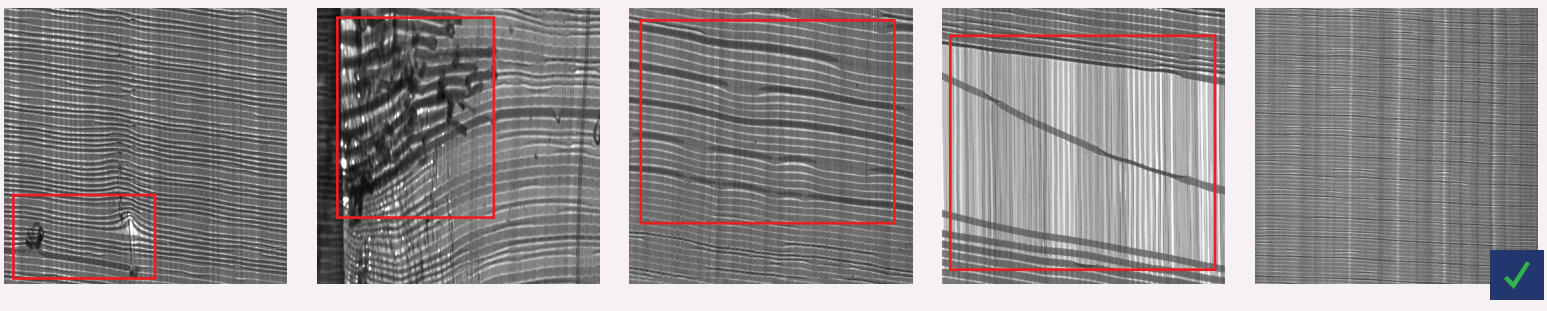
THE KIARA WEB INSPECTION SYSTEM

ROBTRO SYSTEMS
Smart Counting and Web Inspection

Reduce your wastage with automated inspection and smart cutting



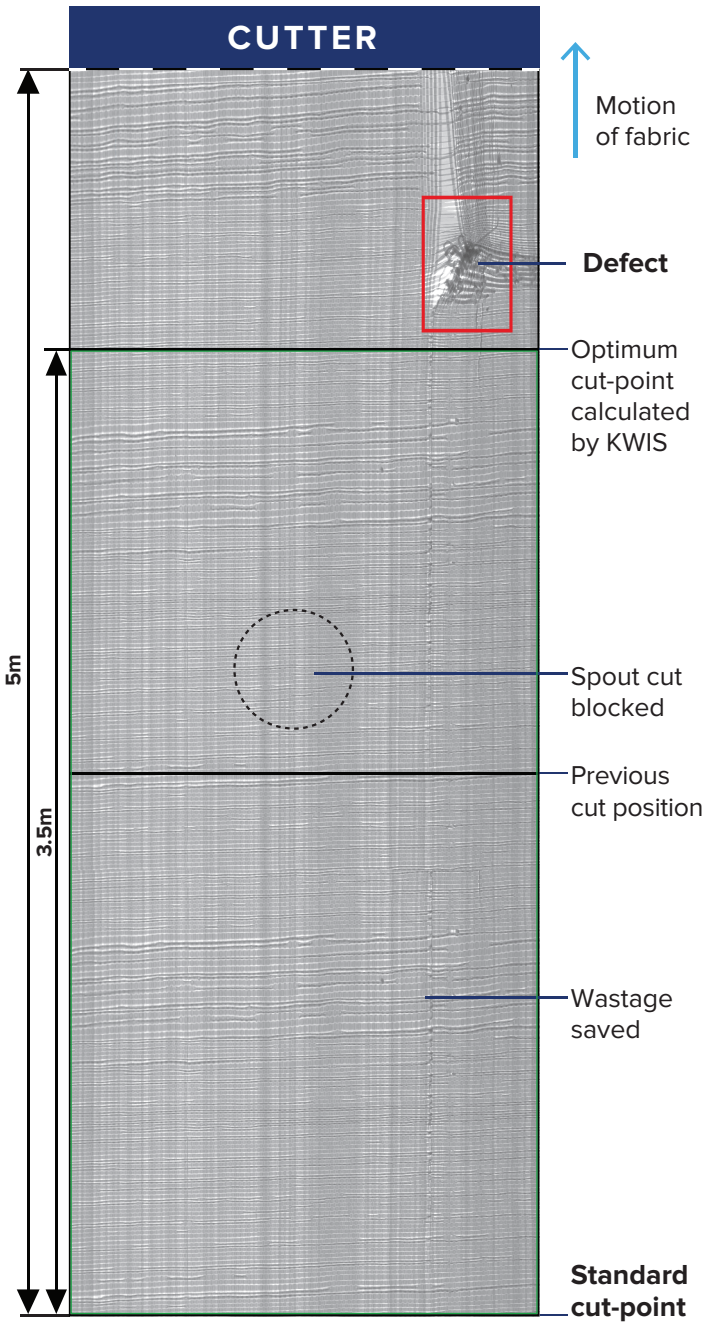
KWIS - FIBC Smart Cutting and Waste Reduction System

Overview

The roll-to-sheet cutting process generates wastage due to defects in the fabric. An unnecessary amount of good fabric is also wasted.

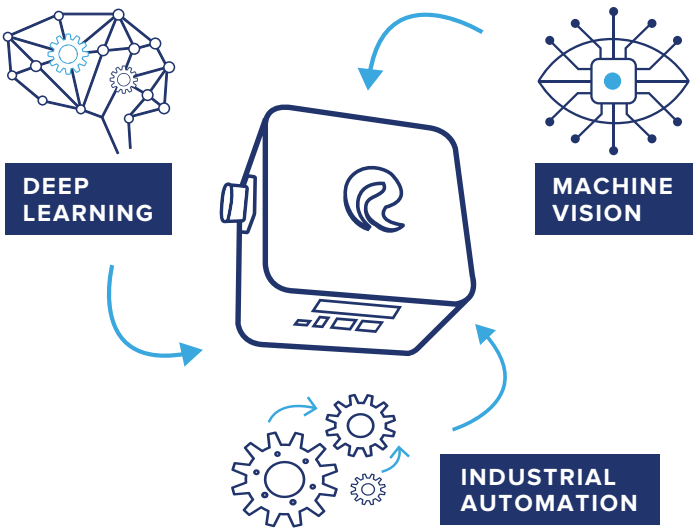
- Defects are often missed by operators or identified after the sheet is cut, or the spout is cut, or worse, after the bag is stitched.
- 2 - layer circular fabrics require an additional inspection step.
- Industry standard is ~5-10% of fabric wastage at cutting.
- >70% of this is avoidable with smart cutting and automated inspection.

The Kiara Web Inspection System



- Retro-fits on any cutting machine
- Uses High-speed Industrial Cameras to inspect every inch of fabric
- Uses AI & Machine Vision to identify all defects in real-time
- Calculates an optimum cut-point for each defect(s)
- Blocks the spout cutter in case of defect(s)
- Circular Fabric model also available (with 2-side inspection)

The Kiara Vision Platform



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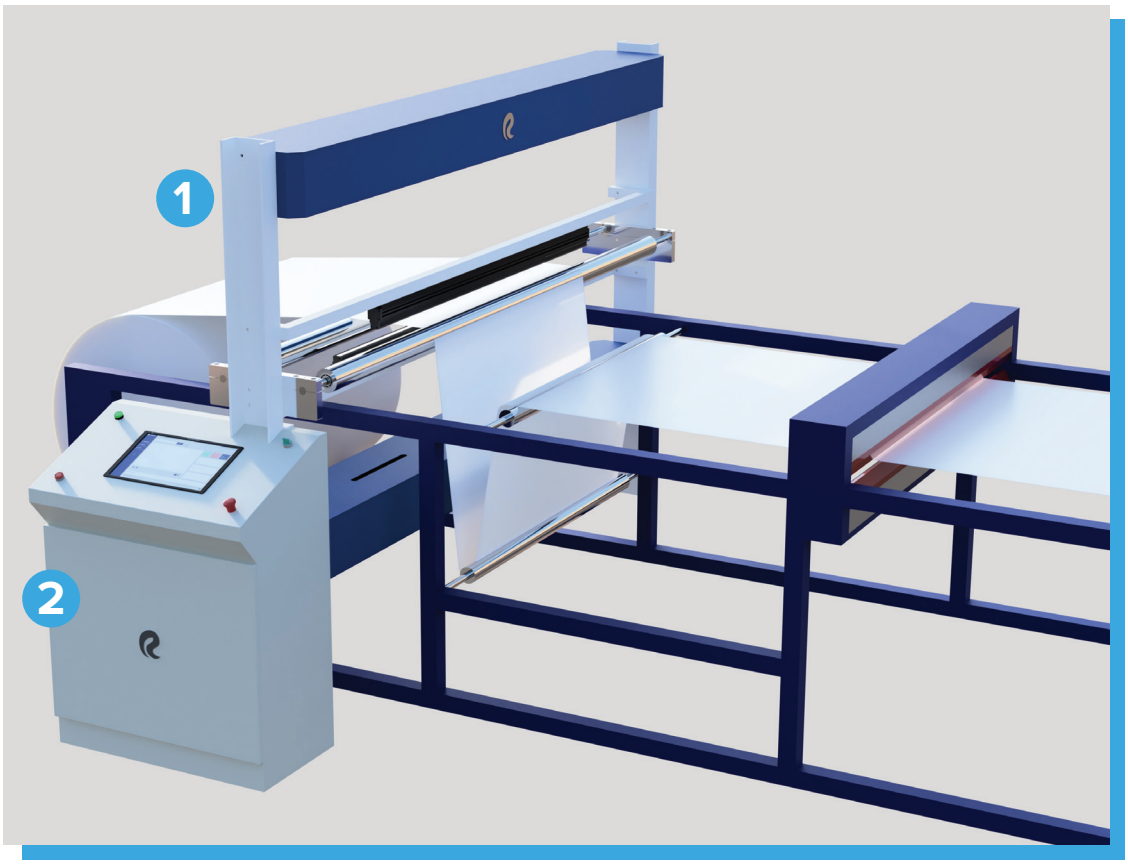
System Details

The Kiara Web Inspection System (KWIS) utilises a combination of precise mechanical fittings, optical and electrical components merged with Industrial Automation concepts and logic.



1. Mechanical & Optical Module

- Precisely fit cameras, lenses, rollers and light assembly with encoders
- Vibration - free grouted structure independent of the machine
- This module is responsible for capturing good scan images of the entire fabric

2. AI, Electrical & Automation Module

- Kiara AI Engine with Deep Learning to identify defects in images
- Encoders and Sensors Assembly
- SMPS and PLC assembly
- Calculation of cut-points and integration with existing machine to cut/stop/blockspout - cutter
- Touch - screen HMI

Features

Every feature of The Kiara Web Inspection System (KWIS) is specifically design to reduce fabric waste, increase defect identification accuracy and ensure operator friendliness.

1. KWIS AI Engine

KWIS' AI Engine identifies all defects, as small as 2 mm, and at speeds up to 150 mtr/min including spots, knots, holes, warp/weft missing, warp/weft extra, dust and gaps. It also has recipes for different bag grades & strictness.

2. KWIS Waste Reduce

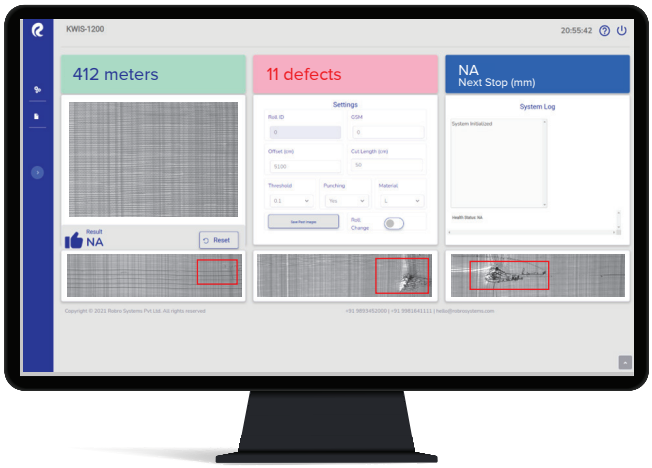
KWIS' Waste Reduce module calculates an optimum cut point for each defect and sends a stop/cut signal to the machine. It accounts for long defects and multiple consecutive defects.

3. KWIS Spout Blocker

KWIS' Spout Blocker ensures that no additional fabric is wasted due to spout cutting when a defect is present in the current sheet.

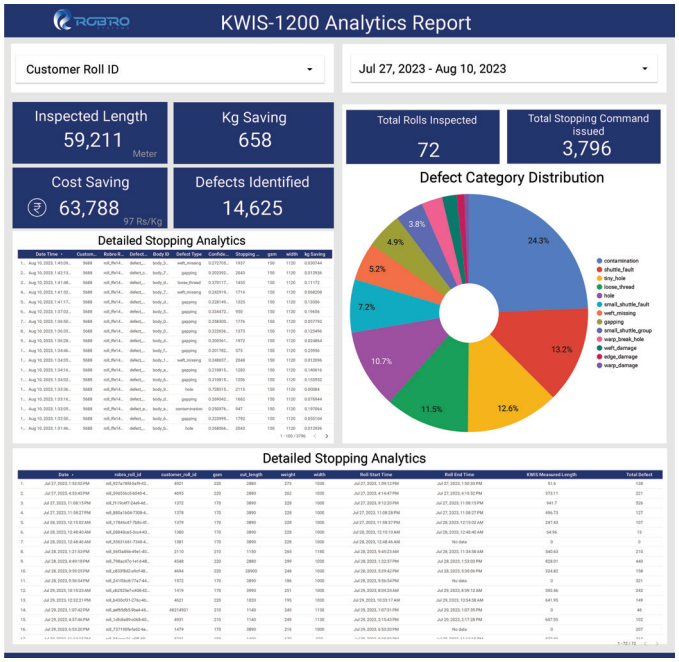
5. Touch HMI

KWIS boasts an operator friendly and touch- enabled intuitive interface



6. Digitisation/Analytics /Reports

KWIS Provides a digitised defect library along with cutting performance and loom performances. It visualizes quality trends, loom and operator performances and production speeds.



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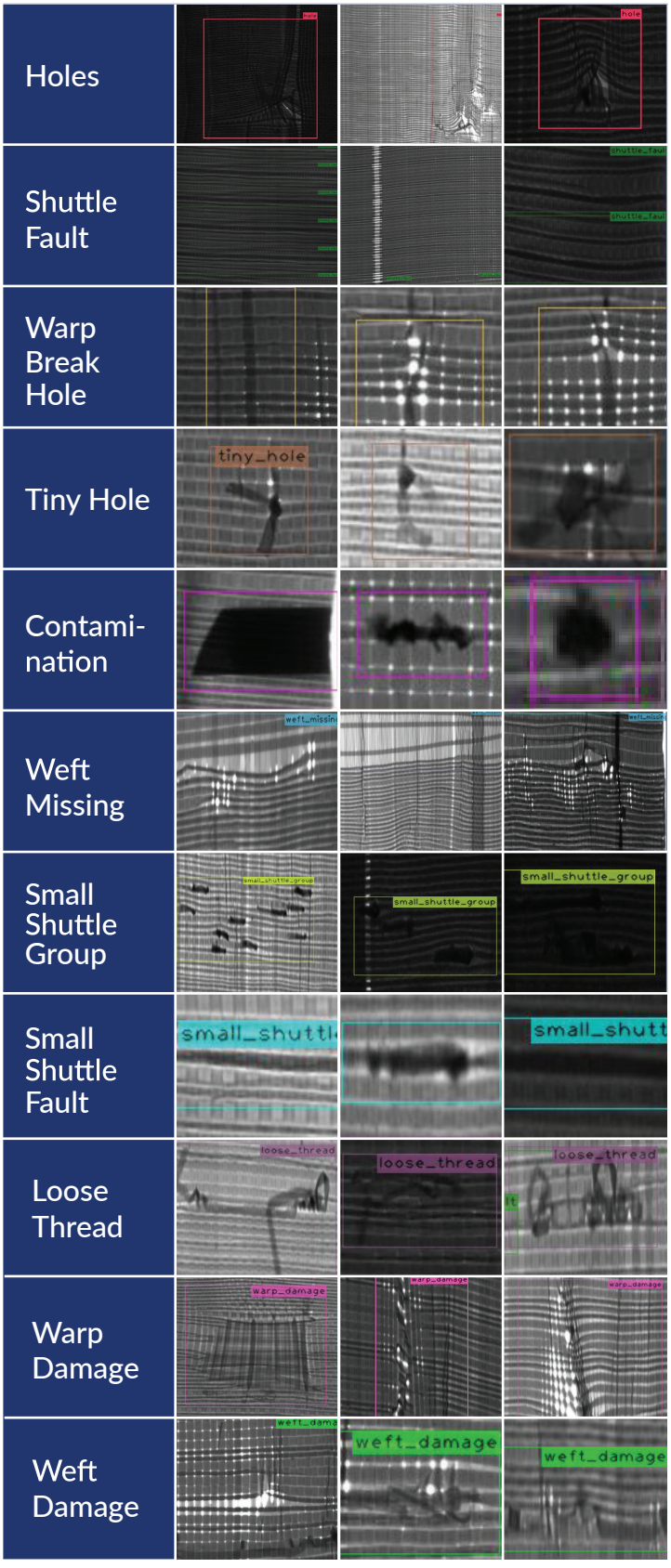
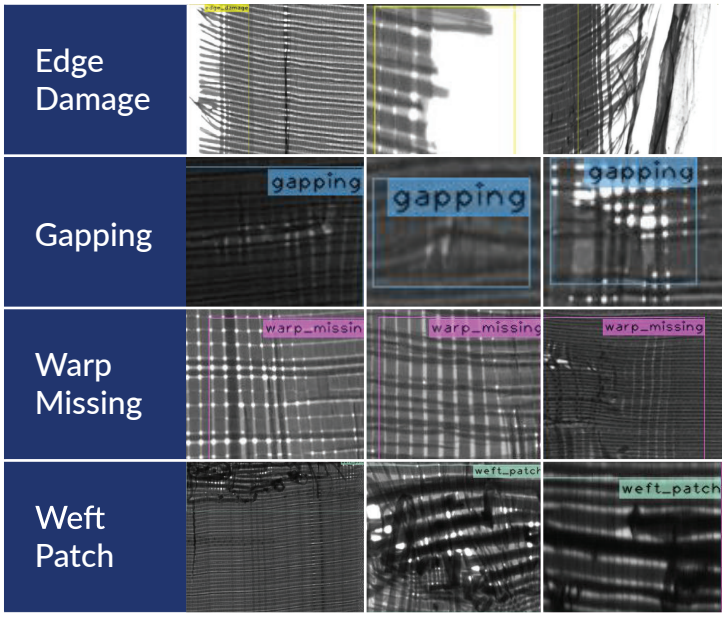
Customized Defect Detection

Diversify inspection strategies with KWIS recipe customization. Select from distinct defect categories, and precisely configure their identification criteria to meet the specific quality control requirements





Recipes and Rules

	RECIPE 1	RECIPE 2	RECIPE 3
Holes			
Shuttle Fault			
Warp Break Hole			
Tiny Hole			
Contamination			
Weft Missing			
Small Shuttle Group			
Small Shuttle Fault			
Loose Thread			
Warp Damage			
Weft Damage			
Edge Damage			
Gapping			
Warp Missing			
Weft Patch			

Benefits

KWIS helps in waste reduction, quality improvement, cost reduction and overall enhancement of several functions across the factory. It brings in IoT and Digitisation into processes for better tracking and improvement.

1. Waste Reduction

By blocking the spout cutter and cutting out only defected portions, KWIS reduces wastage:

	Side	U-Panel	Tubular
Waste % Reduction	45-50%	65-70%	50% + 50%

2. Accuracy & Quality

He accuracy of defect identification ranges from **97% to 99.95%**. It's AI engine becomes smarter as more information and data is fed into it. It ensures no defected fabric is forwarded to internal/external customers.

3. Production Speed

KWIS eliminates slow and manual Inspection steps in the production process improving production speeds. This is more-so during 2-side inspection of tubular fabrics.

4. Labor Cost Reduction

KWIS removes the need for manual inspection labor and deskills the cutting job. It reduces labor fatigue and stress and improves objectivity of defect acceptability-overall reducing labor costs.

5. No Re-work/Rejections

KWIS' accurate defect identification eliminates the need for rework or rejection of bags due to fabric defects during or after they're stitched. This helps save time, efforts & money.

6. Loom, Operator and Cutting Machine Performance Tracking

KWIS' digitisation and IOT framework helps in identifying looms and operators that are performing well and that aren't. It helps in defect prevention-at-source and tracks machine production and operator performance through cloud-based reports & analytics.

ROI Calculator

Wastage is reduced by 65% and with other benefits, ROI is returned within 15 months.

Features Required in Existing Machine

- Immediate Stop Signal
- Reverse (preferred, but not mandatory)
- Continue body after immediate stop
- No Loose Fabric
- Dancer sensor bottom position fixed
- Grouting in floor
- Mounting of equipment on machine, welding/holes
- Internet connection
- Operator Skill required. (min 10th pass)

FIBC Clients

COMSYN
KANPUR PLASTIPACK LTD
emmbi INDUSTRIES LIMITED
RishiFIBC SOLUTIONS PVT. LTD. (EXPORT ORIENTED UNDERTAKING)
indeutsch industries
POLYSPIN
ITC Limited
OXFORD GROUP

Other Robro Systems' Clients

Arihant Crown
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Bilal Groups Superior Quality Safety Matches
THE PRESIDENT MATCH COMPANY
nua
SUNJEWELS
LabelMan FLEXO PACKAGING DIVISION
SHIVANI Detergents Pvt. Ltd.
ayka

Testimonials

We've managed to reduce our wastage significantly using Robro Systems' KWIS for our Cutting Machines. System is stable and delivers consistent performance. We are keen to utilize their IoT features more and are now scaling up the solution on other cutting machines.

- Pramal Choudhary, Director, ComSyn