

## **The tech trail**

From an incorruptible cashier to tracking your customer's footsteps via her mobile phone, technology plays a very important part in the making of a shopping centre

One of the first inventions to impact the way shopping is done was the retail POS system. Back in 1879, Ritty's Incorruptible Cashier, was the first one to be used. James Ritty, the owner of a liquor store patented the device based on the ship's propeller that tracked the number of revolutions for maintenance purposes.

Once it was patented, the Ritty brothers set up a factory to manufacture cash registers. A later owner introduced rolls of paper used to record each day's transactions. The first computer-driven cash registers were introduced only a century later. These were based on a mainframe computer packaged as a store controller that could control certain registers. POS systems were the first to commercially utilise client-server technology, peer-to-peer communications, Local Area Network (LAN) backups and remote initialisation.

Today, new inventions make the shopping centre experience richer for the customer by allowing owners to take multiple factors into account. One of the latest inventions in technology is shopping centres using mobile phone signals to monitor how long people stay, which route they take and stores they visit. Personal data remains inaccessible in the surveillance mechanism which works by monitoring the signals produced by mobile handsets via their EMEI numbers and then locating the phone by triangulation – measuring the phone's distance from three receivers.

A few shopping centres across the world have already installed it, including Gunwharf Quays in Portsmouth.

The dishes measure 30cmsq and can be placed on walls around the centre enabling the mall to find out what is the time it is the most crowded. A mall needs about 10-20 of them depending on size. They can even tell in which country each phone is registered. In catchment areas for inbound tourists, this could be a useful bit of information.

The information can also be used for effective design and deciding where the toilets go or the stores be placed.

Mobiles are already functioning as interactive retailing platforms. An example includes converting any camera-equipped mobile phone handset into a personal shopping assistant using an interactive bar code system.

Industrial strength touch screens also create better shopping experiences and can be used by shopping centre management to create maps and offer other information. An all-in-one PC features dust-free, water-proof front bezels, VESA wall-mount brackets, and 15, 17 or 19 inch LCD displays with NEMA 3/IP55 dust and water proofing. It can be deployed in digital signage, information kiosk and self-service check-outs roles.

Video intelligence software already streamlines in-mall and in-store security by using a Computer Aided Tracking (CAT) tool. The technology uses sophisticated video analytics to streamline video surveillance, giving the ability to seamlessly track in-store movements and create complete end-to-end footage.

A handheld store assistant is a more retail-friendly device. Motorola has released MC17 for the customer to carry around a store. Customers can use it to locate items, check pricing, options and availability, see related or complementary items, scan coupons and even whizz through the checkout process.

## BOX

### Case study

Another pioneer in this has been Wal-Mart, responsible for many landmarks. Its founder Sam Walton may have distrusted computers but some of most path breaking innovations in information technology used in retail spaces and large shopping centres come from his company.

It was in 1975, 13 years after the first store opened when the company already had 125 stores and \$340.3 million in sales, that it leased an IBM 370/135 computer system to maintain inventory control for all merchandise in the warehouse and distribution centres and to prepare income statements for each store.

By 1979, there was already a computer centre and a terminal at Walmart, which had, by then become the first company to reach more than \$1 billion in sales in only 17 years.

By 1983, it was using bar codes for scanning POS data. The next year, associates at the store were using Texlon handheld terminals when reordering merchandise. The unit provides a description of the merchandise, information on prior quantities ordered upon scanning a shelf label.

As early as in 1987, the store completed what was, at the time, the largest private satellite communication system in the United States, linking all operating units of company and headquarters with two-way voice, data and one-way video communication.

The year also saw the installation of a check-in system designed to take advantage of container bar-code labelling in the back room.

The store next created a data warehouse prototype to store historical sales data. In 1992, the Retail Link system is installed – providing vendors information on sale trends and inventory levels.

In the next four years, Retail Link and EDI were already available online and Wal-Mart launched its online stores. By 2002, internet became the medium of choice to exchange data with global

suppliers. By January 2005, the store announced deploying of radio frequency identification (RFID) technology.

The year after that Walmart redesigned Walmart.com, experimenting with Web 2.0 and social networking tools, and contracts with Oracle and Hewlett-Packard to use their price-optimization and BI retail applications.

By 2007, online customers could pick up their merchandise from stores.