3

BLIND
SIGHT

EFFORTLESSLY

PROTECT

PEOPLE IN
DYNAMIC
ENVIRONMENTS

BLIND SIGHT

SAFETY MADE SIMPLE

WITH ARTIFICIAL INTELLIGENCE.

CONTENTS

BY PRESIEN

1 HUMANS NEED SUPPORT TO ENSURE SAFETY

We humans are pretty intelligent beings. The way our ideas and ambition and tenacity have advanced engineering, humanities, and sciences has been nothing short of phenomenal. All this stunning progress, but one thing remains the same:

We are still only human.

We don't have eyes on the back of our heads. We get easily distracted. We forget. We rush.

This means we'll keep making human mistakes. It's not fair to have our safety, and the safety of our co-workers, our loved ones, and our community, limited by our common human traits.

We need a new approach, where artificial intelligence fills in the gaps when our human eyes and brain can't keep up. That's why Presien created Blindsight.

Blindsight is the new standard for industrial artificial intelligence (AI) that effortlessly protects people in dynamic environments.

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Every 7 seconds a worker is injured on the job. [1]

>60%

of workplace fatalities are vehicle related. [3]

4%

of Global GDP is lost due to workplace injury and illness. [2]

>3x

Indirect costs of accidents are >3 times higher than direct costs. [4]

1) National Safety Council, Injury Facts 2019, https://injuryfacts.nsc.org/work/work-overview/work-safety-introduction/. 2) Takala, J. et al, 2014, Global Estimates of the Burden of Injury and Illness at Work in 2012, Journal of Occupational and Environmental Hygiene, 11(5), 326-337. 3) Safe Work Australia, Work-related Traumatic Injury Fatalities, Australia, 2018. 4) National Occupational Health and Safety Commission, 2004, The Cost of Work-related Injury and Illness for Australian Employers, Workers and the Community.

THE MANY IMPERFECT HUMAN AND TECH-BASED APPROACHES TO SAFETY

Human

Training

Upskilling workers improves safety but does not prevent the momentary lapses that are inherently human.

Spotters

Spotters are designated workers that assist with vehicle movement and operation. Spotters are deliberately placed in higher risk situations, where the consequence of distraction or inattention can be fatal.

Technology

Camera systems

Camera and screens are passive, only providing information to users when they are looking directly at the system.

Location systems

Location systems take action when moved into or out of designated areas but are unable to detect objects within the area.

Thermal systems

Thermal systems detect heat. However, most are unable to operate outdoors and differentiate hot vehicles and equipment from people.

Distance systems

Distance systems take action when something gets within a certain distance. Most systems are unable to identify the type of object, which causes issues in congested and busy environments.

Tag systems

Tag systems attach a physical tag to each object that is detected by one or more detectors. The logistics and costs become challenging in large and uncontrolled environments, and objects without tags are not detected.

Infrared systems

Infrared systems detect the reflection from high-vis or suitably reflective materials. Most are unable to identify the type of object and objects without reflection are simply not detected.

Motion sensors

These detect movement, using a range of passive and active technologies. However, most are unsuitable for mobile and outdoor applications due to the combination of relatively static objects of interest, such as people and plant, and background movement.

Early AI and image analysis

Early AI systems typically rely on rudimentary shape analysis for person detection and do not detect other objects, or use pixel comparison techniques that are not suitable for outdoor and dynamic environments.

BLINDSIGHT'S MODERN AI, BASED ON NEURAL NETWORKS, IS A STEP-CHANGE IN SAFETY SYSTEMS

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Unlike humans, Blindsight will never tire or get distracted. And unlike legacy technologies, Blindsight recognises and differentiates user selectable objects in any environment without the need for physical tags, markers, reflections, movement, heat, or location. It can see and understand what you can – and it's constantly learning and improving.

Blindsight's AI automatically generates comprehensive analytics to really understand your safety - and where to improve.

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BLIND SIGHT

Blindsight is the simple pre-trained AI safety system that can be quickly installed on mobile vehicles and fixed infrastructure.

When Blindsight detects a dangerous situation, such as a person in a blind spot it alerts workers, calling their attention to the risk before it turns into a costly accident. The data captured by Blindsight, including video of the situation, is available at the tap of a finger, automating health and safety reporting for the first time.

Effortlessly protect people in dynamic environments.

Features

01 Plug + Play
Blindsight is a simple plug-and-play system that can be installed and configured on vehicles and fixed infrastructure in under 10 minutes. Blindsight is equally easy to remove and reinstall, without damage.

02 Pre-trained AI
Blindsight comes pre-trained to detect people, heavy vehicles, light vehicles, and traffic cones.
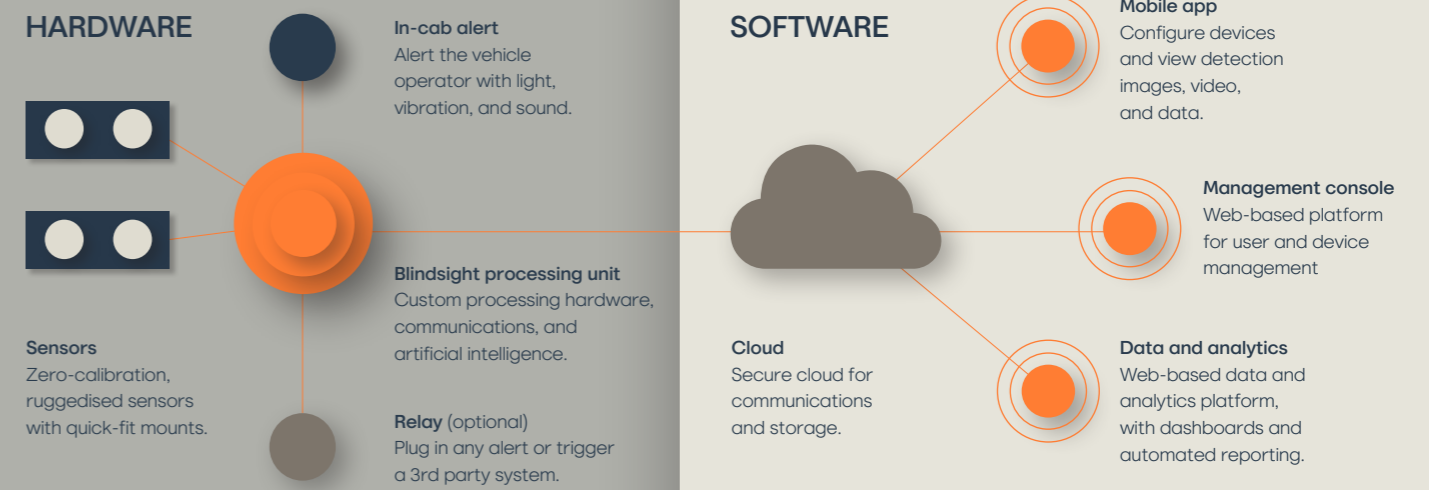
03 Simple, user configurable alerts
Blindsight comes with simple wireless alerts. The In-cab alert for plant operators has integrated lights, vibration, and buzzer. The optional Relay allows users to easily plug in and configure any other alert, such as a rooftop light, halo, or siren.

04 Connectivity
Blindsight comes with inbuilt wireless connectivity for local alerts, GPS for location, and 3/4G for data connectivity.

Blindsight does not require 3/4G or wifi to operate[1].

HARDWARE

In-cab alert
Alert the vehicle operator with light, vibration, and sound.

Sensors
Zero-calibration, ruggedised sensors with quick-fit mounts.

Blindsight processing unit
Custom processing hardware, communications, and artificial intelligence.

Relay (optional)
Plug in any alert or trigger a 3rd party system.

SOFTWARE

Mobile app
Configure devices and view detection images, video, and data.

Management console
Web-based platform for user and device management

Cloud
Secure cloud for communications and storage.

Data and analytics
Web-based data and analytics platform, with dashboards and automated reporting.

05 App
Blindsight comes with a companion app to easily configure the system and view detections and audit logs.

06 Over-the-air updates[1]
Blindsight has over-the-air updates to automatically improve the system performance and add features.

07 Videos and logs
Blindsight automatically records video and data associated with the detections.

08 Device storage
Blindsight has internal storage for over 7 days[2] of detections, ensuring that your detection data is stored until the system has 3/4G connectivity.

09 Cloud
Blindsight includes a secure cloud for communications and data storage.

10 Management console
Blindsight includes a web-based console to remotely manage users and devices.

11 Data and analytics platform
Blindsight includes a full data and analytics platform that is automatically populated with your detection data stored in the cloud.

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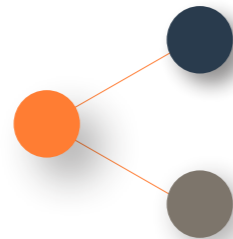# 4 HOW BLINDSIGHT WORKS

1. BLINDSIGHT DETECTS

Blindsight's sensors and AI see and recognise specified objects, including people, heavy vehicles, light vehicles, and traffic cones.
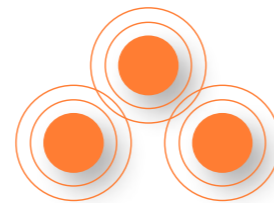
2. BLINDSIGHT ALERTS

If an object is detected, Blindsight triggers the wireless in-cab and relay alerts to alert the operators and people in the vicinity.

3. BLINDSIGHT REPORTS

Blindsight simultaneously logs the detection event data (including video) and sends them to the cloud. Users can access the data on the mobile app, management console, and data and analytics platform.

For operators

Blindsight gives an operator eyes in the back of their head.

Blindsight monitors the desired areas, giving the operator confidence that a person or other specified object is not in their blind spots. Blindsight's simple alerts allow an operator to do their job without constantly monitoring screens. Blindsight supports operators and enables them to make decisions rather than removing control. Blindsight's automated reporting also ensures that any encroachments are fully documented.

For supervisors

Blindsight reduces the risk profile of works.

Blindsight's automatic detection event notifications and reporting enable a better understanding of works and risk, and shows where more attention or interventions are required.

For managers

Blindsight reduces business risk and associated direct and indirect costs.

Blindsight's automated reporting quantifies baseline risk and operational performance on individual items of plant, across a project, and across multiple projects. The data then helps understand and measure the efficacy of interventions, provides guidance on workforce training, and confirms compliance.

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Blindsight protects some of the biggest names in the business.

"OUR BUSINESS INVESTS IN PURPOSEFUL TECHNOLOGIES THAT PROVIDE GREATER CERTAINTY FOR OUR CLIENTS. WE SEE BLINDSIGHT AS A POWERFUL TOOL THAT WILL EMPOWER PEOPLE TO MAKE THE CONSTRUCTION INDUSTRY MUCH SAFER."

Cathal O'Rourke
Managing Director
Laing O'Rourke Australia

5 WE MADE SAFETY SIMPLE

Get up and running in minutes, not hours.

INSTALLATION

Step 1
Mount the processing module.

Step 2
Mount the sensors and connect them to the processing module.

Step 3
Mount the in-cab alert and optional relay(s).

Step 4
Connect to power.
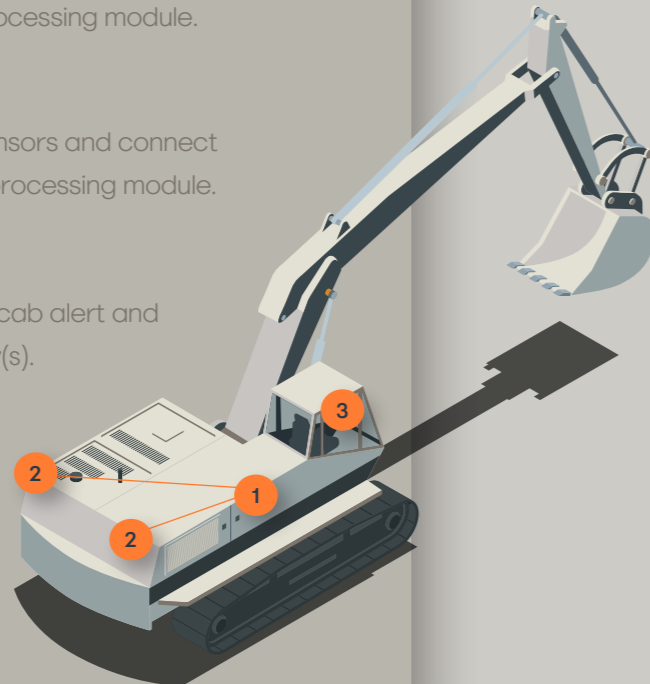
CONFIGURATION

Step 1
Name your system.

Step 2
Create the sensor region of interest.

Step 3
Select the desired object(s) from people, heavy or light vehicles, and traffic cones.

Step 4
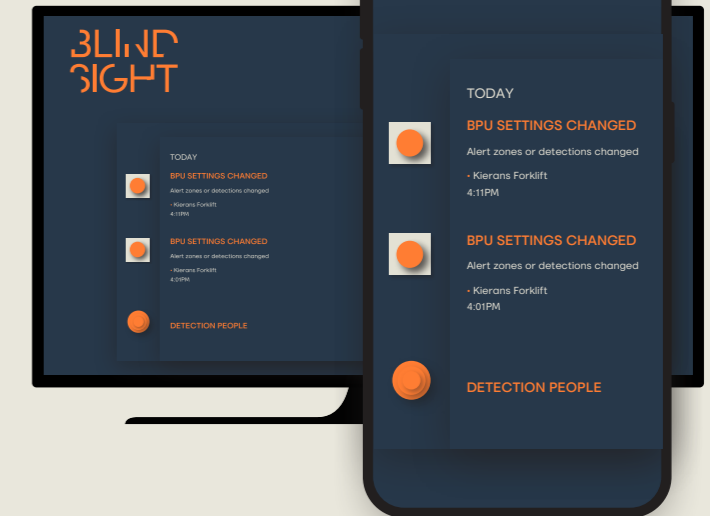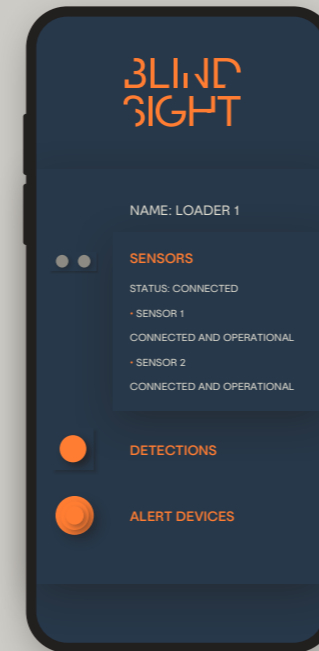Configure the in-cab and relay alert behaviour.

GET IT ON
Google Play

Download on the
App Store

INSIGHTS

Step 1
View the logs and video on mobile app and/or management console.

Step 2
Create automated reporting in the Blindsight data and analytics platform to generate quantifiable and actionable insights.

BLIND SIGHT

NAME: LOADER 1

SENSORS
STATUS: CONNECTED
- SENSOR 1
CONNECTED AND OPERATIONAL
- SENSOR 2
CONNECTED AND OPERATIONAL

DETECTIONS

ALERT DEVICES

BLIND SIGHT

TODAY

BPU SETTINGS CHANGED
Alert zones or detections changed
- Kierans Forklift
4:11PM

BPU SETTINGS CHANGED
Alert zones or detections changed
- Kierans Forklift
4:01PM

DETECTION PEOPLE

BLIND SIGHT

TODAY

BPU SETTINGS CHANGED
Alert zones or detections changed
- Kierans Forklift
4:11PM

BPU SETTINGS CHANGED
Alert zones or detections changed
- Kierans Forklift
4:01PM

DETECTION PEOPLE

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6 WE MADE SAFETY FLEXIBLE

FLEXIBLE

MOBILE PLANT

Install Blindsight sensors, processing module, and alerts on the mobile vehicle to monitor blind spots and alert the operator.
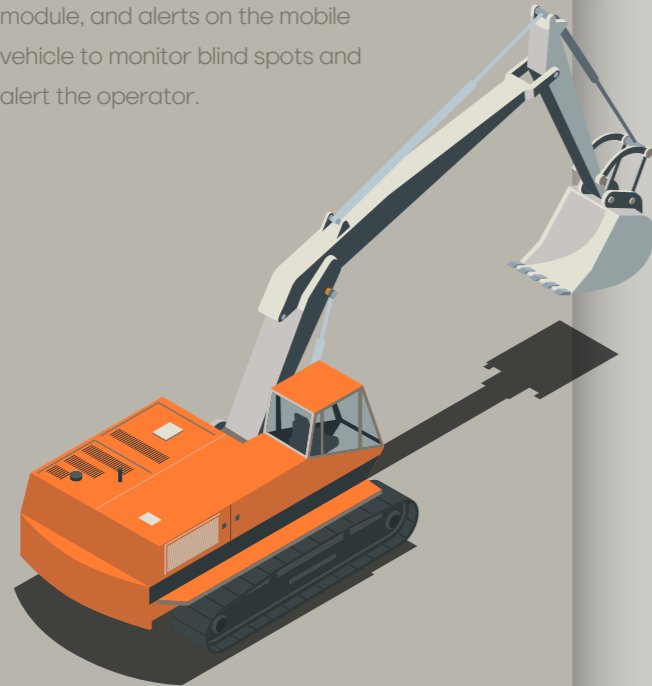
FIXED INFRASTRUCTURE

Install Blindsight sensors, processing module, and alerts on fixed infrastructure, such as doorways and production areas, to alert when objects move into and out of the zone(s).
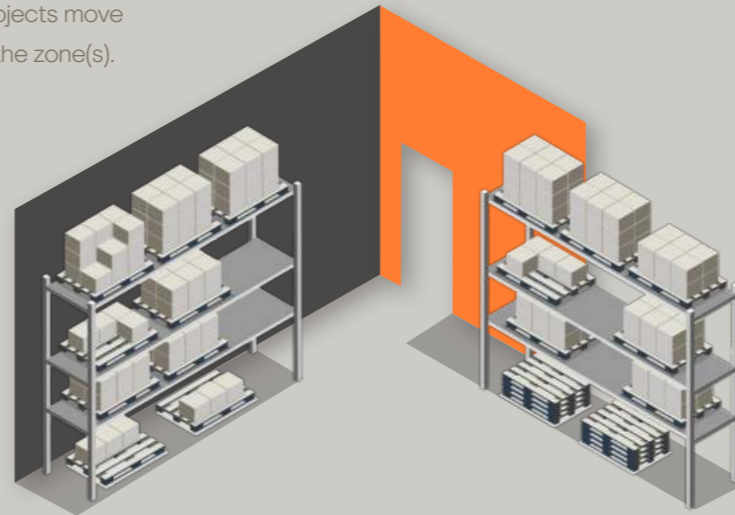
MOBILE PLANT AND FIXED INNFRASTRUCTURE

Install Blindsight sensors and processing module on fixed infrastructure, and alerts on mobile vehicle(s) to alert operators when objects move into the zone(s).

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INTELLIGENCE
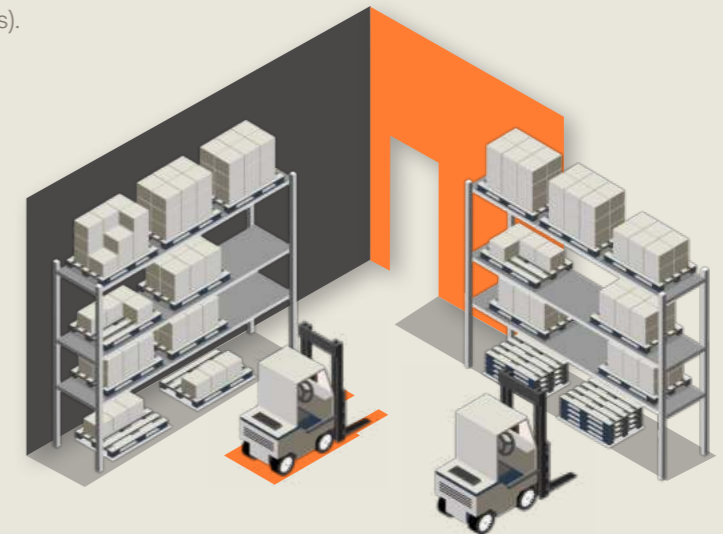
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Blindsight has been built from the ground up with truly modern AI and real industry insight. Legacy technology like proximity sensors, active and passive tags, infrared sensors, motion sensors, thermal sensors, location, and pixel comparison just don't cut it anymore.

Blindsight's intelligence is provided by Presien's world-leading deep convolutional neural network (D-CNN) AI pipeline: streamlined image processing, object recognition, object tracking, object distance estimation, and application logic.

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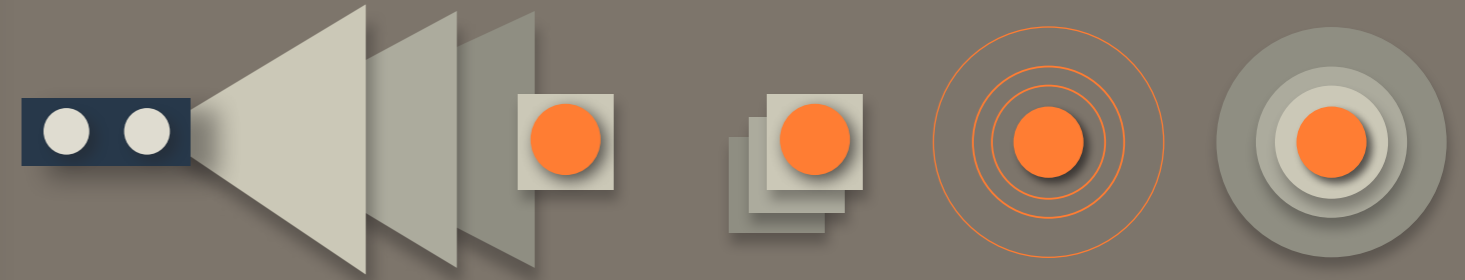
Sensor
Adaptive exposure image intensity normalization to optimise detection.

Pre-processing
Automated image quality assessment and saliency to reject poor quality images and identify regions of interest.

Object recognition
Custom deep convolutional neural network (D-CNN) trained on data from real heavy industry sites for object recognition.

Object tracking
Recursive Bayesian estimation and motion modelling to track objects through time.

Object distance estimation
Stereoscopic processing for object distance estimation.

Application logic
Configurable application logic to drive desired output behaviours.

Automated health monitoring
Intelligent hardware and software self diagnostics and healing to increase system resilience.

Connection handling
Seamless edge to cloud handling to ensure operation with intermittent internet connection.

8 AWARD WINNING TECH

2020 Top 50 Contech Startups

2019 Excellence in Workplace Health & Safety Award

2020 Tech23 company

2020 Ken Erickson Innovation Award

2020 Australian Institute of Health and Safety Award

2019 Innovation and Technology Award

9 ABOUT PRESIEN

This is who we are

Presien was born out of Laing O'Rourke's research and development team. This incubation within a global engineering and construction company means Presien is a technology company that really understands heavy industries. We started with deep on-the-ground understanding, then built a technology that was suited to the unique requirements of heavy industries. We believe AI is only as good as its understanding of the industry where it will be applied.

Our mission

Our singular mission is to free heavy industries from the risks that threaten the safety of their people and business. We won't stop until every person is safe.

Let's talk

We can help you revolutionise safety without the hassle of a big technology project. Let us show you how quickly Blindsight can effortlessly protect people in dynamic environments.

blindsight.ai