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Parameters	Description
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Memory	10000 Tracking Records on Solid State Flash, 100K Erase and Program Cycle, 10 year data retention.
GSM Module	Quad Band GSM 850/900/1800/1900Mhz, DCS GPRS: class10 Coding Scheme CS1 to CS4.
GPS Module	GPS:66 acquisition-/ 22 tracking channels, Ultra high tracking/navigation sensitivity: -165dBm1,Inbuilt patch antenna, 5 Meters Accuracy.
Antennas	Internal Antenna
Communication Interface	TCP/IP on GPRS.
Record Storage/buffer	10000 Tracking Records.
Ports	1-USB Device type, 1 Analog I (fuel) and 2 Digital I/O, 1 Ignition Input
Configuration	Recording delay, transmission delay.
Communication Scheme	TCP socket with Open Session.
Speed Sensor	GPS(default)
SIM Interface	Supports SIM card: 1.8V & 3V Micro SIM
SMS	Supports Text
GPRS Packet Data	Class 10 ; Class 8 (Optional), Coding Scheme CS1 to CS4
LED Indication	Processing, GSM, GPS, USB Detection
Connectors	6 Pin power mate connector
Power Supply	Wide DC input voltage range (9V - 32V),
Current Consumption	300mA during tracking and 150mA during standby
Internal Battery	700mAh, 5 to 6 Hr backup.
Enclosure	ABS plastic casing with IP65 rating (IP 67 Casing, optional, at extra cost)
Temperature	Operating: -10°C to +60°C
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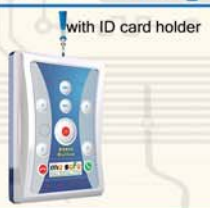

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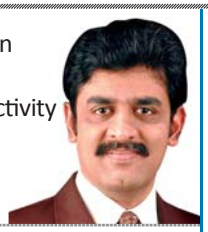

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EDITORIAL

Vehicle tracking is no more a technology, which is an exclusive of few and aware community. Its not just the top management of logistics or transport corporations, but the bottom of the pyramid which too is quite aware of this technology. Maybe they will bat eyelids if you mention 'vehicle telematics' or 'vehicle tracking system', but the word 'GPS' will get you some response, which would be based on some feature or service of vehicle telematics.

So, whats' next?

There are opportunities up the value chain of vehicle telematics, which can address the chronic illness of being loss making for public transport corporation. It has already started making a difference in some of the PSUs where transparency is streamlining the billing. If we look at the recent tenders issued, its use in governance is emerging. The numbers may not be big, but the number of departments are certainly large in India; and more over its relevance in governance, which although was understood by many from vehicle telematics domain, but is now seeing the realization of this. Autonomous cars, which is staring at us, will soon be hitting the roads, maybe in India too in limited or close/monitored environment. Some of the senior industry leaders see it as a disruptive technology which may transform not just transport but vehicle ownership and human-to-car relationship. Just as communication device like mobile phone has moved way beyond its utility of enabling communication between two persons, personal vehicle also is more than a means to transport alone a person from place A to place B.

The speed at which the developments takes place, sometimes blurs the line between what is upcoming technology and commonly available and understood. That autonomous cars are new, but that individuals too can demonstrate the driverless car and technical institutions are having entire course on driverless vehicle placed online in public domain is quite fast for an industry vertical which is so new. We will hear and see more about driverless car in all types of economies- developed and developing. The barrier will not be the cost of implementing, but the regulatory mechanism, which will determine how much we are able to make out of this opportunity.

Maps which are integral part of vehicle tracking, navigation and autonomous cars, took a hit last fortnight, when Ministry of Home Affairs issued draft Geospatial Information Regulation Bill 2016. Although it seems, taking note of immense and unanimous call for look into this biil, the MHA may consider some suggestions, but the scars are going to remain. Couple of days after the draft bill was uploaded, Department of Science & Technology uploaded the draft mapping policy, which although was positive and forward looking there are areas of concern.

@telematicswire

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India and the Asian market: opportunity for telematics

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Scope Technology (Asia) Pte Ltd

Markets overview

Telematics has been in the fast lane recently. With a number of industry verticals deploying telematics solutions and benefiting from them, there are clear indications that it is a technology whose time has come.

Telematics is changing the face of motor insurance just as rising car ownership is changing the mobility landscape for India's rising middle class, expected to reach 200 million by 2020. The commercial potential of putting the two together is hard to miss. Until recently, Asia lagged behind European and American compatriots in the adoption of telematics for motor insurance, but this is now changing.

The telematics technology has re-defined existing business models in a saturated market place, as insurers continue to look at means through which they differentiate themselves and their product suite. Despite rising GDP of 6.7% expected in the Asia-Pacific region over 2015, insurers face diminishing returns as the market becomes more competitive. Under writing and administration systems are evolving and much of this change is driven by analytics and telematics, enabling insurers to reach a broader consumer profile effectively and profitably.

The increased demand across the fleet management sector, is also having a considerable impact on the market. According to a recent report, "India Telematics Market (2013-2018)", from 6Wresearch, the Indian telematics market is expected to reach $113.7 million by 2018, growing at a CAGR of 22.8% from 2013-2018. It is expected that as the awareness of telematics grows and infrastructure throughout the country strengthens, sales of telematics solutions will continue to increase.

Growth in the Indian telematics market

Based on the statistics and sales forecasts available, Indian telematics industry is heading towards a considerable peak. This trend is being driven by the continually changing macro and micro economic, political and business factors. The current climate has set the backdrop for the stark rise in technology, and in turn, the various firms looking to take advantage, and seize a share of this market.

This trend is further enhanced by the fact that India's infrastructure investment plans of more than US$ 1 trillion in investment over the next several years according to industry analysts TRN Ltd, including planned construction of an additional 15,000 km of highway by 2017 will drive demand growth for tracking and fleet management throughout India. This new infrastructure will require 400,000 new buses by 2017, and similar growth is expected across vertical market segments including logistics, distribution, mining, construction, and employee transportation. These sectors are showing strong demand for tracking and fleet management, through the increasingly sophisticated use of vehicle and driver data by fleet operators.

Insurance Telematics in Asia

The real time monitoring, analysis and broadcasting of data through the telematics platform has the potential to fundamentally change and redefine the relationship between insurers and customers. As well as improving overall engagement levels with consumers, the technology allows insurers to cater for a pro-active asset protection model.

Through telematics, the ability to employ differential charging provides a more open and fair process, with not only the decision and the premium communicated to the policy holder but also the various factors that made up the premium calculation. That is quite a departure from the traditional insurance models that assess risk and determine premiums based on group behaviour and other proxy variables.

With more than 160 insurance telematics trials and launches currently under way in 34 countries, it is estimated that over nine million telematics-based insurance policies are in effect currently around the world. Asia, initially somewhat laggard, is catching up. In India specifically, the telematics market is projected to reach $301.23 million by 2021 (6Wresearch).

In May 2015, Bangkok Insurance (BKI) in Thailand became one of the early adopters, launching an insurance telematics program to manage risks from young drivers and commercial fleets. The BKI program is currently targeting around 10,000 customers in the first phase. In China, several Insurers have been preparing the market by providing telematics capabilities to their policy holders as part of their value-added programs

Similarly, for most of Asia, the growth potential is obvious when you consider the uptick in car sales. McKinsey, estimates that new-car sales in China will overtake those of either Europe or North America by 2020. Significantly, KPMG reports predict a healthy longer term "prognosis for the Indian automotive industry" but rapid growth isn't the case for every nation in Asia. Information group Nielsen also says

south-east Asian sales will drive much of the world's demand for vehicles, in turn increasing the demand for telematics.

Traditional car-insurance policies will be harder to find as capital is attracted to the better return on investment offered by telematics-based insurers.

The Connected Car Opportunity

A recent report from Research and Markets concluded that the connected car market in India is expected to grow at a CAGR of 60.4%, which is a remarkable figure. Similarly, the Economic Times recently reported that internet-enabled cars now present a $30-billion market for a range of sectors in India and that, by 2020, the market is set to increase nearly six fold. Throughout India, the automotive industry is witnessing a new wave of technological revolution, which is boosting the idea of connected cars.

The aftermarket services segment has accounted for the largest market share and is anticipated to lead in the forecast period. However, higher growth is exhibited in pre-embedded segment as automobile companies such as Honda India launch their 'Connected Cars' initiatives.

The provision of internet accessibility in cars en masse is inevitable, as consumers now expect such real-time services. This includes services from GPS and traffic navigation, to fuel analytics, weather forecasting and safety features. The connected car market in India represents a ground-breaking union of players from across a broad range of industries, including vehicle manufactures, telecommunications, tech providers and insurers.

Looking ahead a little, more services are likely to be offered via telematics as cars get connected and become an integral part of the growing "internet of things" landscape. These 'after market services' can include proactive roadside assistance, vehicle health status, security and connected navigation. These services are all considered added benefits for the consumer, increasing the OEM's engagement with the driver and ultimately improving customer satisfaction rates. ■

Vehicle Tracking Telematics

"Vehicle tracking is monitoring the location, movements, status and behaviour of a vehicle or fleet of vehicles. This is achieved through a combination of a GPS (GNSS) receiver and an electronic device (usually comprising a GSM GPRS modem or SMS sender) installed in each vehicle, communicating with the user (dispatching, emergency or co-ordinating unit) and PC-based or web-based software. Telematics is the integrated use of telecommunications and informatics for application in vehicles and with control of vehicles on the move" [1]

For over a decade this definition has applied and continues to apply. There have been some technological disrupters to this.

In this article we look at vehicle tracking from a technology perspective and look at the interplay between information, propagation and standardization.

Information

There are three fundamental types of information that is tracked – vehicle location, parameters of motion like speed and acceleration, vehicle parameters like fuel level, battery condition etc. Therefore any in-vehicle tracking telematics gateway is likely to have the following – IO module, GNSS receiver, Accelerometer, a micro controller and a GSM/GPRS module. Periodic messages are sent to a remote server over a TCP/IP or HTTP connection. An application software layer makes this information available to the consumer over the Internet. Normally a GIS backend is required, to resolve the latitude, longitude on to a point on a map. However, with the likes of Google, the map content has been provided as a service on request.

Information is collected by a Telematics device which is connected to a vehicle by a VEHICLE INTERFACE. They can be of three types – Autonomous, Wired or Bus. An autonomous system is a battery operated device, which has no dedicated wired connection to the vehicle but is collocated. These devices are normally used only to collect vehicle location and parameters of motion. The likes of OLA and UBER have used Smartphones and the built in location services to enable tracking using a driver centric device rather than the strict definition of a vehicle installed device. However, even in these cases the jury is out on whether the vehicle still needs a dedicated connected device from the safety and regulatory perspective. A wired system is one in which the device is connected to the vehicle battery and optionally to various sensors like oil pressure switch or temperature. A Bus based device connects to the OBD-II port or the CAN bus in the vehicle. The latter can provide a lot of information about the vehicle including fuel consumed and gear shift, giving insights in to the driver behavior as well. Of late the OBD-II based tracking has gained momentum. However, the OBD-II port is essentially a diagnostic port and hence connecting unapproved devices to this port continuously can create serious harm to the vehicle. [2]

Krishnamurthy Vaidyanathan
CEO
EI Labs India Pvt Ltd

He is the founder CEO of EI LABS INDIA, with over 25 years of experience in technology, of which more than a decade is in automotive telematics. He has a dozen patents to his name.

Among the information tracked, the foremost is the vehicle location, which is not to be confused with the driver location, since the driver may not always be in the same location as the vehicle. GNSS technologies, commonly referred to as GPS, is used to determine the current location of the vehicle. We see a development along two axes here – the improvement of the GNSS receiver, and the deployment of new constellations. The best of class GNSS receiver today boasts of a sensitivity of better than -167dBm. Note that this is a negative number. The lower it gets the better is the receiver. What is means is that the location receiver is likely to work even in low signal conditions, in monsoon clime as well as partial indoors. The other big development we see is in the arrival of multi-constellation GNSS receivers.

GPS has been, over the last two decades, the common technology for extracting location in terms of geographical coordinates. Over the last decade GLONASS and GALILEO have been added. India's own NAVIC system [3] consists of 7 satellites in orbit over South Asia, giving accurate GNSS positioning capability independent of the GPS in India and neighbouring countries. An important technological difference between GPS and GNSS is the fact that while GPS comprises of all Geosynchronous satellites, NAVIC comprises of three Geostationary and four Geosynchronous satellites, which is expected to yield better availabilities in all weather conditions for India. NAVIC receivers are not yet common place as the last satellite has been put in place very recently. Navika from Accord Systems is one of the early ones.

Propagation

Information collected from the vehicle need to be propagated to the end user. The de-facto industry standard today is the use of GPRS (2G) to create a TCP/IP socket to a remote server, which would host a database server to collect this information. The information from the database is then distributed on demand to the customer over the Internet. Although 3G and now 4G technologies have appeared, its use in vehicle tracking is not really being seen. A lot of action is being seen on the propagation of information over the internet. The advance of Cloud Technologies and the availability of two common platforms from Amazon and Microsoft have made the cost and maintenance of the tracking software and its access very low. [4][5]

Exchange of Information from the device to the database server, and then on to the user, possibly on the cloud, is also seeing some advancements. There is a clear shift to REST (Representational State Transfer) based web services as it is simpler and lighter than SOAP or WSDL based interfaces [6]. The fact that it is stateless makes it eminently suitable for the Cloud implementation. The format of the data exchanged between the Telematics Gateway and the Server is normally in the request/response payload or in the HTTP body. JSON has emerged as the preferred choice for the payload for most modern implementations.

Standardization

Standards have evolved both on the Vehicle Interface as well as the Information Sharing aspects of vehicle tracking.

AIS004 Part III (EMI/EMC) is the Indian Standard that applies to any telematics unit which is fitted on the vehicle. The telematics unit is treated as an ESA (Electronic Sub Assembly). Components sold as an aftermarket need not comply if they are not an immunity related function, which would mean that if the device is bus connected (like OBD II) it would most likely need to be meeting AIS004. The device is expected to meet among other things immunity to pulse types 1 through 4 as laid out in ISO 7637-2. It should also not conduct noise beyond the levels permitted by the same standard. In addition to conducted immunity, compliance to radiated disturbances limits as per CISPR 25 have also been very recently made compulsory. It is therefore best to pick a device that meets the AIS004 standard.

As the penetration of the vehicle tracking telematics is increasing, it is becoming important for a business employing such technology in its supply chain to look for a way to have multiple vendors for the in-vehicle device without having to tweak its application each time a new device is brought in to the system.

Automotive manufacturers are slowly evolving standards in the way the telematics device connects to the vehicle. A case in point is the recent rFMS technical specification of 2014, for trucks and buses put out by majors like Scania, Volvo, Dialmer etc. The connector and the Pin Outs for the Vehicle Interface is clearly specified. Data Access methods and the response tokens are also clearly spelled out. The idea behind this specification is that there can be third party telematics services which can retrieve vehicle tracking information from various OEM servers in a standardized way. The rFMS is specified to be implemented with RESTful APIs over HTTPS. Vehicle VIN number is used as key to access any information.

Conclusion

In summary it can be said that the vehicle tracking telematics technology is maturing. Vehicle Interfaces as well as data interfaces are getting standardized. Device compliance standards like AIS004 have also emerged. A customer needing vehicle tracking telematics in his supply chain should look not only for a compliant device, but also software that is compliant to standards like rFMS.

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Building full solution or taking everything from one hand

Andrius Rupšys
Founder and CEO
Ruptela

When talking about vehicle telematics there is a high chance that at one point you will hear someone saying the phrase 'full solution'. Therefore, let's shed some light on full solution itself in vehicle telematics field. To do that we need to answer two short questions – what exactly is full solution and what are the benefits of it?

What is full solution?

When you ask different telematics providers around the world what does the full solution stand for in vehicle telematics, you get answers such as 'GPS tracker with a real-time monitoring software' or 'the combination of tracking and monitoring products that satisfy the customer'. We would say that the last definition accurately describes full solution meaning from the customers – the end users perspective. It is everything that client needs to manage his fleet more efficiently. But what about service providers that have to do business with different types of end users? Being one ourselves we decompose this phrase into four main parts:

- Hardware part
- Software part
- Accessories part
- Support and integrations part

Hardware part: GPS tracking device is considered to be the basis of any fleet management solution. Though they all might look like small black boxes the main difference lies within them. Some GPS trackers are designed for basic tracking such as gathering vehicles location, speed, route history and some are state-of-the-art devices capable of analysing drivers' behaviour and gathering various parameters– from trailer temperature to tachograph data or pre-set geozones violation. Moreover to have a full set of GPS tracking devices, telematics provider must have not only basic and advanced trackers but also the ability to provide them with pre-installed SIM cards and even offer a renting possibility.

Software part: Real time vehicle monitoring software is another key element of any fleet management solution. It is a system that processes various data gathered from GPS trackers and allows its user to make valuable decisions on how to manage his fleet. Various vehicle activity reports and real time data allows fleet manager to always know what is happening with the vehicle, driver and cargo. However this type of systems usually do not cover another key element of fleet management process – the distribution of orders and the best route creation. Some telematics solution providers already started fixing this mistake by creating special route and order optimization software that works together with real time vehicle monitoring system.

Accessories part: Having hardware and software part of the fleet management solution usually is not enough for telematics providers, due to specific needs of end user business. For example perishable cargo transportation cannot be imagined without the constant monitoring of the trailer or refrigerating equipment status. And this is done by installing special temperature sensors to the trailer. Another good example is the installation of fleet management solution. GPS trackers installation can be a difficult process which can be made extremely simple with the right accessories that allow anyone to perform a professional device installation. Moreover when connection to the vehicles CAN bus is required there is a high risk of damaging vehicle if connection is done manually. A special connectors can prevent that by connecting to the vehicles CAN bus externally and not even damaging manufacturer's warranty.

Support and integrations part: Every fleet management solution needs maintenance and support. No matter if it is just a basic or highly advanced solution at some point it will eventually require help from its manufacturer. Looking back at all the covered parts of vehicle telematics makes one thing especially clear – it is a complex solution, made of very different pieces that need to work hand in hand. And when it comes to problem solving, contacting one provider for all question is simply better. Taking solution parts from different providers creates a high risk that some pieces may not integrate successfully and fail to deliver the value.

Finally, full solution in vehicle telematics covers all the hardware and software pieces together, but most importantly it makes everything perform as it should. And when it comes to technical support and integrations with third party products, it also allows to benefit from full solution providers extensive experience in the field. To the question, 'should you build vehicle telematics solution from different providers or take everything from one company' – we recommend going with one company that can provide full solution on its own. ■

Fleet Management @ Indian Oil

D K Sharma
Executive Director (Retail Sales)
Indian Oil Corporation Limited

Q what are IOC's offering for commercial fleet operators?

A Indian Oil is the largest fuel retailer in India with more than 25000+ outlets spanning the entire length and breadth of the country. We have been serving commercial fleet operators through various propositions including our flagship XTRAPOWER Fleet Card Program.

Q Can you share something more about fleet management through your XTRAPOWER Fleet Card?

A XTRAPOWER Fleet Card Program, launched in 2003, is a fleet management tool for optimizing fuel expenses. The program enables a fleet operator to buy fuel conveniently across Indian Oil retail outlets anywhere in the country. Fleet operators can set limits based on their fleet requirements and monitor consumption through a completely online interface.

We provide the largest retail network for fuelling across India, even in remote locations.

Q What are the challenges in oil transport and how is vehicle tracking (VTS) helping in this?

A Oil transportation through road has faced challenges from pilferage, adulteration, detour and safety. Initially when the tracking solution was adopted about 15 years ago, it was more of offline vehicle tracking and the charges are expensive. Once the industry moved from pilot stage to full implementation stage, the rates have also fallen down to support such requirement. Today, without Telematics, the Oil industry just can't assure quality. Usage of tracking system has helped restrict detours, as the location of tanker is known on real time basis.

Q What percentage of oil tankers in IOC is fitted with vehicle tracking system?

A Our tracking coverage is 100% now. We have about 25000 + trucks on contract covered under VTS system.

Q Is the use of VTS integrated with enterprise system of IOC? What are the benefits?

A Yes. The data received by the central server on real time basis is available to all stake holders - Supply Points, Dealers, Field and State Team through a simple cloud based interface. Alerts and exceptions are generated for easy management too. This ensures that there are no en route diversions and helps us maintain quality at the retail outlets for end consumers.

Q What are the initiatives IOC has taken to address the pain points of commercial fleet segment?

A In the last 13 years of our fleet management product – XTRAPOWER, we have understood that the fleet organizations require extensive and reliable network for managing their fuel requirements. Hence we have carefully chosen the outlets across the country for offering such services. We have pioneered the Networking concept in Indian fuel retail industry wherein a set of 16 facilities are assured to the fleet operator through a finer selection of retail outlets. We have 850 such outlets across the country, which caters to the needs of the commercial fleet segment – like – Safe parking, Driver rest room, etc.

We have also launched a new safe parking concept called XTRAPOWER Sarai for Drivers, which is similar to airport lounge services. The driver must swipe his XTRAPOWER Card to enter into the Lounge, alerts are automatically generated to inform the owner about the Entry or Exit of the truck in the Safe Parking area under surveillance of cctv. These XTRAPOWER Sarais are also having Dhaba, Self cooking facilities, Laundry and Bathing facilities. The first such Sarai was recently launched on NH8 and has been well received. We shall be expanding this facility to about 50 outlets across the country on all major National Highways and Truck halting points during the current financial year.

In addition, for improving efficiency for fleet operations, we provide guidance to customers for best locations for fuelling, Tied up with various Aggregators Platforms for providing return load information, Make custom developments for Customers to meet their needs and also listen to the market for continuous developments.

Q What are the emerging trends in fuel management for large fleets?

A The emerging trend is integration of various fleet management data like Fuel Transactions, Maintenance Transactions, Telematics Data into one user interface for Fleet Operator. The customer just needs to have one robust system capable of providing a single view for his entire fleet management. This is picking up globally and any MNC logistics company setting up shop in India will need these features for managing their fleet in similar ways in India as well. We are building capability in our XTRAPOWER Program for meeting this trend.

Q Would you like to share some views with the Telematics Service Providers?

A Yes. Of course. Our XTRAPOWER Program has robust backend and is integration friendly with any fleet system. We are exploring options to integrate fuel management solution with telematics to optimize fuelling and provide complete package to its fleet customers. ■

FUEL CONSUMPTION MANAGEMENT

Road Transport Today

The share of freight transported in the country by roadways has come a long way in the last 60 years. With a little more than 10% share in years 1950-60, road transport boasted of 65% share in freight transport with a whooping traffic of 668 Billion ton kilometer (BTKM) during 2011-12 . This phenomenal increase is attributed to the corresponding decrease in share of rail transport from 88% to 33% during the same period.

It becomes particularly interesting to note this lion's share of freight transported by road, despite the fact that road transport is undoubtedly more expensive compared to rail or even to Inland waterways. The National Transport Development Policy Committee (NTDPC) has researched to estimate the freight load by the year 2031-32 and concluded that the load shared by Road will reduce to 30%, with Rail at 50%.

This then calls for making road transport cheaper and staying relevant against other modes of transportation. This can be achieved by better technologies, maintenance and driving practices. It requires special efforts to cut on the biggest expense for any logistics industry- FUEL!

Case For Reducing Fuel Consumption

Consider the following figures of fuel consumption for a single truck of a private limited company plying in the state of Gujarat for a period of 7 months. These numbers were measured by using the most advanced and reliable technology called differential flowmeters (DFM) from Aquametro AG, having accuracy of 99% or more. These figures provide an outlook on the cost of fuel for a typical fleet owner.

The fuel cost of 1 truck for 7 months stands at staggering amount of Rs. 5,37,168, which translates to approximately Rs. 9,00,000 annually. Given the fact that the fleet owner owned more than 200 trucks, fuel costs cumulates to Rs. 18,00,00,000!

Consider the following Fuel expenditure figures of few Government run state transport organizations for the year 2013-2014.

Given the above astronomical costs for fuel & other factors, none of the organizations could register profit in the said year. It is one thing to boast of fleet size and variety, it becomes another to arrest the losses incurred and reduce the burden on tax payer's money.

Organization	No of Buses	Cost of Fuel (Rs in crores)
BMTC	6,775	751
MSRTC	18,719	2530
KSRTC	8,296	1234

Hence we come to the no-brainer conclusion:

Fuel monitoring can easily assist in saving fuel cost of 1- 15%. Even in worst case, saving just 1% cost is still a very substantial amount to account.

Fuel monitoring- The right way

If fuel is the biggest expense for any logistics company, then monitoring this black gold cannot be done frivolously. Even today, monitoring such an expensive commodity is mostly done by thumb rules based on Engine Model, Vehicle Load, Engine ON hours etc. For eg, Engine Model X has a rated consumption of 12 l/hr or 3km/ltr. Using either of these slopes, the total consumption is then calculated and adjusted as per the load carried by the vehicle. This method is flawed in its basics as this is not 'measurement' but 'estimation'. There are scores of reasons why the actual figures will be deviant of the calculated figures.

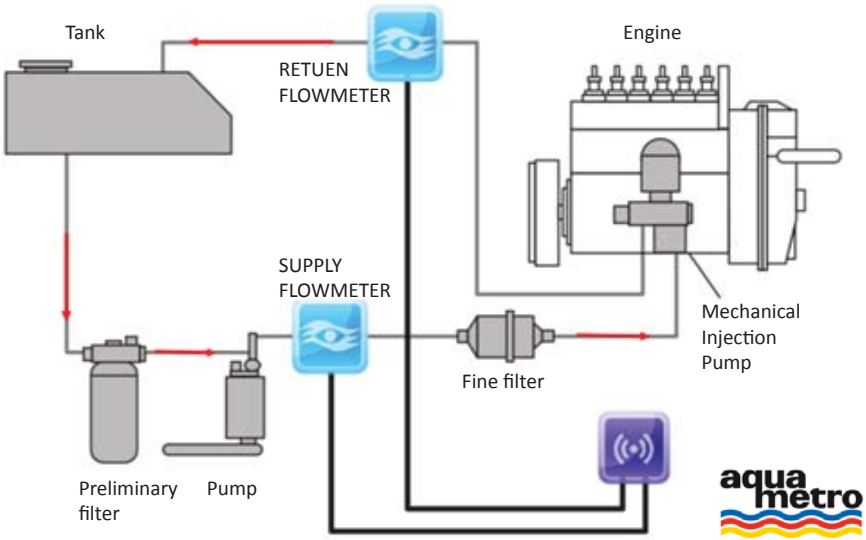
Secondly, this illogically assumes all vehicles of a particular model will be equally efficient. But the fact is, bigger the fleet size, greater is the probability of having under performing vehicles. It is highly unlikely that 2 vehicles of the same model and same year, travelling same distance with same load, will consume same amount of fuel. It is also unreasonable to say this difference will be negligible, as unit rate of Diesel being Rs. 50 /l, this difference is bound to scale and become exorbitant.

Though there are many technologies in the market, much concentration is given to monitoring fuel tank. This is despite the fact that, what is burnt at the engine brings business to the owner, and not necessarily what is filled in the tank. Hence it becomes important to measure consumption and not simply level. To derive consumption by measuring depreciation in tank level

Period	Total Fuel Consumption (l)	Total Distance (km)	Average Mileage (km/lr)
17 August-31 August-2015	892.89	3562.21	3.96
September- 2015	1305.32	4402.78	2.98
October-2015	1259.05	2991.67	1.99
November-2015	1511.41	4596.94	2.66
December-2015	1835.04	5881.93	3.09
January-2016	1747.11	7215.59	4.48
February-2016	1672.82	5890.66	3.33
1 March-9 March 2016	486.14	1749.95	2.28

Truck Model: TATA 48
Total Fuel Consumption: 10,710 litre
Total Distance: 36,292 km
Avg Mileage: 3.1 km/litre

Total Fuel Cost: Rs. 5,37,168
(Calculated using Rs 50.15/litre i.e average diesel cost during the same period)



Differential Consumption

Abraham Koshy
Product Development & Sales Engineer
Aquametro AG

will not yield satisfactory and accurate results.

On the other hand, to measure only fuel consumption of the engine, will make the system depend on paper bills and receipts of fuel for analysis. Retrieving the same from fleet owners is a herculean task. The biggest technological challenge for telematics systems will be to bridge the gap of information between fuel filling and fuel consumption. Hence a system which involves sensors to measure both these information, and also possess smart algorithms to analyze and relate these information together, will be accurate and completely independent of human assistance or interference.

Measuring fuel consumption

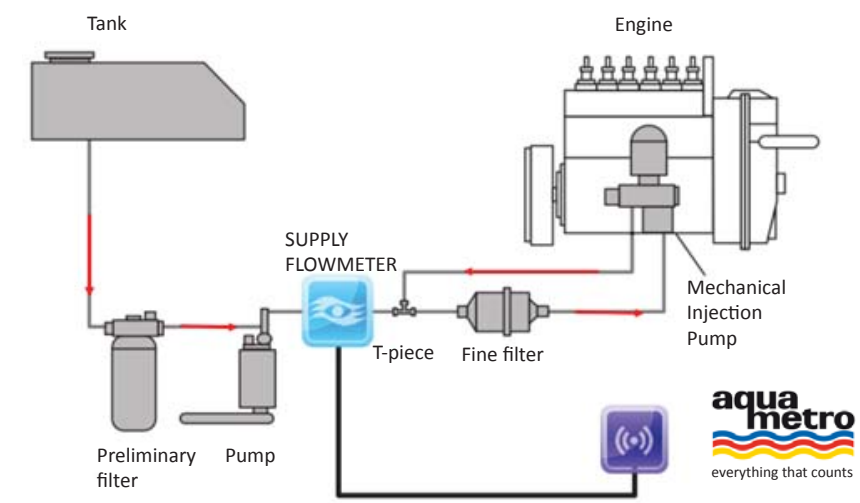
The most reliable and accurate technology to measure fuel consumption is DFM (Differential Flow Measurement). Its principally based on traditional flowmeters, but customized for fuel and optimized to tolerate the vibrational environment of the engine. Consider the following two methods of measurement.

Majority of vehicles in India will feature two fuel lines for an engine. The supply line, carries fuel from the tank to the engine, via a filter and pump. The injection pump deciding on the basis of the load of the engine, returns some volume of fuel to the tank, through the return line. During idling, generally 80% of fuel returns to the tank and only 20% is consumed at the engine. Hence measuring the difference between the volume of fuel injected into the engine and that which is returned to the tank will accurately give us fuel burned at the engine. This method will require 2 flowmeters. GPS hardware acts like a data acquisition devise, receiving this information; which is then sent to the server. Calculating difference between supply and return flow is done at the server, while generating reports. Consumption= Supply flow- Return Flow.

In rare cases, the return line does not return to the tank, but is made to re-circulate back to the engine. Hence the flow through the supply flowmeter will be completely consumed at the engine. Consumption= Supply flow.

The Challenge

Ignorance among end users will play a challenge in the integration of fuel sensors with existing telematics offerings. Moreover, given the price sensitiveness of the market, inclusion of sensors into vechicle tracking hardware is highly deterred by vechicle tracking players. Hence the Indian market is not yet matured for developing and selling a complete system of fuel sensors. Though inclusion of fuel module in a vechicle tracking device exponentially increases the return of investment; end users are still weary of the higher capital cost in procuring such telematics device & it's sensors. Therefore they would very often settle for plain vanilla tracking. Nevertless, the importance to save fuel will only increase with passing time and to develop an economical solution will be the key to meet this challenge. ■



Direct Consumption

SAFEGUARD YOUR FAMILY

Pranshu Gupta
Founder & CEO
Trak N Tell

He is an auto enthusiast having worked on cars, motorcycles and airplanes. His software engineering background and the experience gained while working in the Silicon Valley, USA, led to the formation of Trak N Tell in India.

Telematics Explained

When one talks about the automotive industry, the word "Telematics" comes into the forefront—that's the implementation of IoT for this industry. In India, people usually recognize Telematics as a technology to solve the pain points of fleet owners and operators. Essentially, the industry is focused on three main points—the location of each and every vehicle in the fleet, fuel consumption and driver behaviour. The above parameters are clubbed together and sold as Fleet Management System (FMS).

Let's examine each parameter briefly to clear misconceptions if any:

Location

The focus is on simply providing the GPS co-ordinates of the vehicle. The location of a vehicle tells the owner whether the vehicle is following the route prescribed or not; and if it is not complying, they can remotely stop the engine of the vehicle by the simple tap of a button on a mobile app. Also, if one were to report to the police that a vehicle has been stolen and provide its GPS co-ordinates, a perimeter can be setup and the vehicle recovered in absolutely no time. As an added safety feature, it is possible to create a "geo fence" which is essentially a virtual boundary for any given vehicle in the fleet. If the vehicle enters or leaves this virtual boundary, an alert is generated and sent to the owner. The question that can be asked is, "Why would one want to do this?" Well, if you have a warehouse in a remote location, you can create a geo-fence at a distance of, say, 5km from the warehouse. When your truck is approaching the warehouse and is in the vicinity of 5 km, a geo-fence alert will be generated. Your team at the warehouse can then prepare for unloading and loading the truck till the time it takes for the truck to reach the loading dock. This alert will also help when the driver stops short of the warehouse to grab a cup of tea or a haircut!

Fuel

Fuel management and tracking is a tricky thing. Due to fluid dynamics, there's slosh in the tank that can lead to fluctuating readings. Companies across the world have developed various types of fuel measuring sensors that can compensate for the slosh. A variety of technologies such as capacitance-based, sonar-based, capillary-based, etc. are widely in use today. Often they cost more than the telematics unit itself. The main thing to keep in mind while installing such a sensor is the fire hazard implication. The automotive manufacturer has taken steps to ensure minimal damage in case of an impact. While having an external fuel sensor installed, one should take precautions to ensure that in case of a head-on collision, the damage is minimal. After all, this is fuel that we're talking about and in case of an eventuality, the effect could snowball into something enormous! Of course, with fuel consumption monitoring, you can also detect fuel theft.

Driver behaviour

This is the hottest topic of conversation currently. Until a few years ago, undesirable driver behaviour meant driving too fast (aka rapid acceleration) and braking too hard (aka harsh braking). Some companies also offered a "cornering" feature which would generate an alert if a driver took a turn at a higher speed than normal. Today, additionally there's engine idling, over-revving and a host of other parameters to consider. The commonly available OBD-II (On-Board Diagnostics) variants can monitor many of the same parameters that the vehicle's ECU (Electronic Control Unit) monitors such as FUEL_SYSTEM_STATUS, ENGINE_RPM, THROTTLE_POSITION, ENGINE_FUEL_RATE,REQUEST_TROUBLE_CODES, TIME_RUN_WITH_MIL_ON, etc. The technology is already available to share all of these parameters with the fleet owners. The fact of the matter is that if one were to capture the entire information for every vehicle in a medium-sized fleet, it will lead to a gigantic amount of data that will need to be analysed.

Trak N Tell offers custom telematics solutions to automotive manufacturers (OEMs). They have solutions to capture and share all of the above data with the manufacturer's R&D centres. The data can be used to understand how consumers treat their vehicles and make improvements. For example, Trak N Tell's telematics solution (for hardware, software and mobile apps) has been standard equipment in an off-road construction vehicle for the past few years. The data captured is fed into a Business Intelligence (BI) tool for further analysis.

Passenger Safety

In the detailed account above there is no talk or mention about passenger safety. The only time the word "passenger" is mentioned is when one talks about a ticketing system for municipal buses. But, what about the passengers that travel in taxis? What about that lone female passenger traveling alone in a cab feeling threatened by the driver? Who's talking about protecting them from the crazy convoluted thoughts that

go on in a cabbie's head? The recent Nirbhaya incident in Delhi shook the entire nation. Regulations have been implemented to help prevent such incidents from happening in the future. These regulations are mandatory for commercial vehicles.

Sadly, there are no regulations for private vehicles. Consider a situation where your wife is travelling alone and her car is forcibly stopped by some unscrupulous elements of society. Does she really have the time to fumble with her phone, unlock the screen and launch the app to press the panic button? Also, most such apps require location services to be left enabled which generally one does not. (In case you weren't aware, location services require additional power which happens to be provided by the phone's battery and hence we usually activate only when required and not all the time). A much worse situation is when these unscrupulous elements of society take control of the car with your wife in it. What would you give to be able to track your own non-commercial car with your own loved ones trapped in it? You know, there's no happy ending to that story. What if you could install a small panic button in your car which can be silently pressed while stepping out of the car during a car-jacking? Fortunately, technology has evolved to such levels. Today, there are devices available in the markets that offer such discreet panic buttons. Some devices (such as the ones offered by Trak N Tell) also provide monitoring services for precisely such a scenario. When the panic button is pressed, a notification is flashed in the control room and a live agent is immediately online conversing with the occupants of the car. In the scenario described above, the agent can notify the family as well as the authorities, monitor the pin-point location of the vehicle relayed by the on-board GPS, guide the family and police to the location of the car as it moves about and even remotely immobilize your car. Let us hope that a stalled car and the sound of sirens will save somebody's family one day. The day that happens, we shall consider we "did IoT" correctly! ■

Telematics a boon to taxi owners & operators

Arun Kharat
Founder Director
Wings Travels Management Pvt Ltd

Q What are the IT initiatives of Wings Travels?

A As Wings is widely spread Pan India in staff transportation and Radiocabs services, it is working very strongly on the total automation of the staff transportation business module complete with rostering , scheduling , GPS assisted proximity messaging and employee and vehicle tracking systems backed with mobile applications. Second major venture is into the car rental and radio cab booking module which is unique in its way and specially suited to India, and the way India moves.

Q What was the reason behind acquisition of Bookmycab?

A Being more than 20 years into transportation industry we were working on solution to suit our vision and road map towards the passenger transportation segment in India and overseas. We came across Book my Cab and we saw lot of potential and similarities in our working and we thought of merging together and get this technology ready to cut short the time gap.

Q How many vehicles are owned by your company? Are they equipped with vehicle tracking system?

A We manage a fleet of 5500 cabs pan India and company owned fleet is 450 cabs. We have VTS installation in around 950+ cabs as on date.

Q What are the benefits of vehicle tracking system?

A It mostly helps in safety and security aspects. The GPS devices hardware is effective and fool proof.

Q What are your views about driver behaviour management?

A Education is the key to success. Nothing moves without proper education training and support. The best of the best technology fails without proper training and coaching. As drivers are being brought into the main stream and most of them moving to the owner cum driver model where the incentives are very high , they are getting more open towards the services offered, improved driving habits , maintaining cab hygiene etc.

Q How do you think the market of taxi rental services is going to evolve in coming years?

A There are many modules in the taxi rental domain: Radio Taxi, Point to Point, Hourly cabs, Car rental & Staff transportations segments which are going to grow.

Q How will automotive telematics in India help improve car rental services in near future?

A Automotive telematics will help improve the organisation efficiency. It is actually a boon to the taxi owners and small and big operators to have an effective control on their fleet which will help them to cater to much bigger fleet as most of the control will happen through automative telematics.

Q Any thoughts on Driverless Car or assisted driving technologies?

A Driverless car will change the way we travel. Business will get realigned to these new trends. Market keeps on evolving and we will have to evolve around that . In progessive countries with proper technology and navigation and marked roads and proper parking bays this will take off fast. In India lot will have to be done and it can be at the most partial drivers cars. ■

Telematics enabling smart mobility for India– opportunities & challenges

Saurav Bhattacharyya
CEO and Co-Founder
Quantum Inventions

Specializing in innovation for connected automotive navigation, Saurav has been awarded amongst others, the National Merit Award by the Singapore Standards Council (2009) and the Young Professional of the Year title (2013) for his contributions to the development of intelligent transport systems.

Surging economic growth and a rising middle class are driving consumption and domestic demand for vehicle ownership in India. The economic progress combined with the smart cities mission is establishing India as a new market for connected navigation and telematics services. Smart Mobility is a key characteristic that will play a pivotal role in realizing the country's 'Smart Cities Mission'. Unlike its early days, the telematics system today is not limited to just tracking a path on the map. Connectivity and telematics not only have the potential to safeguard your fleet, but can also improve the overall transportation infrastructure.

Government departments, environmental activists, insurance providers, end-consumers—all sides are demanding better driving experience, greater fuel efficiency, less time spent in traffic jams and an overall improved city infrastructure. Some of the key factors that are advancing telematics technology as a response to these challenges are:

1. **Increasing consumer awareness –** The buying behaviour of the techno-savvy consumers is reflecting their changing expectations from products. This makes it essential for automotive corporations to cater to the shifting needs and provide innovative technologies in their vehicles. The latest trend reports and surveys indicate that the Indian consumers base their vehicle purchase decision on the in-vehicle technology options. Rising awareness amongst buyers over the necessity and importance of connected services will drive the market demand for telematics in the coming years.
2. **Rising role of Internet of Things –**Smartphone and tablet ownership has grown considerably and the consumers are connected like never before, demanding cutting-edge products and services. This increased interest in both smart devices as well as connectivity features is steering the Indian market towards intelligent mobility solutions. Consumers want vehicles that are safer, entertaining, more efficient and better equipped to cope with congested urban driving environments.
3. **Growing demand for automotive safety –** Another major factor driving the telematics market is the need to employ safety processes to reduce the growing number of road incidents. Government participation, mandating policies and measures for road safety is also crucial in the adoption of telematics systems into vehicles. Advancements in connectivity features have led to developments in the automotive sector, with driver assistance features, connected in-car infotainment, road-side assistance and GPS navigation. The current telematics environment is not only capable of reporting data on driving behaviour but also can track vehicle performance, sending information pertaining to maintenance issues, vehicle location and crash reports.
4. **Smart Mobility as an enabler for a smart city –** There is a growing focus on creating smart cities with effective and organized public transportation system. Telematics systems provide a solution to problems such as managing traffic congestion by allowing the authorities to manage traffic in real time, locate vehicle positions, handle emergency situations and breakdowns as well as offer alternatives for congested routes.

As India prepares to become the third largest economy of the world by 2050, it needs to fight the challenges that stand in the way. Some of the biggest impediments are:

1. **Overburdened suboptimal transport infrastructure –** Continuous population growth, a thriving economy and developments leading to urbanization are increasing burden on the transport infrastructure, which was already insufficient to begin with. Entry into emerging markets such as India will call for innovative solutions to not only support development of better infrastructure but also optimally utilize the existing system. Smart mobility solutions can facilitate and boost the development of affordable mass transport systems in regions where a wide-spread network of public transport is not viable, at the same time fulfil and adhere to environmental requisites. Such solutions have the potential to increase social and economic welfare while unleashing a new wave of economic development.

2. **Limitation of cellular coverage –** The Auto Expo 2014, held in New Delhi brought to light both – the challenges for connected features in India as well as the opportunity the country holds. Kwid, a new concept car, launched by Renault at the event, houses a built-in drone that can be launched from the vehicle to detect traffic conditions and to spot obstacles on the road. The drone concept was integrated to overcome the problem posed by the only available spotty 2G network in the country. Although the mobile phone penetration in India is nearly 100%, what creates a barrier is the fact that smartphone penetration still remains in the single digits for the country. Owing to dearth of stable 3G network, lack of an ecosystem to support 4G and absence of mobile networks capable of transmitting M2M data, OEMs need to resort to extreme measures to provide real-time traffic information.
3. **Pricing constraints –** India is an extremely price sensitive market. This consumer characteristic, prevalent throughout the country limits the potential of innovation and new product development. The OEMs face a competition on price rather than features, making them wary of adding features that would increase the price. This attribute has also created a low barrier for entry in this sector, resulting in mass produced inferior quality products infiltrating the market. Such operators make quick money and shut down operations, leaving a bad taste for new products.

To combat these issues, it is important to choose players that demonstrate commitment and experience in this sector as well as can develop innovative solutions to address the challenges. Today's telematics technology provides a cost-effective way of controlling and organizing vehicles and mobile workforces for the emerging markets. The advancements in mobility solutions will enable development of designs that makes transportation safer, efficient, and convenient. ■

Will vehicle telematics make a difference?

The Indian Logistics industry is a complex system. It includes Shipping, Transportation, Customs Clearance Activities, Packaging, Warehousing & Distribution, and other allied activities including mandatory clearances, dealing with multiple agencies. It is estimated that Transportation and Logistics costs account for around 14% of Total Costs of goods in India; this puts the industry at around $75 Billion at current estimated GDP. Similarly based on some estimates, there are pending projects to the tune of Rs.7 lakh Crores, conservatively the project logistics requirements would be around Rs. 50,000 Crores.

As impressive as the numbers sound and look, they hide the fact that it is a very fragmented industry. It consists of multitude of small fleet owners. It is characterized by a lack of professionalism, severe wastage costs, low labour qualification, and lack of technology adaption. Moreover, it is an industry that is dominated by a single overriding factor that of cost. There are few opportunities where service matters more than the cost.

The scenario for capital expenditure in this country looks robust, particularly in the next 5 years. With a stable government which is bullish on growth, especially infrastructure, we may witness a move ahead in terms of the stalled projects. Once these take off, the flow of capital goods for these projects will follow with a lag of 6 to 9 months. Thus overall I'm pretty hopeful about the potential of growth in the next 5 years.

The Power sector will be the leading industry. Mining, petroleum and public infrastructure will also be the key drivers. Also with thrust on renewables, we can expect an increase in project cargo of wind and solar power. The government's push for "Make in India" initiative will further boost the manufacturing sector in India and therefore the Project Cargo business, as more and more companies will look to start or boost their manufacturing bases in India.

Sharmila Amin
Managing Director-South Asia
Bertling Logistics India Pvt Ltd

Bertling Logistics is more than 150 years old privately held company with 65 offices in 35 countries and staff strength of more than 1100 personnel worldwide

This sector faces many problems and is plagued with many ills. But having said that, we must not forget that Indian ingenuity and the desire to get the job done has meant that we have overcome all the problems faced so far.

Vehicle telematics has great future more of a necessity rather than want in this country considering that we are poised for double digit GDP growth and this will be a need for the future, especially with GST coming into force as well. Any system with transparency to the cargo is always beneficial. Not only are you aware of the safety of the cargo but also can monitor that the drivers as well as the vehicle is driving as per the speed limits specified for a package as well as required local rules and regulations. Yes, the customers benefit the most as they also get to know vehicle location through password secured system and can also have hands on report of their consignment. ■

Sustainibility through credible service and Pan-India presence

Saumil Dhru
COO & CTO
Arya Omnitalk Wireless Solutions

Q Arya Omnitalk Wireless Solutions has been operational since 2002, what has been the key to its sustainability during the last decade and half?

A To provide customer friendly products and services has remained the motto of Arya Omnitalk since inception. And selling quality solutions without compromising on any value chain aspects has remained the underlying policy of the organization to accomplish the motto. Both these really helped Arya Omnitalk to establish due credibility in the industry and during the journey of this one and half decade, concurrent with the evolving fleet management industry, most of the customers finally chose their technology partner based on value proposition, which ultimately acted as a fundamentals of business sustenance for Arya Omnitalk.

Q During the same period many companies perished, what could have avoided this situation?

A Most companies which perished had taken a route of establishing themselves in the market just based on number game. For doing so, they chose low cost devices and primitive web solution as a tool to achieve faster customer acquisition. But while doing so, they could not anticipate the cost towards servicing the customer as well as technology stabilization and customizations. Due to this, the business which looked lucrative to them in the first few months or say year or two, subsequently proved very negative in terms of business bottom line, causing them with no option than to exit the business. If they would have remained cautious and not have played just a low cost based business acquisition game, they could have avoided this situation.

Q Is your business model based on products or services?

A We treat this as a business having equal blend of products and services. One really need to focus on both the aspects to make it a long term success.

Q What are the industry verticals you work at?

A We are looking at the entire horizon of the industry and to do so we have solution portfolio which targets industry specific pain area. We do provide customized solution and services for major customers.

Q Does vehicle telematics provide tangible ROI to end user companies? Would you like to share some success stories?

A Generally most benefits of vehicle telematics are non-tangible and thus it is difficult to directly relate the same with the ROI to the end user companies. However for few segments where business revenue is directly linked with the vehicle telematics data such as payment based on parameters, vehicle availability, trips performed, kilometres run for the trip etc, or say the deductions in payments based on alerting events such as incidence of fuel siphoning, route deviation, delay or non-compliances inoperations etc, end user companies can have tangible ROI on case to case basis. Oil transportation by IOCL and BPCL, Cement transportation by manufacturers, employee transportation for many BPOs can be taken as case studies for this.

Q Could you tell us about the regional presence of Arya Omnitalk Wireless Solutions in India?

A Arya Omnitalk has presence in Maharashtra, Karnataka, Tamil Nadu, Kerala, AP, West Bengal, Gujarat, Madhya Pradesh, Delhi, UP, Rajasthan, Haryana,and Orissa.

Q What is your geographic coverage in terms of service outreach? Do you have any global operation or plan?

A Today Arya Omnitalk has service presence at almost 80+ locations in India, covering almost every state of the country, serving 55000+ vehicle tracking devices. Going global is in the agenda but present Indian market itself is so big, more focus is kept on capitalizing the same first.

Q Do you think that the market is going to be OEM driven?

A The fleet management is mostly an aftermarket solution, as being a blend of product and services. And the present market itself is so large in India, telematics service providers will not be affected for next 3 to 5 years, even if the product part of the business becomes OEM driven in times to come.

Q Could you tell us about Arya Omnitalk's recent/upcoming innovations and its facilities in India?

A Arya Omnitalk has its business headquarter development facility in Pune. With the sales & service setup in each state, has National service centre at Pune. Arya Omnitalk is constantly endeavouring to innovate in variety of tracking & telematics devices, segment specific end to end web applications, business supportive mobile Apps etc, with the objective of staying a step ahead in the technology domain. Being connected with transportation industry, Arya Omnitalk also has come out with automatic vehicle classifier and tolling solutions. ■

ERM Advanced Telematics expanding business foot print

Eitan Kirshenboim
Chief Marketing Officer
ERM Advanced Telematics

Q What are the key products/ offerings from ERM?

A Our device solutions are based on a modular design. We offer tracking device on top of which additional features can be added, even after the device has been deployed. Add-on features relating to vehicle information and diagnostic, driver behavior and other features based on third party solutions can be added at any time.

We recently introduced an anti-theft vehicle tracking device to counter recent tactics used by car thieves. This device includes jamming mitigation and location networking features.

This anti-theft device can identify when its location and cellular signals are being interfered with by a jamming device. When this happens, the device transmits alerts along with location and time stamp. These alerts are then retransmitted to other anti-theft devices installed on other vehicles in the area. These alerts are trackable in real-time and provide our Stolen Vehicle Recovery service provider partners an improved indication of the location of a stolen vehicle.

Q Your business model is to work through partners. Can you share more about this?

A We partner with providers of fleet management, stolen vehicle recovery and other telematics services around the world.

On a business level, we sell our device based solutions to our service provider partners and they install it on business fleets or individual vehicle.
The information relating to location tracking, driver behavior, vehicle diagnostics and other telematics details generated by our devices serves as the base for the telematics services that our partners provide.

Q Could you tell us about your presence in various geographies across the world? What is the common thread in terms of hardware need or customer requirement across the world?

A ERM is a global company and we have partners across Americas, Europe, Africa, Australia and Asia Pacific.

In South America and other markets with high vehicle theft rates, there is a strong demand for our anti-theft solutions.

In India, there is a huge demand for inexpensive, entry level tracking only solutions. We assist our partners with high quality, competitively priced solutions to help them compete with low end and entry level devices that are manufactured locally or in China.

There is a general global demand for solutions to improve the efficiency of fleet management and lower operational costs. We get a lot of requests for special features relating to driver behavior and vehicle diagnostics, such as tire pressure monitoring and fuel monitoring.

Trailer and asset tracking are always in high demand. We offer a unique plug-and-play, stand alone asset tracking device that can be charged by solar energy or, just like a mobile phone, can be recharged at home or through the cigarette lighter.

Q Recently you started your operations in India, what are your business plans and expectation? Can you share ERM or its partner experience related to services in India?

A India is a unique market that is highly competitive and very price sensitive.

We are working with our local partners in India to bring a high quality, yet competitively priced solution to the market.

Today, we can solve and handle many of the common problems that are unique to India, including dealing with unexpected power surges in vehicles, extreme weather conditions or deliberate attempts to tamper with telematics hardware. We have partners that use our technology in difficult conditions, such as mining, heavy machinery, commercial fleets, trucks, motor bikes and personal vehicles.

At the same time, we see a strong demand for very intelligent and advanced telematics solutions that we have not experienced elsewhere.

We are looking to become a major player in India in the next two to three years. We intend to offer competitively priced products for close to entry level throughout mid-range and up to premium solutions. We want to deliver more value and offer higher quality for the short and long run than the existing devices currently in the market as well as recently introduced devices from external vendors.

Q What are your plans for cost sensitive country like India?

A We have actually started to form our own assembly line in India. Soon, we will begin moving some of the manufacturing processes also into India.

These will allow us to cut many operational expenses and offer better competitiveness to our local partners.

Q How do you see the vehicle safety and security need evolving over the coming 5-7 years?

A I believe we will see many vehicle safety features such as our Blackbox and driving behavior monitoring combined with Mobileye type of solutions offering better protection and safety over the vehicle and the driver in the context of its surrounding environment. ■

Automotive cyber-security not just an afterthought...

Paul Wooderson
Senior Functional Safety/Cyber Security Engineer
HORIBA MIRA

Q Is security a high enough priority matter for organizations working in connected & autonomous cars?

A In the last few years we have seen automotive cyber security move from a relatively low key research topic to a high profile and high priority issue for the automotive industry. The rapid increase in electronic systems and connectivity in vehicles means that security is a new technical and business concern to many parts of the automotive industry that were not previously used to dealing with it.

Many organisations have put in place internal structures and continue to develop processes for cyber security of their products. However, long vehicle development life cycles of several years mean that the results of increased prioritisation of security will not always be seen immediately.

Q Should we pay attention to the media-hyped hack demos?

A Media demos certainly highlight the potential impacts of cyber-attacks, although it is important to look beyond any hype to establish the real risks at hand.

The industry should concentrate on developing and applying rigorous engineering processes which allow cyber security to be built in from an early stage. A structured approach of identifying threats, assessing and prioritising risks, specifying and managing requirements, and implementing and testing them with appropriate levels of rigour is necessary. This will allow manufacturers to build in the right level of security at the right cost.

Security is a moving target and new attack techniques are continually being discovered. Therefore the engineering effort needs to be backed up by continuous R&D into new attack techniques and novel technical solutions to them. One way this can be achieved is through close research partnerships between industry and academia.

Q In your opinion, which connected vehicle entry points are most vulnerable to breaches and why?

A The connected vehicle presents many potential entry points to an attacker. For example, modern infotainment systems include multiple wireless external connections such as Wi-Fi,cellular and Bluetooth,which present the obvious risks of remote attacks from outside the vehicle.

In addition today's infotainment systems are increasingly built on platforms running feature rich operating systems. These platforms can be particularly susceptible to security vulnerabilities due to their complexity and the fact that they tend to be made up of a variety of hardware and software components from different vendors. Many of these technologies are already familiar from the IT world and as such suffer from similar known vulnerabilities to their IT counterparts.

When these systems are also connected to in-vehicle networks, an attacker who gains access to the infotainment system may be able to "pivot" to other systems in order to compromise a safety-critical function such as steering or brakes.

Q Do you agree that the automotive industry needs to take a proactive or "security by design" approach instead of "reactive" to fend off hackers?

A A proactive security by design approach should of course be the ultimate aim for new developments. Due to long vehicle development life cycles and vehicle lifetimes, a tailored approach may be required to resolve issues for vehicles currently under development and those out on the roads.

Q How will the security scenario change when new trends like car-to-home connectivity/car-to-infrastructure (V2X) will become ubiquitous?

A These new external connections mean that the vehicle will become part of a much larger ecosystem together with other vehicles, transport infrastructure, mobile networks and more. It is therefore important to consider the threats posed by these other networks to the vehicle, and by the vehicle to the other networks. One may ask who is responsible for security in this scenario, but in reality the whole ecosystem must play its part, and different industries must work together to address the different threats.

In the area of V2X, work has been ongoing for several years to address security through industry consortia and standardisation bodies such as IEEE and ETSI. However the picture is changing rapidly with new communications technologies and associated security issues coming into play, and these groups continue to improve security specifications and standards.

Q People often correlate cybersecurity with data privacy issues. How should automakers be dealing with both the problems?

A Privacy and security are partially overlapping domains. On the one hand, privacy should be considered a part of security, since compromise to privacy is often a consequence and indeed a target of a cyber-attack. There are some additional aspects to take into account with privacy, such as protection

of personal data and legislation around its collection and use. With increased connectivity, particularly to mobile devices and to internet services, the vehicle is now becoming a hub for personal information. Vehicle manufacturers need to consider how to protect personal information such as phone contacts, location data and user account data in line with relevant legislation.

Q Do we need standards for automotive cybersecurity? If yes, then where would they come from?

A Standards are necessary in defining state-of-the-art best practices to develop products to an appropriate level of security and evaluate whether that level of security has been achieved. The recently published recommended practice SAE J3061 is a first step in this direction and serves as a starting point for such automotive cyber security standards.

Standards also have a role to play when it comes to security controls and counter measures. Proven, standardised cryptographic algorithms and protocols should be used where appropriate in preference to unproven proprietary methods, which will not have had sufficient scrutiny for weaknesses. Security related standards also exist in other domains covering implementation guidelines and evaluation methodologies (for example Common Criteria / ISO 15408). These should be used or adapted as appropriate by the automotive industry.

Q What HORIBA MIRA is doing to combat security risks in the automotive domain?

A At HORIBA MIRA we offer automotive cyber security engineering consultancy services in the areas of threat analysis and risk assessment, specification of security requirements, penetration testing and security validation. We conduct our own internal research into cyber security aspects relevant to the automotive domain and are also involved in various standardisation activities and collaborative research projects. ■

John Nadar
Head of Operations
Panalpina World Transport India Pvt Ltd

Panalpina is one of the leading freight forwarders, standing 4th in the global rating.

It is a system driven organisation and ensures value added service to its customers. Panalpina at this stage is not planning any ventures but is looking at retaining the existing business & clients, targeting EPCs for new projects.

Vehicle tracking system provides accurate feedback on vehicle location to the client on regular basis. It helps reduce dependency on the transporter's representatives. The tracking system further reduces deployment of manpower to escort the trailers. The vehicles could be monitored on speed and exact location to avoid serious issues such as accidents, route accuracy and committed timelines.

We would surely like to introduce new technologies such as driver behaviour monitoring, in-cab coaching and fuel management. It will provide a much needed secured transportation to our clients. Transport vehicle assessment and monitoring of each movement is done on regular basis. CO2 emission guidelines have been adopted by Panalpina. ■

Anup Saggu
President- Indian Sub Continent
Unicon Logistics India Pvt Ltd

Unicon is head quartered in LA, United States and currently active in all the geographies of the globe through our dedicated network partners and with our own offices in US, Africa, Indian Sub-continent, Dubai and Singapore. We have wide range of customers and we mostly provide for their import and export requirements. and land transportation does play a pivotal role as we also provide last mile delivery in India and overseas, the requirements of tracking system vehicles in India comes from a very limited set of customers depending upon the nature of commodity that they deal in.

We have very recently upgraded our systems to a new system platform, which puts us in front stream in comparison to our competitors in terms of automation of services, high optimisation of available resources, in today world it's all about making the best use of available technology, doing things differently and creating a value addition for our end customers.

We provide end to end logistics services seamlessly keeping the operating cost to the bear minimum and having the ability to pass on the same to the end customers.

In India the percentage of vehicles with tracking systems is very low, however as I see in the last couple of years the percentage has been growing quite rapidly.

Road transport in India not only adds to economic development but also plays a vital role in social integrations of country because of easy accessibility, door to door service. ■

Setting milestones in multimedia and smartphone connectivity

K Srinivasan
Co-founder and Chief Executive Officer
AllGo Embedded Systems

Q What were the factors which influenced starting up AllGo Embedded Systems?

A After a nearly decade-long career at Motorola Global Software Group, I wanted to try something different. With Motorola's spin-off, Freescale Semiconductors, there was an opportunity for me and some of my colleagues at Motorola to form a separate company and provide technology development on contract to Freescale. We took the opportunity and started AllGo in 2005.

Q What were the business activities in early days at AllGo Embedded and since when did automotive infotainment systems come into the focus?

A We started working on car audio software right from Day 1. We were doing USB playback and iPod back then. After the first 2-3 years, we branched out to consumer multimedia solutions such as home audio systems, video decoders, and home automation systems. But then the tide turned heavily in favour of automotive infotainment over the last 4-5 years and there has been no looking back. Now we are among the top two independent multimedia and smartphone connectivity software suppliers in the world serving a worldwide market.

Q What are your views about alliances like Genivi, TI Design Network etc.? Would you recommend start-ups to join them?

A Alliances help us connect with customers and partners. They help understand the industry and get plugged into the latest happenings. Many of the alliances also have demo showcases where we exhibit our solutions. These help us with new business developments.
Yes, start-ups and smaller companies can especially benefit out of alliances as part of their marketing plan, especially in B2B businesses.

Q Would you like to share about your products in automotive infotainment? Do you see mobile phones making an impact on such products?

A Our products essentially span multimedia and smartphone connectivity. Our Multimedia Engine called RACE, can play, not only local media from a USB/iPhone/Android phone etc. but also connect to streaming services. We have optimized the media engine to specific needs of the automotive market.
Our smartphone connectivity solutions offer CarPlay, Android Auto, and MirrorLink based connectivity. We remain at the forefront of these new technologies as they evolve and have ready solutions that cut down the time to market for our automotive customers.
Mobile phones have started having a huge impact on the automotive industry. A new class of car infotainment systems which achieve all their media and navigation functionality through mobile connectivity are springing up. These help push advanced infotainment capabilities into lower end systems and expand market volume.

Q How do you see automotive infotainment in commercial and passenger vehicles in India?

A In the passenger segment, India is driving the low-cost availability of infotainment in A and B segment cars. With the advent of mobile phone connectivity based applications, services such as Google Maps will push integrated navigation to a more mainstream adoption in India. In the commercial vehicles segment too, navigation and vehicle tracking are key applications that are driving the market.

Q Would you like to comment on the ADAS? How do you see the horizon of ADAS features 7-10 years from now?

A Some of the ADAS features such as lane departure warning, bird's eye view, and traffic sign detection are already being deployed. ADAS is the first step towards getting to an autonomous vehicle. In 7-10 years from now, ADAS will likely become mainstream in vehicles and semi-autonomous vehicles too will be coming up with this technology.
From AllGo's point of view, we are looking at in-car applications for ADAS. Features such as bird's eye view and driver monitoring are our focus.

Q In post-merger with Visteon, how do you see the product and services reaching to major OEMs across the globe?

A AllGo will retain its brand identity and legal structure even after the Visteon acquisition. We will continue to serve our external customers including Tier1s and OEMs. As and when the market evolves, where the OEMs start to control software directly, we will work with the OEMs to supply software and support. ■

Driver Drowsiness Detection System

Q Would you like to share about Novus Aware?

A Novus Aware is a vision based driver drowsiness detection system which detects the face and analyzes different facial expressions and cues like eye closure, abnormal blink frequency, head jerk , yawn etc, to estimate the driver's attention level. It raises a warning in the form of acoustic, haptic or photonic signal if the attention level falls below a certain threshold. The system also generates warnings in case driver is not looking straight ahead on the road and in the case of occluded camera.

Q What is the current status of Novus Aware? When are you planning to make it commercially available?

A As defining of the hazardous levels of fatigue and distraction while driving is quite vague, an ideal system must be able to use the most important and discriminative features to minimize false alarms and misses. The system can effectively differentiate between an eye blink and prolonged eye closure and generates a warning accordingly without any delay. The combination of efficient hardware along with state-of-the-art machine learning algorithm has ensured that the system would perform well for the following variability: different illumination conditions (especially low light conditions), different users, different head and eye gears, vibrations due to vehicle movement etc. The system is currently in test stage at a leading automobile company and would be shortly going in mass production.

Q What has been the initial response to this system so far in India? Which market segment you are looking at for this device?

A An ideal deployment-ready driver state monitoring system should meet certain specific criteria: it should be valid (use relevant cues for fatigue and distraction measurement); reliable (should work in noisy and non-uniform lighting conditions with vibrations); sensitive (should generate warnings in all valid conditions); specific (should generate warnings in valid conditions only) and generalizable (should work despite inter-use and illumination variabilities). Widespread acceptance of such systems also require that the systems should be easy to setup, require minimal to no manual calibration or cumbersome equipment to be worn. We have worked relentlessly to meet all the above criteria and tested the system rigorously for all the challenging conditions to increase the performance accuracy.

The device is highly apt for fleet management companies like cab companies who wish to monitor the drivers and minimize any loss of life and property. The system has the capability to send vehicle and driver attention data for central monitoring via cloud.

Anuj Kapuria
Director & CEO
Hi-Tech Robotic Systemz

Q What is the key innovation in this system?

A The Novus Aware technology offers an almost complete solution to aid drivers to keep attention on the road at all times while driving, without being too intrusive or complicated. The device is easy to set-up and simple to use making it very customer friendly. The main innovation of the system is the development of a robust algorithm which makes the entire system perform exceptionally well even with very modest and cost effective hardware. The loss of life and property owing to the number of accidents due to driver distraction is quite substantial and using a simple yet effective device such as Novus Aware will definitely appeal to most customers.

Image: Novus Aware

Q Do you think such driver-centric solutions could become pre-cursors for active safety systems in public and commercial transport?

A According to Global status report on road safety by World Health Organization, there were 1.25 million road traffic deaths worldwide in 2013, out of which 1,42,485 road traffic deaths happened in India. Therefore increasing safety standards would benefit both the vulnerable road users (pedestrians, cyclists and motorcyclists) as well as the non-vulnerable road users and vehicles. A substantial percentage of road accidents occur due to driver inattentiveness and having an inexpensive yet efficient driving assistance warning system can prove to be of great advantage to overcome the loss of life and property.

Q What is your view on the eco-system in India for design and development of such system in India?

A India is having a very large pool of talent and resources which is ready to be explored. Also, with the changing world dynamics and industry practices, India is also opening up to the new ideas and is now ready to accept these changes. Our aim is to touch maximum lives with the solutions that we are providing. World-class quality in a technology-savvy product, low cost due to local production and strong service and support infrastructure across the country are our three main USPs.

Q How close or far are we from realizing autonomous driving in India?

A The practice of Autonomous driving is there for quite some time now. In India, this concept is still in its nascent stage and requires more attention in term of technology along with infrastructure to realize this dream into reality. The Hi-Tech Robotic Systemz has developed completely autonomous vehicle (NOVUS Drive) which can be run unmanned in a controlled environment. We have recently launched this vehicle in Auto Expo 2016, which attracted good traction. We are hoping to get this vehicle running very soon. ■

Vehicle Tracking: Trends

Vehicle tracking technology is now being increasingly deployed in all aspects of the business world. From fleet owners to logistics providers, from taxi services to school buses. We are seeing increased usage of "GPS Based Tracking". Although, it has been there for some time, but with smart phones, its utility has sky-rocketed.

But simply vehicle tracking is not sufficient. Until and unless we are able to analyse data to find insights into our businesses, provide senior management dashboards and key performance indicators; vehicle tracking would remain under utilized.

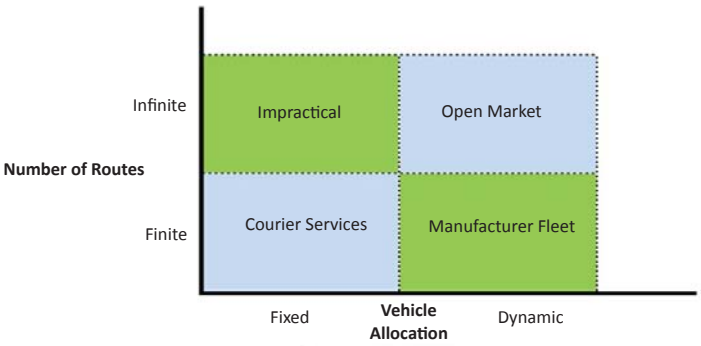
Untraceable vehicles, rising fuel costs, long halts by drivers, increasing customer complaints are few of the problems plaguing the transportation sector. This is where AxesTrack comes into the picture by providing a bird's eye view of the fleet of vehicles with instant notifications regarding the total distance travelled be a particular vehicle, trip/event summary, route deviation reports, site details history, the route traversed by a vehicle etc. With the number of vehicles growing exponentially, fleet owners can not only LIVE track their vehicles but also ask for customizations as per their requirements.

VEHICLE SEGMENTATION-OPERATIONS

- Long Haul and Short Haul
- Hub Based
- Route vs Vehicle Allocation

FUTURISTIC TRENDS

The Way Forward in GPS Based Vehicle



Tracking System can be achieved by value addition through:

a. Hardware Driven Innovation

Focus on Hardware upgradation or integration of GPS hardware with various other sensors.

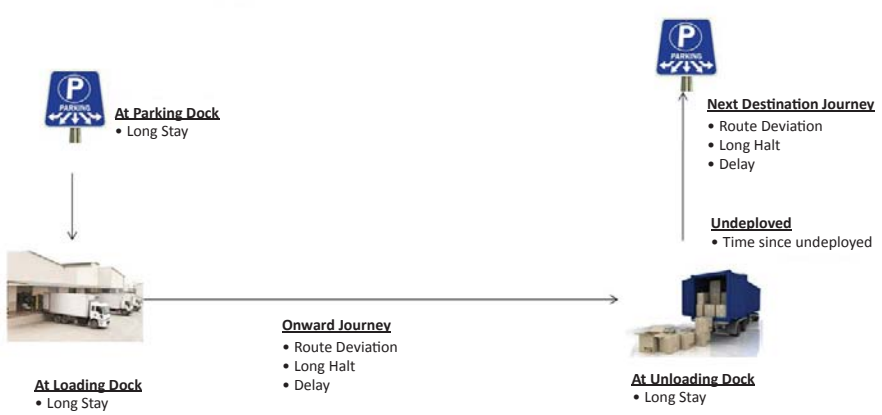
- Fuel Monitoring Sensors
- Temperature Sensors
- RFID/NFC Integration
- Biometric Integration

b. Software Side Innovation

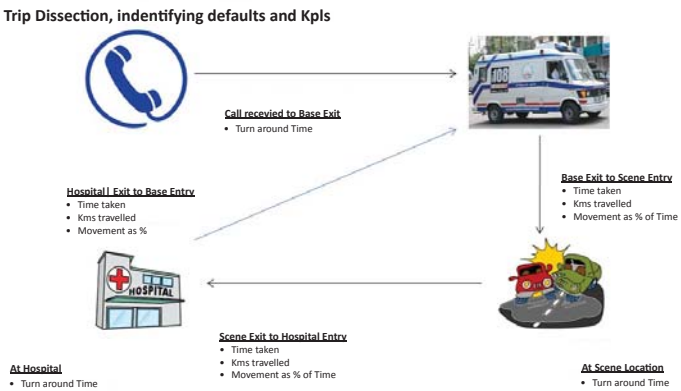
Providing high end analytics and user-friendly dashboards for senior and mid-level management to generate more value out of the data.

- Assessing fleet utilisation trends.
- Comparing loading times for turn-around times.
- Listing low performing routes/

Trip Dissection, identifying defaults and Kpls



and Usages



drivers.

Component of Software (data) Side Advanced Solutions

- **Different UI for different viewers**

Different/Custom-made dashboards for senior and mid-level management to get a bird's eye view.

- **Proactive Analysis**
  Control waywardness and Defaults.
- **Alignment with Operations**
  Custom tailor-made solutions to optimise routes and delivery time as well as reduce operating costs.

Identify bottlenecks and make long term strategy decisions.

EMERGING USAGES:

1. **Automobile Industry Forwarder**

- **Understanding the Operations:**
  The Fleet in the case of Automobile Industry Forwarder is industry oriented. It is the case of infinite routes and dynamic vehicle allocation. In this case, vehicles are mostly run on long haul.

Schema of the Automobile Industry Forwarder

The vehicle's trip can be segmented based on the location such as parking dock, loading dock, unloading dock etc. Various KPIs such as long stay, long halt, delay, route deviation etc. Since the route as well as the vehicle is not fixed, management would be interested in knowing the loading and un-loading turn-around time, delays in the journey, time for which the vehicle is un-deployed so as to rate the drivers and list the dealer locations to be avoided.

The dealer receives alerts whenever the vehicle is about to reach so that he can arrange for labour to un-load the vehicle. Segmentation of delayed and on-time vehicles can be done and specific personnel can be assigned to handle the same. High-end user analytics provides users with a much in-depth analysis of their fleet performance.

Other transporters with similar operational model include Open Market Vehicles, Cargo and Courier Services, Fleet attached to a manufacturing unit with a large dealer base e.g. Cement Industry Vehicles etc.

2. Decentralised Fleet for Emergency Services

The operation of emergency fleet services is highly decentralised as the route as well as the vehicle is not fixed but each vehicle has an exclusive base location. The vehicles are mostly used in short haul.

Senior management would be interested in knowing the vehicles available at base location, at hospital site, heading towards base etc. Custom made dash-boards can be made wherein hospital authorities will get mobile alerts for various events such as when the ambulance is about to reach the hospital premises so that they can ready their staff.

High-end analytics allows density mapping for accidents in any given period. The vehicle base locations can thus be optimised according to the accident density to reduce the average time to reach the accident scene.

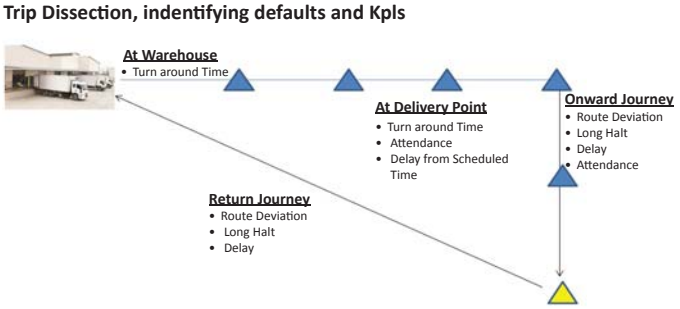
Other transporters with similar operational model include Fire Brigades, Road-side vehicle assistance services, maintenance fleet etc.

3. Fixed Route FMCG Delivery Vehicle

The number of routes in Fixed Route Delivery vehicles is fixed and the vehicle for a particular route is also fixed. The operational model is mostly hub-based, short haul with loading and unloading at warehouses.

The trip involves various delivery points on a fixed route. User interface allows managers to keep a track of delivery points attended, missed in a given time-frame, providing a complete report of the performance of each vehicle regarding route compliance and defaults. The delivery points and the entire route can be viewed on maps real-time.

Fleets with similar operational models include Milk Collection Vehicles, News Paper distribution vehicles, Passenger Bus Services, Other Dealer Delivery Vehicles etc. ■



Karan Handa
AxesTrack Software Solutions

He is an alumnus of IIT Guwahati, currently working as a Product Manager

Speed@Acc-Use of IT in logistics

Mayur Tolia
DGM-Logistics
ACC Limited

The Logistics Excellence at ACC journey began in 2012 with a vision to establish a world-class logistics function, using a collaborative approach with transporters, clearing agents and railways with a spotlight on safety and environment issues. One of the five pillars in the Institutionalizing Excellence Journey, which were formed out of embracing the core processes of the company, Logistics plays a vital role in ensuring overall excellence of the company's performance.

Use of IT in Logistics - The game changers for ACC

In line with the overall aspirations of Logistics Excellence journey, Project SPEED was conceptualised to adopt technology to improve safety, efficiency and productivity of assets and human resource while at the same time enabling better service to customers (both internal and external).

Each letter of the acronym SPEED communicates the very inherent objectives of the project as below:

- **Safety:** Improving safety of all stake holders in and around plant by limiting no. of vehicles available at all stages of the shipping cycle
- **Productivity:** Optimising packer utilisation through continual flow of trucks as per run rate
- **Efficiency:** Reducing detentions of trucks at any stage of shipping cycle time thus improving "asset utilisation"
- **Ensuring customer Delight:** Using RFID and GPS based vehicle tracking technology to provide end-to-end visibility to operational teams for better order execution time / delivery compliance.

Target Group:

Dealers, Direct customers, Truckers, Transporters/ Transport supervisors, Plant logistics team, Plant Security & OH&S, Packing house team, Senior Management (Plant Head, Operations Head).

Geographical Reach:

The project has been implemented at 12 plants of ACC between 2012 through 2015.

12 plants are RFID enabled and with about 3000 installations 20-25% of fleet is GPS based vehicle tracking enabled.

When did it become operational:

The pilot implementation was done in 2012 and subsequently rolled out across all other plants in phases.

Five points that make the Project / Approach innovative:

- ACC is the pioneer in deploying UHF RFID technology for in-plant tracking of vehicles in the Indian Cement Industry
- Technology not merely used for tracking purpose, instead the business logics assist in optimizing the operational efficiencies in line with the desired objectives
- The IPR/ Source code of the application (software) is owned by ACC. All business logics built into the application are developed and deployed as per ACC requirements.
- Seamless integration with SAP
- The GPS units installed are best in class IP67 on-board devices with unique features and are supported by an application with patented software.

Five Key achievements of the Project / Approach:

Safety:

In-plant & yard - With RFID based automatic control on count of vehicles anytime inside plant, pre-defined routing of vehicles based on Location (Yard, Plant Gate etc), Type of vehicle (bulker, trucks etc.), Type of order (outbound, inbound etc.), Type of facility (loaders, weigh-bridges etc.) and reduced physical movement of truckers the safety aspects improved substantially.

Out-plant – Through GPS based regular monitoring of on-trip driving behavior of truckers and accordingly providing them focused counseling and defensive driving training programs, the safety index of drivers has moved upwards from 65% in 2012 to 95% plus today.

Driver engagement / reward & recognition: Driver Management Centers are our plants receive this inputs and once a GPS enabled truck's driver reports at plant for next load, he is taken through the DMC where in the driver is de-briefed on the safety violations of previous trip and also briefed on areas of improvement and caution for the next trip based on Journey Risk Assessment of specific routes. Consistently good performing drivers are recognized and rewarded appropriately. Once a year we also

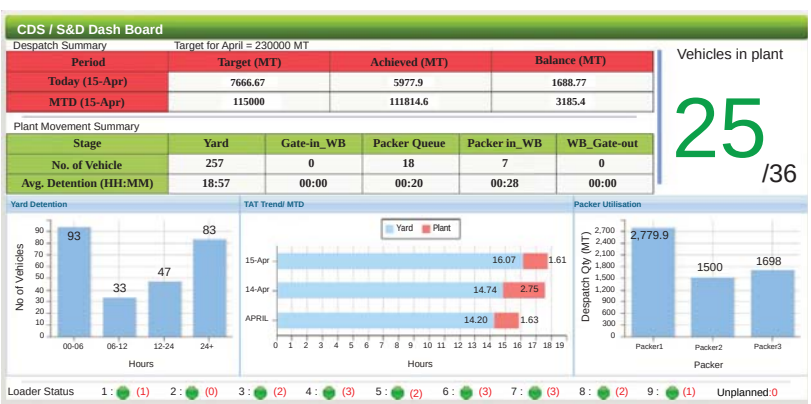


Figure: Real time Dashboards for Plant logistics team

reward such drivers where in their families are also invited. The consistent defaulters are taken through rigorous Defensive Driving Training Programs.

Transporter engagement / reward & recognition: Apart from drivers, this inputs are factored into the transporter engagement programs where transporters are made aware of performance of their drivers on safety and other parameters and the transporters are as well rated accordingly on various parameters.

Visibility:

In-plant & yard - Seamless visibility to various stake holders through real time updated visual displays (LED Smart TVs) resulted in smoother operations. Technology enabled information capture at all points of plant.

Out-plant – GPS/ GPRS based dashboards give LIVE status of unauthorized/ unplanned stoppages, safety violations etc. enabling proactive action to correct the wrong.

Improved Quality of Work-life/ Less fatigue: Visibility enabled moving from fire-fighting to planning mode resulting in smooth operations and improved quality of life for all stake holders. Early visibility of "Expected loading time" allowed truckers to reduce fatigue and take rest/ plan their other activities. Electronic information flow resulted in reduced human errors.

Turn-around-Time reduction: Reduced parking yard detention and detention inside plant for loading due to better planning enabled by visibility available through technology based data capture. Post implementation, we have been able to reduce the Gate-in to Gate-out (Shipping cycle time) to the tune of 40-60 %. On similar lines through monitoring out plant unauthorized detentions, enroute and at consignee locations, we have been able to improve upon Turn-around-Time by 10-15% .

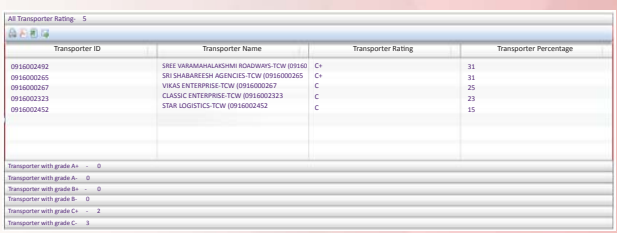
Five key challenges faced while implementing the Project/ Approach and how they were overcome:

Challenges faced	Mitigation
• Technology challenges: We needed technology which would be cost effective, with low maintenance and yet higher accuracy and stable enough since any failure incidence would impact our despatches / plant operations drastically • Change management: The implementation involved lot of change management since the legacy of manual / less disciplined way of working was about to change to a very transparent and disciplined process. • Software development issues: Instances of software not performing as expected, stability etc. • Implementation challenge: Miss-counts due to readers unable to sense the tags • Technology challenges: With host of solutions available it was a challenge to select right device/ application • Change management: Buy-in of truckers as they usually feel they are being "watched" • Software development issues: Instances of software not performing as expected, stability etc. • Implementation challenge: Tampering, device issues	• Lot of brain storming, evaluation of various technologies and vendors led us to the selection of right technology. • Frequent dialogue with key stake holders, making them participate in the implementation, taking their feedbacks/ concerns and addressing them suitably and bringing about clarity and transparency in As-is and To-Be process supported by strong commitment and enforcement of the new process. • Issue wise tracking, debugging, root cause analysis and incorporating the learning into refining the coding • Correct orientation of readers, proper configuration as per location requirement, ensuring traffic flow aligned with reader locations, shielding from interferences etc. • Considering Indian climatic conditions and possibility of rough usage, IP67 rated product with patented software selected • Regular counseling that GPS is for their safety leading to better acceptability • Robust testing before Go-Live of any enhancement/ customization • Preventive maintenance, penalties on tampering, review with stake holders

Driver Name	Transporter	Safety Index Percentage (Rating)	Number of Trips	Harsh Acceleration	Harsh Breaking	Harsh Manuever	Over Speed	Continuous Driving	Night Drive
Swami	916002323	100.0	1	0	0	0	0	0	0
Aseeb	916002452	99.0	3	0	0	0	3	0	0
Kiran	916000265	94.9	9	0	0	2	12	1	1
Saidiamir	916002452	94.5	2	0	1	0	3	0	0
Shivalingaiah	918000265	94.5	10	0	0	0	23	0	6
Venkatesh	916002491	95.6	5	5	1	1	0	0	1
Naryan	916002323	95.0	1	0	0	0	5	0	0
Nagraj	918000265	95.0	7	1	0	0	27	0	2
Raja	918000265	94.9	13	2	7	2	24	0	2

Driver is rated for each trip on instances of over speed, Harsh acceleration/ breaking/ maneuvering, continuous drive, night drive.

Figure: Driver Safety score card



Each transporter is rated on various performance of their GPS enabled trucks on parameters like: Turn Around Time , On Time Service performance of Delivery

Distance ratio: (Actual Distance v/s accepted distance/ approved distance) Safety Compliance

Figure: Transporter score card

Challenges for wide spread acceptance – end user perspective:

- Non-availability of standards of the hardware. A bare minimum standard to ascertain product quality need to be arrived at.
- Relative high cost complying to minimum standard specifications: While there are different commercial offerings, inherently the hardware cost is a deterrent to wide spread roll out of the telematics solutions across the transportation and logistics.
- Seamless integration: Each solution provider comes with specific offerings coupled with own hardware. It is essential that the software/ application becomes hardware independent to enable seamless integration of data flow between hardware and software provided by different suppliers.
- GPS solutions as on date are more of transactional. The solution providers need to migrate to analytics – for both corrective and preventive measures – through predictive proactive alerts.
- With "N" no. of hazards and on the road leading to road safety being a concern, GPS solutions need to be enablers for Journey risk assessment / management. ■

Logistics industry leaders

Vivek Arya
Managing Director
Rhenus Logistics India (P) Limited

Technologies and Ventures

Vivek Arya : Technology will be one of the key differentiators in the logistics space. We believe in investing in all three on a continuous basis.

For our contract logistics business, we have a Warehouse Management System including barcoding and latest equipment's in all our warehouses. We have an E - Fleet Management system and a Track and Trace Module to closely track and monitor the movement of our fleet. All our vehicles are fitted with GPS. This enables complete control on cost and utilization of self-owned fleet. We also practice and monitor defensive driving through GPS. We are in process of upgrading our software for inbound collection and consolidation, used for supplier consolidation. This application will help in capturing each milestone like schedule, collection, consolidation till final delivery to buyer organisation, and also give visibility of events.

Rajkumar S: Sequel uses GPS/GPRS based tracking devices to monitor fleets on a real-time basis and is working upon a variety of measures to ensure security and safety.

Mansingh Jaswal: Genex Logistics has been a technology focussed Logistics venture. Whether it is GPS enabled vehicles or usage of mobility in managing inventory inside the warehouses, we give utmost importance to technology. We continuously add new dimensions to the overall scheme of things. Currently our focus is, 'enhancing visibility on the move'. Through the usage of technology, we are looking at providing real time location details to clients.

Vehicles Equipped with Tracking System

Vivek Arya: Presently we have 200+ vehicles of our own and few more are being inducted in the current year. Apart from own fleet, Rhenus has good number of attached vehicles, working exclusively for Rhenus, thus improving fleet availability.

All our company owned vehicles are fully equipped with GPS tracking systems, so this would be 100 %. We are also using portable GPS devices for on spot hired vehicles to ensure connectivity.

Rajkumar S: Sequel operates with 150 dedicated vehicles in India. Sequel also owns and operates a small fleet of armoured vehicles in US and Europe and all of them are equipped with vehicle tracking systems.

Mansingh Jaswal: Larger proportion of our fleet is long term leased. However, we plan to procure about 50 own vehicles this fiscal.

Benefits of Vehicle Tracking Systems

Vivek Arya: GPS tracking is a necessity today and has a multi-faceted role to play. Apart from monitoring the movement of goods, it helps in better utilization of assets. It also helps in monitoring defensive driving and giving a complete visibility in the Supply Chain. Additional information like speed limits, number of driving hours, rapid acceleration/deceleration, detouring from route, unauthorised halting, traffic conditions etc are also

views about VTS

captured through GPS. We are a 'safety conscious' organization and our drivers are trained to follow norms as set in our policy. Customers definitely benefit from the real time location update of their goods. Customers get advance notification of likely delays and can make alternative plans accordingly.

Rajkumar S: The realtime tracking is extremely important and beneficial to our company, as it is imperative to know where the high value consignments are, at any point of time. The customers certainly benefit from this, as we are able to provide an accurate estimation of delivery time, which further helps them plan in a better manner.

Mansingh Jaswal: Till sometime back all of them were not equipped with tracking systems. But now we are in the process of equipping them with the latest GPS systems and linking them to a company-wide integrated system. This

Mansingh Jaswal
Director & Chief Executive Officer
GenEx Logistics India

would be helpful in management at macro level and

Beyond Vehicle Tracking

Vivek Arya: Going by research done all over the world, most accidents and incidents are caused due to driver fatigue and behavioural aspects. Rhenus India ensures a comfortable working environment for the drivers, breaks in between driving and annual holidays. We practice safety also taking into consideration the behavioural aspects of the drivers.

Yes we are very much interested in these features, as with such data we will be in a position to analyse data and act proactively for improvement in Road Safety. That is the ultimate objective. Tracking is the first step. This data will be used for further strengthening our operations, bringing consistency and certainty, brining work discipline and eliminating risks to the maximum extent possible. We have a much bigger obligation towards society, towards customers and towards driver's families and safe practices can only help us in fulfilling these obligations.

Rajkumar S: we are interested, and we inted to use such technologies in future

Mansingh Jaswal: Vehicle tracking is the starting point. We are planning to move much ahead of this. We are focussing on three aspects of GPS applications; the 1st and basic aspect is the vehicle management which includes speed, road safety, fuel consumption, driver behaviour etc; the 2nd one is the real-time shipment tracking through the usage of Geo-fencing etc, and the 3rd aspect is the demand / supply planning where we look at capturing the shipment data at initial level (pre-pick up level) thereby linking it to the vehicle availability and its capacity utilisation to the maximum.

Expansion Plans

Vivek Arya: Rhenus Logistics is a part of the Rethmann Group which operates in 50 countries and more than 1000 locations having a turnover of EUR 12.2 billion and employing 63, 000 employees worldwide.

Rhenus is present in 53 locations across the length and breadth of India. We are more than happy to expand to other locations and move with our customers, in cities, where they want us to expand our footprint and delivery capabilities. We are also completely aligned with the government on their "Smart City

Rajkumar S
Founder Director & CEO
Sequel Logistics Private Limited

Mission" and are keen on expanding and spreading our wings to these smart cities.

Rajkumar S: We have already set up our 100% subsidiary in US and Belgium last year, specifically for the high value and lifecare segments. Our objective is to establish and consolidate our operations in these geographies, in the coming few years.

Mansingh Jaswal: We are already present in more than 26 geographical locations across India. And in the current financial year our physical footprint is likely to spread to about 60+ locations. Our focus is to enhance the speed of businesses and creating more visibility to inventory whether in the warehouses or in transit.

Thoughts for Telematics Service Providers

Vivek Arya: No comments

Rajkumar S: We would certainly like to understand and adopt the new technologies and features being offered by Telematics, in the areas of fleet management and tracking solutions.

Mansingh Jaswal: Technology is disrupting the way supply chain used to be managed earlier. Businesses are changing at a fast pace. But for many, future seems too distant and abstract to provoke a sense of motivating urgency to change. That's a trap! Right Technology can provide the necessary leap into the future. ■

Tech Startups to Disrupt Logistics

Pranav Goel
Co-founder
ThePorter

Pranav Goel is from Gandhidham (Gujarat), born in a business family. He graduated from IIT Kharagpur in 2012. He has helped his family business set up a new line of revenue stream and has prior work experience in analytics and finance through stint in Cognizant and JP Morgan.

Q How did you come up with the idea of starting Porter, a truck aggregator company in India?

A Uttam and I were together in IIT Kharagpur and then worked together in J.P. Morgan as well. It was a well thought of and structured plan. The business model is somewhat inspired from Uber as it too functions on on-demand basis. Both, Uttam and I belong to business families and have seen the pain points of logistic services in India. So the first thought that came to us was to solve this purpose of entangled logistics sector in India. When Vikas joined in, the plan started to take a shape and we launched ourselves into the market in August 2014.

Drivers in our country do not get the right kind of business and neither do the clients get right vehicles. We had surveyed approximately 500 vehicles which led us to the result that this sector is troubled with deficiency of capacity utilisation. Where the potential trips are almost 4 trips a day, the driver ends up doing just 1 trip per day. Therefore, we thought that if somehow we could increase the capacity utilisation, creating a huge economic surplus, then the customers would end up saving 20-25% on logistics at the same time the drivers would earn 20% more and leaving us with healthy commission per trip.

Q How many vehicles are being managed by your company? Are they all equipped with vehicle tracking system?

A We have 3000+ vehicles working with us. All the vehicles are equipped with a smartphone with GPS and our in house app, helping us track our partnered vehicles on real-time basis.

Q Can vehicle tracking & fleet management assist your business?

A All vehicles on our platform are tracked on real-time basis, this gives visibility and transparency in our offering, we are able to leverage this to monitor & correct driver behaviour to improve customer experience. Serving customers with high SLAs not only have increased their trust on our platform but also changed their behaviour in terms of reduced loading & unloading time and treating drivers with respect. Similarly our partner drivers enjoy comparatively very low idle time & dry run and at the same time higher capacity utilisation. All of this has been possible as we have better visibility on both - demand and supply and are able to match them better.

Q Any thoughts about driver behaviour management?

A Driver behaviour is an important aspect of customer experience. At Porter, before on-boarding, a driver goes through a rigorous training and test orders to make him better understand our system leaving no scope of poor experience from his first order. So yes, driver behaviour management helps improve driving habits and operational efficiency. On top of it, we have sophisticated flagging and monitoring system to automatically detect any driver related deviation from normal course of action and intervention to rectify the same. Customer feedback also becomes paramount to deliver a seamless experience.

With proper infrastructure in place and awareness about benefits of better driving behaviour, in-cab coaching will see adoption at a faster rate than expected.

Q How do you see tech startups doing in the logistics segment?

A The logistics segment is extremely fragmented and unorganised, resulting in huge gap between supply and demand. Logistics as a sector contributes 13% of our GDP, which is far more than that of developed countries, usually accounts for 8-9% of their GDP. The difference is largely accounted for the inefficiencies present.

Tech start-ups like ours are disrupting different legs of logistics in India - we believe that lot of efficiency gains will come over the next few years resulting in higher capacity utilisation, increasing earning potential for drivers and lowering logistics cost for customers.

These tech start-ups would not only add efficiency and lower the cost to customers but also improve the SLAs and reduce leakages in a typical logistics transaction.

Q Can telematics help improve car rental services?

A Indian car rental Industry is witnessing a paradigm shift with a driver earning 4 to 5 times more what he used to with the help of aggregators like Uber & Ola, these service providers incentivise the drivers based on customer experience which in turn has improved driving behaviour.

With Automotive Telematics the drivers will not only improve customer experience and earn more but also increase engine life and reduce costs on maintenance. ■

Plethora of features beyond simple tracking

Q How did you come up with the idea of starting Voler Cars?

A There is clearly no one in India providing accessible self-drive car rental service in India. We felt that if we can make self-drive car rentals accessible to people the same way Uber & Ola have made P2P rentals accessible, it will be a fabulous market to serve. We have a strong foot hold in car rental arena, vast experience in managing large scale operations of managing 2000+ cars and more than 500k+ rides in the corporate mobility segment, knowledge of upcoming technology and consumer understanding in B2B sector, for me the stint at corporate mobility was an excellent training of the mobility world and venturing into the self-drive car rental segment comes as a natural expansion.

Q Can you share your experience in establishing a self-drive rental company in India?

A The industry is at a nascent stage and to create awareness about the self-drive car rental/ car sharing enterprise model was really challenging. Along with this we had to face a lot of regulatory issues, which we have addressed by and large with our experience in the sector. India today is full of opportunities and we have had a fabulous journey until now from setting up offices in multiple cities to rolling our first wheels on the roads of Delhi.

Q How do you see this market?

A Car rental market in India is complementary to car sales in India, in context that higher car sales will enable higher availability of car rental purposes. However, it also tends to have a negative impact on the car rental market; since availability of cars with a household reduces their dependence on rental cars. Nevertheless, self-driven car rental market operates at a distinct level because, young generation still prefer to opt for self-driven cars for long distance leisure purposes. During the FY' 2013 and FY'2014, thirteen people owned a car out of every 1000 people, which in FY' 2015 has increased to 14 cars per 1000 people. There is a wide untapped population base unaware of the self-drive car rental segment. A large proportion of domestic population in India continue to rely on auto rickshaws and cabs, which can be looked as a major challenge towards the growth of this market.

Having said all of this about the market, we believe, we need to learn on a daily basis and unlearn as we move ahead. Our lean approach will definitely make us the market leaders in the self-drive space.

Q How many vehicles are owned by your company? Are they all equipped with vehicle tracking system?

A We own 100 vehicles operating under our platform and all our vehicles are equipped with vehicle tracking system.

Q How is vehicle tracking going to help improve the services in terms of safety and overall ride experience?

A The blackbox fitted inside the car is equipped to control the speed of the car and 100+ features to ensure the car and the traveller is safe. We have a unique shake alarm which is sent by our system in case of an accident, helping us to reach our consumers proactively in case of an emergency. The overall ride experience becomes safe and sound for our consumers and they know we would reach out to them in case of an exigency.

Q Any thoughts on driver behaviour management.

A We have already started collecting data for all our users and their driving behavior. We collect approximately 200+ data points of a user and analyse the driver's driving behaviour. This will certainly help us iron out drivers who are hard on cars and reward users who are responsible. We believe this feature will certainly increase our efficiency. A part of in-cab coaching has already started with alarms and beeps while the customer is over speeding or not wearing seat belts, we believe this will take a larger shape with semi-auto vehicles coming into the automobile landscape.

Vikas Parasrampuria
Founder & CEO
Voler Cars

Q Do you plan to expand Voler Car's services to other cities in India?

A We have plans to launch our services in 20+ cities, our prime targets being the cities with high density of cars. We aim at 300% growth year on year for us.

Q How will Automotive Telematics in India help improve taxi services in future?

A Automotive Telematics is already helping the car rental industry and the ride sourcing companies like Uber & Ola. It makes your car safer, keeps the track of the car and the passengers, summons road side assistance in case of an emergency. Not only this, the advanced blackboxes can keep a track of our fuel consumption, vehicle diagonstics and driver's behavior which overall impacts the efficiency of the car and its lifetime value. ■

Telematics at Roads & Highways

Dr. Kamal Soi
Member at National Road Safety Council
Ministry of Road Transport & Highways
Government of India

Initiatives taken by MoRTH for installing Vehicle Tracking Systems and Intelligent Transport System.

Ministry of Road Transport & Highways (MoRTH) is working on a vehicle tracking system for reporting and alerting on all of the common vehicle tracking metrics such as fuel monitoring, speed, location, heading, journey history, driver behaviour, idling time, journey start and end times, plus much more.

In order to remove traffic bottleneck at toll plazas and ensure seamless movement of vehicles and hassle-free collection of toll, the government will implement a nationwide Electronic Toll Collection based on passive Radio Frequency Identification (RFID) conforming to EPC Gen-2, ISO 18000-6C standards. For this, EFC equipment installation is completed at 248 fee plazas and integration with Central Clearing House (CCH) is completed on 179 fee plazas.

Over Dimensional (OD) and Over Weight Cargo (OWC): A web portal has been launched for online approval of movement of Over Dimensional (OD) and Over Weight Cargo (OWC). This is expected to ensure smoother movement of heavy transport and make system corruption free.

Road Asset Management System (RAMS): A state of the art integrated data collection system for road asset management was launched. The system will compile information on road assets, condition of the pavements and traffic through use of laser technology. It will assist in developing an accurate and scientific maintenance planning mechanism, finalizing road safety measures and development of the National Highways network in India. The data collected will be stored and managed through a web based application, which will be hosted in the public domain. The application, when fully developed, can also be accessed by smart phones. The development of Road Asset Management System for the entire national highways along with collection of requisite data over 3,000 km of the pilot road network is underway as part of the prime minister's Digital India initiative. The data collection over the pilot network of 3,000 km commenced from Nagpur on 5 May 2015 on trial basis.

e-Pace(Project Appraisal and Continuing Enhancement): It is a tool that captures all information about projects being executed by MoRTH, NHAI and NHIDCL across its entire lifecycle. The information will be in public domain. The tool will help in monitoring of the projects and accelerating their speed. Data for over 1500 projects have been entered so far. ■

UPCOMING Issues

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Ecosystem in India

November – December
Connected Vehicles
Autonomous Vehicles

For editorial contribution, please contact: shaivi.tyagi@telematicswire.net (M. +91 8527438271)

VTS is required for operational efficiency, safety and security

Sunil Chaula
Founder & CEO
Wiwigo

Q What influenced the launch of Wiwigo?

A Well the idea started with my personal experience of cab rental services in India. It was around September 2014 when I was not able to book a train ticket from Delhi to Chandigarh. Eventually I hired a cab for Delhi to Chandigarh drop. But the driver charged me for round trip as he would not get the return booking.

The conversation with the driver during that journey helped me form a clear picture of how taxi market functions in India. All this triggered the idea of starting wiwigo.com which was publically launched in April 2015.

Q How do you see the taxi business?

A The taxi business in India is categorized into two broad segments. One is intra-city, where customers travel from one point to another point within the same city. The other is intercity where customers travel from one city to another city. The intercity or outstation car rental market is full of round trip vendors. This industry is highly unorganized and fragmented.

However, we do not see a lot of competition from organized players in inter-city travel space. Anyhow the market has enough headroom for many players to co-exist in this industry.

Q What is your business model? Does vehicle tracking fit into the scheme of things?

A Wiwigo business model is based on capital light aggregation model. Hence the company does not own any vehicles. However, we have 7000+ cabs on our platform. GPS tracking is a minimum requirement for a cab to be registered with us. GPS tracking reduces our operational overhead and at the same time provides safety and security to our customers.

Q How is vehicle tracking going to help improve the services in terms of safety and overall ride experience?

A Vehicle tracking allows our customers to monitor their cab before it arrives for the pickup. This helps tremendously to bridge navigational challenges and also keeps the customer updated on their cab's movement.

We are still to try fuel management solutions. Though we believe it could help in cost optimization which could lead to lower fares for customers in longer term.

We firmly believe that automated and unmanned operationsare the key to operational efficiency and hence to large scalability and profitability of taxi services.

GPS tracking allows us to monitor moving vehicle and check any irregularity. This gives extra safety to our customers. Customer safety and security is of utmost importance to Wiwigo.

Our coming version of mobile application would also show the places of interest and restaurants to the travelling customers. This would greatly enhance their travel experience.

Q Any thoughts on driver behaviour management?

A Driver behaviour is an important area which could really improve the ride experience of a traveller. Our drivers are imparted in-person training for customer care excellence. They are also trained for deriving maximum mileage by observing number of driving practices such as driving at optimal speed, avoiding sudden acceleration and braking.

We intend to collect and analyse driving characteristics such as driving speed, braking and acceleration frequency. This data could then be used by automated in-cab coaching system to manage driver behaviour.

We believe that automated in-cab coaching could bring further adherence to safety guidelines and would increase operational efficiency for our vendor partners.

Q Any comments on telematics for taxi rental?

A Automotive telematics is the future of taxi rental business not only in India but worldwide. Telematics can alert drivers of approaching hazards and impending accidents. It can help drivers with directions through unknown city or highway routes. It can also help taxi rental companies monitor their assets and their movement. Thus automotive telematics may help us provide safer rides, avoid navigational challenges, allow vehicle tracking for safety and provide rich in-cab experience through infotainment solutions.

Q When do you see driverless car making a room for all?

A Well regulatory approval, building up infrastructure, processes and legal regulations for driverless cars is a time taking and challenging task. I believe that driverless cars may start to appear on Indian roads after 2022. The assisted driving technology is more feasible option in the country. The assisted driving could help avoid accidents and can provide better ride experience. We may start to see use of assisted driving technology specially in luxury travel segment in next 2 years' time. ■

Vehicle tracking & fleet management–points for consideration

Capt. Sujeet Singh Rawal
CEO
Checkmate Cash Management Services Pvt Ltd

Technology offers multiple solutions to the users. Caution is however to be exercised by users to ensure that 'Solutions are NOT bigger than the problem' and the applications are practical in execution.

Technology support is to enhance overall efficiency by reducing manual errors, remove human biases and help mitigate risk by constant monitoring and timely releasing alerts for appropriate responses. It is of prime importance that the 'triggers' selected for receiving 'alerts' are well thought of and supported by a response matrix which are well timed and adequate.

The entire system is to be worked out in direct relation to the activity and to its key priority areas of concern. The basic features to cover the administrative aspects like speed of vehicle, doors open or closed, average fuel consumption, servicing due, total mileage covered, dual door locking arrangement are basic requirement for good fleet management.

The varying features in the applications should be selectively used to cater for various different scenarios having varying objectives as per the task and the 'alerts' and their timings to be in accordance to be perfect. To explain the point better we would take the example of the 'Cash in transit' [CIT] services provided by service providers to banks to replenish 'ATM', 'Door step banking' or 'Home banking' or 'Transportation of cash' from one branch to another both inter and intra city. The 'essential' for good 'operations'.

The similarities in ATM replenishments and Door step banking services to monitor are time of 'in and out' and 'halts' which are specified in a routes. Whereas in CIT services it is majorly timings for safe delivery in time. While the features remain same in all three activities the application for alerts and monitoring would vary. Taking these three banking related activities as an example the suggested alerts and the desired response are as under-

Geo fencing- an alert which comes up when the vehicle moves out of its 'confined area' such as 'city limits' or 'routes'. This should be in two stages wherein first one gives an alert to the monitoring team for action based on their decision after counter check, while the second one should be to 'cut off the engine' first. In both cases the same should not be declared to the crew. These are to be strictly on need to know basis only as remotely cutting off engine can also be restored remotely. This in any case is not abrupt which can result in an accident but sluggish as the fuel line is cut off which gives enough warning to the driver of vehicle stalling.

Defined halts - in pre designated routes and halts like ATM, branch, currency chest ,customer location the 'coordinates' with first alert to be when the vehicle halt is not at a scheduled location.

Cash compartment opening- attempt to open the cash compartment at locations which is not pre designated would be an alert with further sealing the cash compartment or cutting off the engine. The latter is preferred as it can cater for genuine issues of fire or assault which the monitoring team may not be aware off.

Radio communication- it is an essential part which keeps the monitoring team in communication with the vehicle crew on occurrence of any eventuality and appropriate response and guidance.

CCTV monitoring- it is good to keep the crew conscious and alert for adherence of processes and a detailed post incident investigation . Live monitoring is not at all a practical and feasible solution for many reasons and to be treated as a tool for subsequent analysis .

Tracking- we have presently limited our scope to tracking of van which has many limitations of networking, reach, proximity, power source, validity; renewal before expiry or worse will full tampering. These are the aspects which need to be made fool proof and tamper proof with an alternative which comes into effect when the primary has failed. These could be the RFD buttons with their internal power source with minimum 2 weeks of sustainability and capability of detection within a reasonable distance of at least few hundred meters. [Leave it to the level where it is cost effective].

Monitoring alerts- it is not an easy task to monitor vehicles on a screen and further worse when you are not sure for each vehicle what to monitor, its movement or its halt, its direction or its change of route, unless you have specific details of each van on the screen and also have the authority to take decisions. It is thus important to have the processes well defined, alerts well worked out, for an action which is auto generated. Of course reversals are possible but with an authority.
We should have the above in place, primary for administrative support and secondary for operational efficiency and mitigating risk. Secondly, our response matrix on an auto trigger generated action set after due diligence, the alerts should be immediate on occurrence for desired results. It is not just about technology but more about its use customised to cater for eventualities that matters. ■

Fleet Management

Fleet managers have heard a lot about fleet management software (FMS) systems lately, but investing in one requires some time and thought. Justifying the cost and the training time needed to master a new system are perhaps the two biggest roadblocks that stop fleet managers from implementing one of these systems. Don't let them stand in your way.

It's important for you to understand the features offered by an FMS before you decide if it's a good fit for your fleet. For example, FMS programs can help your fleet manage maintenance, increase uptime, and improve the services you already offer. Clear metrics enable you to track your progress. To better illustrate just some of the ways that fleet management software can improve and streamline your business, explore the list below of the top reasons to utilize an FMS.

Reduces Downtime

Scheduled maintenance along with preventative maintenance – helps reduce the downtime associated with unexpected problems and breakdowns. Most FMS programs offer real-time updates of individual vehicle mileage, use, fuel consumption, and a host of other related metrics.

Saves on Fuel Costs

Fuel costs are always going up, it's a fact that everyone in the fleet business knows. FMS together with vehicle tracking devices and quality fuel sensor can help cut the fuel expenditures.

Tracking devices can offer real time information about any fuel theft, fuel consumption increased due to un necessary idling, fuel temperature etc. These data and more can be directly monitered on the FMS. One can generate monthly, weekly and daily reports to further manage the transport vehicle.

Driver Behaviour Monitoring

Fleet management software is the best way to monitor your drivers' over-the-road behavior and be more proactive about drivers' on-the-job performance. Driver behavior can help save in following ways:

- Reduce fuel consumption from idling and speeding
- Reduce odometer fraud and fuel theft through tracking fuel receipts and cards
- Track trends in vehicle and fleet fuel economy over time through trip-by-trip data

FMS can monitor and notify you in case of:

- Over speeding
- Hard braking
- High RPMs

Fleet managers concerned about safety and security will find FMS as an early-warning system for bad drivers. This can prevent undesirable situations before they occur.

Green Fleet

Fleets need to shift to more green solutions, not only for compliance but to support a healthy environment. With an FMS you can realize savings that support your decision to go green. Fleet management systems offer diagnostic tools to track and control the emissions. Hence, one can control air pollution produced by vehicle operation in following ways:

- Use less fuel
- Reduce engine idling times
- Improve trip planning to consolidate small, occasional trips

FMS is for You!

There are many reasons to consider an FMS together with quality GPS Tracking device to manage your fleet, like saving time and money and keeping an eye on drivers. FMS do require a small investment in capital and time to implement, like most new workforce technology, but if this system works for you, these costs will outweigh the benefits. ■

Imran Khan
Director Business Development
Gosafe Company Limited

A business graduate who joined Gosafe in 2005 and brought up new ideas and clients from South and South East Asia. He got promoted as director of sales in 2010.

Making smart use of every drop of fuel

Aliaksei Shchurko
CEO
Gurtam

In 2002 he founded Gurtam together with a group of IT engineers, today it has grown to over 150+ dedicated experts with Wialon system tracking more than 800 000 units worldwide.

With the global increase in the price of fuel businesses are forced to look at fuel consumption of their fleet vehicles. Therefore the demand of fuel management systems, providing fuel consumption monitoring, driver behavior analysis and fuel cards integration is on increase. Fortunately, where there's demand, there's supply – today the market offers an array of solutions for fuel management. But only few of them provide complex fuel and driver behavior analysis as well as are flexible enough to be integrated with fuel cards and ERP systems. Wialon fleet management platform is one amongst this category.

You'll be surprised to discover where your fuel goes

Wialon fuel control module allows for both fuel level monitoring in real time and fuel consumption analysis based on reports, where the information is presented in tables and charts.

All the data necessary for fuel consumption control is acquired either from various types of after-market fuel sensors supported in the system or CAN-bus. Be it fuel theft or unreasonable fuel burn, prompt reaction of management team allows saving up to 15-30% of fuel costs and consequently eliminates the very idea of fuel theft among drivers. According to statistics, system payback period amounts to 3-4 months.

Double check to assure driver compliance with reliable fuel thefts and fillings detection. Apart from data in reports, detailed landmarks history with additional information in event tooltips is also available on the map, including the volume, date and time of fuel thefts.

Moreover, fuel report table may contain information on fuel fillings and possible fuel thefts with precise date, time, initial and final fuel levels and fillings/thefts volume. The statistics on each unit and the whole fleet is available to provide you with the general picture of fleet performance.

Effective notification system via SMS, emails and pop-up windows allows for immediate reaction to the emerging issues, no matter if you are in or off office – just use your smartphone with Wialon native mobile app available for Android and iOS.

Driver behavior impacts fuel consumption more than you think

Driver behavior, studies show, impacts both fuel economy and vehicle repair and maintenance to a tremendous degree. In our experience, different driving behavior affecting fuel consumption for 30% between the worse and the best. Aggressive driving further results in greater wear and tear on a vehicle.

Fleet operators are now finding that intelligently implemented driver policies aimed at reducing poor driving behavior can increase road safety and bring substantial savings, which benefit the bottom line. That's why our company focused on developing an intelligent tool "Eco Driving" for driving quality assessment as an add-on to Wialon fleet management system. The tool is intended to help to improve fleet safety, save on fleet maintenance, reduce fuel costs and enhance cargo safety.

"Eco Driving" module helps control aggressive acceleration, speeding, sharp turns and braking, which can be crucial for cargo safety. It also checks for reckless driving – to detect speeding before abrupt braking takes place (for instance, harsh accelerations and decelerations at traffic lights stops).

Thus with the help of Wialon-based "Eco Driving" module a fleet owner gets a comprehensive driver behavior analytics for each trip or for any time period or distance travelled and can detect how drivers treat the entrusted vehicle and whether they try to save corporate fuel by reasonable driving manners.

Fuel cards for absolute fuel control

Wialon fleet management system is integrated with a range of fuel cards services providing customers with an opportunity to control where every fuel rupee was spent by verifying each transaction for the conformity of the fuel card and vehicle, matching the location of the vehicle and the gas station and conformity of purchased and filled fuel volumes.

For those seeking for an effective fuel management solution it can be the matter of saving fuel costs, environment protection or driver compliance control. Business world of today urges companies to look for universal solutions with all-in-one functionality and guaranteed results. All this presupposes effective analytics based on reliable data, multiple hardware options, quick response system, insight into driver behavior, vehicle technical condition and other parameters implicitly affecting fuel consumption. ■

Towards eyes-off driving

K V Varkey Pathimattom
Managing Director
Hindustan Antibiotics Limited

What was earlier exclusive CE domain

Today lot of high- end electronics has became integral part of roads. Automation is progressing from presently available Driver Assist systems to 'hands-off' driving and will end up in 'Eyes-off' driving within a decade. To be 'Road-Ready' to welcome this revolution, a feasible wish list of operational and safety devices on the road and inside the vehicle are presented here, from a user's perspective.

All-Weathers M2M Devices

The Machine to Machine (M2M) devices on the road to communicate with the devices in the vehicle should with stand low and high temperature and should be waterproof. The sensors should be durable and cost effective. Devices have to provide feedback to the vehicle, information on visibility, wetness of the roads etc through condition monitoring systems.

Electronic Fencing and Lane warning

Control devices to prevent intrusion of vehicle out of the lane lines should be installed. Prior to lane changing, passengers should be alerted by height or sound to take precautionary measures like seat-belt fastening etc. Dedicated lanes should be provided for self-driven cars, to avoid accidents. Laser based solutions for preventing collisions are feasible.

Devices for Monitoring Performance

Monitoring of tyre-air pressure, fuel level, oil quantity etc are already available in the present day vehicles. More features can be added by adoption of IOT (Internet of Things) technology. Remote diagnosis of imminent problems are feasible and generation of SOS calls should be possible, in case of emergencies V2I (Vehicle –to-Infrastructure) technologies are being introduced in new models of vehicles. Let us dream of drones to reach the accident spots, with necessary helps.

Self Parking

Technologies utilizing ultrasonic wave sensors are available to do smart parking in the auto-pilot mode or It is also possible to arrange parking spot reservation, as per availability. In many cities it is found that up to 30% of vehicular traffic is roaming around to find parking spots.

Electronic Toll and Gate Opening

RFID based electronic toll collection is being implemented smart card based automatic opening of gates of houses and garages are also easily possible to enhance the comfort of passengers. Smart Signage's and Street Cameras The future passengers expect not only signs from the signage. It can embed devices which can collect and analyse traffic situation and provide directions to change the lane etc either to the driver or the vehicle directly (in case of driverless vehicle). The street cameras can be equipped to read number plates etc.

Wireless Power Transfer While Running

Electricity storage problem is the main obstacle for the popularity of electric vehicles which are otherwise efficient and eco-friendly. New technologies are emerging by which vehicles can be provided electricity by wireless mode, through the electro-magnetic systems embedded in the roads. If this is implemented, electricity can be directly supplied to the electric motor of the vehicle, so that size of the storage batteries can be minimized and halts for charging can be avoided. Trials of this methodology are being done in some of the cities of United Kingdom.

WAVE and 5G Technologies

In a fast running vehicle for any real-time activity, the response time is very critical. The latency can be minimized by adopting latest technologies like WAVE (Wireless Access in Vehicular Environment), which is used in many countries. In a few years time, 5G technology will be launched, which is the dream solution providing the highest reliability. Design of new devices can be done now itself to become the pioneer to embrace this powerful wireless communication technology.

Autonomous Hardware and Self Adaptive Software

The automobiles of tomorrow will be highly dependent or sophisticated information and communication technologies. While moving on the road, it is convenient to avoid breakdowns for the aforesaid technological features which will make corrections and notifications automatically without human intervention in most of the cases.

Data Security

Imagine the situation, if the control of the devices in a vehicle is taken over by a hacker. Anything can happen to the vehicle and passengers. Hence, it is very essential to provide best security system for the electronic devices and network in the vehicle.

Standardization & Certification

Millions of vehicles employing M2M facilities will run on roads of various countries. In order to avoid confusion to devices and to avoid accidents commonly accepted global standards

and communication protocols for the devices used on the road and inside the vehicles are to be finalized and implemented. Inter operability of devices, networks and applications are to the ensured.
Independent certifying agencies are interested to supervise and certify compliance should be encouraged.

More and more automations make it necessary to provide more sophisticated safety and security measure. Think of a driverless car which lacks the presence of a person with sense, sympathy expertise and wisdom behind the steering where to take reflux actions on emergencies. Hence, it is very important to provide the best tech-tools to the future vehicles, for which all of us are eagerly waiting for. ■

News

Reverse Pedestrian Detection

Harman International is developing a safety system to help eliminate the blind spots. Reverse Pedestrian Detection combines data from a range of existing Harman technologies fitted to the car, including a rear camera and sensor, to detect pedestrians behind the vehicle. In one of its most critical uses, it can successfully detect smaller children, aged between 12 and 23 months, who are most vulnerable to being hit.

The Reverse Pedestrian Detection technology uses advanced computer vision methods and a fish eye camera to detect pedestrians behind the vehicle and fuses it with data from the ultrasonic sensors for close pedestrian verification. To improve the accuracy, the application also uses the steering wheel angle and speed for calculating probable collision trajectories. ■

DGX-1 for driverless vehicles

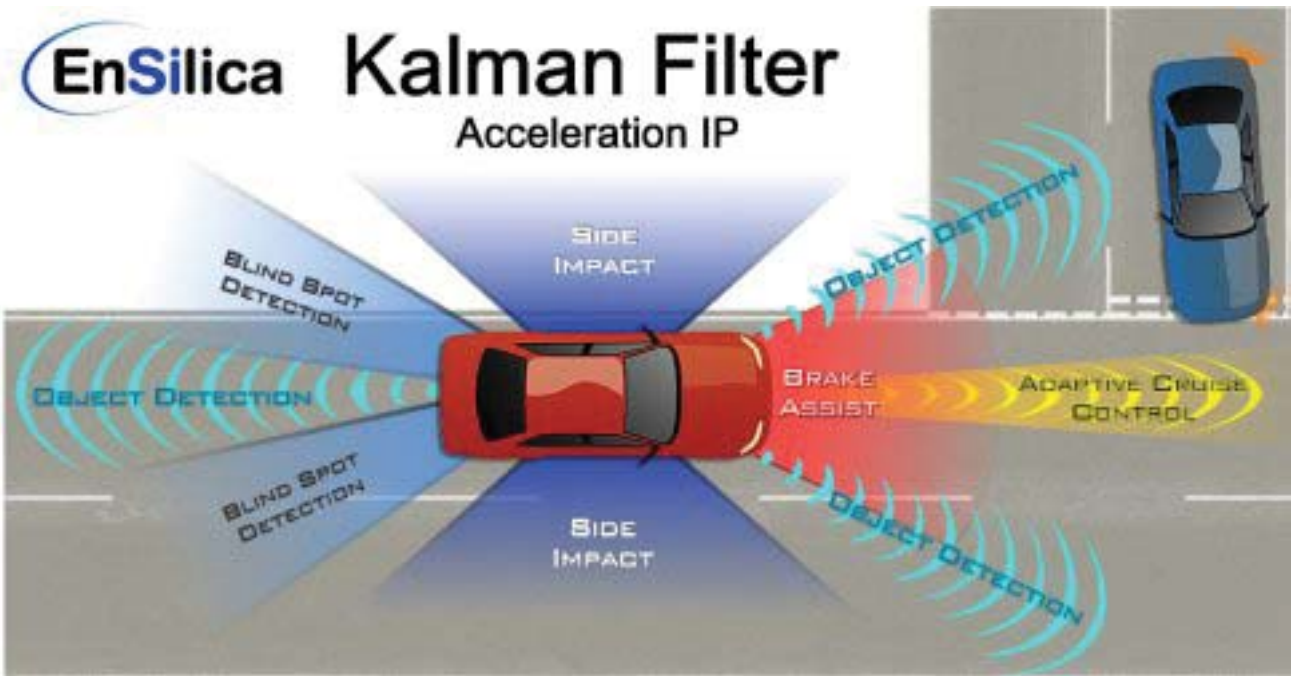
NVIDIA recently unveiled an integrated system with the computing throughput of 250 servers. The NVIDIA DGX-1 will help in AI applications. It's designed to create HD maps and keep them updated, using the compute power of NVIDIA DRIVE PX 2 in the car and NVIDIA Tesla GPUs in the data centre. ■

EYERIS 3.0 camera-based ADAS

EYERIS Generation 3.0 system has improved field of view as well as the camera resolution. As part of a fusion system with radar in the front of the vehicle, the system performs functions related to the vehicles' lane keeping, automatic high beam, automatic emergency braking and adaptive cruise control features. ■

Kalman Filter acceleration IP core for ADAS

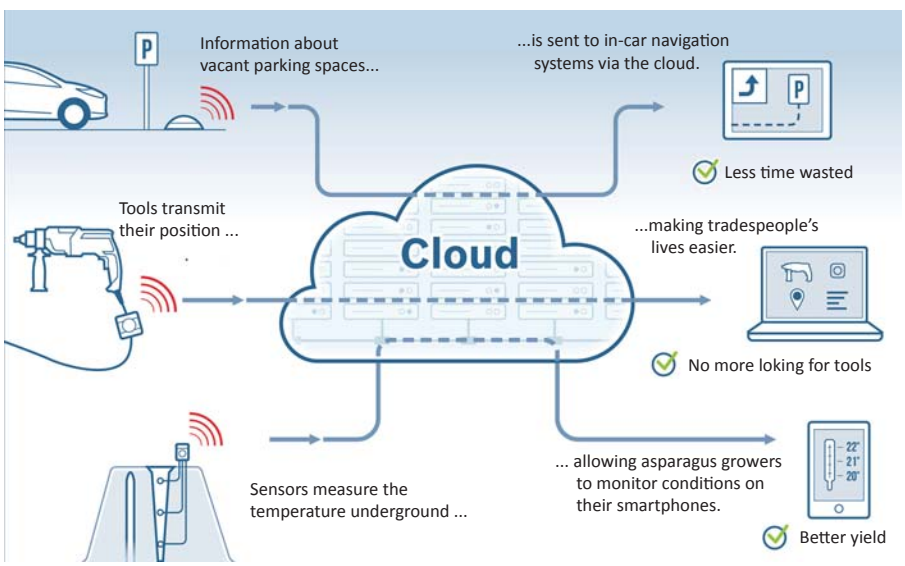
EnSilica has launched a Kalman Filter acceleration IP core for use in situational awareness radar sensors for advanced driver assistance systems (ADAS), such as electronic stability control systems, pre-crash impact mitigation, blind spot detection, lane departure detection, and self-parking. The Kalman Filter acceleration IP core, which is part of EnSilica's emerging automotive IP portfolio that also includes pipelined FFT and Constant False Alarm Rate (CFAR) cores, provides an estimated speed improvement over software-only solutions of up to 10x. ■



IoT cloud for connected automobiles

The Bosch IoT Cloud for connected automobiles will run various applications for its connected mobility, connected industries and connected buildings businesses.

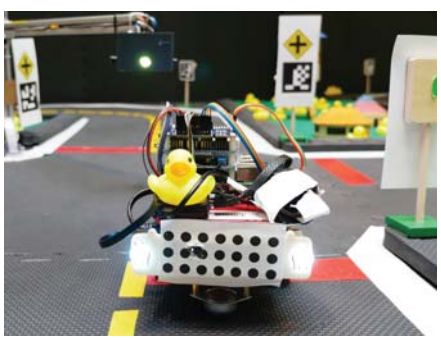
It comprises technical infrastructure as well as platform and software offerings. To begin with, the supplier of technology and services will use it for in-house solutions. From 2017, it will also be made available as a service to other companies. ■



Duckietown: Teaching automotive autonomy at MIT

MIT has a new class on the science of vehicle autonomy at the graduate level. This is a hands-on, project-focused course focusing on self-driving vehicles and high-level autonomy. The objective being- Design the Autonomous Robo-Taxis System for the City of Duckietown.

Duckietown is a reproducible, open-source class, where all materials (hardware design, software, and teaching materials) will be released as "open source" ■



Product Review- AutoWiz

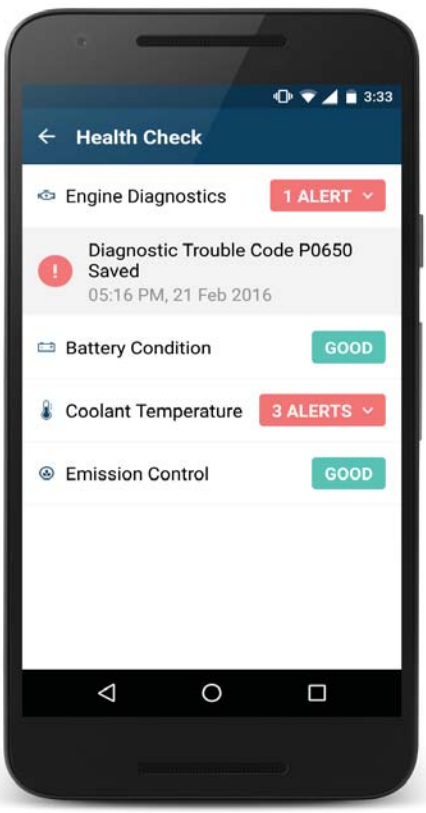
AutoWiz telematics solution from SenSight Technologies can be used for personal and commercial car owners and businesses. The product combines various elements of IoT and analytics technology to offer a seamless connected car solution. Along with providing near real-time location tracking, the solution also provides insights on driving behavior and remote diagnostics of the car. ■

Features

Live Tracking & Notifications: After installing the AutoWiz app on phone, it delivers real-time tracking with notifications, which helps in identifying the actual location of the vehicle.

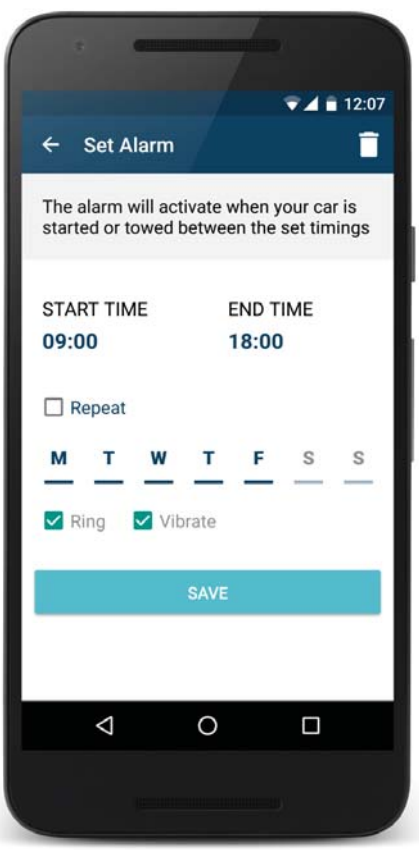
Health Check: In order to improve car's performance and reduce unexpected breakdowns, AutoWiz keeps you updated with the features such as engine diagnostics, battery conditions, coolant temperature and emission control.

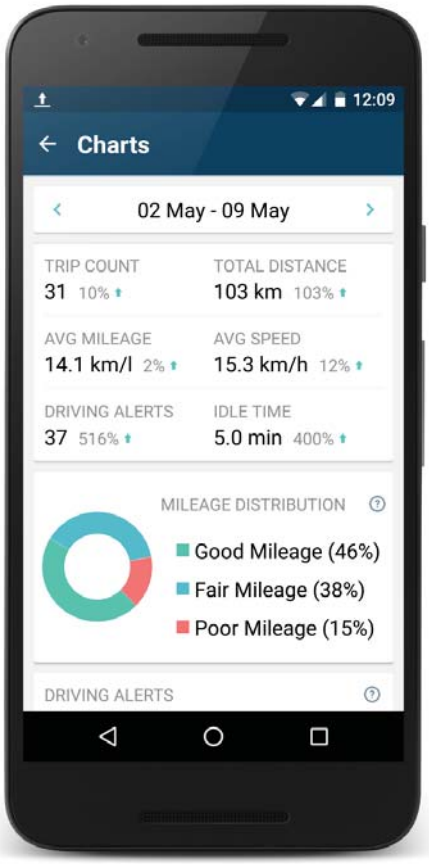
Anti-Theft Alarm: The device not only tracks the car but also provides you with a feature to prevent it from any theft. It works by setting an alarm on the app within a specific time frame, which notifies the car owner in case of a burglary or any other mishap.



Installation

AutoWiz is fairly easy-to-use, wherein the user can just plug the device into the OBDII port of their car and connect it with the smartphone app. Car owners can now simplify tracking of their vehicles and also improve driver behaviour with the help of this tracking device. The app then works by collecting the data-feed in the cloud and projects it on the driver's screen. ■





Driving Alerts: Through trip statistics and weekly charts by AutoWiz, one can improve their driving habits by reviewing the performance on a regular basis. ■

User Experience

After installing this device in a Ford Figo, the statistics and performance of the device were observed for a few weeks. AutoWiz was easy to install in the vehicle and after downloading the app its features were also accessible and interesting.

However, while tracking the vehicle, the refresh rate was only near real-time, as the app auto-refresh feature updates the vehicle position once in a few seconds. Perhaps done so as to reduce the data charges. ■

Mergers & Alliances

- Google and Fiat Chrysler partnering on autonomous cars
- Mobileye in talks to collaborate with INGDAN.com
- Hyundai Motor & Cisco join hands for global connected car project
- DENSO invests in semiconductor laser technology startup TriLumina
- Toyota & Aioi Nissay collaborate in a US venture for usage-based car insurance
- Intel acquires YOGITECH with an eye on ADAS and automotive electronics
- Toyota and Microsoft join hands for connected car technologies
- Ficosa launches intelligent rear-view mirror ADAS with Panasonic
- GM to acquire Cruise Automation to accelerate autonomous vehicle development
- HARMAN acquires TowerSec automotive cybersecurity
- Volkswagen works with Pivotal to make software-driven solutions for connected cars
- Bosch considering to buy stake in maps giant HERE
- Honda & Hitachi develop tamper-proof alcohol detector system
- Volkswagen works with Pivotal to make software-driven solution for connected cars
- ORBCOMM set to acquire Skygistics
- Nissan, Savari & UC Berkeley make V2X testbed in Sunnyvale
- Wuhan Intest selects Gemalto's LTE technology for connected cars in China
- Samsung & Yamaha reveals a smart heads-up display (HUD) for motorbikes ■

Bits & Bytes

The purpose of writing this column is to provide the 'big picture' of the automotive industry and its impact on our lives. Technology talk demystified and put in perspective of the mundane world.

On one of my trips to the Holy-Grail of automotive: Germany, I paid a visit to the Mercedes-Benz Museum in Stuttgart. I was engrossed in the journey of the automotive industry which began in 1885 with the invention of the gasoline engine by Carl Benz, in Mannheim and another duo in Cannstatt: Gottlieb Daimler & Wilhelm Maybach. Carl Benz patented his motor car 1886, while, Daimler & Maybach motorized a carriage. Daimler and Benz founded their own companies, competed with each other, lived 60 miles apart, yet, never met each other in their lifetime. I observed that the story of the automotive industry is tightly woven into the fabric of the economic and social history of Europe. The successful launch of cars, trucks and buses enabled quick mobility, which led to growth in economic value across the globe.

130 years later, we are witness to a new world of mobility. Automotive business models are being redesigned to create smart, connected and green mobility solutions. Commercial areas like: mines, campuses and smart cities are already using autonomous mobility solutions. These are automated to a very high degree and operate on software driven solutions.

Why do we need smarter ways to get around?

Let's consider this, the ever-growing urban areas create millions of people to move multiple times to-and-fro. Commute within any big city could take up 3 to 4 hours per person every day. This decreases productivity, consumes fuel, pollutes the environment and is also a stressful experience. Change is imperative!

How does technology fire up smart mobility solutions?

Magesh Srinivasan
Global Sales Director - Connected Car
HCL Technologies

Inside the car:

A luxury car has enough processing power, software algorithms and communication ability to automate critical functions. Here are the most popular groups or sub-systems: Advance Driver Assistance Systems (ADAS), Infotainment (Information + Entertainment) and Location Based Services (LBS) enabled via embedded Telematics.

Crowd-sourcing mobility:

Today's smartphone apps seamlessly connect to cloud-based platforms that use algorithms to aggregate supply and demand. For example, Uber and Ola have enabled ride-sharing to reduce price and reduce carbon footprint per ride.

Go Green:

Electric Vehicle (EV) ecosystem is an essential design element in most 'smart city projects' emerging today. The aim is zero emission and optimal energy flow across the ecosystem. Vehicles deficient in energy will receive energy and vehicles having a surplus will contribute to the smart grid.

So far the automotive industry has expanded to include benefits from the new age technologies. This industry is shedding slowly but surely, its old 'product' mindset and transforming itself into a mobility solution provider, constantly connected to its consumers. Stay connected! ■

News & Updates

- Maruti releases map-update for SmartPlay infotainment system
- Tata Motors set to introduce driver assistance feature in vehicles
- Android Auto in-car operating system arrives in India
- Minda Corporation signs agreement to acquire Panalfa Autoelektrik
- HCL Technologies acquires Geometric Limited to expand automotive practices
- DPL telematics launches plug-in OBD II GPS tracking system
- Vehicle tracking systems to be installed in Varanasi public transport
- Andhra Pradesh govt to mandate vehicle tracking in all transport vehicles
- BMTC buses to be installed with vehicle tracking systems by May-June
- Blaupunkt extends infotainment license agreement in India
- BSNL to deploy vehicle tracking system for Ministry of Urban Development
- Azuga's mobile fleet management solution honored with four awards
- Kale Logistics launches container tracking mobile app-CODEX
- TAFE to unveil its 'SMART' series of tractors with higher productivity
- Adani Logistics & Kale partner to develop Terminal Operating System (TOS)
- Magnasoft launches GPS tracking app for school children in Mumbai
- Suzuki selects Harman to provide infotainment system for Ignis models ■
- Mobileye to develop autonomous vehicle by 2020
- KTH researchers & Scania test self-driving trucks
- Google patents 'turn signal detector' for autonomous cars
- Jaguar Land Rover supports EU plan for autonomous vehicle technology
- ARPA-E offers $30 million funding for Connected Cars
- Ericsson teams up with MIT's system design student for autonomous car framework
- Daimler is investing €500 million in connected trucks and "platooning"
- Ford loads its F-Series "Super Duty" trucks with camera-based ADAS for seamless reversing
- Infiniti announces "Infiniti Accelerator 2.0" to support connected mobility start-ups
- Airbiquity to support SmartDeviceLink infotainment
- Fiat-Chrysler introduces "UConnect Vehicle User Guide" app for 2017 Pacifica minivan
- Zenrin is planning to make 3D mapping technology for autonomous vehicles
- Ford opens a new subsidiary to lead "Smart Mobility" initiatives
- Ford's autonomous research vehicles drive in dark with LiDAR sensor technology
- eTrans launches V2X software development platform for connected vehicles
- Hyundai & Kia Motors to develop AI based connected cars
- Toyota concept vehicle designed using TeXtreme material
- Jaguar Land Rover launches technology start-up, InMotion
- Trials of wirelessly connected vehicles and driverless cars to hit UK roads
- BMW connects consumers through Microsoft's Azure cloud
- ERM Advanced Telematics introduces anti-theft vehicle tracking solution
- Japanese government take on US and Europe with industry panel on autonomous vehicles
- Cohda Wireless selected for US-Ignite connected vehicle project, led by Clemson University
- Automatic emergency brake to be a standard feature by 2022 in US
- Baidu to test self-driving cars in the US
- TomTom goes GREEN, cuts down CO2 emissions by 6% with OptiDrive 360 telematics platform
- Improper aligning of windscreen after repair could lead to ADAS failure: Autoglass
- Honda is wary to call its Honda Sensing ADAS suite as "autonomous"
- Startup Drive.ai gets license to test autonomous vehicles in California
- Toyota to deploy 5,000 connected cars to Ann Arbor
- Toyota Boshoku to open Silicon Valley R&D center to steer automated driving efforts
- LexisNexis provides driver behaviour telematics app for Nationwide's SmartRide UBI program
- Peugeot concludes its 3000KM autonomous driving trip, with apparently no crashes ■

Track

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Parents used our app

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- 50+ alerts
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- easy user interface
- available for web and mobile
- multiple map support
- multiple language support
- open for any customization

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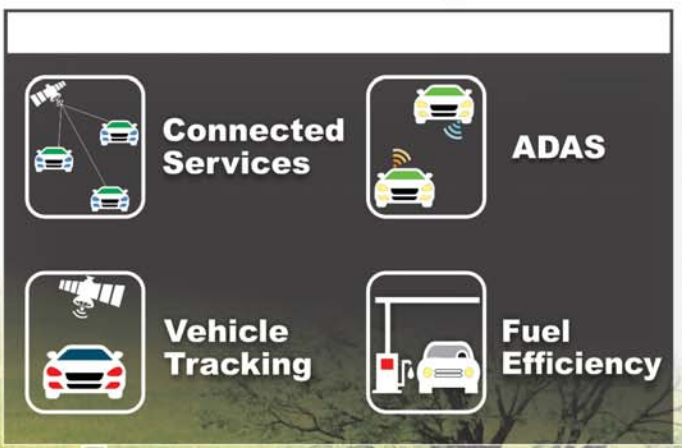

http://telematicswire.net/conf