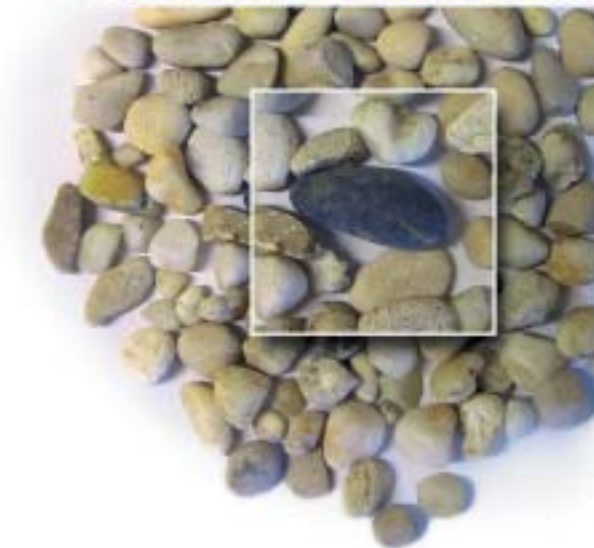
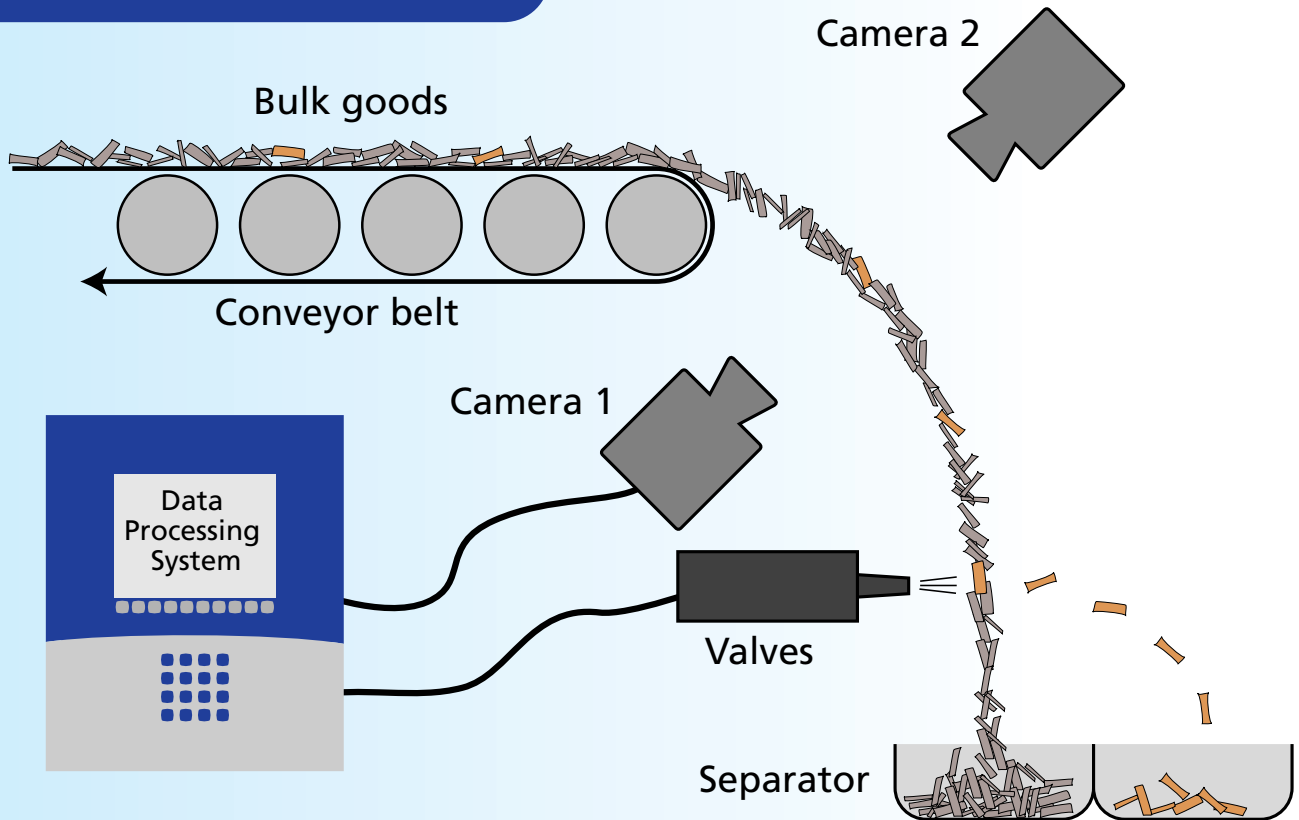


Colour Sorting System

The Colour Sorting System is designed to sort granular organic or non-organic materials such as grains, lenses, pebbles and so on based on their surface colour. Particles outside the tolerance band learned may be eliminated using a pneumatic separator.



Operating Principle



Particles under inspection are illuminated by a linear, high-intensity light source. A High Speed Colour Line Scan Camera adapted for best colour match continuously captures an image of the moving particles. The image data are processed using proprietary algorithms, used successfully for over a decade.

The data are continuously compared with a previously learned reference curve. Colour deviations exceeding an adjustable limit and particle size lead to fault processing: The detected deviation is lengthened and delayed corresponding to the time the particle moves from the camera to the separator so the deviating particle will be blown out in the separator. Guaranteed System Reaction Time may be set as low as 1 millisecond.

Additional features include a light level detector warning the operator if a lamp fails or optics become dusty and a limiter to avoid pneumatic valve damage due to exceeding the permitted duty cycle.

A serial communication channel is provided for gathering statistical data.

System Setup

*The system setup
requires a few steps*

Background selection

A suitable background should be selected matching the colour of “good” particles as close as possible. The tools provided within the sorting systems allow to measure the colour match.

Light source adaptation

The light source has to be adapted to give enough light for the particle to be inspected. For best results, a spectral match may be required.

Camera Setup

The camera and optics have to be set up and aligned. A special software tool eases this alignment.

Pneumatic Valve Setup

The number, position and width of the pneumatic valves must be set in the electronics so that always the proper valve is operated. At the user's choice, either only the single valve matching the particle position may be activated or both neighbour valves may also be activated.

Learning parameters

A special tool is provided to capture single fault events and get their colour Parameters. This helps to learn the proper colour limits.

Teaching the system

To overcome small deviations in optics or materials to be sorted, a learning mechanism is provided.

Dynamic Parameters

Valve activation (time the valve is activated) and valve delay may be adjusted for the minimum valve activation time and the particle travelling time from camera to separator.



Applications



Typical applications are

- _ Cotton cleaning
- _ Pebble sorting
- _ Food sorting
(lenses, coffee beans)
- _ Tobacco sorting
- _ Simple surface inspection
(clothes, towels,
bedsheets in a laundry)

The advantages of the system are

- _ Unlimited throughput as opposed to complex
shape-based solutions limited by processor through put
- _ Simple Setup and User Interface
- _ Rugged Electronics, no fragile components
such as hard disks or fans
- _ Fiber Connection to Camera giving highest noise immunity
- _ One or Two Camera System
- _ Reflective and/or Transmissive Operation
for opaque or transparent materials
- _ System drives up to 32 pneumatic Valves directly
- _ Adaptation for special requirements possible

Tichawa Vision GmbH



Burgwallstraße 14 · 86316 Friedberg/Bay.
Telefon: 0821/608 06 60 · Telefax: 0821/608 06 61
e-mail: info@tichawa.de · www.tichawa.de

