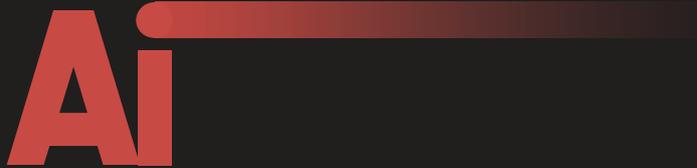


FabGoalie **Ai**

Smart Fabric Goalie

New Technology Innovation



AI

In the fast-paced modern textile production industry, fabric quality inspection has always been a critical factor in enhancing product competitiveness. However, traditional manual inspection is limited by human visual reaction time and fatigue, making it difficult to maintain long-term, uninterrupted, and efficient performance. To reduce the burden of manual inspection and lower operational costs, the industry is increasingly shifting towards advanced AI-based defect detection technologies. In response to this trend, we have developed the **Smart Fabric Goalie** system, specifically designed for automated AI fabric defect detection, offering a continuous and precise solution for flaw identification.



Defect Detection Principle

Deep Learning Technology

This system utilizes deep learning neural networks to train on a large dataset of fabric images, enabling the recognition of subtle and diverse defects. It effectively overcomes the limitations of manual inspection while significantly enhancing detection accuracy and efficiency.

Automated Inspection Process

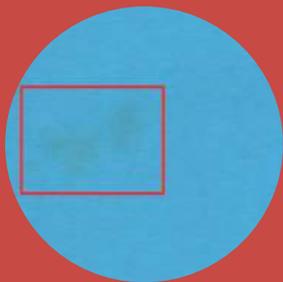
Compared to traditional manual inspection, the AI system is capable of continuous operation, allowing for real-time and year-round fabric detection. This not only enhances production efficiency but also ensures consistency and stability in the inspection process.

Diverse Defect Recognition

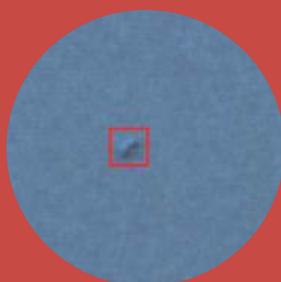
This system effectively detects and marks common fabric defects, such as hook yarn and oil stains, making it suitable for quality inspection of various textiles. As the system continues to optimize, it will develop the capability to identify even more types of defects in the future, providing comprehensive quality assurance for production.

Smart Adaptation and Customization

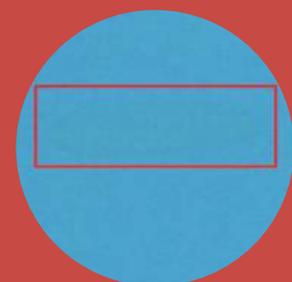
This system features adaptive learning capabilities, allowing for customized adjustments based on the different types of fabrics provided by various manufacturers. With the continuous input of new data, the system gradually learns and optimizes its processes, enhancing detection accuracy and efficiency.



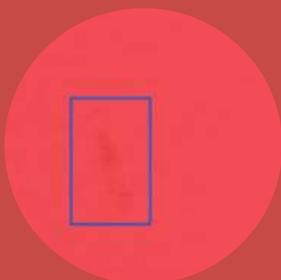
Type: Oil stain
Width: 23.32 mm
Height: 15.18 mm
Area: 354 mm²



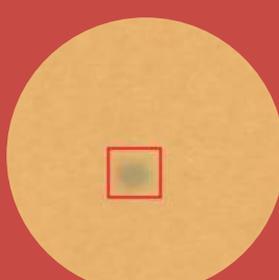
Type: Hook yarn
Width: 4.4 mm
Height: 4.18 mm
Area: 18.39 mm²



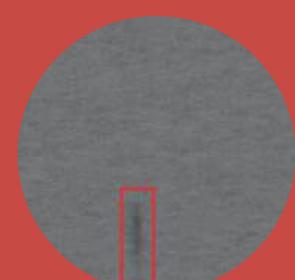
Type: Water stain
Width: 45.1 mm
Height: 12.98 mm
Area: 585.4 mm²



Type: Color stain
Width: 8.8 mm
Height: 14.74 mm
Area: 129.71 mm²



Type: Color spot
Width: 6.16 mm
Height: 5.72 mm
Area: 35.24 mm²



Type: Tissue oil
Width: 7.04 mm
Height: 5.94 mm
Area: 41.82 mm²

System Interface



Quick Equipment Switching

By scanning the QR code, users can swiftly switch to mobile devices such as smartphones or tablets.

Work Efficiency Enhancement

The system supports various display devices, enabling staff to access analysis reports anytime and anywhere.

User Convenience Improvement

The system is flexible and user-friendly, enabling seamless switching between devices with different resolutions.

Cross-Device Collaboration

Teams can simultaneously view reports from different locations, overcoming communication barriers.

Diverse Chart Analysis



The system offers various analytical charts, utilizing different colors and clear data labels to make the analysis report of defect types and quantities easily understandable, allowing decision-makers to quickly grasp the fabric inspection results.

Customized Multilingual Interface

The screenshot shows the user interface for Order B1535. The top navigation bar includes order details: Fiber Width: 70 In, Fiber Length: 48 Yd, Material: TOP, Defect Type: 1, Defect Total: 8, and Penalty: 8. A language menu is set to English.

The main content area is divided into three sections:

- Defect Report (Table):** A table with 8 rows of defect data.
- Defect Map:** A visual representation of the defect locations on the fabric.
- Defect Detail:** A panel for viewing specific defect information.

Defect Number	Horizontal Length (Inch)	Vertical Length (Yard)	Type	Defect Width mm	Defect Height mm	Defect Area mm²	Penalty
1	63.9	45.49	V9	7.48	6.16	46.08	1
2	58.07	45.53	V9	21.12	13.64	288.08	1
3	57.3	45.53	V9	17.6	15.62	274.91	1
4	29.12	46.61	V9	31.46	14.74	463.72	1
5	20.17	46.62	V9	24.2	12.1	292.82	1
6	15.17	46.62	V9	18.04	17.6	317.5	1
7	56.65	46.87	V9	50.6	22.66	1146.6	1
8	29.51	47.28	V9	30.14	20.02	603.4	1

Users can select their preferred language from the menu or switch between multiple languages, including Chinese, English, and Vietnamese, according to their preferences. The system can also be tailored to meet local needs, providing a user-friendly interface.

Detailed Defect Reports

Comprehensive Data

The defect report lists the location, size, and area of defects, as well as the associated penalty points, providing precise defect information.

Accurate Positioning and Classification

The horizontal and vertical axes indicate the location and type of defects, facilitating the generation of reports and quality control.

Defect Size and Area

Information on defect dimensions and area is provided to assist with shipping management.

Customized Scoring System

Calculations are based on the international four-point penalty standard, with options for customization according to client needs.

Traceability

Reports with fixed defect numbers are generated, making it easy for clients to conduct subsequent analyses, queries, and quality tracking.

Defect Report : TOP049							
Defect Number	Horizontal Length (Inch)	Vertical Length (Yard)	Type	Defect Width mm	Defect Height mm	Defect Area mm ²	Penalty
1	38.17	0.32	WA	5.28	3.3	17.42	1
2	51.83	2.29	WA	5.06	11.0	55.66	1
3	53.15	2.3	WA	3.52	3.96	13.94	1
4	53.3	2.3	WA	3.96	3.52	13.94	1
5	19.94	3.62	WA	4.4	2.2	9.68	1
6	31.6	4.38	WA	6.16	2.86	17.62	1
7	32.42	4.38	AF	69.3	3.3	228.69	1
8	18.73	4.43	WA	4.84	1.98	9.58	1
9	10.62	7.3	WA	6.6	1.98	13.07	1
10	21.54	10.13	WA	4.84	2.2	10.65	1
11	52.22	10.28	WA	5.28	1.98	10.45	1
12	59.34	11.04	WA	5.94	3.08	18.3	1
13	63.67	12.98	WA	6.16	1.54	9.49	1
14	19.79	13.23	WA	5.72	2.64	15.1	1
15	17.59	15.48	WA	4.62	1.98	9.15	1
16	48.29	15.79	WA	5.72	2.86	16.36	1

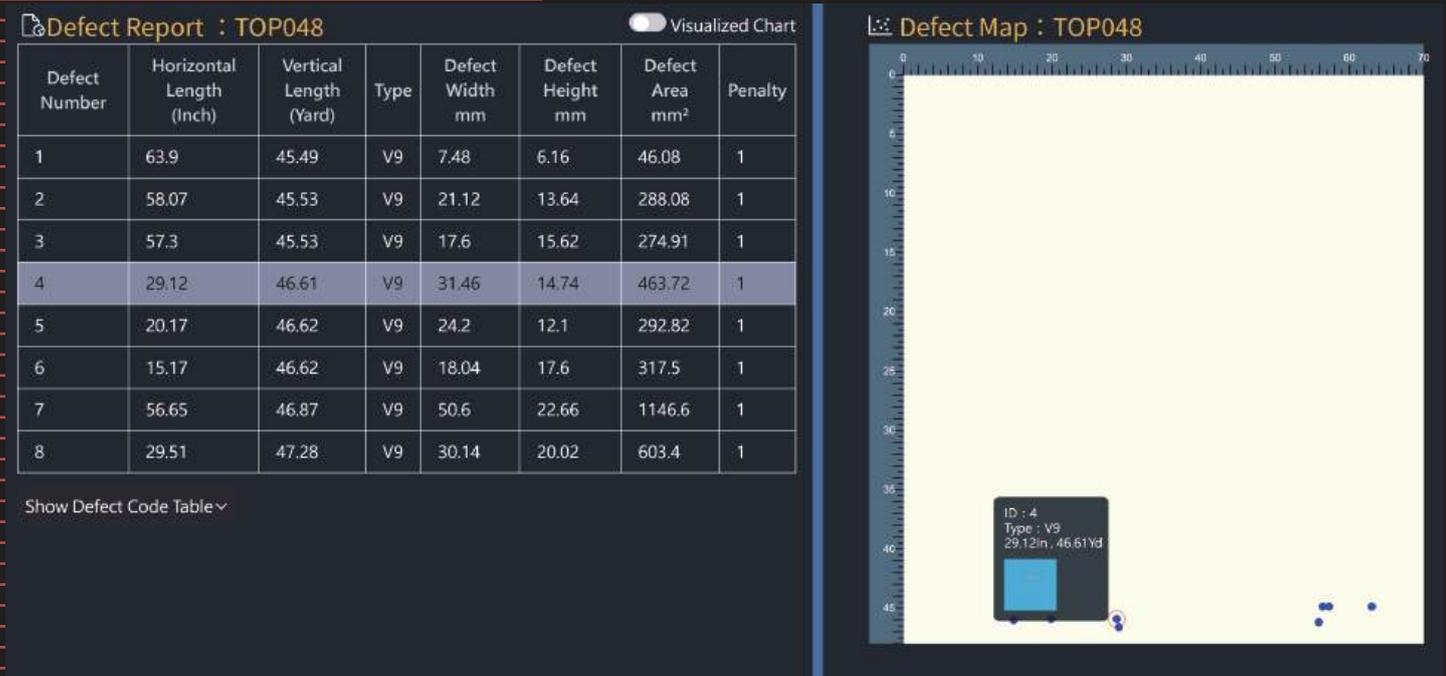
Unified Color Coding for Defect Types

ID	Defect Code	Defect Type	Indicating Color	Indicating Marker
1	AB	Color Spot	darkorchid	
2	AC	Color Bleeding	darkorange	
3	AD	Foreign Yarn	springgreen	
4	AE	Hole	aqua	
5	AF	Broken Yarn	chocolate	
6	AG	Crease/Wrinkle	cadetblue	

By standardizing defect classification through color marking, different defect types can be quickly identified, enhancing readability and operational efficiency.

AI

Defect Map with Interactive Tables Clear Visibility of Defect Information



Precise Positioning

Users can accurately locate defect positions, facilitating correction and handling.

Color Differentiation

Different colors allow for quick identification of defect types and distribution areas.

Data Visualization

Combining charts and data makes quality management more efficient.

Real-Time Interaction

Clicking or hovering reveals detailed defect information, enhancing usability.

Machine Specifications

Cart-to-Cart

Automated Operation	Automated inspection processes reduce reliance on manual labor and improve production efficiency.
High-Speed Inspection	Achieving speeds of up to 60 yards per minute, ideal for large-scale production.
Knitted/Woven Dual Use	Suitable for both knitted and woven fabrics, flexibly addressing various fabric requirements.
Servo Control	An accurate servo control system ensures stability and precision during the inspection process.
Tension Control	Advanced tension control maintains the flatness and consistency of fabrics during inspection.
Real-Time Feedback	Inspection results provide immediate feedback for rapid adjustments and improvements in upstream processes.
Optical Annotation	Combining an optical annotation system for precise defect localization, enhancing inspection efficiency.
Modular Design	Both hardware and software feature a modular design, allowing flexible combinations based on different needs.

Optical Structure

Line Scan Camera	8K
LED Linear Light	Maximum 1,600,000 Lux
Focal Length	14mm
Aperture	f/2.8~f/22
Working Distance	28cm~

Camera Configuration

Color Camera: 2 units
Black and White Camera: 1 unit

Linear Light

Light Source Brightness	Maximum 1,600,000 Lux
Resolution	0.217mm
Minimum Defect Size	0.28mm
Image Processing System	Workstation-level Computer

Optical Marking System

Power	30W
Speed	2000mm/sec
Marking Range	100x100mm
Power Supply	Single-phase AC 220V, Power Consumption 1000W



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