



WHITE PAPER – SmartEYE™

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DIGITAL TRANSFORMATION - HEALTH & SAFETY

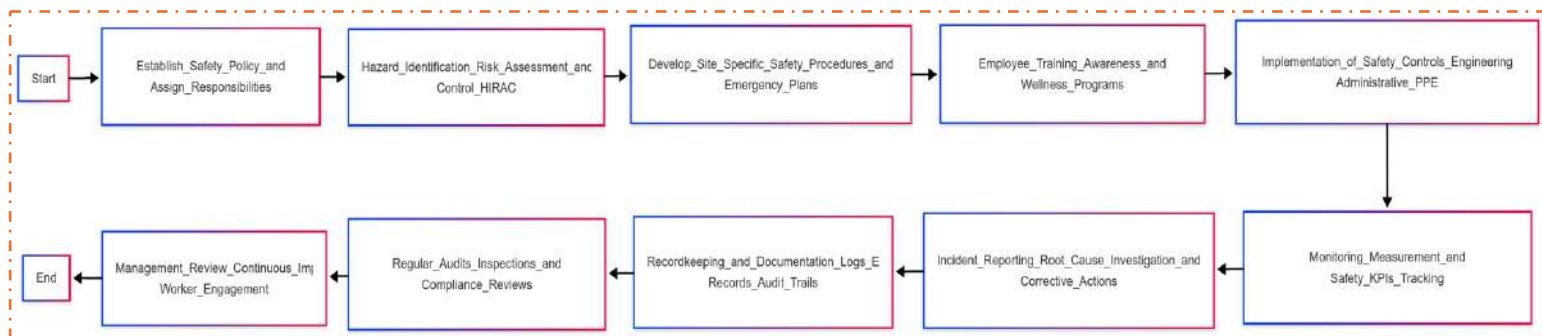
Telepresenz SmartEYE™ - Real-Time Safety. Total Awareness. Smarter Decisions

Executive Summary

In an era marked by rapid technological advancements and increasing workplace risks, SmartEYE™ stands at the forefront of digital health and safety transformation. Leveraging live feeds from CCTV, handheld cameras, body cameras, and AI-driven image and video analytics, SmartEYE™ delivers unmatched situational awareness, real-time monitoring, and predictive insights. This white paper explores how SmartEYE™ empowers organizations to enhance operational safety, streamline workflows, and achieve compliance through intelligent, automated, and remote health and safety management.

Introduction

Workplace health and safety have always been paramount, but continuous monitoring and manual inspection methodologies have limitations in scalability, accuracy, and response time. SmartEYE™ addresses these challenges with state-of-the-art digital technologies encompassing artificial intelligence (AI), machine learning (ML), and computer vision (CV) to automate the detection, reporting, and resolution of safety risks from diverse video and image sources. This digital transformation not only reduces human error but elevates health and safety to a proactive and predictive functions.



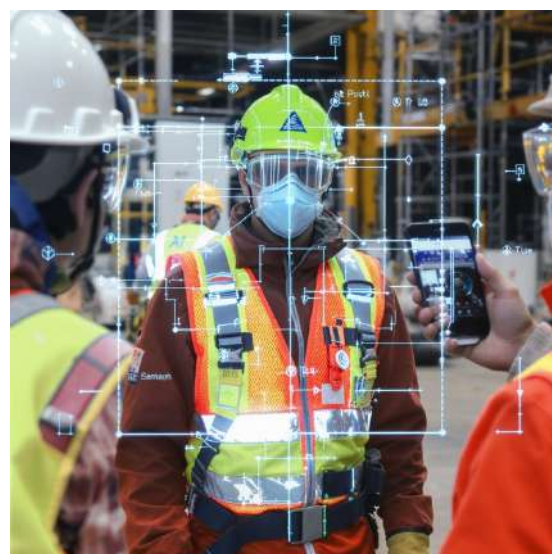
OSHA & OHS Compliance

The Safety Challenge

Modern industrial environments face unprecedented safety challenges. With increasingly complex operations, stricter regulatory requirements, and growing emphasis on worker welfare, organizations need sophisticated solutions that go beyond traditional safety measures.

Industry Statistics

- Workplace injuries continue to be a major challenge for businesses.
- **95%** of safety incidents are preventable through proper monitoring.
- Companies with comprehensive safety systems see **40%** fewer incidents.





SmartEYE™ Capabilities Overview

Real-Time Data Acquisition and Processing

SmartEYE™ ingests live feeds from an extensive network of cameras—including CCTV, handheld, and body-worn—alongside images and video footage from smartphones and drones to provide continuous monitoring of active work sites.

AI-Powered Object Detection and Behaviour Analysis

The platform applies advanced AI, ML, and CV algorithms to identify safety objects and hazards such as missing personal protective equipment (PPE), unsafe postures, hazardous zones, and potentially risky actions without human intervention.



Situational Awareness

SmartEYE™ consolidates real-time inputs into a unified dashboard that maps out the location, status, and behaviours of personnel, equipment, and environmental risks, enabling rapid and informed operational decision-making.

Drops Inspections and Equipment Monitoring

Monitoring & Recognition of tool at heights, and hazardous material handling ensures zero-tolerance enforcement for dropped object risks. Additionally, equipment usage and compliance are tracked, facilitating timely maintenance and incident prevention.



Remote Assistance and Digital Workflows

The system supports remote supervision and intervention, allowing field teams and safety managers to collaborate seamlessly and additionally link it to standardized digital workflows for inspections, incident reporting, corrective actions, and audits.

Predictive Risk Analytics

Leveraging aggregated historical and live data, SmartEYE™ applies machine learning models to forecast potential incidents, uncover root causes, and tailor preventive strategies to substantially mitigate workplace hazards.



Compliance and Documentation

Every detected event, inspection, and corrective action is digitally archived with timestamps, images, and videos, producing audit-ready documentation that simplifies regulatory compliance and internal governance.



SmartEYE™ - Core Technology Platform

AI-Engine

Computer Vision: Advanced image processing for real-time object and behaviour recognition

Machine Learning:

Continuous improvement through pattern recognition and predictive analytics

Deep Learning: Neural networks trained on millions of safety scenarios

Sensor Integration

IoT Connectivity: Seamless integration with industrial sensors and monitoring devices

Real-time Data Processing:

Sub-second response times for critical safety alerts

Edge Computing: Local processing capabilities for immediate response

Cloud Infrastructure

Scalable Architecture:

Supports operations from small facilities to enterprise-wide deployments

Data Analytics:

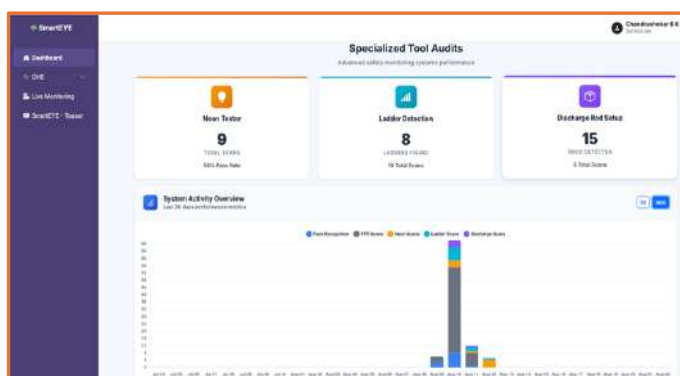
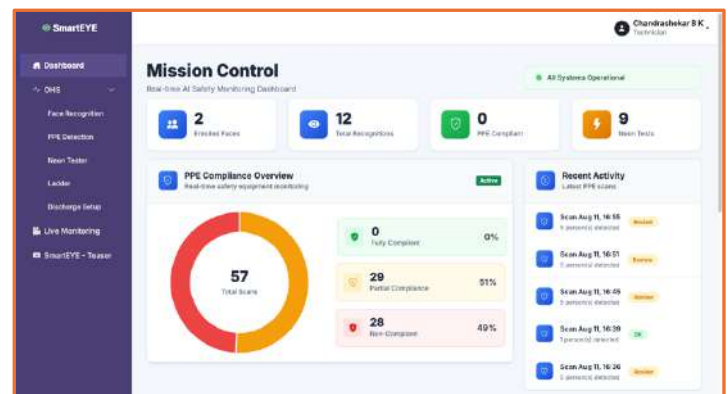
Comprehensive reporting and trend analysis

Secure Storage: Enterprise-grade security with compliance certifications

Immediate Safety Improvements using SmartEYE™

Incident Prevention:

- Reduction in safety violations
- Decrease in near-miss incidents
- Significant improvement in PPE compliance
- Faster emergency response times



Operational Efficiency:

Automated compliance monitoring decreases manual oversight by **60%**. Real-time alerts prevent production delays due to safety issues. Streamlined safety procedures enhance workflow efficiency, while reducing the time required for safety documentation and reporting.

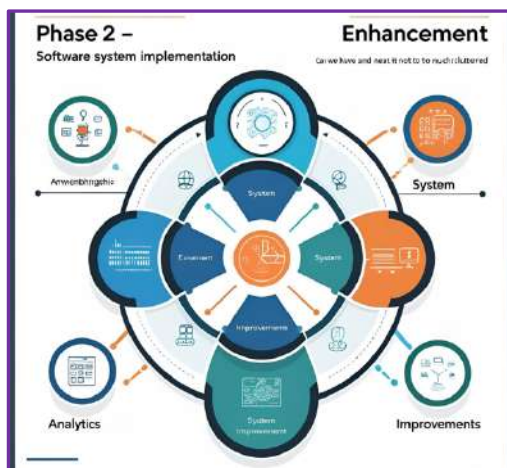


Implementation Process & Timeline



Phase 1 – Foundation

- Core system installation and configuration
- Basic monitoring and alerting capabilities
- Initial training and change management
- Investment: Moderate setup costs with immediate safety benefits



Phase 2 – Enhancement

- Advanced analytics and reporting implementation
- Integration with existing systems
- Expanded monitoring capabilities
- Returns: Measurable improvement in safety metrics



Phase 3 - Optimization

- Predictive analytics and AI optimization
- Advanced workflow automation
- Comprehensive performance monitoring
- Achievement: Full ROI realization and ongoing benefits



Industries Where SmartEYE™ Adds Value — and Why

SmartEYE™ can add significant value across a variety of industries due to its advanced AI-powered video analytics, real-time monitoring, and digital workflow automation focused on health, safety, security, and operational efficiency. Here are key industries where SmartEYE™ capabilities offer the most impact, along with reasons why:

1. Oil & Gas

Why: Complex operations with high-risk equipment and hazardous materials require continuous safety monitoring.

SmartEYE™ detects unsafe behaviours, enforces PPE compliance, monitors equipment, and provides early hazard detection. Remote monitoring reduces site visits and improves compliance in geographically dispersed locations.

3. Airports and Aviation

Why: High foot traffic and critical safety/security zones require situational awareness and real-time alerts.

SmartEYE™ supports passenger safety monitoring, security threat detection, baggage handling oversight, and remote supervision across terminals, tarmac, and curb side.

5. Construction

Why: Dynamic and hazardous work environments need constant safety oversight and documentation.

SmartEYE™ provides real-time identification of unsafe practices, PPE compliance, site security, and automated reporting to enhance worker safety.

7. Transportation and Logistics

Why: Driver fatigue, cargo security, and operational safety are crucial for efficiency and compliance.

SmartEYE™ integrates driver monitoring, cargo inspection, and vehicle operation safety, reducing incidents and improving delivery reliability.

2. Energy & Power Transmission

Why: Critical infrastructure demands strict safety protocols and real-time incident response.

SmartEYE™ ensures safe working conditions around high-voltage equipment, monitors personnel for PPE and safe practices, and tracks equipment status to prevent failures.

4. Shipyards and Ports

Why: Heavy container handling, vehicle traffic, hazardous material storage, and security concerns necessitate rigorous safety and asset monitoring.

SmartEYE™ automates dropped object inspections, enforces personnel safety compliance, monitors cargo integrity, and manages access control efficiently.

6. Manufacturing

Why: Fast-paced production lines and machine-intensive processes create diverse safety risks.

SmartEYE™ monitors operator safety, machine interaction, emergency exits, and equipment malfunctions to reduce accidents and downtime.

8. Healthcare and Pharma

Why: Safety, hygiene, and regulatory compliance are vital for patient and worker safety.

SmartEYE™ monitors hygiene protocols, restricted access zones, and emergency procedures to maintain compliance and reduce cross-contamination risks.



Proven Use Cases across Industries like Power Transmission and more...

Team Availability & Identity

Feature Summary: Ensures that only verified workers are present on-site through photo capture, timestamping, and database validation.

SmartEYE™ Role: By linking with the User Management database, SmartEYE™ authenticates workforce identity in real time and sends alerts for unknown or missing members. This guarantees workforce accountability and prevents unauthorized access.

Geo-fencing & Proximity Monitoring

Feature Summary: Monitors worker positions in real time to ensure they remain within safe, approved work zones.

SmartEYE™ Role: SmartEYE™ integrates with smart wearables to enforce geo-fence boundaries, trigger alerts for zone violations, and detect tampering. This prevents unsafe movement and ensures workers remain protected within designated areas.

PPE Kit Detection

Feature Summary: Automates PPE compliance checks by detecting helmets, safety jackets, harnesses, gloves, and shoes before work begins.

SmartEYE™ Role: Using AI-based image recognition, SmartEYE™ eliminates manual supervision dependency and instantly flags non-compliance. This ensures every worker meets safety requirements, reducing the risk of injury or regulatory violation.

Tools & Equipment Verification

Feature Summary: Confirms availability and condition of critical tools and equipment before task execution.

SmartEYE™ Role: Workers upload tool images, and SmartEYE™ validates them against a predefined inventory. Any missing or non-compliant tool triggers alerts, ensuring that only safe and approved equipment is used at the site.

Safety Zone Verification

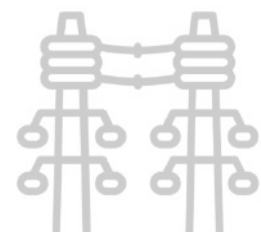
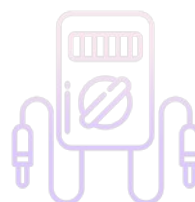
Feature Summary: Remotely verifies creation of safe work zones, including barriers, warning tapes, signage, and safety gear.

SmartEYE™ Role: With Telepresenz integration, SmartEYE™ provides supervisors with geo-tagged, time-stamped photo evidence. Deviations are flagged instantly, ensuring work starts only after safety zones are fully compliant and approved remotely.

Circuit Breaker Isolation

Feature Summary: Validates that electrical isolation steps are completed before maintenance.

SmartEYE™ Role: SmartEYE™ uses time, location, and visual confirmation to verify isolation of Circuit Breakers and AB Switches. Critical alerts are raised if isolation is incomplete, preventing accidents and ensuring electrical safety.





Proven Use Cases across Other Verticals

Airports – Runway Safety Zone Monitoring

Feature Summary: Ensures ground staff and equipment remain outside restricted runway and aircraft engine zones.

SmartEYE™ Role: SmartEYE™ applies geo-fencing and wearable-based tracking to detect unauthorized entry into high-risk areas. Alerts are sent in real time, preventing runway incursions and protecting both personnel and aircrafts.

Airports – Baggage Handling PPE Validation

Feature Summary: Confirms baggage handling crew wear gloves, boots, ear protection, and safety jackets before entering baggage belts.

SmartEYE™ Role: Using AI-powered vision, SmartEYE™ validates PPE in real time via mobile scans. Any missing PPE triggers an alert, ensuring worker safety and compliance with aviation safety standards.



Shipping Ports – Crane Operation Zone Safety

Feature Summary: Prevents unauthorized entry into active crane operating areas where accidents are most likely.

SmartEYE™ Role: SmartEYE™ enforces geo-fencing around crane perimeters. Any entry without authorization or PPE triggers alarms, ensuring a safe cargo handling environment and reducing dockside incidents.

Shipping Ports – Cargo Handling Tool Validation

Feature Summary: Ensures slings, hooks, and lifting gear meet safety requirements before use in cargo transfer.

SmartEYE™ Role: Workers upload tool photos via SmartEYE™. The system validates tool presence and condition against the safety checklist, flagging any deviations before operations begin.



Energy Sector – Wind Turbine Harness Detection

Feature Summary: Protects workers performing high-altitude maintenance on turbine blades.

SmartEYE™ Role: SmartEYE™ validates harness and PPE compliance through mobile scans or drone-assisted images. Missing safety gear is flagged immediately, preventing fall hazards during turbine maintenance.

Energy Sector – Drone-Assisted Transmission Line Inspection

Feature Summary: Enables safe inspection of remote, high-voltage transmission lines without direct worker exposure.

SmartEYE™ Role: Drones capture real-time site images. SmartEYE™ validates worker PPE, tool presence, and site safety conditions. Deviations trigger alerts to the central monitoring team, ensuring safety during inspections.



SmartEYE™ universal applicability stems from its ability to transform traditional manual safety and operational processes into intelligent, proactive, and data-driven systems — enhancing safety, efficiency, regulatory compliance, and overall operational resilience across industries.



Security and Compliance

Cybersecurity Features:

- End-to-end encryption for all data transmission
- Multi-factor authentication for system access
- Role-based access control and permissions
- Regular security audits and vulnerability assessments

Regulatory References:

- OSHA safety standards compliance
- ISO 45001 occupational health and safety management
- ISO 27001 ISMS
- IEC 61508 functional safety standards
- Regional safety regulation adherence

Conclusion

SmartEYE™ represents a paradigm shift in workplace health and safety management, moving from reactive incident response to proactive risk prevention. By integrating advanced technologies with comprehensive safety monitoring, Smart Eye delivers measurable improvements in worker safety, operational efficiency, and regulatory compliance.

Strategic Recommendation

SmartEYE™ is not just a safety monitoring system—it's a strategic investment in organizational resilience, worker welfare, and operational excellence. The comprehensive nature of the platform, combined with proven results and strong ROI, makes Smart Eye an essential component of modern industrial safety management.

Organizations implementing SmartEYE™ position themselves as industry leaders in safety innovation while achieving tangible benefits in risk reduction, compliance management, and operational efficiency. The platform's ability to prevent incidents rather than merely respond to them represents a fundamental advancement in workplace safety technology.

The future of workplace safety is proactive, intelligent, and comprehensive. SmartEYE™ delivers that future today.



ABOUT TELEPRESENZ INC.

With over 25 years of delivering software solutions to enterprises and over 4 years of proven experience in connected worker solutions, the Telepresenz team is helping industrial organizations and medical institutions of all sizes accelerate their digital transformation. Our market-leading collaboration platform has been deployed in several countries around the world, addressing a wide range of applications like remote diagnostics, inspection, and workflow management. Our customers have increased productivity, reduced resolution time, and increased uptime with our industry-leading remote collaboration platform. We are happy to answer any questions and get you familiar with Telepresenz®.

Book a Demo Today.

See Telepresenz® in action.

Learn how to improve productivity with your team in field scenarios for your industry.

For more information about Telepresenz SmartEYE™ technical specifications, or custom configuration options, please contact our technical team.

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