Winner of Swedish Mining Innovation Award 2022

NyT|33
Sveriges 33 bästa startupbolag

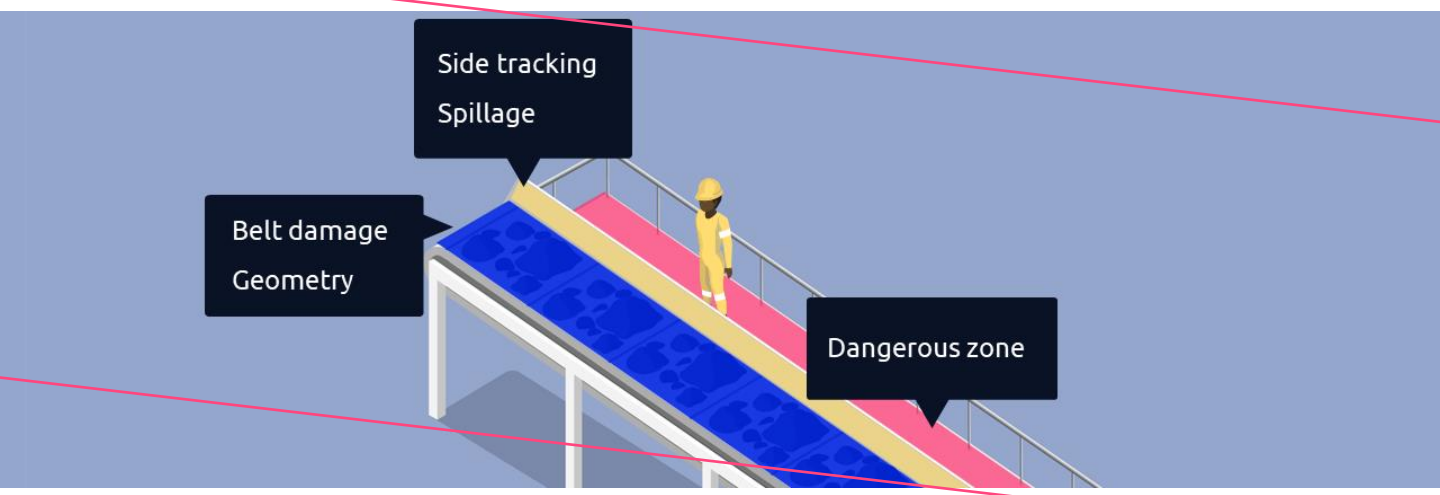
Conveyor 24.01

An award-winning lidar software solution

Become more autonomous, efficient, and safe. Flasheye's industrial solutions provide all tools needed to understand what is happening in the physical environment and control machines based on high-precision data from laser measurements and advanced 3D analytics.

3D laser technology, like lidar, is an active sensing device sending out laser pulses, making it independent of light conditions and more robust.

Flasheye *Conveyor* monitors several parameters from the same sensor to ensure efficient and safe production flows. Early warnings of deviations and quality tracking help maintain peak performance on your site.



> Save X0 000 EUR of installation costs compared to other smart systems

> No need of specialized hardware and multi-brand support

> Save costs by mitigating the need of personnel and ensure efficient and safe production flows

> Open platform, integrate with industrial control systems and protocols

Features

Create zones of interest

Create 3D zones anywhere in the 3D space with centimeter accuracy. One sensor replaces hundreds of photocells and sensors work together seamlessly.

Analytics

Object detection

Detect humans or vehicles in the surroundings of the conveyor belt.

Motion detection

Detect side-tracking of the belt or spillage by the addition of points and adjust the sensitivity with thresholds.

Loss detection

Detect if the material is disappearing and adjust the sensitivity with thresholds.

Volume flow

Data of the area of material passing one laser beam, combined with the belt velocity, the volume flow is gathered. Volume flow and weight are used for early detection of material data.

Standard deviation (particle size distribution)

Track the size distribution of small particle material and detect deviations early.

Top size (larger particles)

One parameter that indicates quality issues from the crusher e.g.

Filter settings

With several steps of filtering the point cloud in real-time, information about moving objects and activities is gathered. The tracking and filter settings allow you to decide how large objects or how big changes need to be for being detected. This mitigates false alarms effectively and is tunable to each site's unique needs.

User interface

The user interface can be accessed from any PC or Android device using a web browser. The interface includes:

- Lidar view for configuring the 3D zones and settings
- Integration to external interfaces

Hardware requirements

Sensors

Ouster, Blickfeld, Velodyne, Cepton, Hybo, Aeva, Innoviz, Hokyuo and SICK are among sensor brands that have been tested by us. We continuously test and integrate new sensors. Almost any sensor can easily be integrated upon request.

LPU (Lidar processing unit)

Recommended system requirements

- Equivalent of ~4000 CPU marks of processor power per 1M points/sec and at least 2 cores per sensor
- ~5GB RAM and ~100GB disk space per sensor
- Linux OS for running Docker containers

This is used in some systems:

- Splitters and injectors for sensors with no PoE connection
- Switches and modules for digital I/O

Performance

The system has built-in self-diagnostics to prevent errors and ensure the best possible performance. The self-diagnostics include dirt detection, anti-tampering, sensor analytics, and system monitoring. This data can activate other systems or be sent as alarms.

Integrations

External integrations:

- OPC UA
- Digital Outputs
- MQTT

Data

	Data type	OPC UA (PLC/DCS e.g. 800xA or S7)	Digital outputs* (only on supported LPU HW)	MQTT
Based on zone	**Event (start+stop)** Zone type (object-, motion-, loss detection) Object ID Class Number of points (motion detection)	✓	✓	✓
Based on zone	**Movement Alarm (continuous)** Zone type (object-, motion-, loss detection) Object ID Class Number of points (motion detection)	✓	✓	✓
Based on zone	**Volume Flow (continuous)** Volume flow (m^3/s)	✓	✓	✓
Based on zone	**Standard Deviation (continuous)** Raw std deviation value	✓	✓	✓
Based on zone	**Top Size (continuous)** Top size (m)	✓	✓	✓
Based on zone	**3D trace from event** Link to viewer Text			✓
Based on objects	**Tracking** ID Speed Sensor name Class Center of mass coordinate Prev. center of mass coordinate AAB min coordinate AAB max coordinate OOB min coordinate OOB max coordinate OOB transform Prev. OOB transform Gravity bounding box min coordinate Gravity bounding box max coordinate Gravity bounding box transform			✓
Monitorin	**Self diagnostics** Dirt detection Anti-tampering	✓	✓	✓

** Digitals output does not support variable metadata.*