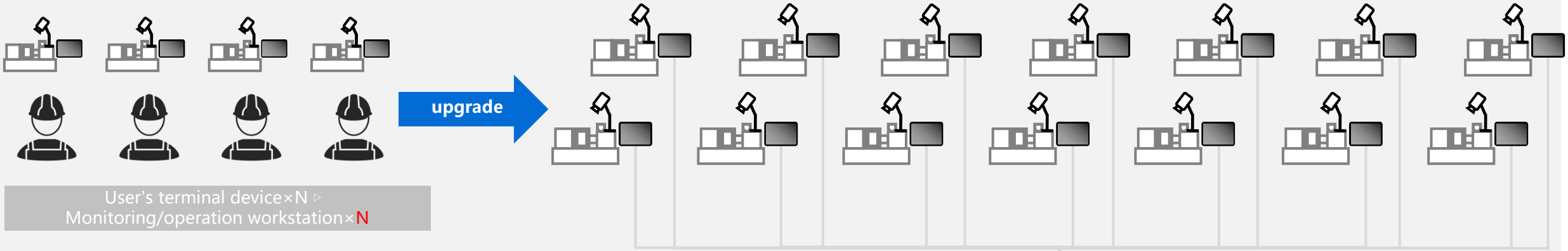
One person is responsible for one terminal	When the mold is abnormal, it can only be operated on-site
The cost of upgrading equipment to intelligence is high	Difficult to establish MES
Expansion window without network port	No data report statistics
The cost of modifying the terminal to achieve remote visualization is very high	.....

Transforming towards intelligence

Monitor multiple terminals simultaneously	**Integrate a production detail diagram**	**Test report**	**Remote parameter setting**
Detecting video/NG video backtracking	**Generate a report of detected NG data**	**NG records for statistical analysis**	**Traceability of operation records for a single terminal**
System software update log	**Comparison of data from all terminals**	**Create Manufacturing Execution System**	

Big Data Management System

Remote visualization of molds on user terminals and real-time monitoring of integrated interfaces



User's terminal device×N ▷
Monitoring/operation workstation×N

User's terminal device×N ▷
Monitoring/operation workstation××1

Intuitive display of live in mold conditions

Significant reduction in labor costs

Big Data Management System

Real time product production video

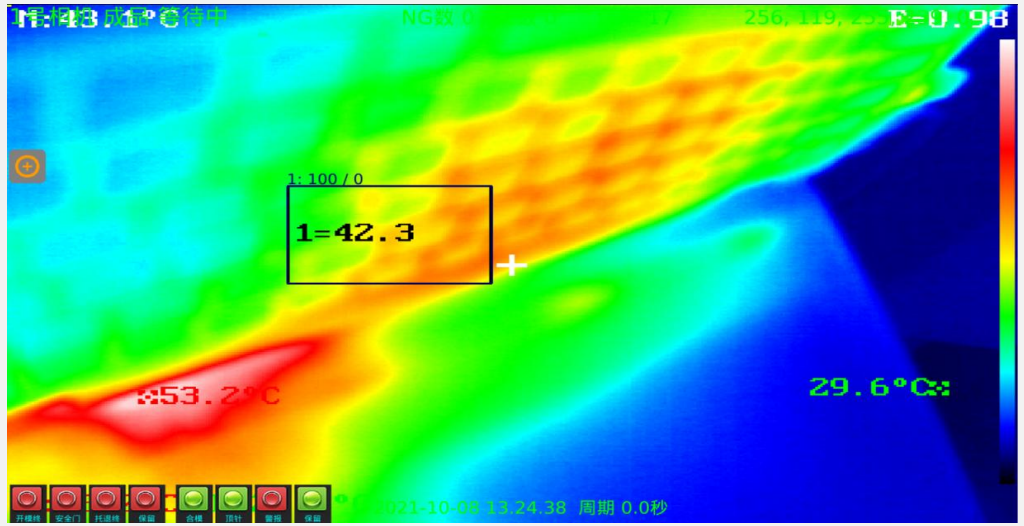
Remote and up close viewing of mold travel

Remote operation of mold monitoring parameter settings

- ☑ Adjustable detection sensitivity, alarm area, and detection box adjustment
- ☑ Occasionally there is a false alarm, but the cause can be immediately investigated with human eyes to restore the operation of the production line

Thermal imaging mold monitor

Add thermal imaging temperature detection



In some injection molding and stamping industries, some products have precise requirements for mold temperature. Once there is a certain temperature error, it is easy to cause abnormalities in the product. However, the cost of retrofitting the equipment with contact type temperature monitoring remains high.
Our self-developed thermal imaging mold monitor MP-T900 is equipped with non-contact thermal imaging recognition, customizable temperature measurement area and alarm range, and compatible with traditional visual inspection systems, making it a perfect solution.

Model	MP-T900 Online temperature measurement thermal imager camera
Sensor type	Vanadium oxide uncooled detector
Resolution	384x288
Frame rate	50 Hz: 50 fps
The closest focal length of a thermal imaging lens	6.8mm
Max Aperture Value	F1.0
The closest distance for thermal imaging imaging	0.6m
The farthest distance for temperature measurement (0.1x0.1m)	6m
Viewing angle	56°x41.7°
Palette	15 types including White Heat, Black Heat, Fusion 1, Rainbow, Fusion 2, Iron Red 1, Iron Red 2, Dark Brown, Color 1, Color 2, Ice Fire, Rain, Red Heat, Green Heat, Deep Blue, etc
Temperature measurement accuracy	± 2 ℃ or ± 2 ℃ of the reading
Measuring range	-20 °C~150 °C or 0 °C~550 °C
Intelligent information overlay	10 point temperature measurement, 10 box temperature measurement, 1 line temperature measurement
Maximum number of preview paths	20
Video compression standard	H.265/H.264/MJPEG
Network interface	1 RJ45 interface 10 M/100 M/1000 M adaptive Ethernet port
Shell material	Aluminum magnesium alloy
supply voltage	DC 10~30V

Thermal imaging mold monitor

Function Explanation

Thermal sensitivity≤55mk

thermal response time < 15ms

Non contact temperature measurement

Customizable temperature measurement area

Low temperature alarm and high temperature alarm can be set

4 temperature measurement modes (low temperature, medium temperature, high temperature, custom)

Automatically record every temperature measurement data

Measured data Automatically generate waveform diagrams

Customizable time period view relevant waveform diagrams

Other functions

Other functional features

Automatically generate detection areas and parameters - improve debugging accuracy, reduce user operation steps, and shorten debugging time;

Foolish one click operation, 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, without the need for human training, to learn how to operate the basic functions of the Boshiyuan monitor;

Automatic correction of displacement deviation during mold opening stroke - a self-developed dynamic mold drift correction algorithm that has been verified to correct a 10mm error, with this function being most evident in older hydraulic presses;

Automatic light compensation and correction - For reflective and dark areas, our independently developed light compensation algorithm can automatically identify relevant areas, correct them, and achieve overall brightness balance. This function is particularly effective for metal embedding;

The latest model matching algorithm based on contour can effectively solve the problem of misalignment of embedded parts and steel plates, as well as misjudgment caused by color difference;

The latest developed mold monitor corresponds to the in mold monitoring system of multiple injection molding machines, which can be applied in a relatively simple application environment to detect whether products have fallen off the mold normally, greatly saving customers' procurement costs;

Optional function: Monitor abnormal alarm can send SMS to the designated technician's mobile phone to ensure efficient and real-time processing of abnormal alarms;

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Thanks for watching