



LANKA IOC LIMITED

FUEL RETAIL AUTOMATION



Company profile

Lanka IOC Ltd. (LIOC) started out as a wholly owned subsidiary of Indian Oil Corporation. IOC started operations just three years ago(2004). Lanka IOC Limited's principal activities are manufacture and market petroleum products. The Group develops and manufactures a wide variety of petroleum products, crude oil, lubricants and grease, oil base and additives and other petroleum related products. Their major industries are OIL, GAS, COAL & RELATED SERVICES and sub industries being OIL REFINERS & DISTRIBUTORS.

According to the MOU signed in 2002 between Indian and the Sri Lankan governments chartered IOC's path to the island incorporating Lanka IOC as a wholly owned subsidiary. That year December Lanka IOC signed an agreement with the island's Public Enterprise Reforms Commission and the Board of Investment of Sri Lanka. Consequently, Lanka IOC acquired 100 filling stations and a one-third stake in the oil storage facilities for \$75 million to become a full-fledged player in the island's downstream petroleum segment. Currently Lanka IOC is in the process of acquiring 82 more dealer-owned outlets. The company is spreading out its outlets in all areas. The companies also have some plans to expand more in outlets and bridge the gap of excess demand in the country. Having captured 30 percent share in the retail petroleum products market, Lanka IOC, is now looking beyond Sri Lanka, exploring the opportunity of offering bunkering facilities to ships that pass the shipping lane between West Asia and Singapore

The company plans to invest on new technology to streamline their operations in order to better serve the customers in Sri Lanka. Better customer service is a crucial factor that will distinguish the company in the eye of the customer. Since IOC is the second player in the petroleum industry in Sri Lanka it has very little margin to draw customers in a price driven market. By including value added services and introducing new technology to their day to-day operations Lanka IOC hopes to attract more customers. This new technology can be broken down mainly to two phases.

Phase 1: performing transactions using PSTN

Phase 2: performing transactions using wireless mode

Phase 1: performing transactions using PSTN

PSTN is the worldwide set of interconnected switched voice telephone networks that deliver fixed telephone services to the general public and are usually accessed by telephones transmitting voice, other audio, video, and data signals. Completion of a PSTN circuit between the call originator and the call receiver requires network signalling in the form of either dial pulses or multifrequency tones.



Each filling station has a special terminal with a nozzle control which is attached to a PSTN. When the customer comes to the filling station, he should place in his credit card to purchase the petrol. After entering the amount to buy the petrol, the credit card information along with the amount to be deducted will be sent through the PSTN to the NAC (Network Access Controller). From there, the information will be passed on to the Bank's Host machine. After verification, the data will be sent back to the filling station terminal. The filling station terminal will display the amount the customer wants to purchase and activate the nozzle control automatically to fill up the petrol.

In this method, each filling station is equipped with a modem which will transfer data via the PSTN through to the relevant bank.

Phase 2: performing transactions using wireless mode

Wireless is a method of communication that uses low-powered radio waves to transmit data between devices. The term refers to communication without cables. Chiefly using radio frequency and infrared waves. Common uses include the various communications defined by the IrDA and the wireless networking of computers.

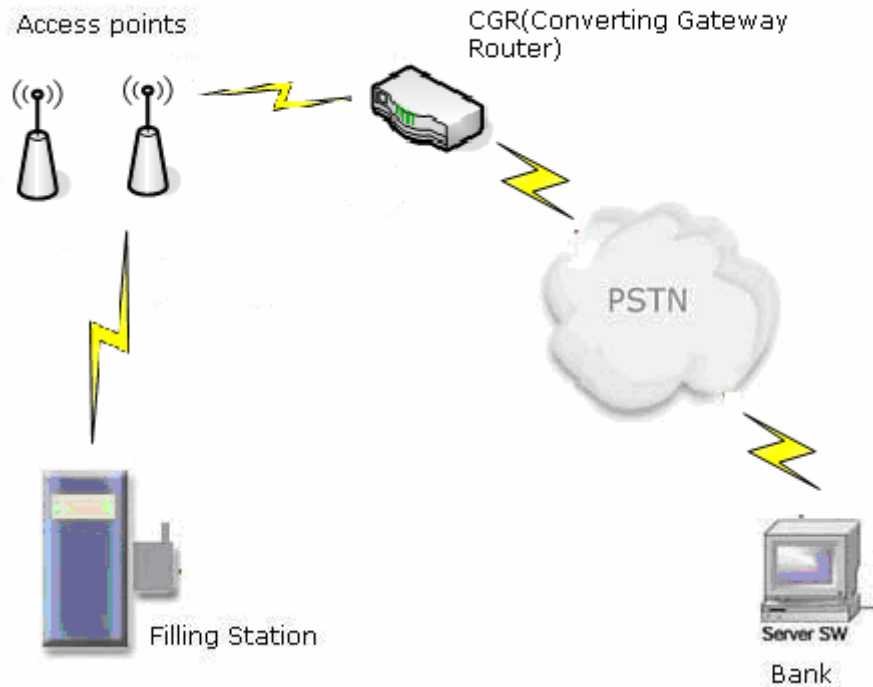
There are two main technologies to be considered here when performing transactions in wireless mode.

Option 1: WiFi technology

Wi-Fi was intended to be used for mobile computing devices, such as laptops, in LANs, but is now often used for increasingly more applications, including Internet access and basic connectivity of consumer electronics such as televisions and DVD players

A person with a Wi-Fi device, such as a computer or personal digital assistant (PDA) can connect to the Internet when in proximity of an access point. The region covered by one or several access points is called a hotspot. Hotspots can range from a single room to many square miles of overlapping hotspots.

Each filling station has a special device with a nozzle control. When the customer comes to the filling station he should place in his credit card to purchase the petrol. The typical Wi-Fi setup contains one or more Access Points (APs) and one or more clients. When the customer inserts the credit card and enters the relevant data it will be transmitted by the filling terminal to the access point. This request will be send to the bank's hosting machine through the PSTN and CGR. After verification the data will be sending back to the filling station terminal. The filling station terminal will display the amount the customer wants to purchase and activate the nozzle control automatically to fill up the petrol.



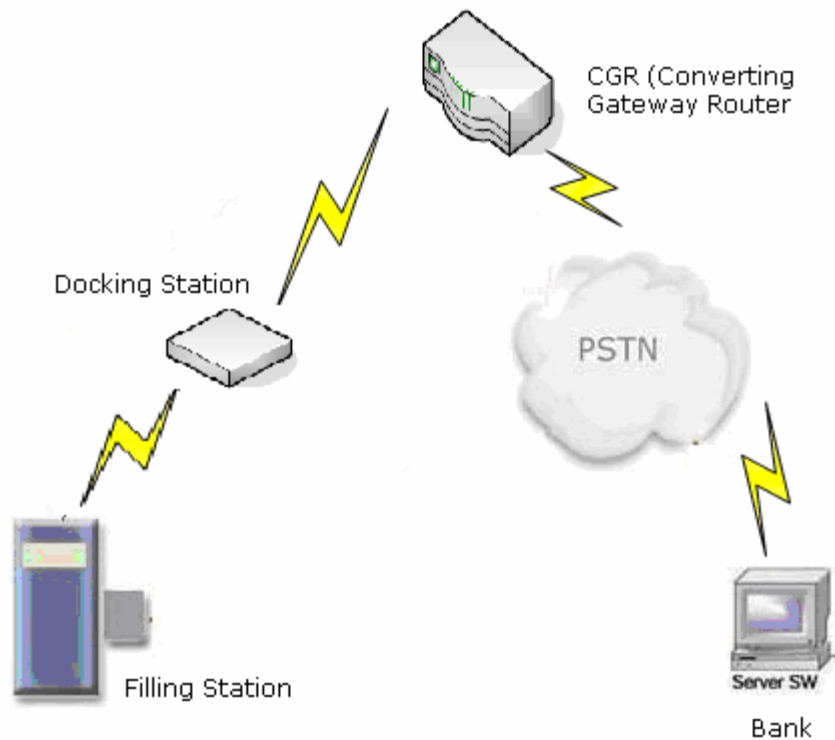
An AP broadcasts its SSID (Service Set Identifier, Network name) via packets which are broadcasted every 100 ms and are relatively short and therefore are not of influence on performance. The Wi-Fi standard leaves connection criteria and roaming totally open to the client. This is strength of Wi-Fi

The main advantage of this technology is that it can be deployed with out cabling. Potentially reducing the costs of network deployment and expansion. Spaces where cables cannot be run, such as outdoor areas.

Option 2: Blue tooth technology

Bluetooth provides a way to connect and exchange information between devices like personal digital assistants (PDAs), mobile phones, laptops, PCs via a secure, low-cost, globally available short range radio frequency.

Bluetooth is a radio standard primarily designed for low power consumption, with a short range (1 meter, 10 meters, 100 meters) and with a low-cost transceiver microchip in each device. Bluetooth lets these devices communicate with each other when they come in range, even if they are not in the same room, as long as they are within up to 100 meters of each other, dependent on the power class of the product.



This scenario is similar to the earlier mentioned Wi-Fi technology. The main difference here is we have a docking station which can handle client request one at a time. These requests are then handed over to the bank host machine via CGR, PSTN.

The main advantage gained by adopting these technologies is.

1. It is much faster than the conventional way of filling up petrol which takes a considerable amount of time.
2. The customer is in control of the total transaction. It is easy to gain customer acceptance and loyalty. And to attract new customers through faster service time.
3. Security of the transaction is preserved. Since the credit card information is with the customer and does not get in to any employee's hand.
4. Setting up is easy in the wireless mode since it may be expensive to draw cables.