



OPAL AWARD FOR BEST PRACTICES 2024 FOR HEALTH & SAFETY CATEGORY

Innovative Technologies, Solutions & Training,
for Road Safety and Safe Driving

Global Fleet Management Systems &
Technologies (Global)

Analyzing...



```
no_face_duration_secs: 0  
leye_close_duration_secs: 0  
reye_close_duration_secs: 0  
blinks_per_min: 7.09891  
pose_distraction_duration_secs: 0  
gaze_distraction_duration_secs: -1  
yawn_duration_secs: 0
```

Agenda

- Introduction
 - Project Description
 - Project Architecture & Methodology
 - Business Impact
 - Maturity
 - Relevance
 - Innovation
-
- Summary/Abstract
 - Q & A

Introduction

- **Global** is part of a Global Technology group, involved in designing, developing, manufacturing and providing focussed road safety solutions and services, in the region.
- Since 2012, **Global** has led the way in Oman, offering advanced in-vehicle monitoring and related solutions, revolutionizing fleet management & safety.
- Our cutting-edge systems have delivered substantial safety benefits to clients while pushing the boundaries of technology paving way to set new standards, in Road safety.
- Committed to innovation, **Global** focuses on improving vehicle and driver safety, operational efficiency and transparency.
- Supporting **Vision Zero** towards safer vehicles and safer driving.

Project Description

Over 50 % of the vehicle accidents may be due to Driver issues such as Fatigue & drowsy driving, mobile phone, distraction, eating, drinking etc.

Over 50% of the Fatigue related accidents, many lead to fatalities.

Note: Above are estimations based on certain International research publications, Mentioned more for perspective. The statistics may vary based on the region's geographic terrain and exposure

Project Description

2018-2019 - Driver Fatigue Management System : Pilot

- PDO pilot project awarded, to assess the relevance and impact of driver fatigue and distraction on driver safety, 6 months focussed, selective fleet implementation and observation
- The technology was unknown in Oman, and it was an innovative; using AI based camera system, for automatic detection and alerting of driver fatigue and related incidences.
- Advanced BI/ Analytics to collate and correlate the Driver fatigue / IVMS events data for correlation and impact analysis.

2018-2019 - Driver Fatigue Management System : Approval

- Statistical data reports of the pilot project submitted to PDO, showcasing the impact of Driver fatigue on the driver performance and safety.
- PDO Road safety team could get the management approval for extended testing of this innovative technology across different high risk vehicle types and contractors.

Project Description

2020-2022 - Driver Fatigue Management System: **Deployment**

- Change over from expensive 3rd party offering, to our own technology; fully industry standards compliant, along with local ICV services
- 100 plus high-risk vehicles – trucks and passenger buses

2023-2024 - Driver Fatigue Management System: **Roll Out**

- Roll out of Driver Fatigue system across wider contractor high risk fleet – 1200+ Vehicles

2024: OPAL approval>> **Mandate, Standards & Awareness**

- First vendor to be approved by OPAL for Driver Fatigue system
- Supporting OPAL & also PDO/OQ in evolving the Driver Fatigue Standards and operating guidelines
- Evolving the standards based (Fatigue Intervention Plan – FIP)
- Supporting OPAL in promoting the benefits and usage of Driver Fatigue technology across the industry – Safety events ROP safety week etc.
- Supporting PDO/OXY/OQ in road safety forums, promoting Driver Fatigue Technology

Project Description

Value Added Road Safety Solutions:

Global Safety Training Institute (GSTI)

- **IVMS Foundation & Orientation course** > First and only OPAL and MoHERI approved and certified provider of road safety technology related introduction course.
- An industry skills development initiative under the guidance of Ministry of Energy, to promote ICV, in this specified industry.

Virtual Reality (VR) based Driver Training

- In collaboration with a leading international, technology enabled safety learning solutions provider based out of Netherlands.
- Structured driver training and assessment platform, using **Virtual Reality (VR) headsets**.
- For Black top road and Graded road training. Based on OPAL standards

Project Description

Driving Simulator Based Driver Training Solution

- VR Headset integrated advanced Driver Simulator training
- Designed specifically for Graded roads
- In compliance with OPAL standards
- Supporting 6DOF – six degree of motion
- Can experience most vehicle movements in virtual experience.

Virtual Reality (VR) and Simulators – Benefits & Deployment

- ✓ *Promotes the new age training approach “fail safely”.*
- ✓ *Adopts technology enabled innovative learning methodology.*
- ✓ *The future of learning – interactive, immersive, emotional experience.*
- ✓ *Successfully deployed and operational for over 6 months at OQ.*

Project Architecture & Methodology

Events Supported



Project Architecture & Methodology

GLOBAL
 مشاريع العالم لتكنولوجيا وأنظمة إدارة الأساطيل
 Fleet Management Systems & Technologies

Driver Fatigue can lead to disaster. Don't Risk!

Ensure road safety and driver well-being with **Fusion 300 Series**, a cutting-edge driver fatigue and distraction monitoring solution. Our innovative technology utilizes state-of-the-art AI and real-time data analysis to detect signs of driver fatigue and distraction. With a focus on preventing accidents and promoting responsible driving, **Fusion 300 Series** alerts drivers in real-time through intuitive interfaces and audible warnings, ensuring they stay attentive and focused on the road.

FUSION 300 SERIES



Driver Fatigue & Monitoring Camera
 IP Video Surveillance Camera

Analyzing...

Yawning: 0 MS
 Drowsiness: 0 MS
 Headings: 0 MS
 Left Eye Closure: 13,63 MS
 Right Eye Closure: 1422,7 MS
 Head Pose Change: 25,798 MS
 Head Pose Distraction: 1502,1 MS
 Gaze Distraction: 2951,2 MS
 Yawning: 2713,8 MS
 Headings: 0 MS

Offered in 3 Versions

- 1 Fusion 300 Lite (DFMS only)
- 2 Fusion 300 (IVMS only)
- 3 Fusion 300 Plus (DFMS + IVMS)

<p>Market leading DFMS Solution with nearly</p> <p>800 vehicle installations in Oman</p>	<p>1st DFMS Solution Approved by</p> <p>with direct contract for over 3 years.</p>	<p>Dedicated 24/7 monitoring services for DFMS, for REAL-TIME notification and call alerting services</p>	<p>Working closely with P.O and Major Contractors, Enabling the Fatigue Management 509</p>
<p>Full-fledged CONTROL CENTRE</p> <p>infrastructure in Muscat with Trained-Certified OMANI monitoring analysts</p>	<p>Dedicated Large Technical Team</p> <p>for Installation & Support across the country.</p>	<p>%100 Local Regulations Compliance.</p> <p>Locally deployed Application and Data within Oman.</p>	<p>Total Privacy of Driver Data & Videos monitored within Oman.</p>

Driver Activity Recognition

Yawning & Drowsiness

Distraction



Using Mobile Phone

Microsleep



POWERED BY SAFETY

Authorized Distributor & Business Partner of



OPAL Approved IVMS Vendor Since 2018



Protect Your Investment – Designed to meet current and future Road Safety Standards

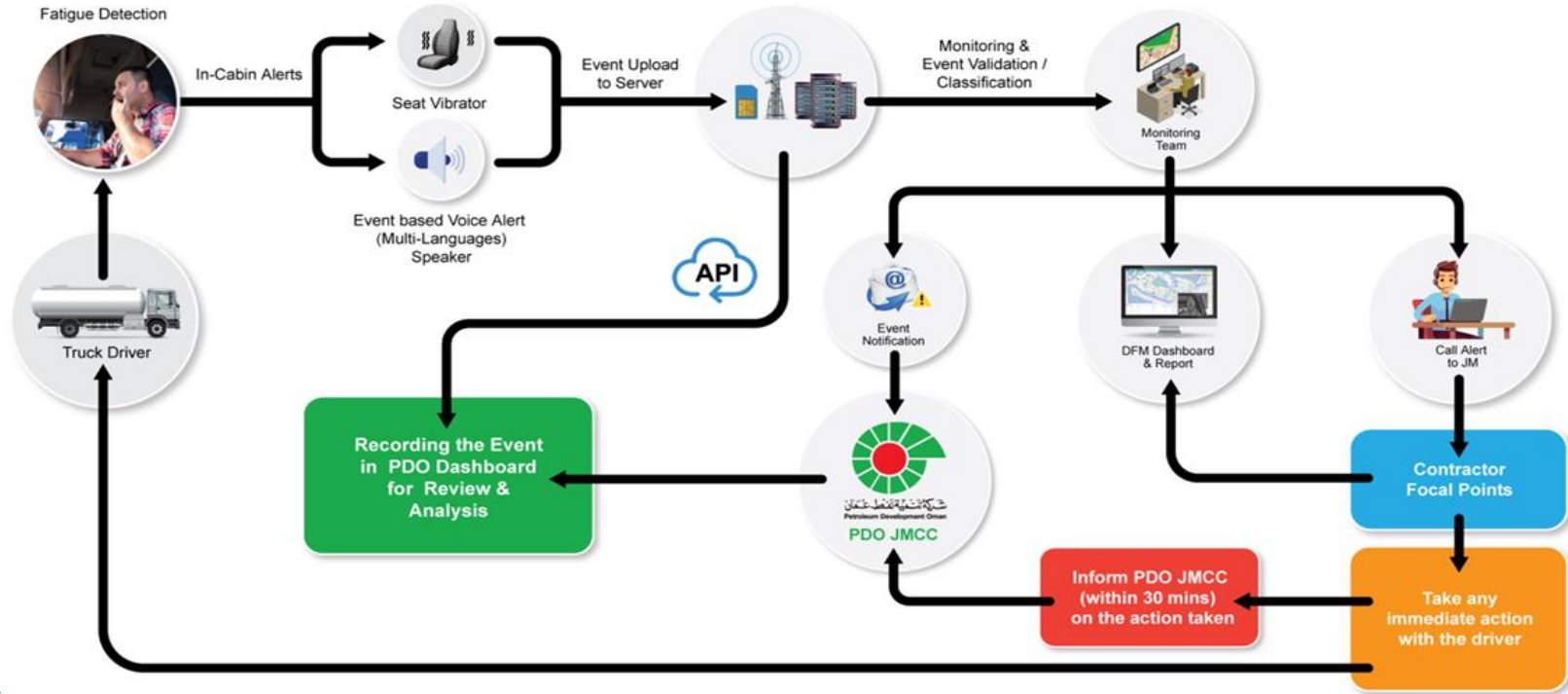
Fusion 300 Series is the only system that supports DFMS with integrated / embedded IVMS (OPAL approved) within the same unit.

<p>Total investment protection; the Fusion 300 Lite DFMS is field upgradable to support integrated IVMS features</p>	<p>Fusion 300 Series</p> <p>OPAL approved new generation IVMS, which can support DFMS in same unit</p>	<p>Both IVMS & DFMS From Same Technology & Vendor – Long term Commitment</p>	<p>Single Log in for both DFMS & IVMS</p>
<p>Satellite, TPMS, Multi Speed Limiter support.</p>	<p>Multi-Languages Voice Alerts for all DFMS and also IVMS (English/Arabic/Hindi/Urdu)</p>	<p>Single Integrated Dashboard for both IVMS & DFMS</p>	<p>Correlated Data Analytics between IVMS and DFMS</p>

For inquiries, please contact us at: P.O. BOX 2006, P.C. 130, Muscat, Oman | +968 2422 2490 / 91 / 92 | smo@fms-tech.com | www.fms-tech.com

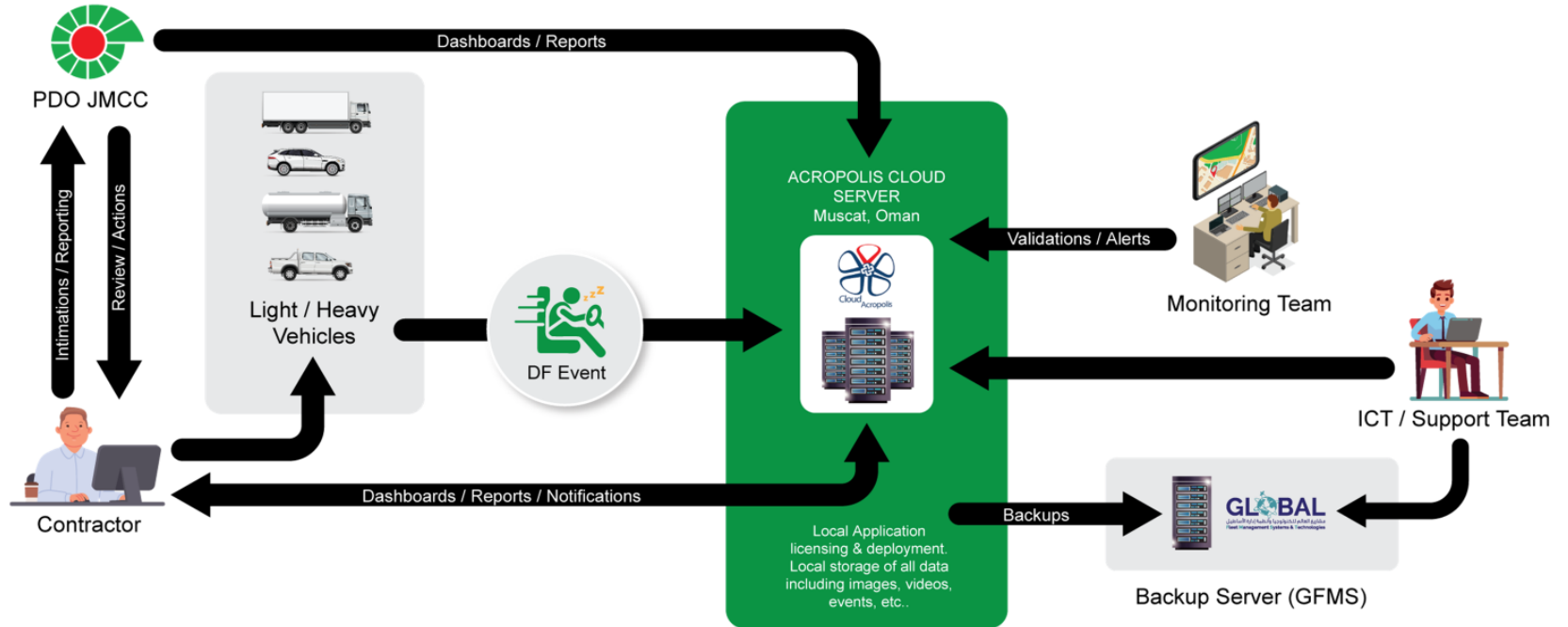
Project Architecture & Methodology

Driving Fatigue Management Workflow



Project Architecture & Methodology

Local Server Deployment



Project Architecture & Methodology

VR-based Driver Training



FEATURES

- **Showing Real-Life Work Situations**
- **3D-360° Vision and Spatial Sound**
- **Animations can show the invisible:**
 - ✓ Actual incidents, explosions, etc.
 - ✓ Looking inside equipment, “seeing” pressure, etc.
 - ✓ User interaction throughout the animation
- **Latest Technology**
 - ✓ High Quality VR headsets without cable
 - ✓ No dedicated hardware, no internet, no Wi-Fi needed
 - ✓ Fully self-contained head-sets
 - ✓ Suited for all languages

Project Architecture & Methodology

Virtual Reality-based Driver Training



- Simulator is extensively used for educational purposes.^[2]
- To model a real-world environment in a simplistic way so as to help a learner develop an understanding of the key concepts.
- Used in cases where it is too dangerous to allow trainees to use the real equipment in the real world.
- Players will spend time learning valuable lessons in a "safe" virtual environment yet living a lifelike experience (or at least it is the goal).
- Often the convenience is to permit mistakes during training for a safety-critical system.

Business Impact

- The launch of our Driver fatigue solution, enabled PDO to introduce this enhanced road safety solution in Oman operations, **3 to 5 years back**.
- Successful deployment of this new technology showed improved road safety and enabled OPAL to mandate Driver Fatigue solution, as part of the new Oman Road safety standards.
- Today Driver fatigue solutions is mandated by major operators for all new contracts for high-risk vehicles
- Provides visual proof to authenticate right driver behaviour and in selective cases of accident investigations.
- This has contributed towards improved driver behaviour, better journey management thereby reduced vehicle incidences.
- Our VR Based Driver Training solutions, is being seen by the industry as an innovative digital technology based, enhanced driver training platform

Maturity

- **Over 1000 vehicles** implemented with our Driver Fatigue solutions in Oman
- **Over 3 years** of successful operations across several contractors under PDO.
- Fully integrated/embedded and scalable technology introduced.
- 3rd Gen device in operations now.
- 5th Generation devices planned for launch next year – ADAS/ driver display etc.
- Deployed on different type of high-risk vehicles such as Heavy/Light buses, long haul trucks etc.
- Implemented for various operators like PDO, OQ
- Being successfully utilised by major contractors like GPS, Galfar, STS, Arabian Industries, Halliburton, Gulf energy etc
- VR based driver training solutions deployed for OQ at Block 60, Musandam

Relevance

- **Beyond IVMS....** Driver Fatigue management as now become the new road safety industry standard of OPAL and by most Operators.
- Driver Fatigue management is also now integrated with other road safety technologies like IVMS, MSLD, TPMS, etc.
- Some operators have initiated pilot testing for video and audio-based alerting (a key feature for Driver Fatigue systems) for also IVMS alerts & notifications.
- Some contractors have started using driver fatigue Video alert clips, as a supporting evidence for various road safety violations, for drivers' consequence management.

Innovation

- Innovative technologies play a vital role in enabling such changes in any standards, including in road safety and driver behaviour.
- Artificial intelligence (AI) is the buzz concept today propelling many revolutions. Our drive Fatigue management system are built on AI based image processing and real time alerting technology.
- It can be scaled to higher technologies with multiple intelligent cameras for additional road safety like Blind spot detection (BSD), reverse parking assistance, Advanced Driver Assistance (ADAS), etc.
- Virtual Reality VR / Augmented Reality AR and Simulators are recognised as the new age innovative learning platforms, applicable also for the HSE across industries.

Summary

- Road safety is a very critical aspect of HSE, especially in a region like Oman.
- Achieving Zero Harm, is a challenging objective, considering the various limitations and risks.
- Continuous upgrading of the standards while adopting global best practices become very critical.
- Innovative technologies play a vital role in the execution of the new standards to achieve the above
 - ✓ AI-driven Driver Fatigue and Distraction Monitoring system
 - ✓ ICV driven Fatigue and Distraction Intervention Plan
 - ✓ VR based Driver Training & Assessment
 - ✓ VR Integrated Driver Simulator for Graded roads
 - ✓ IVMS fundamentals and road safety training course & Certifications for professionals

Abstract

- Innovative technologies to address new challenges
- Holistic approach to a technology enabled new standards
- AI / VR /AR technology enabled safety solutions.
- More safety-oriented driver behaviour.
- Towards predicting and preventing road safety incidences
- Enabling ICV, local skills and development

Safer Drivers | Safer Roads | Saving Lives

THANK YOU

GLOBAL

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