Traffic Safety Support System 24.01

An award-winning lidar software solution

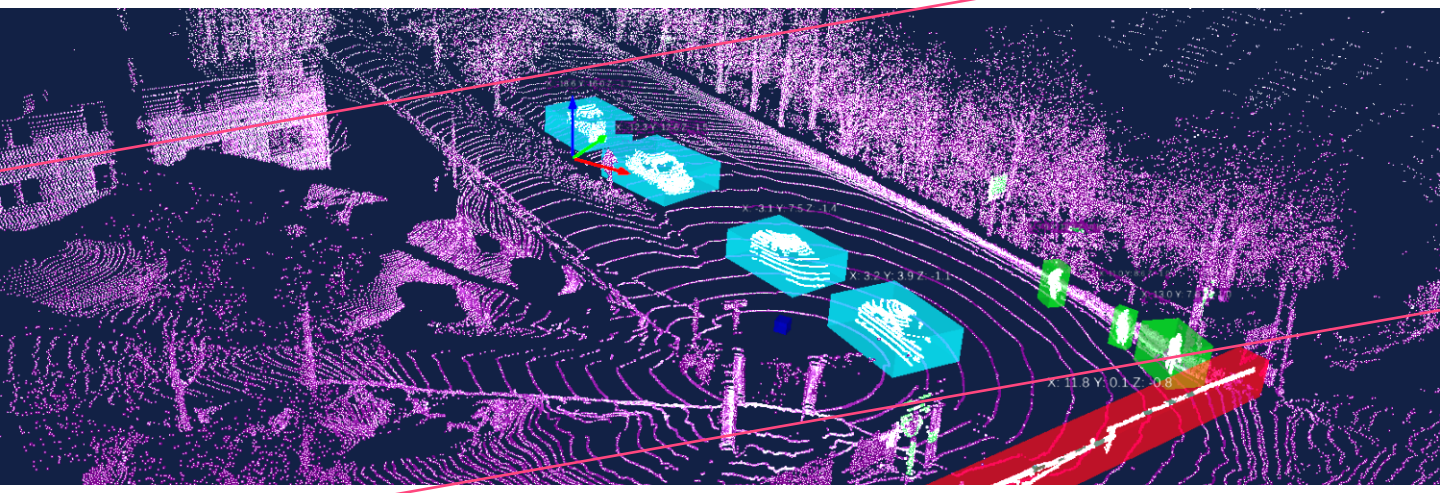
Winner of Swedish Mining Innovation Award 2022

NyT|33
Sveriges 33 bästa startupbolag

Become more autonomous, efficient, and safe. Flasheye's industrial solutions provide all tools needed to understand what is happening in the physical environment and take the safety measures needed 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's *Traffic Safety Support System* allow you to detect dangerous situations and prevent accidents with reliable real-time information. The unique part is that you don't need tags or wearables on vehicles or people if it is not suitable.



> 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 and one sensor covers large areas. Each zone can have different functionalities and up to three zones can be linked with logic rules.

Attach functionality to zones:

- Object detection (human, vehicle, etc.)
- Motion detection (occupacy/addition of points, adjust the sensitivity with thresholds)

This allow you to react on small changes and have control of every moving object in the environment with high-precision.

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.

Detect dangerous situations

Examples

- Dangerous zones
- See behind corners, improve visability
- Restrict areas only for workers or vehicles
- Collision risks
- Gather metadata and understand your trends

Automate the safety

Present alarms of dangerous situations via

- Traffic lights and warning signals
- Display in each vehicle (require tags)
- Warning equipment for workers (require tags)

Start/stop/control robots or vehicles based on

- Scenarios
- Movements and positions

Seamless detection

Ensure seamless detection with our tools to aggregate many sensors into one large 3D model. This allow you to combine short-range sensors with long-range sensors and different price intervals to have the most cost-efficient solution to cover the unique site's area.

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
- RFID/tag solutions

Configuration 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
- Alarm presentation
- Integration to external interfaces

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 ID Class Number of points (motion detection)	✓	✓	✓
	Alarm (continuous) Zone type Object ID Class Number of points (motion detection)	✓	✓	✓
	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			✓
	Counting Number of detected objects at the moment for each class	✓		✓
Monitoring	**Self diagnostics** Dirt detection Anti-tampering	✓	✓	✓

** Digitals output does not support variable metadata.*