



UNLEASH THE
POWER OF
**DIGITAL
TWINNING**

VEHICLE HEALTH

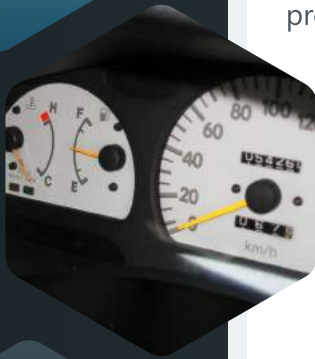
FUEL TRACKING

DRIVING BEHAVIOUR

TRACK & TRACE

OPERATIONS AUTOMATION

INTRODUCTION



A major challenge in the automotive industry is monitoring vehicle performance, which is dependent on vehicle health and driving behaviour.

Making use of Digital Twinning concept, we have developed a platform that allows one to monitor, benchmark, and conduct predictive maintenance of assets in order to reduce operational losses, increase asset life, and enhance overall profitability.

Information which used to be obtained through physical inspection of a vehicle can now be acquired accurately and remotely from its Digital Twin

THE DIGITAL TWIN ADVANTAGE

You can run advanced analytics and prognostics for your vehicles in almost real-time, from any location, and use the intelligent insights to maintain your vehicles, repair or replace faulty parts, and avert any possible break-downs while increasing safety and improving fleet utilisation.

VEHICLE HEALTH

PERFORMANCE MADE PREDICTABLE

Historic and real-time data helps deliver warnings /alerts of possible failures, leading to significant reduction in the on-road break-down of vehicles, thereby increasing operational hours and lowering maintenance/repair costs. Averting an imminent break-down saves unplanned costs towards towing, making alternate arrangements for goods or passengers and post-failure repairs and replacements which may prove costly. With Intangles, you have the necessary information related to issues that may arise in your vehicles, whether minor, major, or critical ones, at your fingertips and you can look at remedies depending on the severity.

- One-click dashboard for the entire fleet
- Identify vehicles with issues that need immediate attention and maintenance
- Make informed decisions regarding vehicle scheduling
- Beyond just DTC – get error details with accurate repair strategies to fix issues
- Conduct Preventive and Proactive Maintenance
- Multi ECU - Data from multiple controllers (systems and subsystems) is captured
- Detect and predict anomalies in systems using Hybrid Analytics

This helps to holistically improve preventive and corrective maintenance thereby extending the life of the assets and contributing significantly to bottom line.



PROGNOSTICS



EXPLORE THE POTENTIAL OF PHYSICAL-DIGITAL CONVERGENCE

Key components analysed using Hybrid Analytics in the Digital Twin Environment are



Turbocharger



Electrical Systems



Powertrain



Power Generation Unit



Engine Control Unit



Transmission/Gearbox

FUEL TRACKING

KEEP A CHECK ON FUEL PILFERAGE

“Insight” enables fleet-owners to ascertain the quantity of fuel filled, consumed, remaining and stolen which is supplemented by location data along with timestamps. Accurate fuel logs and fuel trace is made available using advanced Ultrasonic Fuel Sensor or vehicle’s in-built fuel sensor provided by some OEMs.

- No drilling of fuel tank
- Vehicle Warranty is not void
- Installation is completed in a few minutes
- Identify unauthorized stoppages where fuel theft/adulteration might be occurring
- Benchmark running cost for various vehicles – cost per kilometer

ADBLUE TRACKING

On vehicles with Selective Catalytic Reduction Technology that makes use of liquid-reductant agent through a special catalyst, referred to as Diesel Exhaust Fluid / AdBlue / Urea, you can track fills, consumption, current level and theft.

- Identify problems with dosing system
- Prevent vehicles from going into torque limitation mode
- Exhaust emissions stays within the permissible limits



MIS & VTS



OPERATIONS AUTOMATION AND REPORTS

- ◆ Create routes, route timings and schedules
- ◆ Automate maintenance schedules
- ◆ Configure alerts and alert frequencies
- ◆ Generate daily reports for hub to hub, hub stoppage, vehicle daily report
- ◆ Daily driver behaviour and violations
- ◆ Daily vehicle and fleet health

LOCATION TRACKING

- ◆ Track vehicles in real-time and also replay trips for a specific date and time range
- ◆ Track driving exceptions such as hard braking, harsh acceleration, speeding, idling, overstay, coasting/free-running (driving in neutral gear)
- ◆ Create unlimited route-fences and geo-fences (hubs/stops)
- ◆ Locate vehicles in case of emergency

DRIVING BEHAVIOUR

DRIVER SCORECARD AND INCENTIVE PROGRAM

Around 90% of all road-accidents are due to driving errors. In addition to loss of lives and goods, accidents also significantly directly or indirectly impact costs incurred in repairs as well as an increase in insurance premium and possibly pay penalties towards underperformance. A great way to check on the increasing number of accidents is to keep track of the driving behaviour and offer personalised training to each individual driver on a regular basis.

- Advanced and comprehensive solution
- Track driving exceptions, gear utilisation and idling for individual drivers
- Create customized driver training program
- Promote a safe and healthy driving environment within your fleet
- Run rewards programme

You can track hours of service, distance covered by a particular driver, total idling instances, free-running, speeding, hard-brake, mileage, gear usage and many more insights.



WHY INTANGLES?

- Robust, scalable, light, cloud-based, and a cost-effective solution
- Unique platform that provides insights from both the vehicles and drivers
- Proven track record with fleet operators, OEMs, tier-1 suppliers
- Strong network of channel partners
- Internationally proven solutions

HARDWARE SPECIFICATIONS

- Plug and play device
- Wide operating temperature range -40°C to 85°C
- Voltage range 9V to 48V
- 4G LTE capable with 3G/2G backward compatibility support
- High Speed Data available on Cat M1/NB1
- Dual SIM Capable (with e-SIM)
- Firmware upgradeable over the air (FOTA)
- Pre-certified firmware with secure boot
- Compact design
- Long battery life
- Communication ports available for UART, SDIO, USB, GPIO, etc.



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