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# Connected Vehicle Solutions

December 2020

# IOT Technology leveraging AI / ML + Computer Vision

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## Fully Integrated Tech Stack

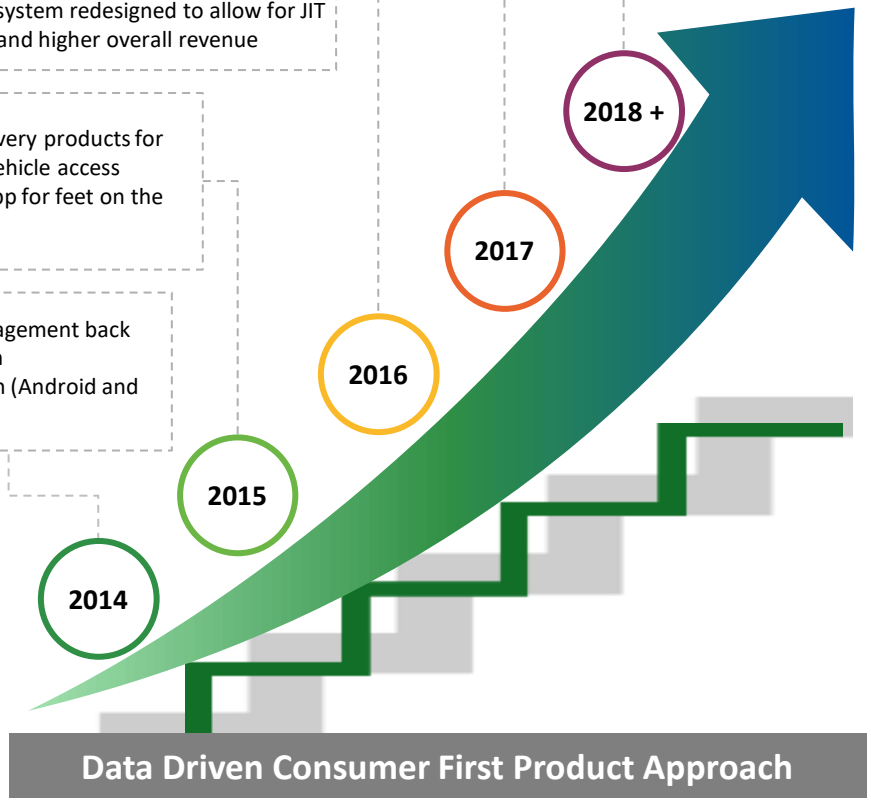
**5**
- AI/ML solutions along with data science enables dynamic
- Full stack shared subscription platform to enable PaaS model for third party OEMs and other operators

**4**
- P2P architecture for marketplace vehicles
- Integrated IoT capabilities enabling predictive maintenance capabilities

**3**
- Keyless entry solutions for remote vehicle access
- Inventory system redesigned to allow for JIT allocation and higher overall revenue

**2**
- Home delivery products for last mile vehicle access
- Android app for feet on the ground

**1**
- Fleet management back end launch
- App launch (Android and iOS)




**Data Driven Consumer First Product Approach**

## Driving Road Safety and Significant Cost Efficiencies

**Keyless Entry:** Enables shared subscription marketplace by allowing remote access

**Remote Engine Immobilization :** Enables centralized control over inventory deterring theft

**Predictive Maintenance:** Battery/clutch/brake alerts triggering preventive maintenance and improving safety

**Data and Machine Learning:** Provides driver scores that help streamline operations and improve customer loyalty

**GPS Tracking:** Enables automation and frictionless customer communication

**Geo-Zoning:** Enables start/end trip for micro-mobility

# Live Vehicle Health Data Streaming for Intelligent Monitoring

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**Taps OBD/CAN data through advanced diagnostics to avoid breakdowns and expensive vehicle downtime**

# Predictive Maintenance Algorithms Boost performance

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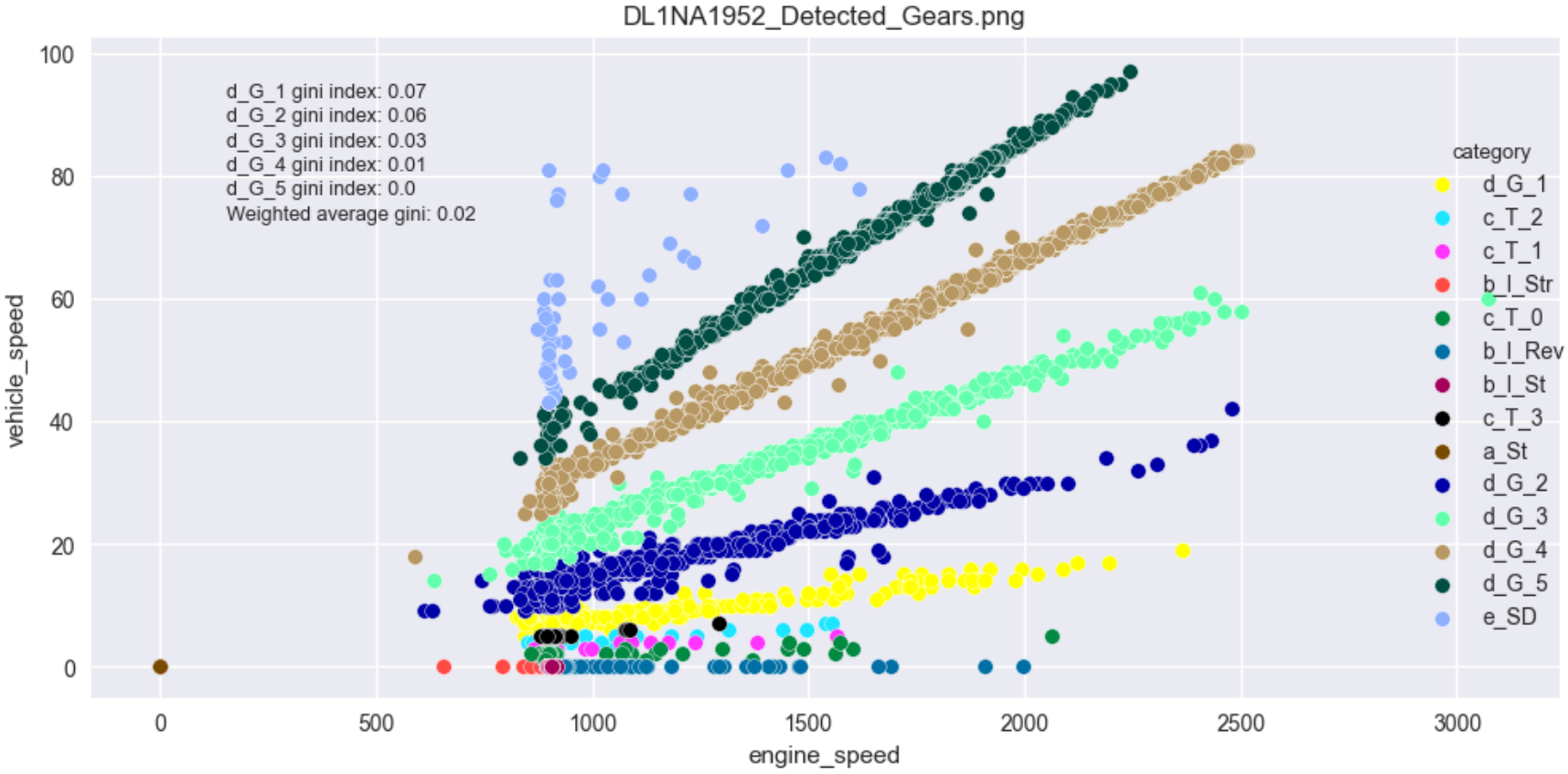


- ✓ Sample of customer's clutch usage pattern vs. ideal usage pattern
- ✓ Key input for predictive clutch maintenance to avoid catastrophic failures

- ✓ Time Idling
  - ❑ Alert to reduce time spent in standstill with engine on to optimize mileage
- ✓ Battery Drainage
  - ❑ Trigger customer when battery is rapidly draining
- ✓ Efficiency of Gear Usage
  - ❑ Ratio of engine RPM to vehicle speed feeding into driver score
- ✓ Efficiency of Clutch Usage
  - ❑ No of times clutch was used when not required

# Driver Score Algorithm Creates Realtime Behaviour Assessment

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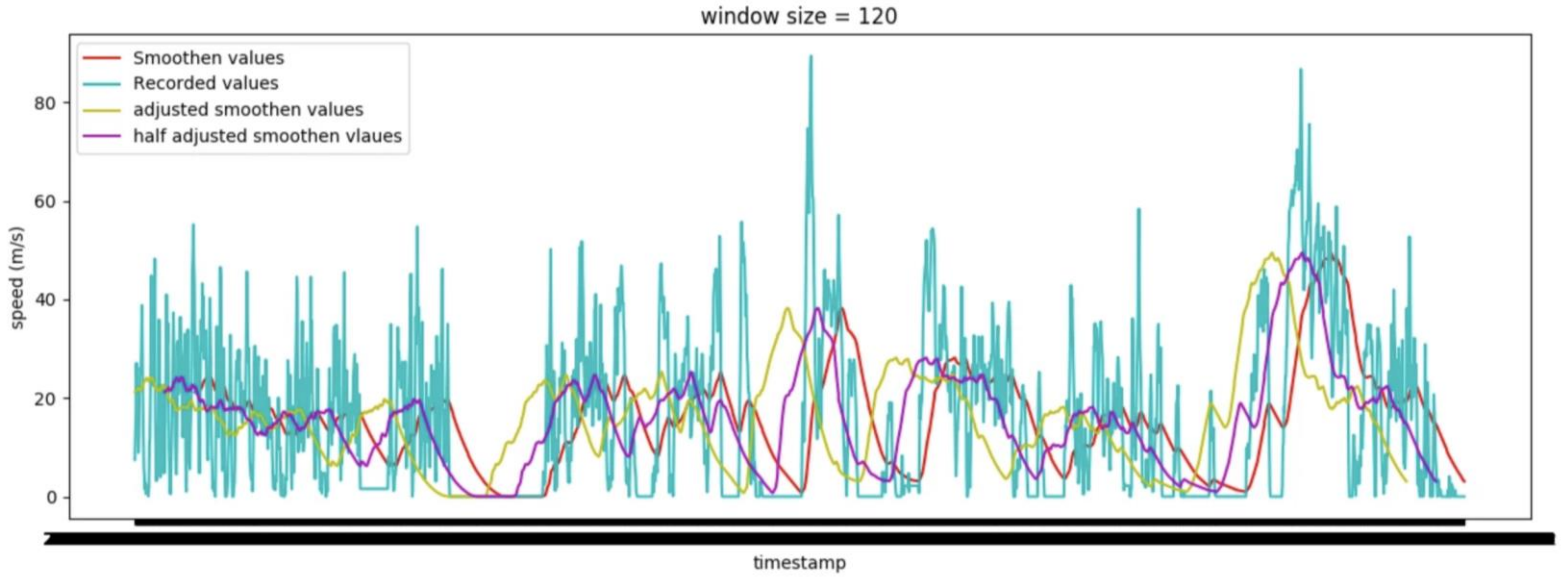


How Smooth was the user's driving?

Harsh Braking

Harsh Acceleration

Over Speeding

Reward/ Penalize based on severity of Rash events

Time Idling

Battery Drainage

Gear Usage

Clutch Usage

Reward/ Penalize for severity Internal Usage

# Live Driver Scoring Improves Driver Behaviour

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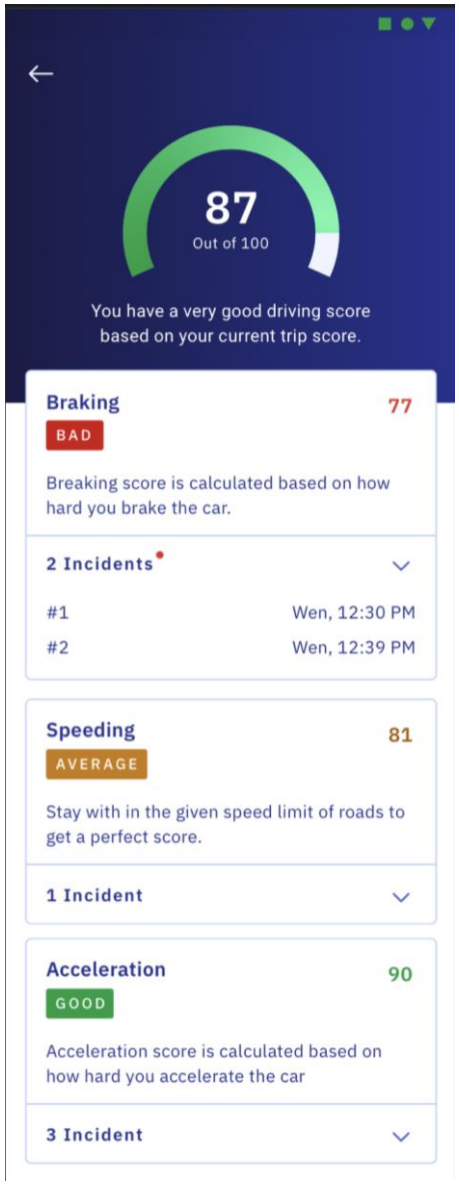
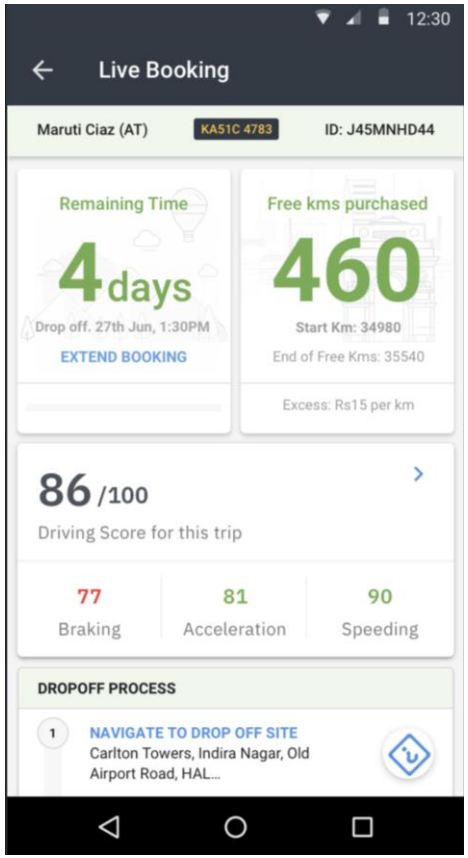



Score Gauge: 0-100

Braking Score and Incident details

Speeding Score and Incident details

Acceleration Score and Incident details including sharp turns




- **Driver Score is 100% vehicle type agnostic**
- Serves commercial + personal vehicles equally well
- Plugs in neatly to existing insurance ecosystems
- Reduces accidents 50% + and lowers operating costs 40% +

# Computer Vision Provides Additional Layer of Driver Safety

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## Core Feature Capabilities

**In-vehicle ADAS device processes road conditions in real-time and integrates back to driver score for 360 understanding**

# Vision Based Driver Assistance

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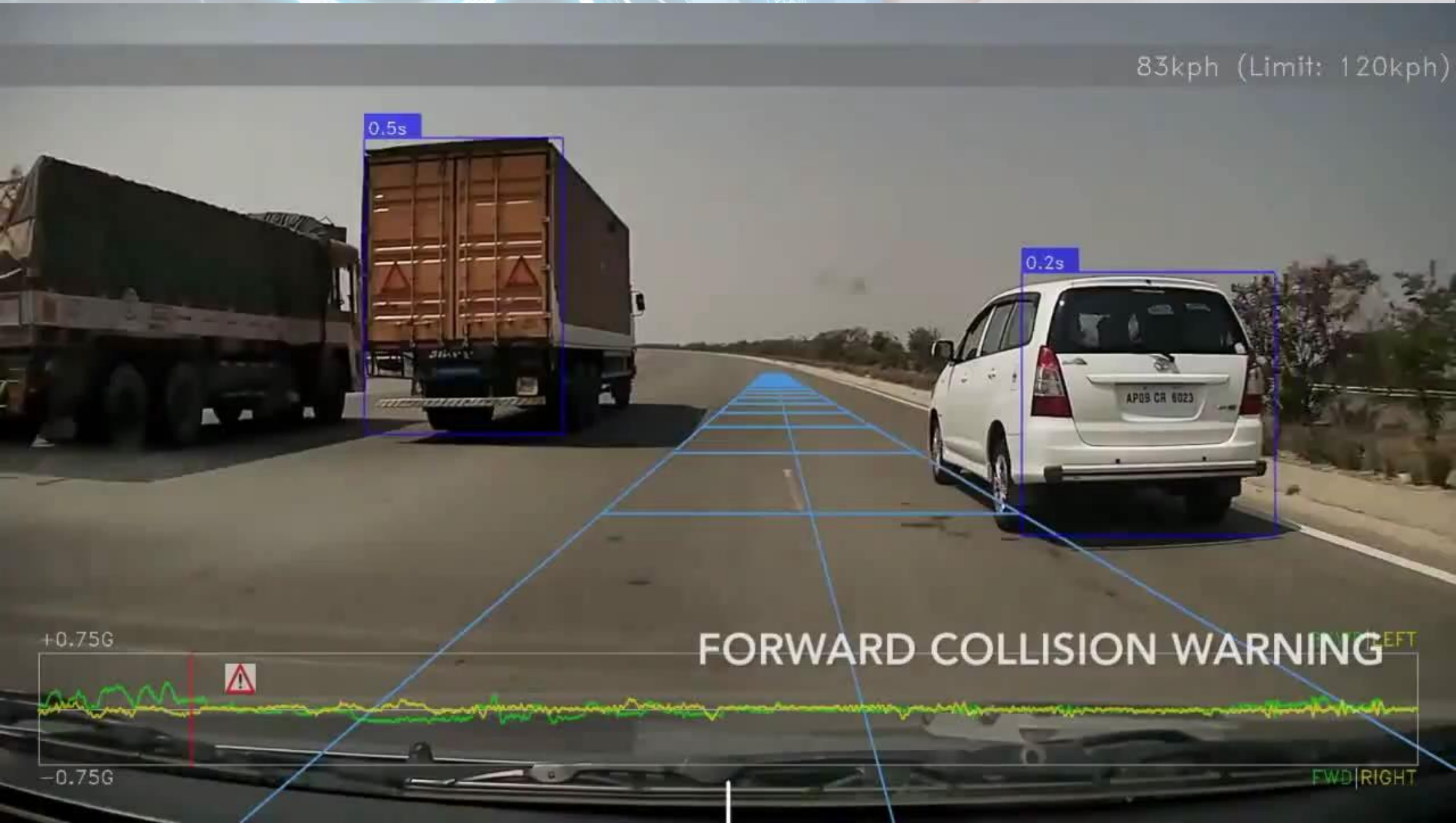

# Realtime Fleet Monitoring Promotes Safety and Efficiency

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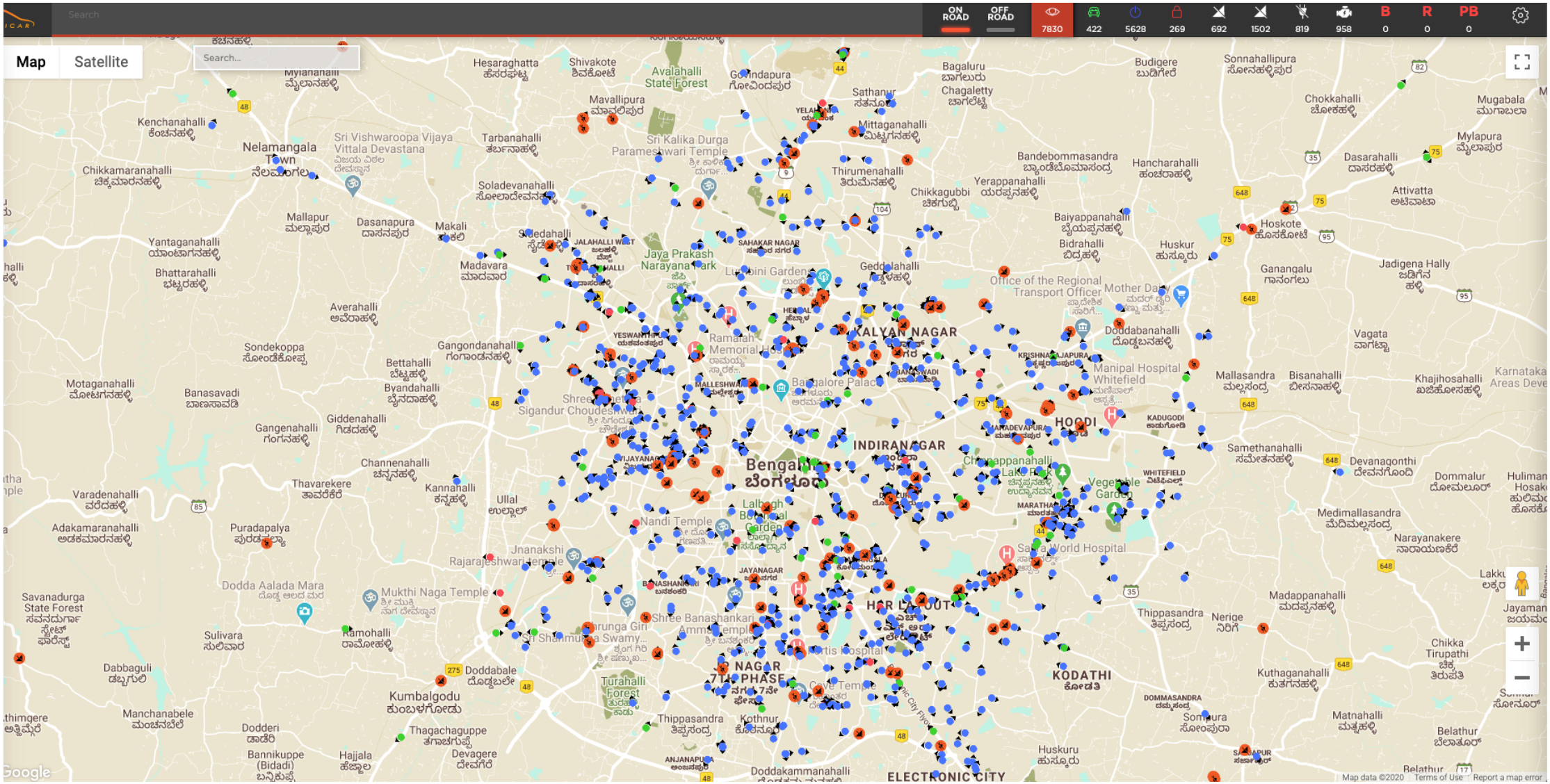


**Dynamic mapping capabilities also allows for real-time insighting for operator to better manage fleet effectively**

# Centralized Control Center Provides Significant Operator Flexibility

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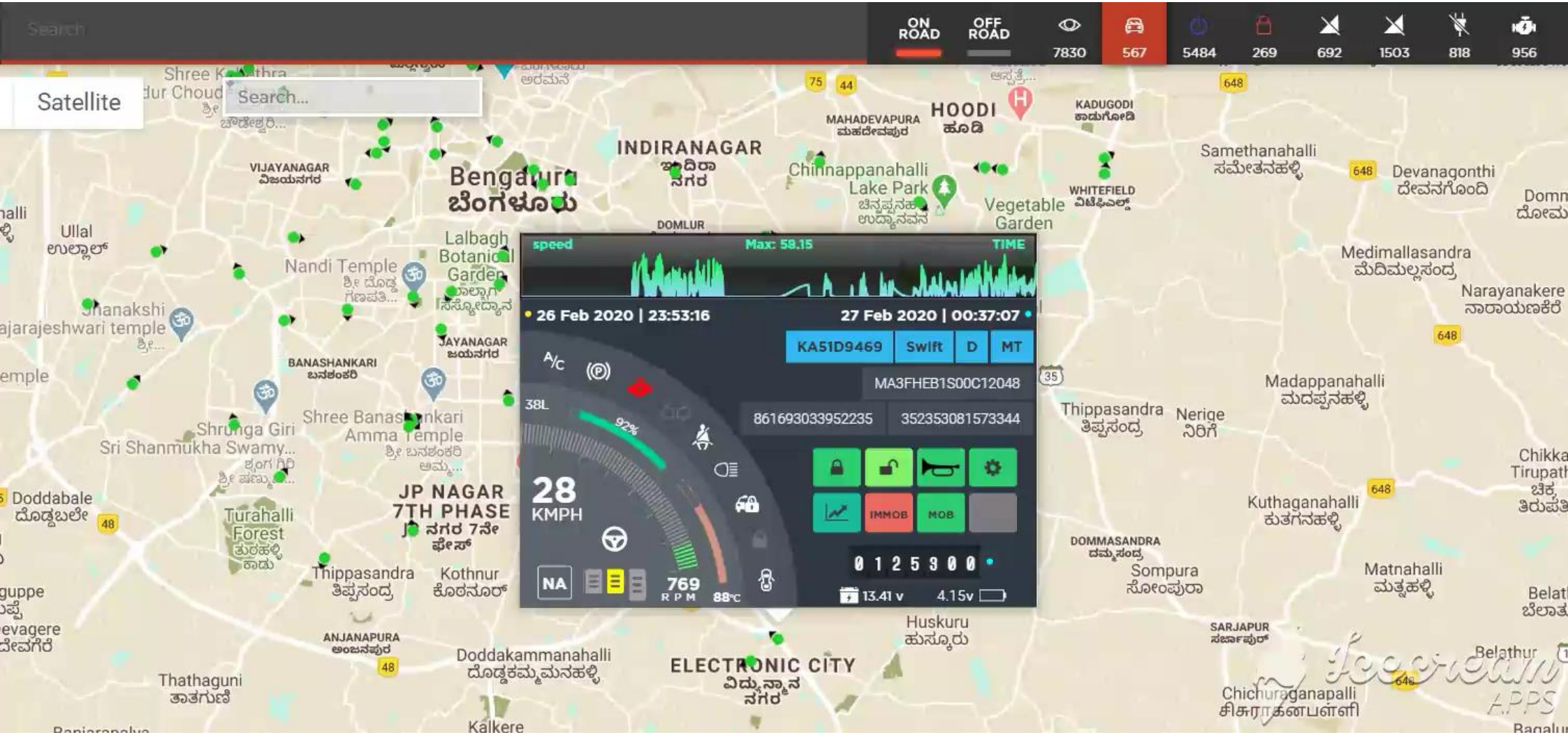


**Dashboard is fully customizable to suit the needs of operator and drive additional back-end efficiency**

# Live Vehicle Health Data Streaming for Intelligent Monitoring

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# Proprietary Neural Network Seamlessly Classifies Vehicle Damages

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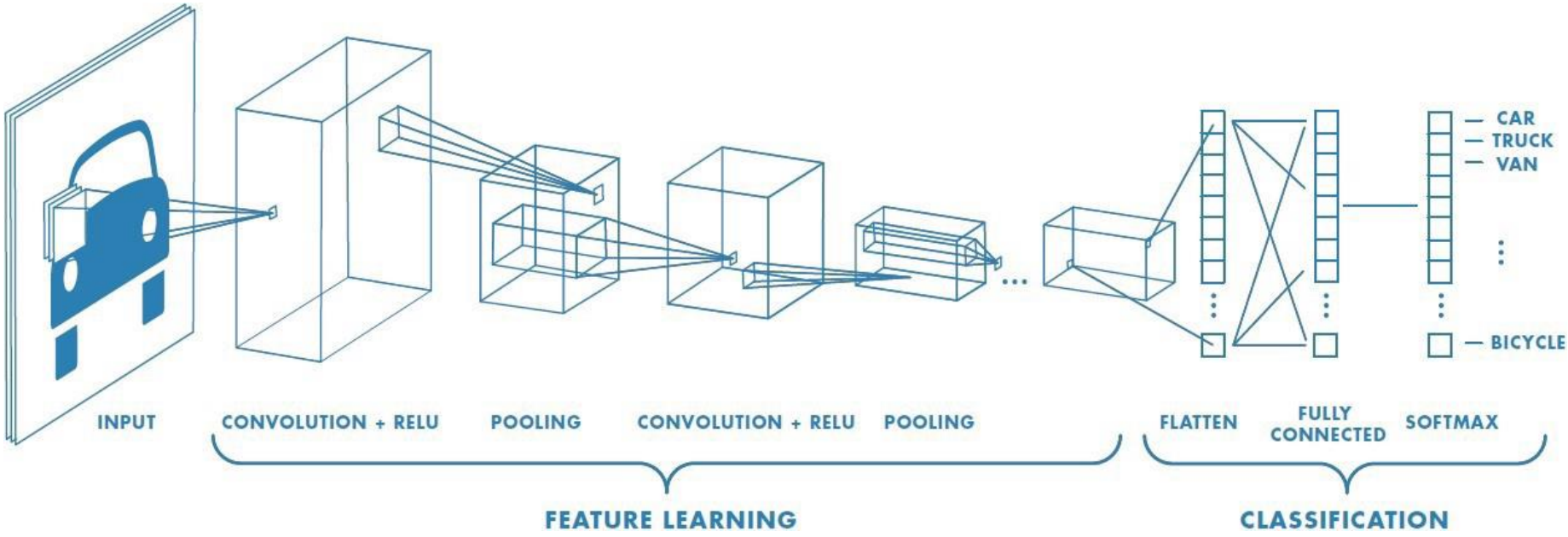
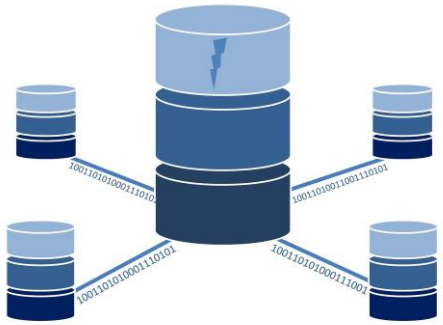
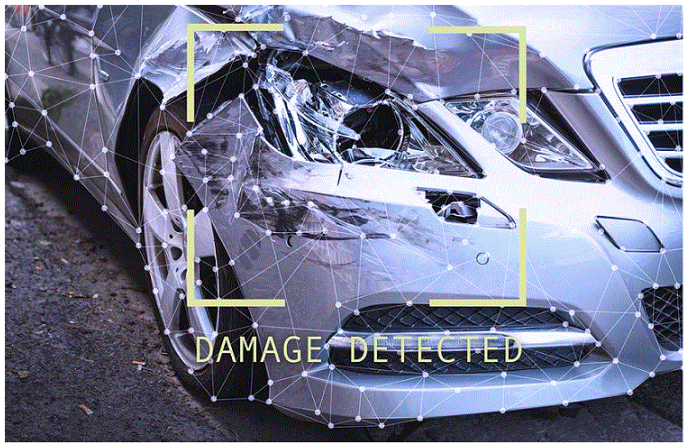


All the images from user checklist gets stored at cloud




**Core Objectives**

- Remotely identifying physical condition of a vehicle prior to ensure positive experience
- Making sure vehicle images captured are always of right orientation and quality for various use cases

# AI/ML Damage Assessment Module Removes Manual Intervention

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## Damage Assessment Complete

Results:

| | |
|---|---|
| Car validation check | ✔ |
| Damage validation check | ✔ |
| Location | Front |
| Severity | Severe |

## Damage Assessment Complete

Results:

| | |
|---|---|
| Car validation check | ✔ |
| Damage validation check | ✔ |
| Location | Front |
| Severity | Minor |

Damage assessment complete!

# Stay Connected, Stay Intelligent Always!

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Connected, Diversified & Intelligent Telematics Solutions - Comprehensive mobility services for varied partner needs

## FOR WHOM ?

Fleet operators, owners of any vehicle type, vehicle sharing platforms, logistics companies

## VEHICLE AGNOSTIC

Fleet management capabilities for all form factors - 2W,3W, Cars, Trucks, Buses, Electric Vehicles

## LEVERAGING THE POWER OF AI AND ML

With millions of data points collated over miles of driving experience.

# Key Features

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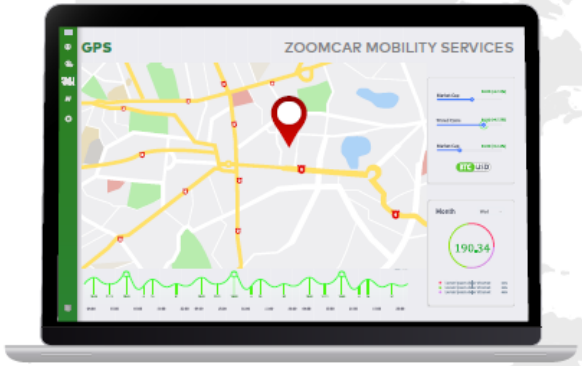
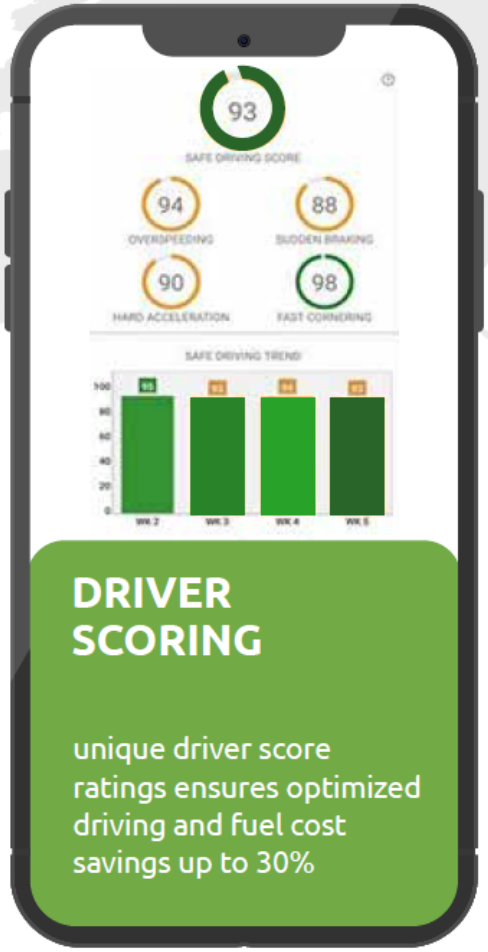



## VEHICLE TRACKING, GEOFENCING & IMMOBILIZATION

Enhance visibility & gain control over assets remotely via live GPS tracking. Monitor vehicle movements within defined boundaries. Immobilize remotely and ensure better control over assets

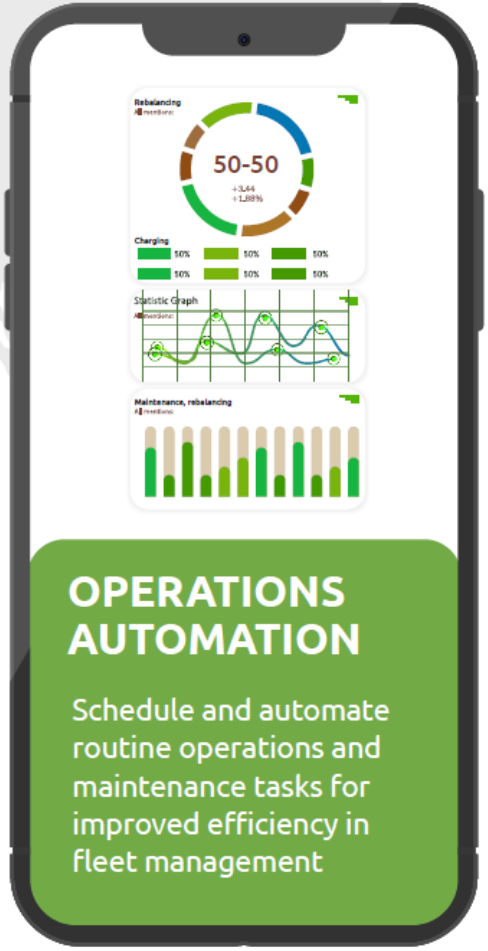
## PREDICTIVE MAINTENANCE

Access to real time vehicle health parameters, diagnostic checks and insights to reduce fleet downtime and maintenance costs up to 30%




## DRIVER SCORING

unique driver score ratings ensures optimized driving and fuel cost savings up to 30%




## OPERATIONS AUTOMATION

Schedule and automate routine operations and maintenance tasks for improved efficiency in fleet management

# Key Features

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## FLEET MANAGEMENT DASHBOARD

One-stop shop for fleet tracking & management with automated alerts and configurable reports. Control room with 360-degree view of fleet.

## KEYLESS ENTRY

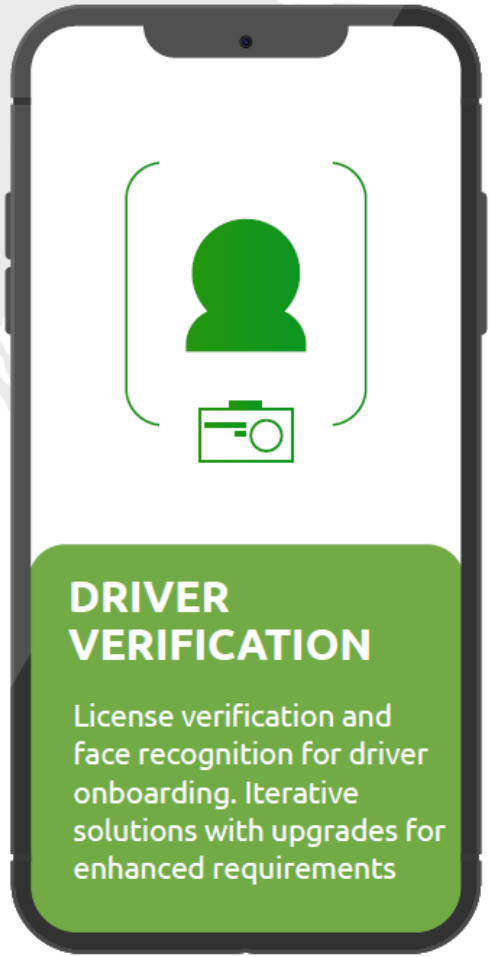
Access to an array of KLE based solutions for fleet sharing & advanced operations capabilities

## ADVANCED DRIVER ASSISTANCE SYSTEMS (ADAS)

Accident Detection, A&V Recording and alerts powered by AI and ML to improve driving behaviour and avert serious accidents

## FUEL LEVEL MONITORING

Realtime fuel level monitoring, refills, theft alerts and mileage analysis to reduce fuel pilfrage and losses



## DRIVER VERIFICATION

License verification and face recognition for driver onboarding. Iterative solutions with upgrades for enhanced requirements

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