



PRODUCT INFORMATION

## Nexus

### OPERATOR FATIGUE AND DISTRACTED DRIVING MONITOR

Operator assistance and collision  
avoidance systems

 dotnetix



## OVERVIEW

**NEXUS is an advanced Fatigue and Distracted driving monitoring and management system. Designed for industrial applications to improve safety.**

Monitoring operator fatigue and distraction allows mining and industrial operators to be more safe and productive by reducing fatigue or distracted operator related incidents.

dotNetix is concerned with machines in 'mission critical' applications, where accidents are unacceptable and where safety can be enhanced through monitoring of the human operator or driver who is ultimately responsible.

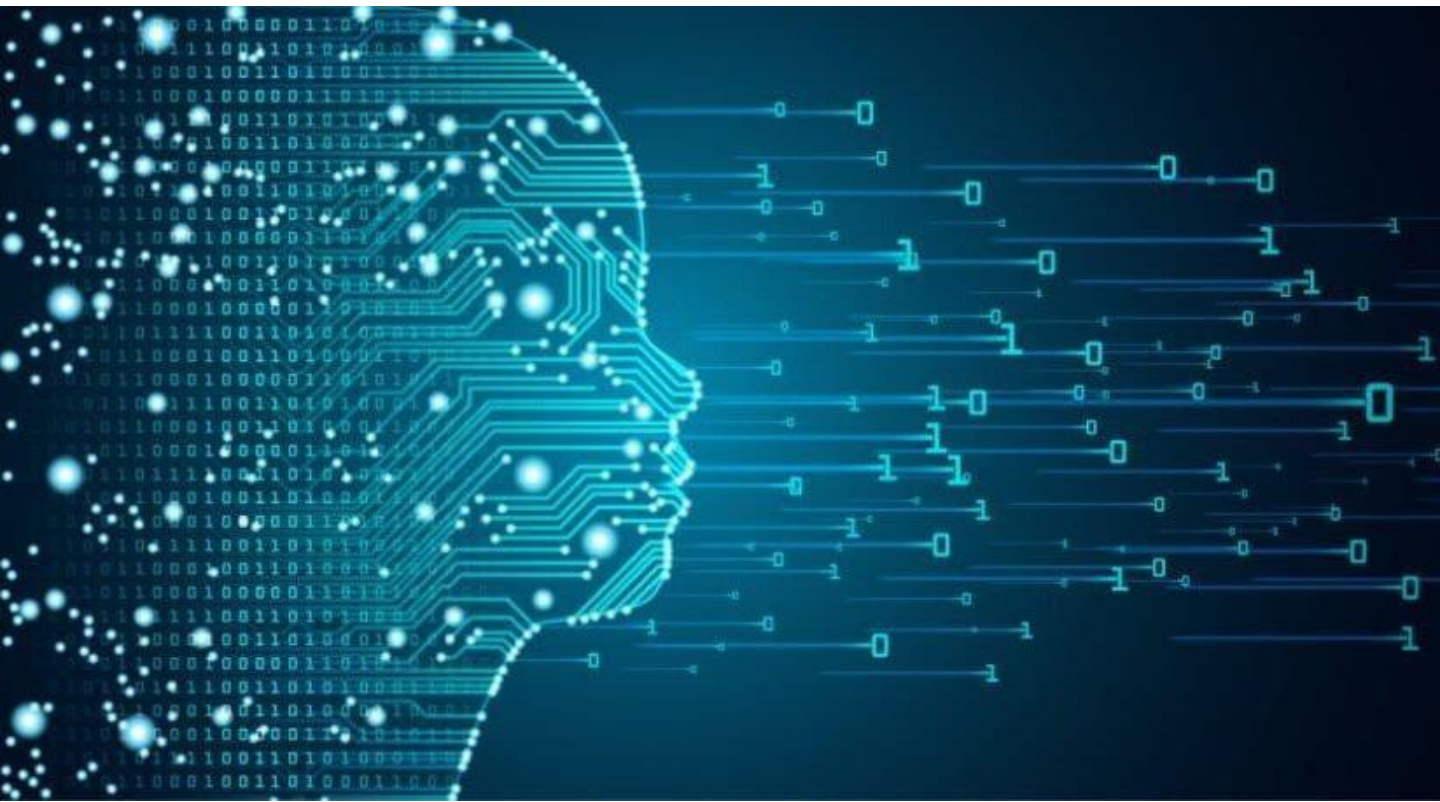
Audible alerts are created for the driver while real-time remote alerts can be analysed for fatigued or distracted operators.

Nexus' infrared camera continuously monitors the operator for eyelid closure facial and head movements, and other unsafe behaviour while the vehicle is in motion.

Upon event detection:

- In-cab alarms are activated (speaker and/or seat vibrator)
- An event is created and stored locally on the Nexus Computer
- Event data and clipped video are synchronized with Nexus Integrated Analytics Software Suite





## TECHNOLOGY

**NEXUS** is a machine vision based operator and driver fatigue status monitoring device.

Using advanced machine learning algorithms to monitor the state of the operator's face the system is able to predict a state of fatigue.

The system is equipped with infrared LED technology that enables both day and night. Being sensitive in the Infrared optical band allows robust functionality through glasses and various faces.

The incidents are recorded locally on the camera by a standard SD Card. During a fatigue event, the system sends an real-time image snapshot to Clearview that enables immediate action.

The system supports both standard GSM networks or Wi-Fi.





## BENEFITS


- Increases operator productivity
- Reduction in incidents and accidents
- Increases operator awareness, reducing fatigue related hazardous behaviour for a safer mine environment
- Increases equipment availability
- Reduces direct and indirect operating costs

**Operators** are immediately aware when they have become susceptible to a fatigue or distraction event through the Nexus system. Upon hearing the audible alarm or sensing the **seat vibrator**, the operator is able to take the appropriate action to regain control of their equipment and senses.



ClearView - Remote Monitoring

dotNetix's web based **Clearview** solutions shows the individual fatigue levels for each active equipment operator. Additionally, designated supervisors and managers have the option to receive customized alerts via email when an operator experiences a critical fatigue or distraction related event.



Real time data


🕒 Realtime - last 30 days

Timestamp	↓	drowsiness	distraction	smoking	speed	yawning	phone	mask	driver_absence	camera
2020-11-05 16:30:17		1	0	0	27	0	0	0	0	0
2020-11-05 16:25:17		0	0	0	48	0	0	0	0	0
2020-11-05 16:25:11		0	0	0	44	0	1	0	0	0
2020-11-05 16:24:57		0	0	0	17	0	0	0	0	0

New Trip Animation

🕒 History - last day

N2-0013-0053



⏮️ ⏪ ⏩ ⏭

No data found

⏭ ⏩ ⏮️ ⏪

— drowsiness

— latitude

— longitude





SPECIFICATIONS

Features	
Sleep/Fatigue Detection	
Distracted Driving Detection	
Local DVR (Removable SD CARD)	
Power	
12VDC/24VDC	2 Ampere
Environment	
Temperature	-20 to 70 °C
Operation	Dust, Day, Night
Enclosure	IP50
Warning	Audible and Vibration Unit
Detection Range	0.65 to 1.1 meter
GPS	Built-in (For surface applications)
Image capture	Yes through Clearview
Connection	M12 Ethernet



Remote monitoring Features	Clearview
Real-time monitoring	Sleep, Distraction, Yawn, Cell usage, Smoking,
Alert Image capture	Yes
Maps and tracking	Yes (Surface only)
Speed	Yes (Surface only)
Time based Heatmaps	Optional



ORDERING

Nexus Fatigue Sensor



Nexus Fatigue  
Sensor  
Required

Controller with built-in Wifi



Wifi Interface  
Optional 3G/4G  
Required

Cable



1-20 Meter  
Optional

Seat Vibration Unit