SiftAI® FM

KPM | SMARTVISIONWORKS

AI-POWERED FOREIGN MATERIAL DETECTION SYSTEM

Advanced Artificial Intelligence Built to Fortify Food Production Processes & Protect Consumers

OVERVIEW

The SiftAI® FM System enables artificial intelligence inspection capabilities for food production environments, including those with strict sanitary conditions. SiftAI FM is a complementary system to traditional foreign material detection technologies like X-rays and metal detectors. Each system is integrated into existing processes to detect foreign objects in free-flowing product, especially traditionally challenging materials like:

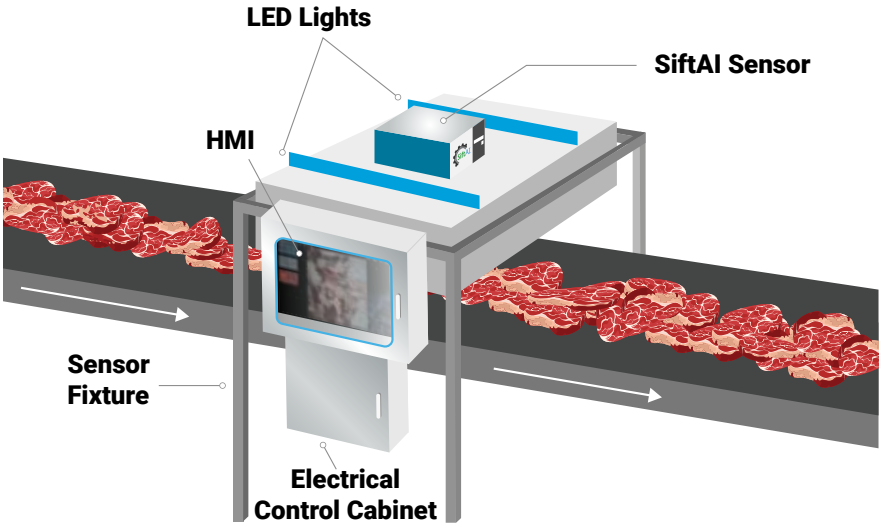
- Plastic
- Films
- Paper/cardboard
- Rubber
- Wood
- Indigenous material (bone, cartilage, etc.), and much more

APPLICATIONS FOR SIFTAI ARTIFICIAL INTELLIGENCE

The SiftAI FM is a compact vision system that houses a high-performance camera, a computer, an AI accelerator, and industrial controls. Installed directly over processing lines, SiftAI technologies identify harmful foreign materials, product defects, and quality control issues in real-time. Typical SiftAI food production applications include:

- Beef, pork, and poultry processing
- Fish, shellfish, and seafood processing
- Snack foods
- Whole fruits & vegetables
- Individual quick frozen (IQF) ingredients (diced potatoes, fruits, vegetables, and protein products)

TYPICAL SIFTAI SYSTEM CONFIGURATION **Example:** Beef trim line



SIFTAI FM SYSTEM FEATURES

- Proven AI models and machine learning ensure food safety and accurate product grading.
- Accurately inspects products with natural and organic variation.
- Dual-gasket IP69K-rated stainless steel enclosure for full wash down sanitary production environments.
- System software generates real-time data for operator and QA review.
- Operates on 120V or 240V power.

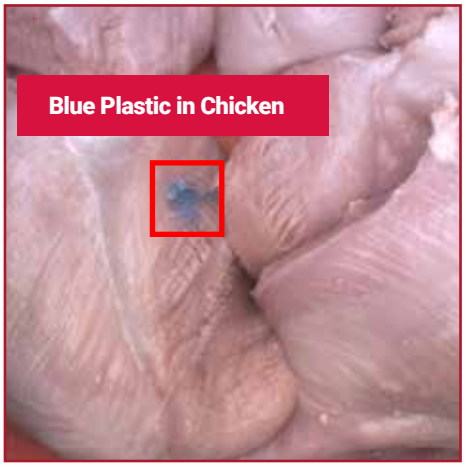
SIFTAI FM SYSTEM BENEFITS

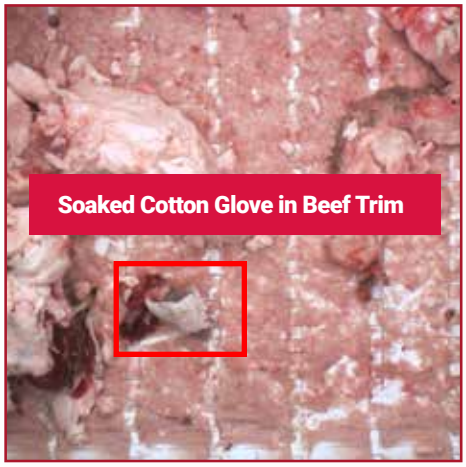
- **Built for sanitary processing environments:** Enable AI-powered inspection without adjusting cleaning procedures.
- **Identify challenging foreign materials:** Accurately detects visible high- and low-density objects like plastic, cardboard, rubber, wood, indigenous materials, and objects that are typically challenging for other detection methods.
- **Improved product quality and yield:** Allows processors to operate at higher throughput and detection accuracy compared to human-only inspection.

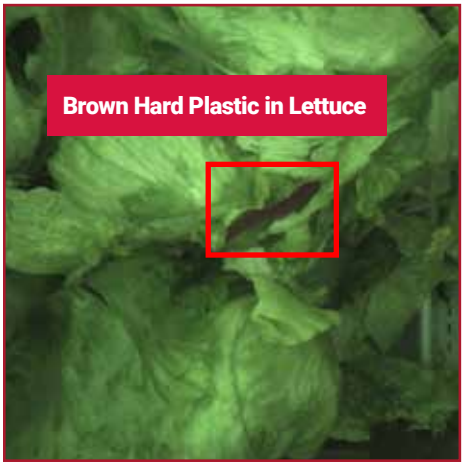
SiftAI® FM

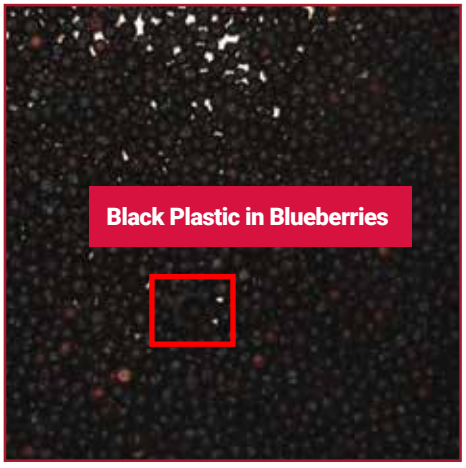
IF YOU CAN SEE IT, SIFTAI WILL FIND IT

The SiftAI® FM system is a powerful machine vision platform that offers superior vision inspection. It leverages proprietary software to train and operate artificial intelligence models for any product. A system can be configured to utilize existing or KPM-designed rejection mechanisms.



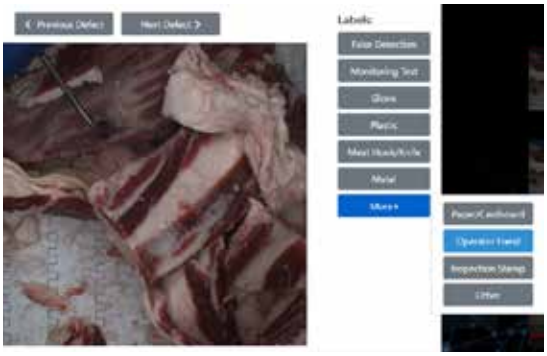




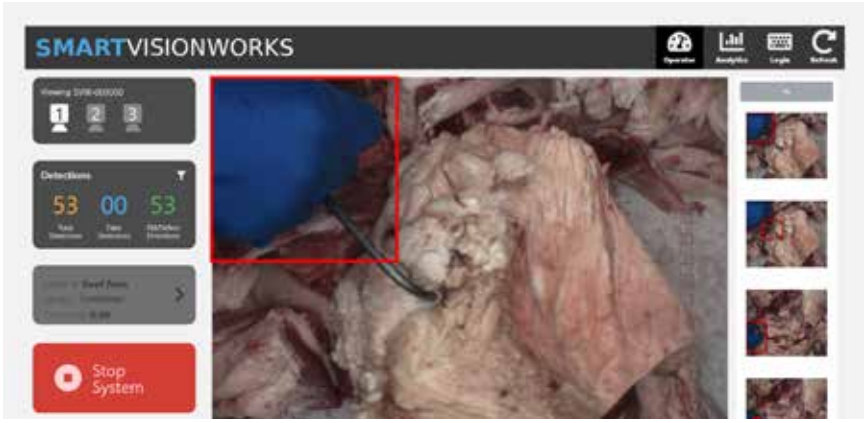


SIMPLE SOFTWARE INTERFACE & REPORTING CAPABILITIES

Operators can watch a real-time stream of production. Additionally, operations can review historical data of detections.



Apply the appropriate foreign material label at-line via the operator interface (operator hand with meat hook shown here).



Users can review a complete log of foreign materials detected with the capability to drill down specific defect types.

SiftAI® FM

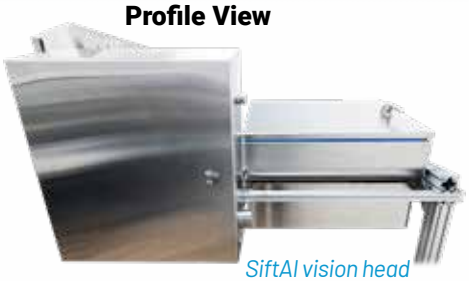
FOOD GRADE SANITARY DESIGN

SiftAI FM is enclosed in an IP69K-rated design for use in protein, seafood, and other food processes with strict sanitary requirements and harsh manufacturing environments. The fully enclosed unit features a durable structure made of food-grade stainless steel and hard-coated polycarbonate. The system is hygienically designed to prevent harborage making it ideal for full wash down.

Front (HMI) view

HMI enclosure

Profile View



Electrical control cabinet

SiftAI vision head enclosure

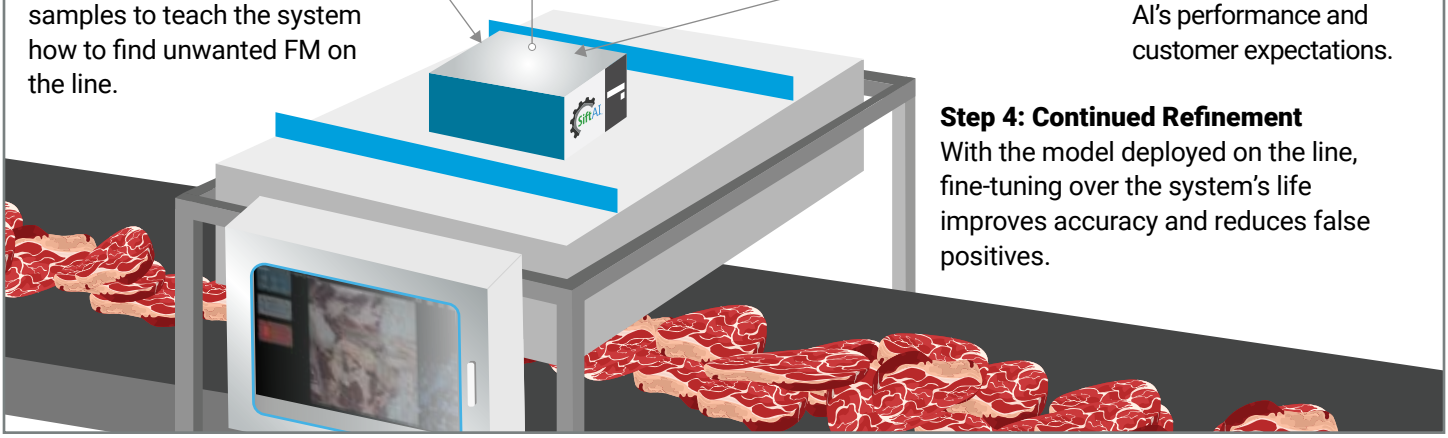
UNIQUE AI MODEL DEVELOPMENT & DEPLOYMENT

Step 1: AI Training
After installation, KPM's AI developers work with the customer to build a data set of foreign material (FM) samples to teach the system how to find unwanted FM on the line.

Step 2: Initial AI Performance Monitoring
With the AI in place, test runs are recorded and monitored remotely by the KPM AI developers.

Step 3: AI Model Augmentation
KPM AI developers can make improvements to the models based on the AI's performance and customer expectations.

Step 4: Continued Refinement
With the model deployed on the line, fine-tuning over the system's life improves accuracy and reduces false positives.

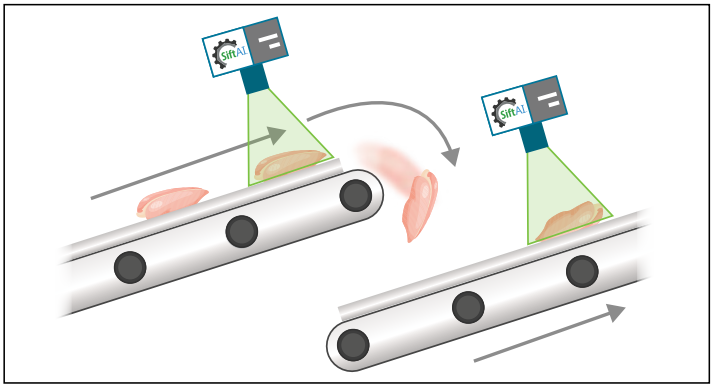


ONLINE SUPPORT

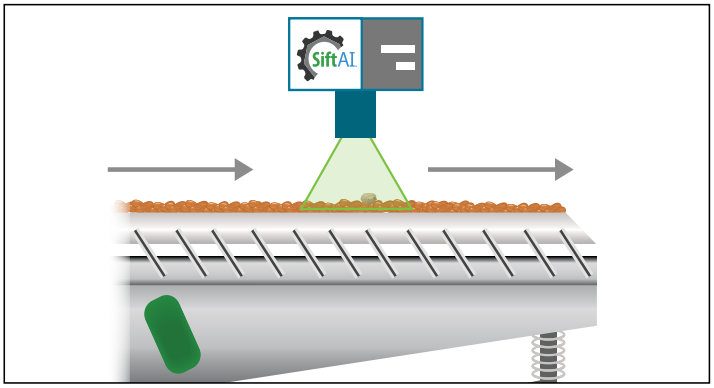
The Software as a Service (SaaS) is a yearly subscription service that includes regular software, security, and AI model updates. This provides customers with the most up-to-date technology for high accuracy and precision. KPM support engineers can access customer systems remotely to send routine updates and help answer any questions that arise.

TYPICAL INSTALLATIONS

All SiftAI FM installations are customized to the needs of the operation. Some of the more common examples include:



Waterfall Analysis
Allows for inspection of both the top and bottom of products while minimizing footprint on the line.



Shaker Table Analysis
Top-down inspection allows for accurate inspection of free-flowing materials.

INSTALLATION CONSIDERATIONS

The SiftAI FM System can be mounted over production lines requiring detection of foreign material (FM) and product defects.

- **System footprint:** Dependent on the width of install location.

Belt Width	Total System Width
12 in. belt	16.25 in. wide
24-30 in. belt	34.25 in. wide
48-in. belt	52.25 in. wide
Installation height: The SiftAI camera enclosure should be mounted approximately 20 in. above the belt.	

Note: An overhead clearance of 5 in. or greater than the system's total width is required for proper maintenance access and operation.

SPECIFICATIONS

Dimensions	Customizable depending on belt width
Operating Temperature	Between 0-43° C (32-100° F)
Acceptable Sanitation Chemicals	EnviroKlor Plus, Acidiquat 4, Redi-Solve B, One Step Alkali, Decon-7, and more
Power Requirements	120V or 240V
Network Connection	Ethernet; minimum internet connection speed of 50 Mbps
IP Rating	IP69K

KPM Analytics
8 Technology Drive | Westborough, MA 01581 USA
Phone: +1 774.399.0500
www.kpmanalytics.com | sales@kpmanalytics.com