

Automation fuels petrol pumps with transparency

Every drop of pricey fossil fuel matters, particularly to the hit-hard-in-the-wallet Indian motorist as well as fleet owners for whom cost of ownership is critical. Now, in a bid to ensure transparency, oil marketing companies are taking to machine learning, AI and data science, says **Shahkar Abidi**.



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Old habits die hard. When tanking up a car, bike or scooter, what most motorists consciously try to notice at fuel dispensing time is whether the meter reading is gauged at zero. What if the fuel dispensed turns out to be 20-25 ml less per litre despite the meter reading recording at 'zero'?

The concerns about transparency certainly rise several notches higher if you are a fleet operator because keeping track of a vehicle's fuel consumption is highly important for your company's bottom line. Now, also imagine the concerns of oil marketing companies (OMCs) about

the losses incurred from fuel pilferage, which happens during transit to the retail stations from the refineries across India.

Though these problems are decades old in India, it is only of late that machine learning, artificial intelligence and data sciences are changing the way retail refueling is carried out, helping reduce pilferage to a considerable extent, if not completely stopping it.

Oil marketing giant Hindustan Petroleum Corporation Ltd (HPCL), in collaboration with Fastlane, a subsidiary of Mumbai-headquartered AGS Transact Technologies,

As a result of automation of retail outlets, OMCs are able to capture, in real-time, sales transactions, monitor tank stocks and receipts, and also arrive at demand forecasts.

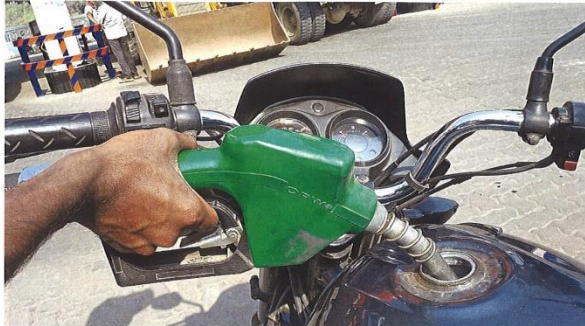
recently inducted a feature called 'zero' meter reading into its pump nozzles, thereby eliminating the chances of adulteration or mischief by the retailer or its employees. The new system, which has been experimented in large cities like Mumbai and Pune among others, is expected to be taken to 10 cities by March 2020 before its rollout nationwide. HPCL, the country's second largest OMC, has a total of 15,855 outlets in the country.

Apart from HPCL, rival oil and gas companies including Bharat Petroleum Corporation Ltd (BPCL), and Indian Oil Corporation

Ltd (IOCL) are either experimenting, installing or are said to be in talks with technology providers for adopting similar technologies for their fuel stations across India.

Fuel station nozzles now communicate

Once a vehicle enters the fuel station, the vehicle and payment information is identified through the RFID sticker on the windshield. It provides vehicle identification and fuel type, as well as billing and payment information to the pump's site controller. The identification is done by the system installed at the fuel nozzle or hand-



held reader. This nozzle, when inserted into the fuel tank's inlet, will acquire the vehicle's details, such as make, model and fuel grade required, and is automatically ascertained. When the system identifies the transaction as approved, the pump will reset to 'zero' and fueling will commence. After fueling is complete, the driver can simply drive away, without having to stay by making the payments online beforehand. The system works through a mobile connected app.

Explaining the new technology, Satish Zope, Head - Petroleum & Digital Payment Business, AGS Transact Technologies, says, "If someone misbehaves with the system, then the fueling will automatically stop, and the consumer will pay for only the volume of fuel that

has gone inside the tank, thus infusing confidence in the customer mind's about 'what is filled is only billed.'"

The development comes at a time when India is eyeing to set up another 86,000 new fuel stations across the length and breadth of the country over a decade. The government owned OMCs – including IOCL, HPCL and BPCL – currently account for 66,408 fuel stations, apart from a few thousands more by private players.

Ironically, the growth in the number of fuel stations in India comes at a time when the rules of mobility itself are changing. A Boston Consulting Group report claims that despite the variation in different markets, a significant portion of the conventional fuel retail network in some markets could become unprofitable by 2035, even in the scenarios in which



AGS Transact Technologies' Satish Zope: "In the event of any malpractice, the fueling automatically stops and the consumer pays only for the volume of fuel dispensed."

Customers can download the Fastlane app and enter details to enroll or complete formalities at any participating HPCL fuel station.

STEPS TAKEN BY OMCs TO STOP MISUSE

- Filter paper, calibrated density equipment (hydrometer /thermometer) and 5-litre calibrated measure are made available at retail outlets for checking quality and quantity of MS/HSD (Motor Spirit/ High Speed Diesel).
- Regular / surprise inspections are carried out at retail outlets by OMC field officers / senior officers / mobile labs throughout the country.
- A separate Quality Assurance Cell (QAC) has been created for carrying out inspections.
- Samples are drawn from petrol pumps at random and sent for testing to authorised laboratories.
- Fuel tankers are sealed before they leave the company premises to prevent pilferage / adulteration en route.
- GPS has been installed to monitor movement of tanker-trucks carrying MS / HSD.
- Third party audit of retail outlet is being carried out by OMCs for effective monitoring and benchmarking.
- Automation of retail outlets has been undertaken by OMCs, enabling real-time capture of sales transaction and monitoring of tank stocks and receipts.

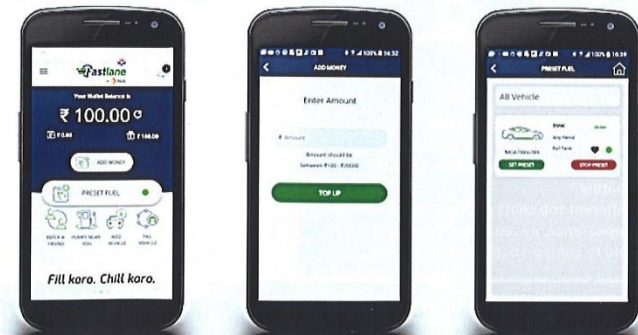


new mobility models are less disruptive and fossil fuel sales do not decline precipitously.

Better monitoring through satellite

Another important development is the secondary connectivity with satellites for OMCs

to get faster transactions, eliminating the manual interface and getting real-time data of retail stations which are located in geographically desolate places with patchy connectivity. Market leader IOCL, apart from HPCL, BPCL and GAIL, has put in place a system for





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equipping all its retail fuel stations with a satellite communication device called Very Small Aperture Terminals (VSAT)s. This allows for faster speed of transactions, eliminating manual interference, and offering real-time data collection. A VSAT network, which comprises a central hub and several hundreds of connected terminals, is further bridged to computer systems.

Hughes Communications India, a subsidiary of Hughes Network Systems, had earlier announced that India's leading state-owned oil companies have selected its Jupiter satellite broadband system to automate retail networking nationwide. Under separate contracts, IOCL, BPCL and HPCL will each use the Jupiter system to upgrade network connectivity across 19,000 locations. Partho Banerjee, president and MD, Hughes Communications India in a statement said, "In addition to driving cost savings, our Hughes technology and managed services will help the companies take control over applications such as monitoring of tank levels at petrol pump outlets,

checking and reducing pilferage, and ensuring updated pricing across all retail outlets across the country on a daily basis, enhancing customer satisfaction and achieving transparency in their operations."

Furthermore, fuel retailers are able to eliminate likely malpractices by attendants, apart from getting to know the real-time inventory updates, ease of payments and demand forecast bringing much-needed reliability into their operations.

The e-key facilities of the fuel tankers is another important technology to be adopted, as it provides for a one-time password (OTP) for opening the fuel tankers, the industry experts added.

Entry of private players spurring automation

According to industry experts, the transition to digitalisation was never an easy one for the industry as until two years ago, OMCs focused on B2B communications, which was limited to their dealer networks. Also, the round-the-clock functioning, often in harsh and varied

Tankers are sealed before they leave OMC premises to prevent pilferage or adulteration. GPS also helps monitor and track fuel tanker movement.

India's leading state-owned oil companies have selected Hughes' Jupiter satellite broadband system to automate their retail networking nationwide.

weather conditions, along with the risk of vandalism especially in isolated places, made things worse for the owners of retail fuel stations.

Satish Zope of AGS Transact Technologies, says, "The entry of private players actually escalated the entire process. The government mandate for automation also helped." As per industry sources, all the OMCs put together are automating about 4,000-5,000 fuel stations every year."

The pace of automation in the fuel retailing industry was strengthened around the end of 2018 when the Petroleum Ministry asked OMCs to pull up their socks following reports about the petrol pump chip scam which made national headlines. Around 100 retail outlets were reportedly shut down across the country. The errant fuel stations cheated motorists by installing special remote controlled chips which would release 20-25 ml less of fuel per litre at the time of dispensing. The ministry then asked OMCs to hasten up automation with real-time updates of the retail stations till the nozzle level.

Portable petrol pumps

The concept of portable petrol pumps inched closer towards implementation as Alinz Portable Petrol Pump (APPP), a Delhi-based company in collaboration with the Czech Republic-based Petrocard, expects to launch its first such fuel station in Haryana over the next few months, followed by introduction in other parts of the country. These portable petrol pumps are ideal for isolated locations including rural areas, military and police bases, railways and airport premises, among others. Furthermore, in the next two years, the company plans to set up four plants for localised production at the cost of about Rs 1,200 crore. The portable petrol pumps are self-serving tools for fuel dispensation and payments can be made online. Speaking to *Autocar Professional*, P Bhatt, project manager at APPP, said, "Talks with several states are at an advanced stage."

All said and done, while the conventional fuel retail industry undergoes dramatic changes with the growing popularity of new-age mobility, automation is certainly here to stay. ■