

# Fleet Safety and journey-risk management using Video Analytics

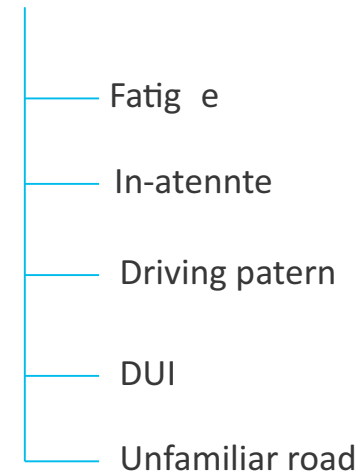
An IoT driven platform to achieve proactive alerting to reduce risk.

*“A driver-friendly system to detect, alert and reduce risk during journey”*

Research conducted by the **Federal Motor Carrier Safety Administration** covering 141,000 truck accidents over a 33-month period found the the causation of the accidents as:

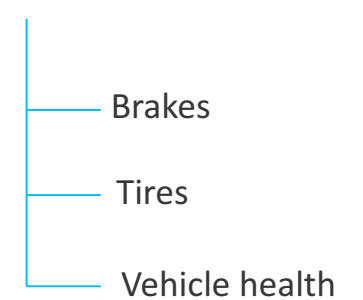
**87%**

Driver



**10%**

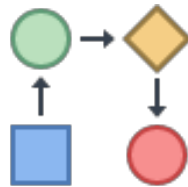
Vehicle



# Making every journey safer



Ensure driver identity



Recognize driving patterns and compared against standard



Driver readiness – fatigue, health, drug/alcohol levels



Vehicle health



Alert the driver and fleet admin



Record data for every journey, every driver



Proactive alerts based on previous learnings

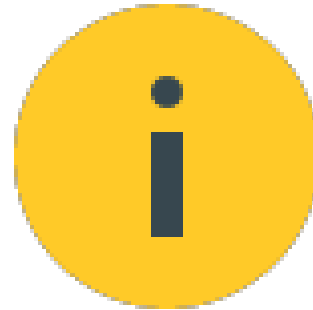


Driver rating and route complexity

# Detect, Alert, Avoid

Alert Driver immediately by sound, vibration - enabled cushion

On-demand cabin view for admin and cabin view recorded



Alert recorded and escalation to fleet admin

Suggest the system to advise periodic breaks for driver

# Capture, Analyze, Predict

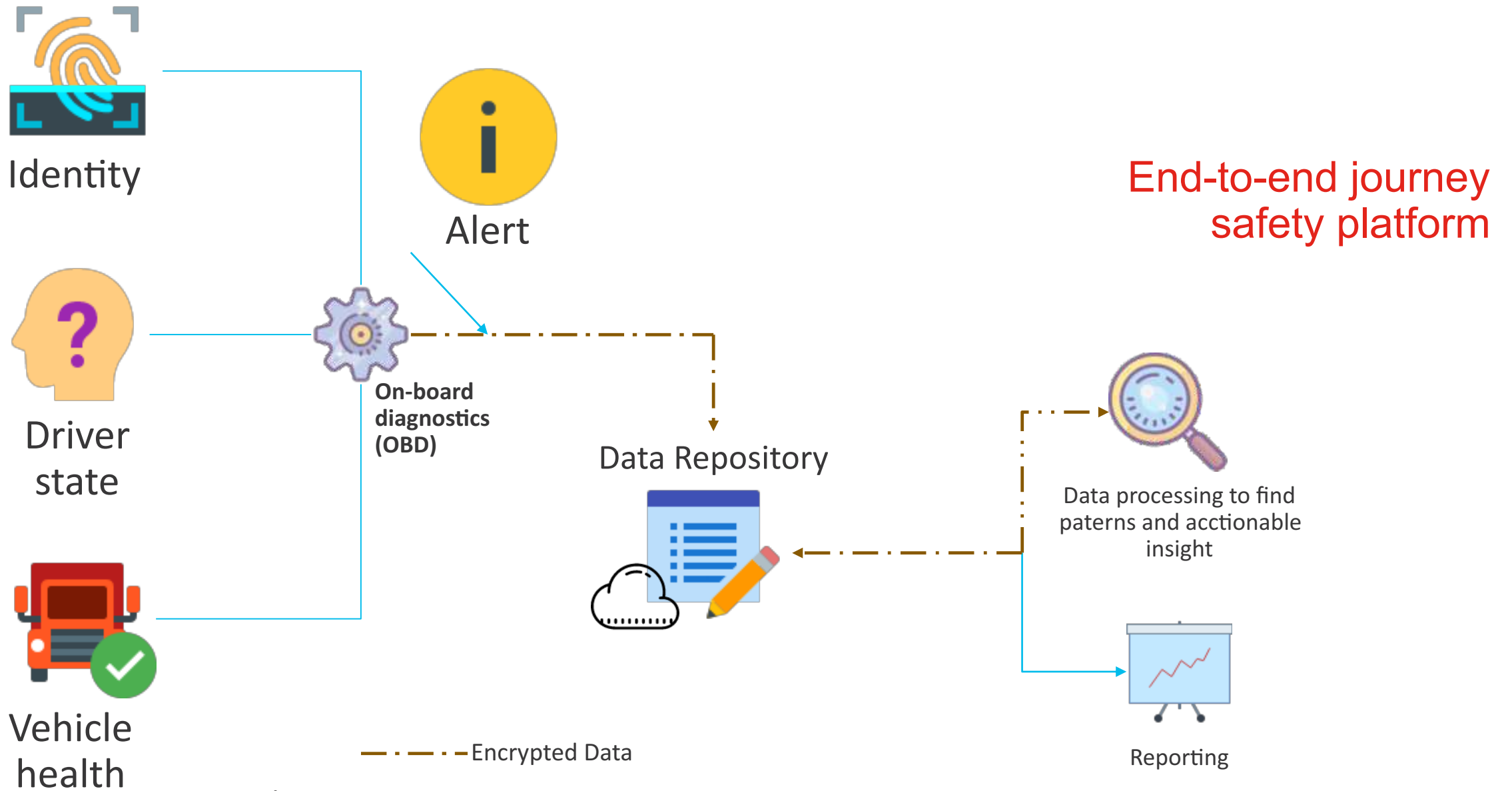
Every journey of the fleet recorded with detailed information

End-to-end encryption of data. No PII data stored



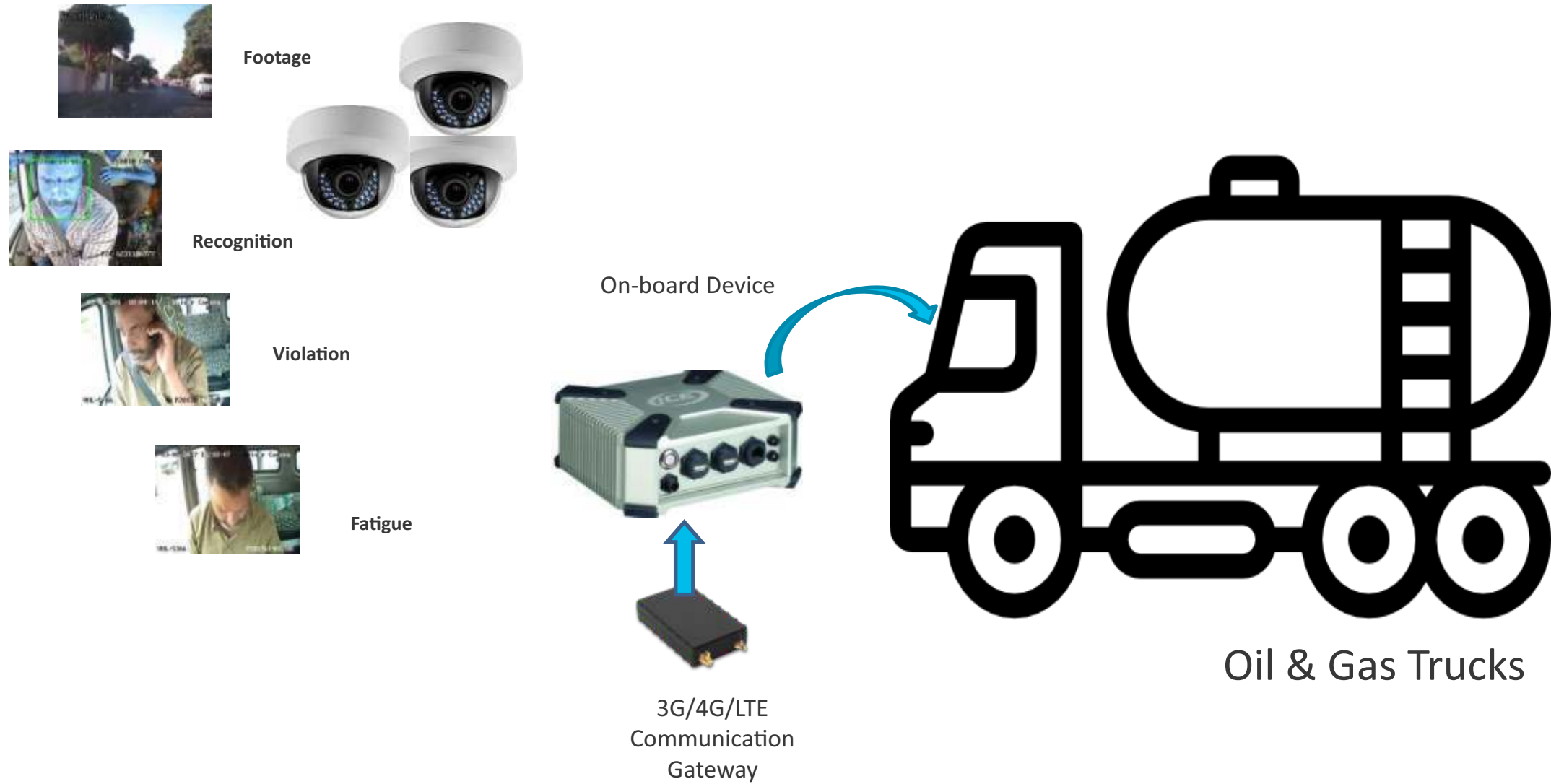
Driver profile and route profile created and available for reporting and business process integration

Machine learning to process continuously increasing dataset and create models for good and bad scenarios

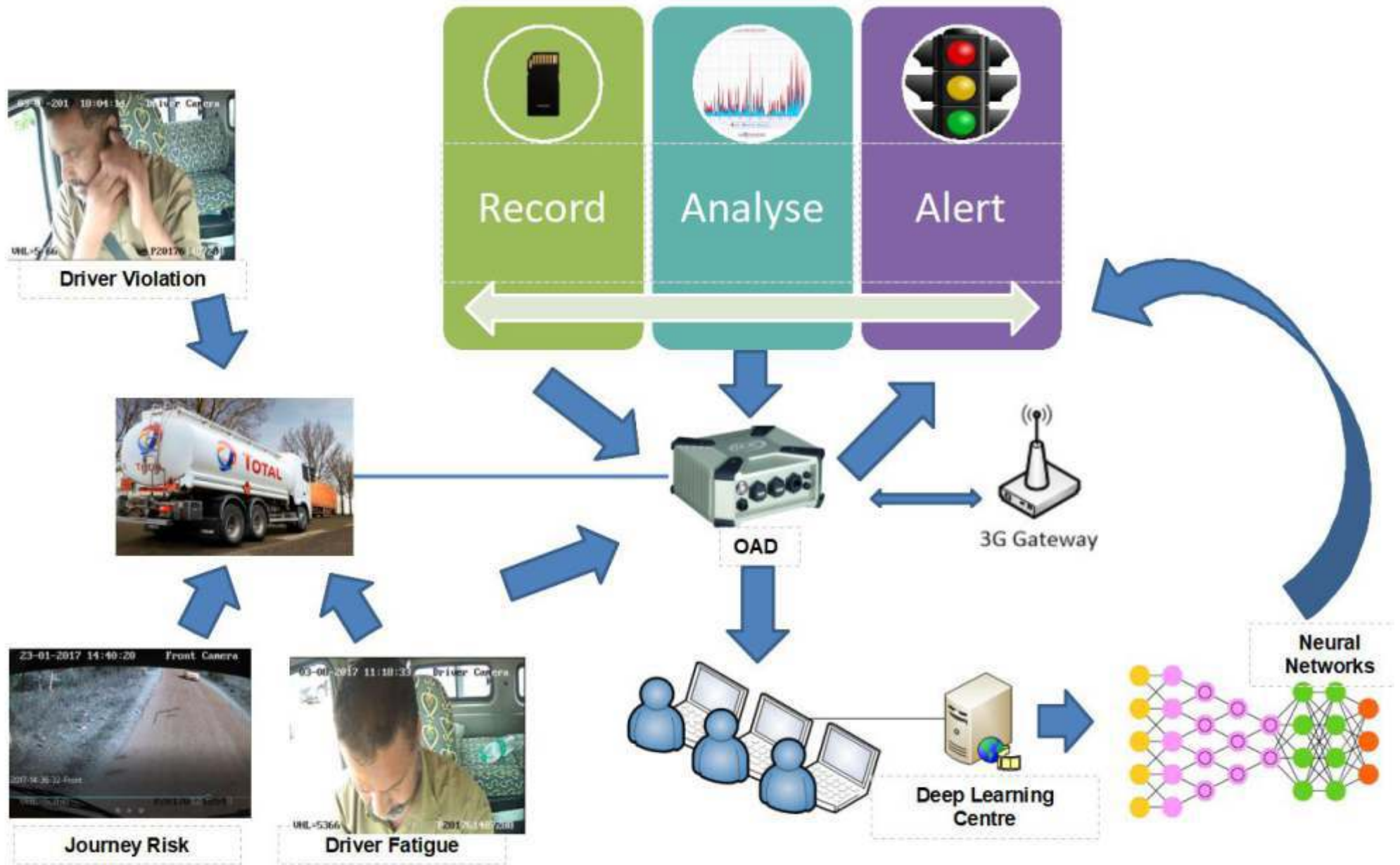


--- Encrypted Data

# System Overview



# On-board device Video Analytics using Deep Learning technics





# IoT Platform running on Azure Cloud

## Live Dashboard

Summary of various alerts / violations

Alert triggered Snapshots

Live Camera Status

Data filtered by alerts / violations

On-demand snapshots

## Comprehensive Live Remote Dashboard

No. 38/5-11, 2nd Floor, Adinath Towers, 1st Main Road, Industrial Suburb, Yeshwanthpur, Bangalore-560 022. India

# Integrated Event Video Analyser

Vehicle No:  From Date:  To Date:

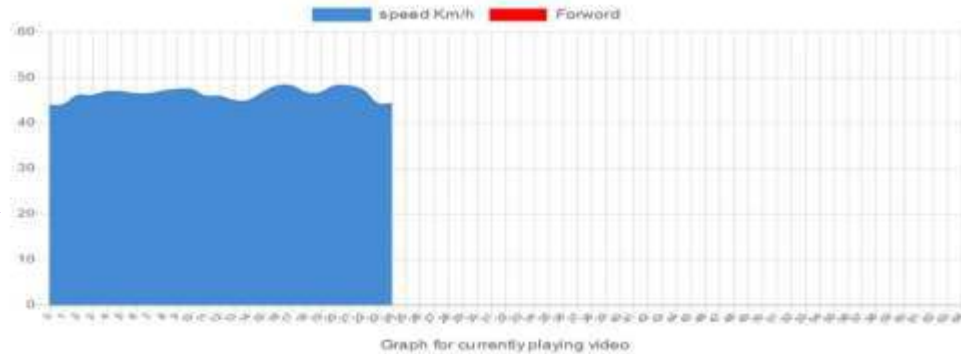
Integrated footage



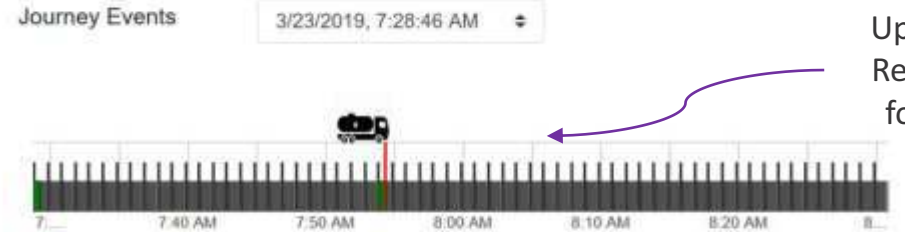
Associated Location Map



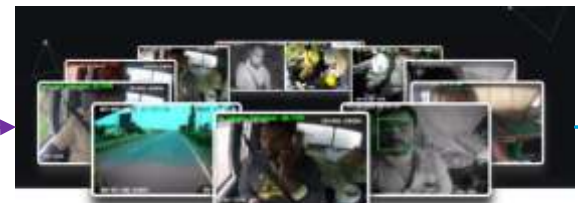
Associated Speed Graph



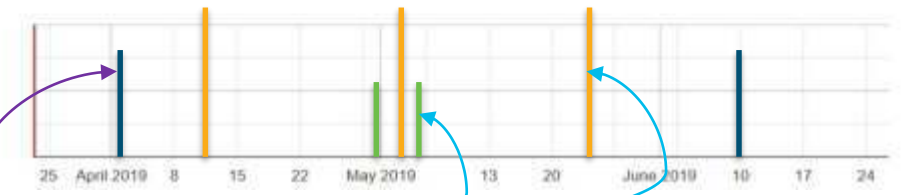
Uploaded Real-time footage



Inferencing on the edge device

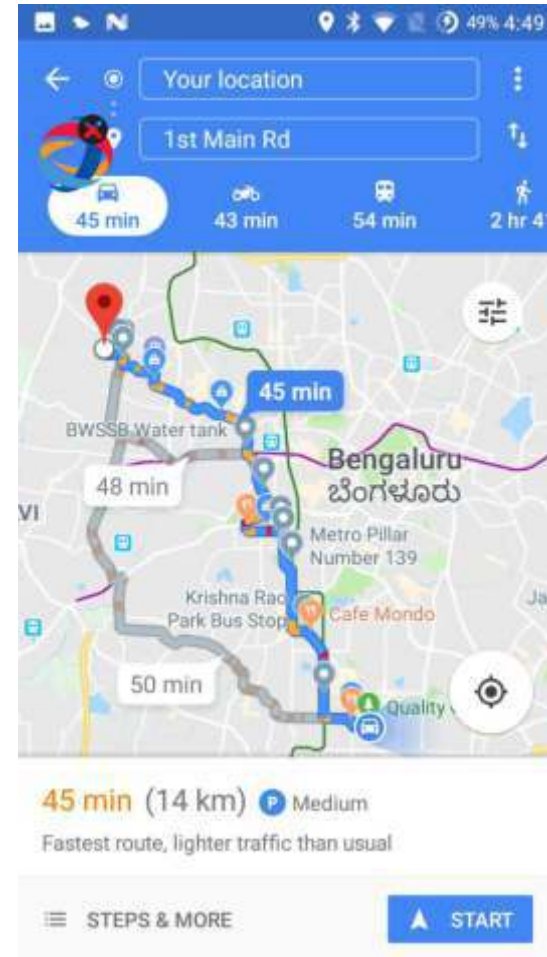
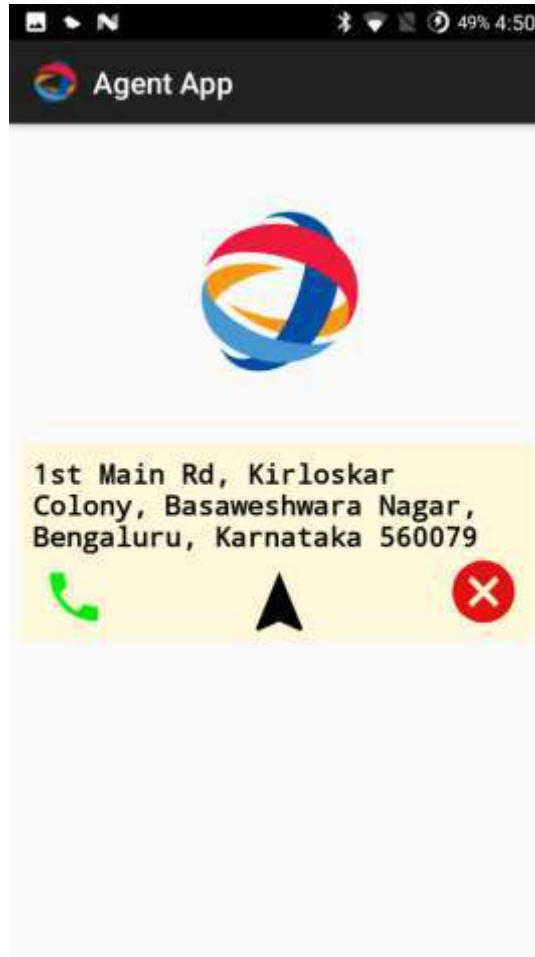


Book-marked Alerts and violations



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# Route optimization with delivery ETA management



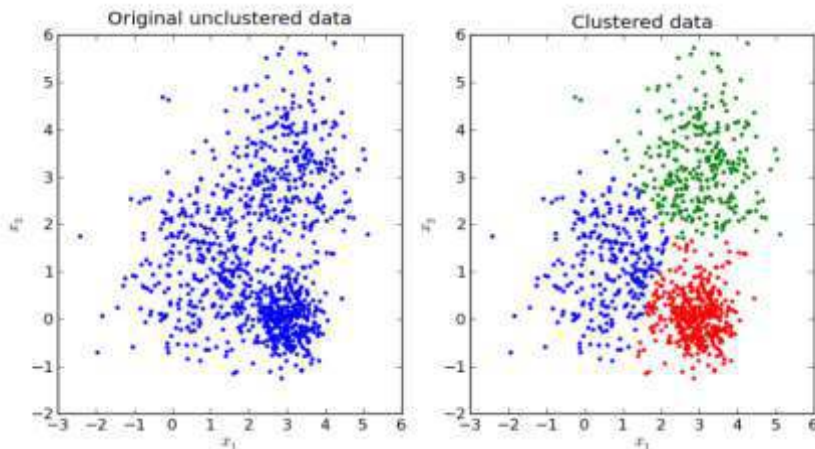
# Moving from reactive to proactive...

With a huge data set, a **machine learning** approach will help identify patterns and provide recommendations to *avoid* a risky situation.

*“The best form of managing risk is by avoiding the risky situation”*

Example, using the data set a **k-means clustering\*** method is used to find patterns around incidents.

**“In route #190182, the chance of an incident is high between 3AM – 7AM and when the driver has driven with lesser than 3 breaks”**



## Actionable insights:

- On-board safety system configured to ensure minimum of 4 breaks.
- Fleet admin to plan route to accommodate breaks between 3AM – 7AM

\* **Machine Learning for Recognizing Driving Patterns of Drivers of Large Commercial Trucks.** Chen Chen and Yuanchang Xie, Transportation Research Record: Journal of the Transportation Research Board, 2015.