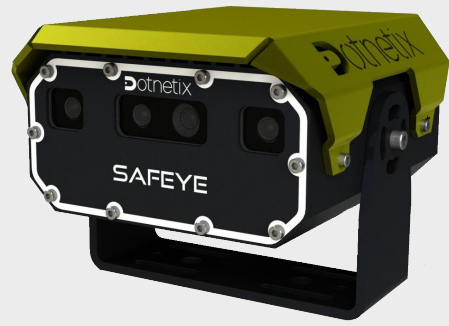


DotNetix
making machines see



GREAT WEST
EQUIPMENT 
"SERVICE FIRST"

SAFEYE

INDUSTRIAL/MINING SAFETY
MACHINE VISION

Dotnetix is a South-African based safety equipment manufacturing company focused on solutions for industrial, mining, and construction markets.

Dotnetix developed the worlds first long range AI, 3D camera pedestrian detection system for mining and industrial applications.



SAFEYE – Machine vision (AI) system that detects and differentiates pedestrians, machines like Haul Trucks, Loaders, Forklifts, Cars and other machines.

SAFEYE – Stereoscopic vision system to measure distance to the objects detected.

SAFEYE – Collision avoidance algorithms built-in.

SAFEYE – Automated warnings to operators.

SAFEYE – Reduces potential accidents with pedestrians and other machines

NO RFID Tags required to detect pedestrians



Object detection is a computer technology related to computer vision and image processing that deals with **detecting** objects of a certain class (such as humans, buildings, or cars) in digital images and videos.

Artificial Intelligence (AI) Algorithms are used that are referred to as **Deep Neural Networks**.



Mini-hub Configuration

7 Inch Display with audible and visual alerts to the operator



Mini-hub
Up-to 2x cameras



Front



Rear

SAFEYE Machine vision

Features

- Surface Mining
- Detection range 30 meters
- Audible and Visual Warnings
- Multi camera system
- Up-to 2 cameras
- Supports only static zones
- Isolated PSU
- 9-36VDC
- No GPS logs
- No Output Relays
- No Inputs
- Remote monitoring supported

Multicamera Controller

7 Inch Display with audible and visual alerts to the operator



Multicamera Controller

Management of the multi camera system



Front



Rear



Left



Right

Features

- Surface Mining – Dynamic Zones
- Detection range 30 meters
- Audible and Visual Warnings
- Multi camera system
- Up-to 4 cameras
- GPS and Speed Information
- Supports Dynamic zones
- 4x Relay Outputs
- 4x Inputs
- CAN bus In/Out
- Isolated Power
- 9-36VDC

SAFEYE Machine vision



Standard

Artificial Intelligence

Stereoscopic 3D vision – Distance

Video recording: SSD 128GB

IP69k ruggedized housing (Ceramic coated)

Adjustable bracket

Hardened glass cover

Optional

- Integrated heater element | Temp -30°C
- CAN Bus output (OEMs)



- 1  Reverse/Side detection
- 2  Display
- 3  Multi camera controller
- 4  Forward detection



1



Reverse detection

2



Display

3



Mini-Hub



1



Reverse/Side detection

2



Display

3



Multi camera controller

4



Forward detection



1



Reverse detection

2



Display

3



Multi camera controller

4



Forward detection



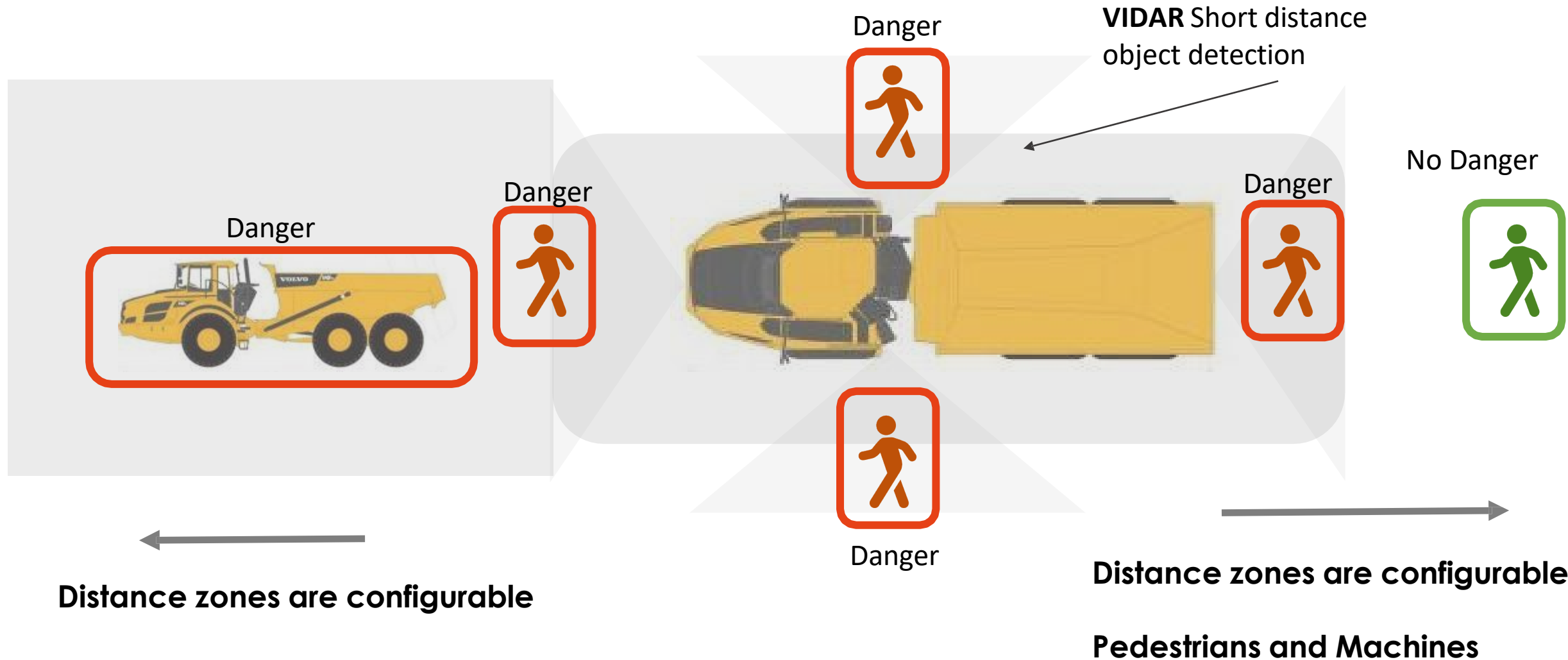
SAFEYE can detect persons and other machines in front or to the sides of the machine



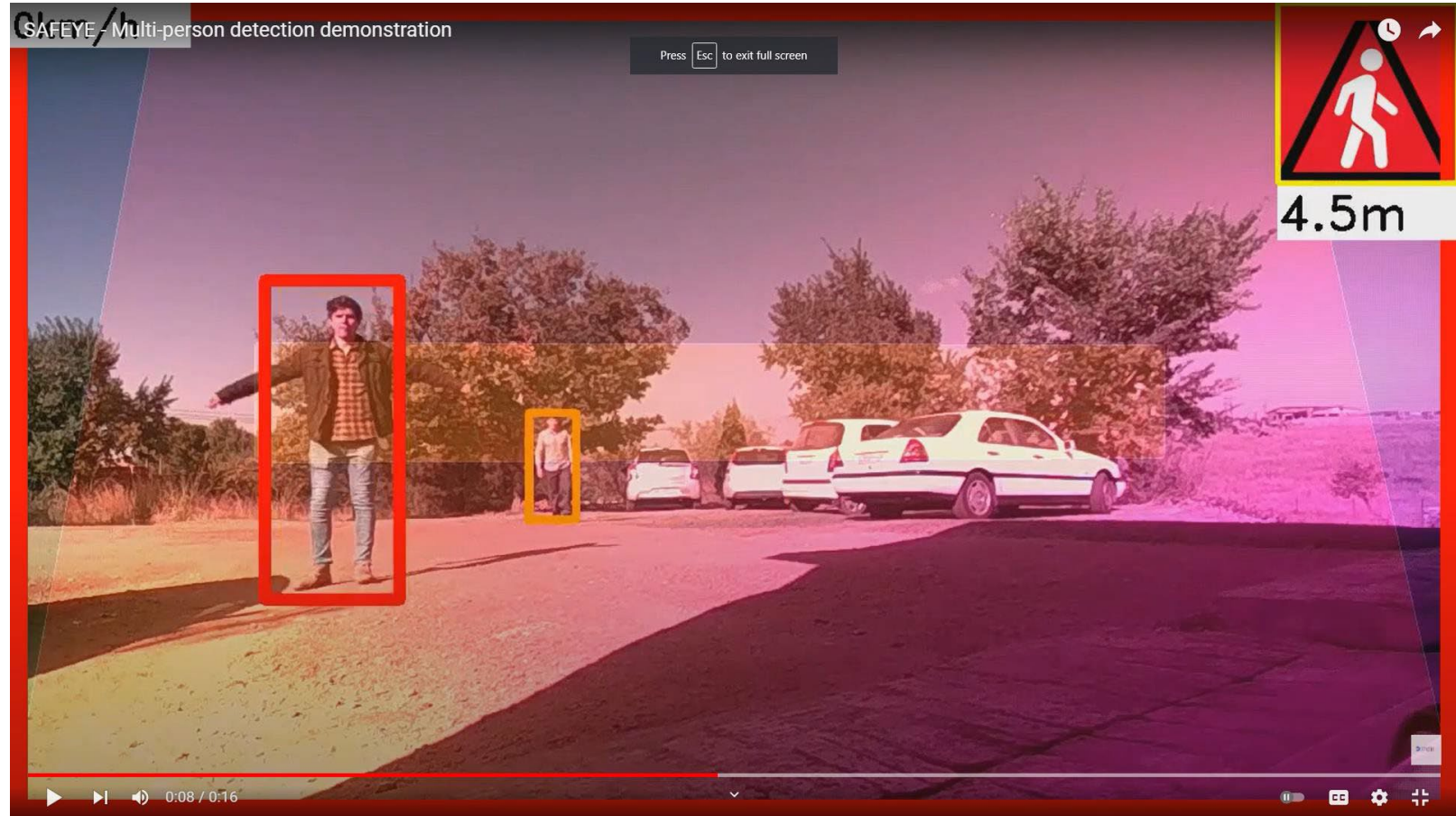
Video display
Audible and visual warning to operator



SAFEYE –
Detects person



Single Camera Display





Travelling at High Speed

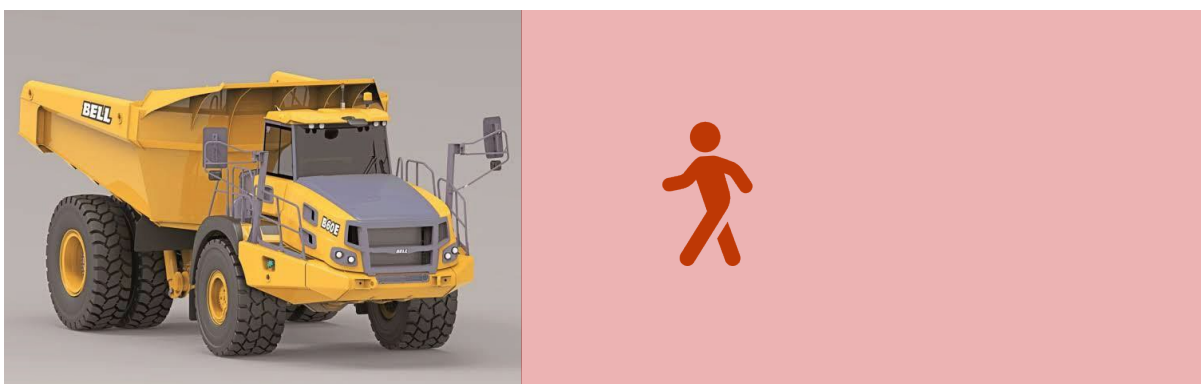
Warning Zone (Warn for all objects)



Travelling at Slow Speed



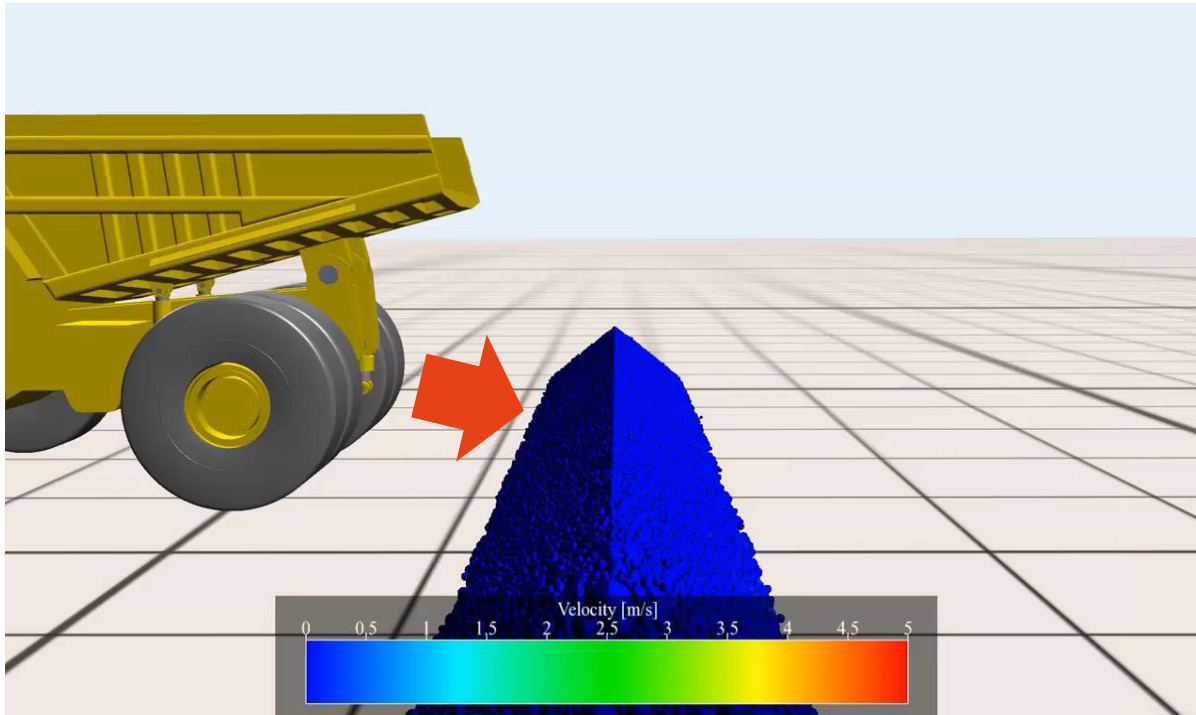
Ignore far objects that are not a danger, Warn for close objects



Warning Zone



EDGEYE is an additional feature built-in **SAFEYE** to assist during berm operations



EDGEYE has built-in VIDAR that can detect the distance to the berm to prevent accidental damage to the berm when the machine is reversing.

If there is a damaged/no berm, **EDGEYE** detects over the edge events.

Operators are then warned of this event.

FEATURES: EDGEYE – Void detection

Detection Area



EDGEYE can detect an over-the edge event



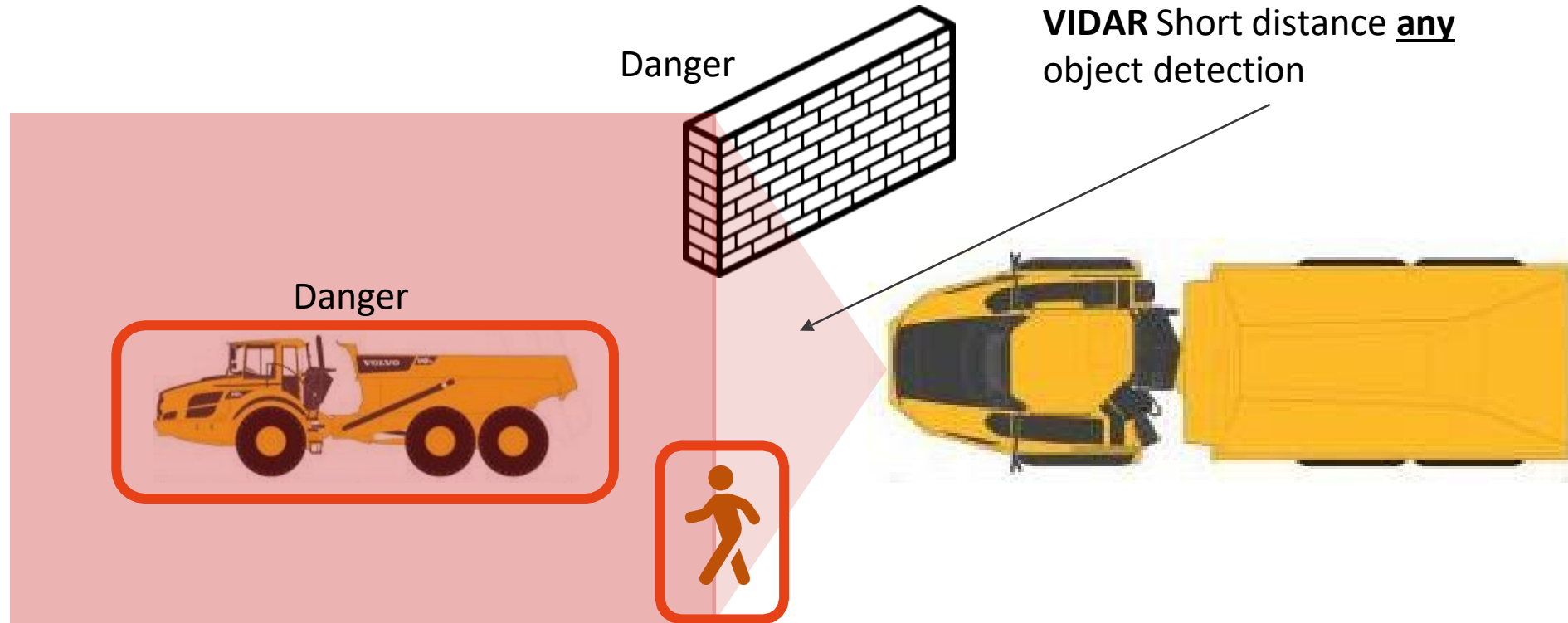
Video display
Audible and visual warning to operator



SAFEYE –
Detects over the edge events before the machine falls.

FEATURES: Vidar – Short distance *Anything* detector

Wall, infrastructure, poles, containers etc.



VIDAR Short distance any object detection

Danger

Danger

Danger



Distance zones are configurable

VIDAR is configurable in distance and detection zone, separately from the object detections configuration



PEDESTRIANS



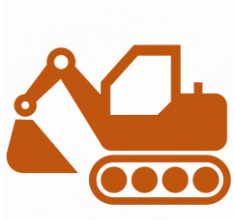
MINING EQUIPMENT



CARS, LDVs



FRONT-END LOADER



EXCAVATORS



TRAIN



Other objects can be trained to be detected by SAFEYE

- Low False Alarm rate
- Does not cause false alarms on inclines and declines like traditional reflective technologies (Radar/LIDAR)
- Improves operator awareness
- Differentiates between pedestrians and machines for different warnings



Description	SAFEYE	Camera	LIDAR	RADAR	GPS/RF TAGS
Pedestrian Detection	Yes	No	No	No	No
Easy Installation	Yes	Yes	No	Yes	No
High Accuracy	Yes	No	Yes	Yes	No
False Alarm rate	Low	-	Medium	High	High
Video Logs	Yes	Yes	No	No	No
Incident Reporting	Yes	No	Yes	No	Yes
Cost	Low	Low	High	High	High
Recharge batteries	No	No	No	No	Yes
Maintenance	Low	Low	Low	Low	Very High



Instantly Locatable Sound

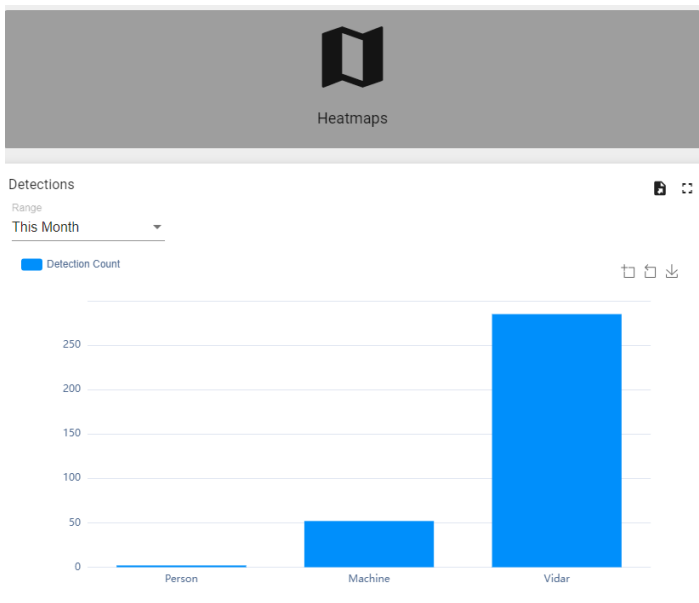
The multi-frequency speaker use a wide range of White Sound frequencies. This enables the listener to instantly locate where and what direction the sound is coming from. The broadband sound also gives workers wearing hearing protection devices (HPDs) and people with hearing difficulties a better chance of hearing the alarm.

The system combined with SafEye provide an easy way of warning pedestrians in the area that they are too close to the vehicle.

Works with the controller only.

Direct Pedestrian Alert

CLEARVIEW – Remote monitoring



Alarms

Realtime - last 30 days

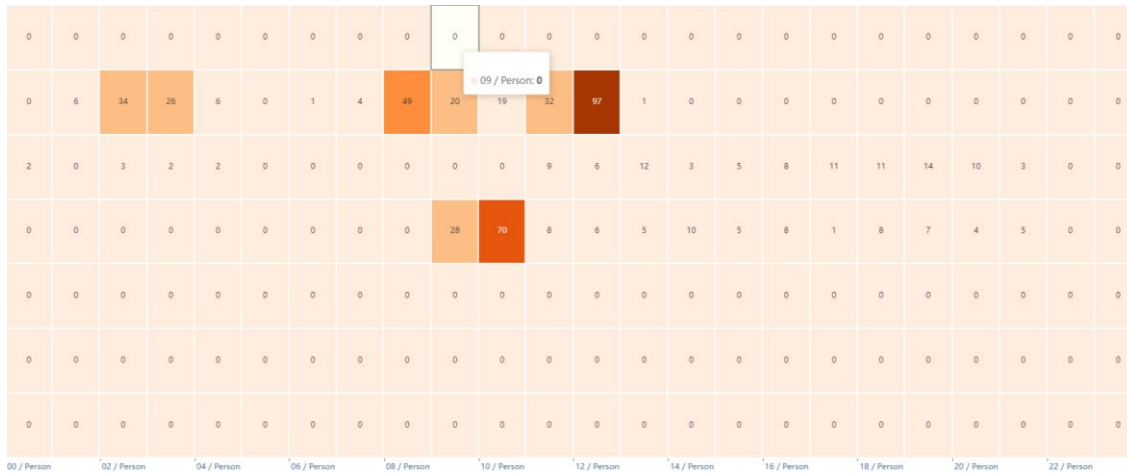
Created time	Originator	Type	Severity	Status
2021-12-03 10:37:39	VAT69	Inactivity Alarm	Critical	Cleared Unacknowledged
2021-12-03 09:25:22	VAT69	Dirty Lens	Critical	Cleared Unacknowledged
2021-12-03 09:23:32	VAT69	Dirty Lens	Critical	Cleared Unacknowledged
2021-12-03 09:21:49	VAT69	Dirty Lens	Critical	Cleared Unacknowledged
2021-12-03 09:19:54	VAT69	Dirty Lens	Critical	Cleared Unacknowledged
2021-12-03 09:18:35	VAT69	Dirty Lens	Critical	Cleared Unacknowledged
2021-12-03 09:17:16	VAT69	Dirty Lens	Critical	Cleared Unacknowledged
2021-12-03 07:07:39	VAT69	Inactivity Alarm	Critical	Cleared Unacknowledged
2021-12-03 06:41:39	VAT69	Inactivity Alarm	Critical	Cleared Unacknowledged
2021-12-03 06:26:23	VAT69	Dirty Lens	Critical	Cleared Unacknowledged

- Online access via WiFi or Cellular
- Alarm terminal to manage critical alerts
- Interaction summary – Berm and Void



Front Camera	
camera_temperature	42.00
gps_status	OK
Web Address	camera0-XfwwvKBX7z02B2GalF9E.dotnetix-clearview.com
Rear Camera	
camera_temperature	N-A
gps_status	N-A
Web Address	N-A
Left Camera	
camera_temperature	N-A
gps_status	N-A
Web Address	N-A
Right Camera	
camera_temperature	N-A
gps_status	N-A
Web Address	N-A
Single Camera	
camera_temperature	N-A
gps_status	N-A
Web Address	N-A

- GPS machine tracking and history
- EDGEYE camera parameters
- EDGEYE health



CLEARVIEW Features

- Heatmaps
- Remote **video** monitoring
- Remote SAFEYE **configuration**
- **GPS** monitoring of machines
- **Speed** monitoring of machines
- **Near-miss** monitoring of **pedestrians**
- **Near-miss** monitoring of **machines**
- **Berm** and Vidar detection monitoring
- **Void** - Stockpile detection
- **Connectivity** monitoring to SAFEYE sensors
- SAFEYE system health (including Dirty-Lens monitoring)
- Remote **software updates**
- Trend analysis

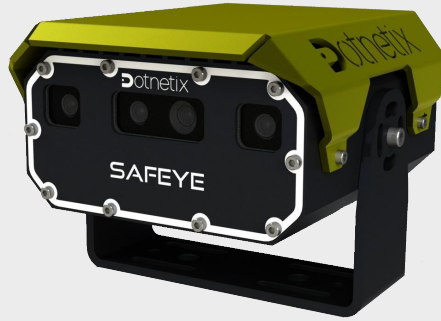
SAFEYE – Installations (Surface and Underground)



SAFEYE and NEXUS Integrated – Installations



DotNetix
making machines see



SAFEYE

**INDUSTRIAL/MINING SAFETY
MACHINE VISION**

GREAT WEST

EQUIPMENT 

“SERVICE FIRST”

www.gwequipment.com