Recycling System

RECYCLING OF BUILDING MATERIALS

With the development of a robust free-fall sorting plant for the separation of mineral construction and demolition waste, as well as the removal of impurities (gypsum, bitumen, tar, plastics, etc.), OptoSort® is able to cover the high demand for an efficient sorting technology in the recycling industry.

A PIONEERING SYSTEM

OptoSort® specializes in the sorting of mineral rocks and therefore offers the best conditions for a stable market entry into the building material recycling industry. In contrast to competitors, the sorting takes place in free fall, whereby a low wear is to be expected. Likewise, a specific configuration allows multiple sensors, such as NIR and color, to be coupled.

However, this has not happened so far, since coupling without technical-economic risk can not be carried out without further ado and can only be technologically implemented with other partners in the field. **IAB (Institute for Applied Building Research)** has already gained knowledge in this field within the research project "Development of a sensor-based sorting process for sorted separation of mineral construction and demolition waste based on hyperspectral near-infrared sensor technology (NIR) coupled with color detection (VIS)". This knowledge should now be used and, with the expertise of OptoSort®, lead to a practical sorting system.

Development of a free-fall Sorting System for Building Material Sorting

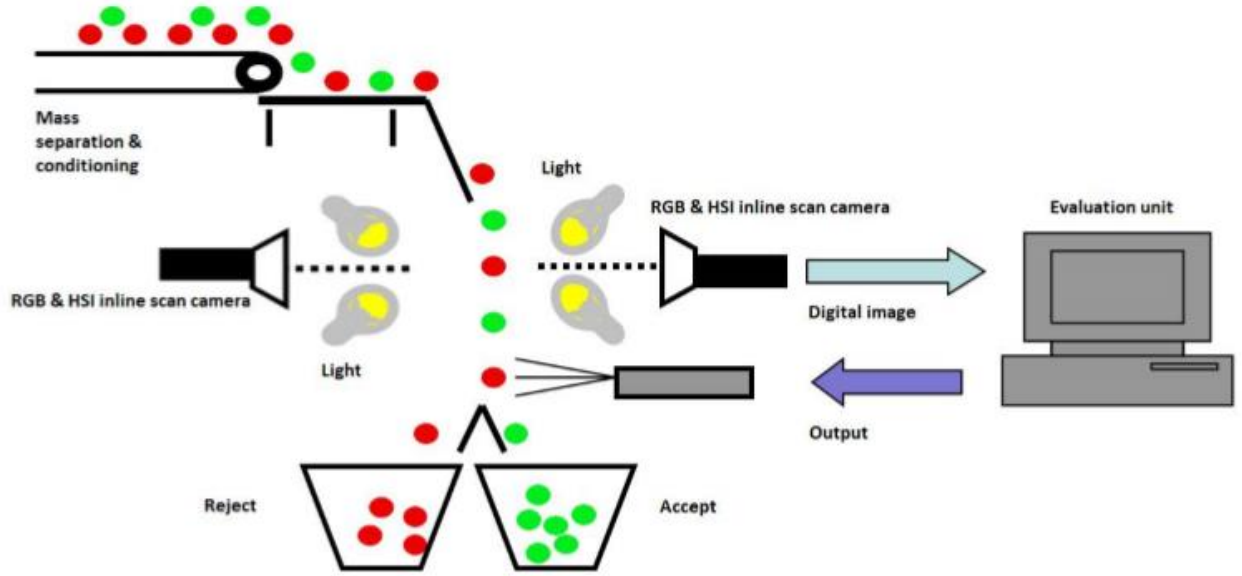
- Detection of composite particles by recording the spectra on two opposite sides, enabling an improved removal of adhering contaminant fractions on composite particles
- Low wear of the system compared to mineral products and long service life due to appropriate mechanical engineering design (no belt system, impact protection)
- Detection of specific building material characteristic spectral lines by coupling color detection and detection in the NIR range
- Robust system, which means that the machine can also be used under rough conditions (dust, humidity, rockfall, etc.)
- Improved detection under practical conditions (adhering dust particles, moist particles, particle shape, etc.)

Holistic Recycling Technology and Recycling Concept for Material Flows

- Integration of the recycling plant into existing processes and testing of effectiveness / technological application limits
- Development of a recycling concept for all material flows
- Application studies and system developments for soil stabilization, such as drainage or grain sizes for sound insulation elements

Method / Solutions

The coupling of 1 to 4 RGB line scan cameras and hyperspectral NIR line scan camera in pushbroom mode should be performed as shown in the illustration below:



Functionalities

- Detection of dry as well as wet mineral particles
- Detection of all particle surfaces
- Safe removal of the detected contaminants
- Robust and wear-resistant against abrasion by mineral particles
- Flexible, possibly for mobile use
- For particles between 10 mm and 100 mm
- Low maintenance and automatic white balance in continuous operation
- Low energy consumption, targeted control of the particles by means of compressed air pulses
- Integration into local area network (WLAN) or radio

Benefits with OptoSort®

With our hyperspectral camera and evaluation software, we are currently the only providers that can detect and evaluate dry and wet / wet material.

- **Small & flexible** - small customer-oriented company
- **Highly motivated** - experienced, creative team
- **Individual** - niche provider for complex sorting tasks
- **Innovative** - sorting based on the latest technologies
- **New Features** - double-sided combined RGB / HSI detection NIR / SWIR

Get in Touch with an Expert

OptoSort® GmbH

Hans-Sachs-Straße 13

A 9020 Klagenfurt am Wörthersee

☎ +43 4212 33 0 69

info@optosort.com

https://www.optosort.com/