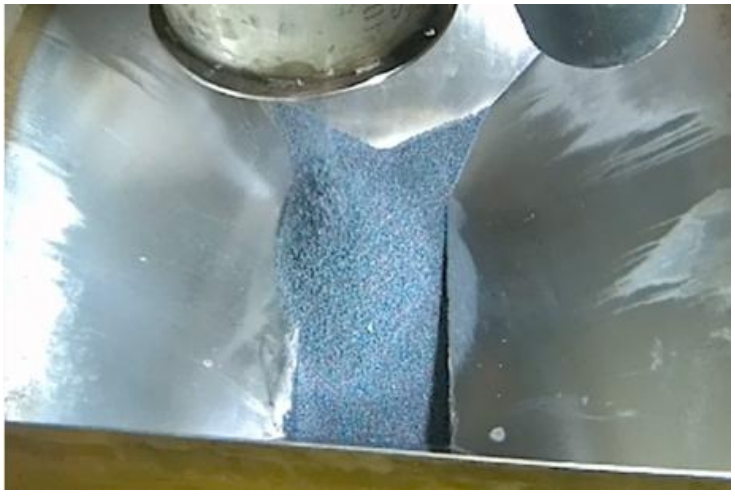
Iodine Packing Line Anomaly Detector

Description

This system continuously monitors critical process points, identifying foreign objects and operating conditions that may affect safety, quality, and operational continuity.

The solution integrates industrial cameras and computer vision models trained to detect and classify foreign objects, misplaced tools, spills, over filling, and other anomalous situations in discharge chutes and filling areas. Images are processed locally by industrial edge computers, enabling real-time alerts, visual evidence recording, and continued operation even during temporary connectivity interruptions.



Operation

The system operates through a continuous workflow of monitoring, detection, and event management.

Stage	Description
Continuous monitoring	Industrial cameras continuously monitor critical points on each packaging line. Their location and field of view are defined according to process characteristics, covering discharge chutes, filling areas, and other relevant zones.
Detection and classification	Images are processed locally using artificial intelligence models trained to recognize anomalous objects and conditions. The system locates the anomaly, determines its category, and records where it was detected on the line.
Alert generation	When an anomaly is identified, the system generates an event with an image or clip, date, time, line, and inspection point. The alert appears on a monitoring dashboard so personnel can review the evidence, confirm or dismiss the event, and take the appropriate action.

Detection classes

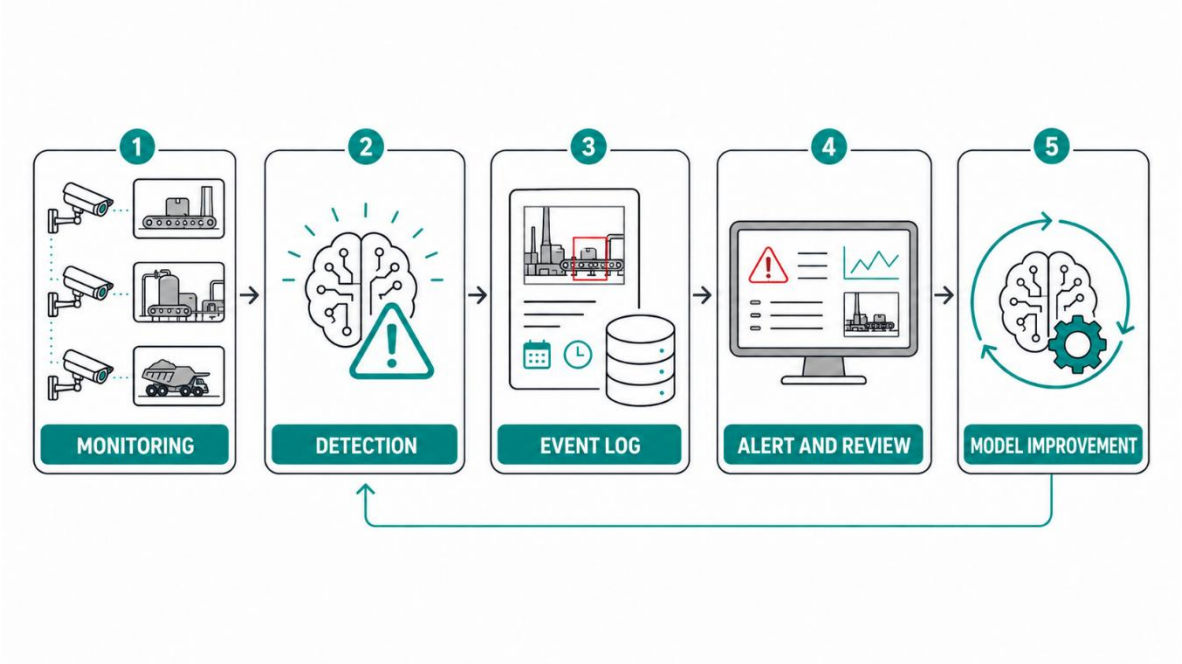
The system can be configured to identify different classes according to each operation's needs:

- Foreign objects in discharge chutes.
- Misplaced tools and other items.
- Foreign objects in filling areas.
- Spills and overfilling.
- Presence of personal protective equipment.
- New anomalies defined during operation.

Confirmed events support progressive model refinement and the addition of detection classes without changing the system's overall architecture.

System operating workflow

Critical points are continuously monitored. When the system identifies an anomaly, it creates a record with visual evidence and triggers an alert for review. Confirmed events provide new information that progressively improves model performance.



Benefits and decision support

1. Early detection of anomalous objects and conditions.
2. Alerts with visual evidence and traceability.
3. Faster review and response by operating personnel.
4. Analysis of event frequency and recurrence.
5. Progressive detection improvements using information obtained during operation.

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