Chip off the New Block

Radio Frequency Identification (RFID) technology is gaining popularity in India, with the mushrooming of shopping malls and retail units. The industry is expecting robust growth in the future, says **Shivkamal**.

RADIO Frequency Identification (RFID) technology, earlier an esoteric concept in India, is today finding widespread application in the country. Several home-grown information technology (IT) firms are developing wide applications for the technology across virtually every sector, covering retail, transport and logistics, financial institutions and even the farm sector.

Demonstrating the benefits of the technology, RFID is silently making its presence felt in India. Indian IT majors like Infosys Technologies, Wipro and Tata Consultancy Services are developing tailor-made RFID applications and solutions for the domestic market. Incidentally, much of the applications supporting RFID are being developed in Bangalore, the IT hub of the nation.

The rapid upscale in the development of RFID-related applications is owing to the increase in the adoption of this new technology over the last few years.

Corporates have been experimenting innovative applications of RFID for jewellery tracking, asset tracking for computers,

HAPPY SHOPPING : Many malls and retail outlets across the country are installing RFID device readers at the exits to prevent pilferage

laptops, library management and file and document management, to name a few.

Retailers like Bharti, Reliance and Futures Group are experimenting with pilots, particularly in logistics management. RFID applications are coming up across a wide range of verticals. Intercode Solutions is working on projects as varied as library management for tracking of books and asset tracking for companies like Airtel and Vishal Megamart.

The sharp decline in the cost of tags has also contributed significantly to the widespread adoption of RFID. Gemini Traze RFID, a subsidiary of Gemini Communications Ltd, has set up India's first RFID tag manufacturing facility at Chennai.

"We have manufacturing capacities of 100 million tags annually, which will enable us to bring down the costs of tags to less than 25 cents from one dollar over the next few months," says a spokesperson for Gemini Traze RFID. "Many retail players are showing keen interest in these developments. When the retail sector adopts this technology, mass deployments in hundreds of millions will further reduce costs to 10 cents an RFID tag."

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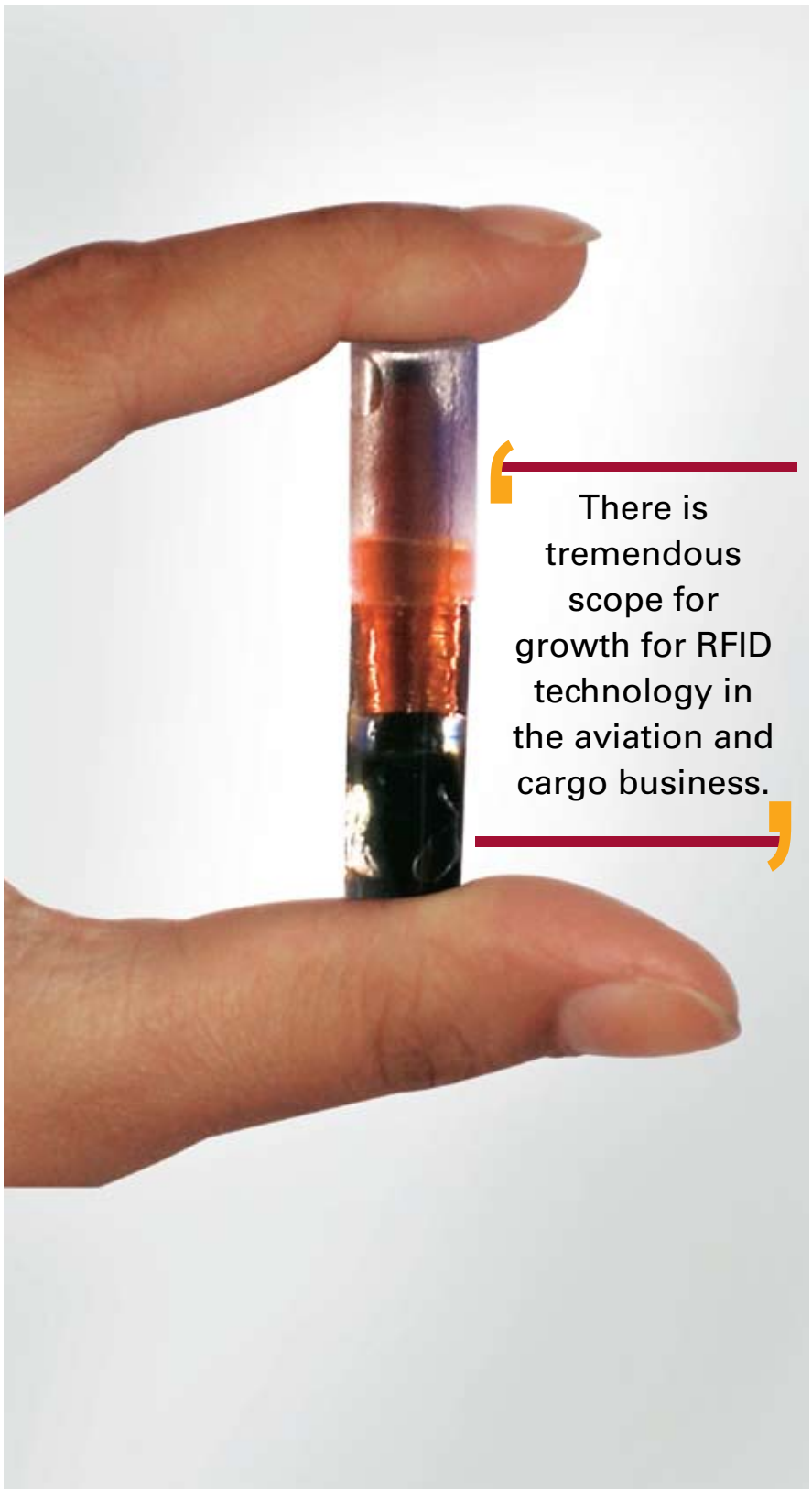
In many western countries, where the sector is organised, RFID technology has enabled retailers to move a step ahead in containing shoplifting. RFID device readers in a store can take an inventory of hidden items in a shoplifter's bag and bill them to the lifter's RFID-enabled credit card.

The technology is also witnessing tremendous improvements. Last year, Hitachi unveiled an RFID device measuring 0.05x0.05 mm, thin enough



> There is tremendous scope for growth for RFID technology in the aviation and cargo business.

SMALL IS BEAUTIFUL : RFID technology offers benefits to several sectors of the economy

to be embedded in a sheet of paper. The new chips can store as much data as the older µ-chips, and the data contained in them can be extracted from as far away as a few hundred metres.

RFIDs are changing the way companies maintain inventory. Internationally, high-frequency RFID tags are used for tracking passports, books, airline baggage, apparel and pharmaceutical items. They are also being widely used in identification badges, replacing the earlier magnetic stripe cards.

Motorists and highway users in India, for instance, tend to waste a lot of time at toll plazas waiting for their turn to pay. With RFID, it is possible to speed through the plaza without stopping to pay the toll. The tag in a vehicle is read remotely as is it passes through the toll booth, and the information is used to debit the amount from a prepaid account.

The operator of the Delhi-Gurgaon Expressway, for instance, has managed to reduce the traffic snarls at the tollgate by popularising its 'Smart Tag,' offering discounts to motorists who opted for it.

The system helps to speed traffic through toll plazas as it records the date, time, and billing data for the RFID-embedded vehicles.

A common use in India for RFID is in managing inventory systems. The visibility provided by this technology allows for an accurate knowledge on inventory levels by eliminating the discrepancy between inventory record and physical inventory.

IBS Software, an Indian firm, is working on applications that can easily adopt RFID. The company is developing these applications at its Bangalore development centre. IBS specialises in software for the aviation and cargo segments.

"RFID can be of great assistance to the airline industry," points out Akshay Shrivastava, senior vice-president, cargo, IBS Software. "Cargo and passenger luggage can be easily tracked if they have RFID tags. There is tremendous scope for growth of this technology in the aviation and cargo business. We are already developing applications that can adopt RFID."

Other benefits of RFID include reduction of labour costs, simplification of business processes and reduction of inventory inaccuracies.

For instance, automobile major

Mahindra & Mahindra, one of the earliest adopters of the technology, plans to achieve 80 per cent RFID implementation – up from the current 25 per cent – over the next three years, to cover areas like parking, warehousing, vendor tracking, security tracking, and vehicle tracking.

At Tata Consultancy Services (TCS), the number of enquires for RFID applications have doubled in the last 12 months. For Intercode Solutions, which works in the field of Automatic Identification and Data Capture (AIDC) including barcodes, inter labels and other such technologies, RFID contributions to the over all revenues are expected to increase from 15-20 per cent currently to 50 per cent in the next three years.

Bangalore-based Customer Infinity Services Ltd (CISL), a technology consulting and integrator company, which deploys RFID security biometrics as security solutions, has developed Suraksha Mudra, a seal for authentication of any commodity that the consumer may need to establish rightful ownership of.

> We have a team of practitioners, who are setting up a laboratory where we can better understand and leverage the physics of RFID to create solutions.

CISL is also exploring the possibility of liaising with Google and MSN. It is also developing devices where its security solutions can be a part of mobile phones, making it easier for verifications.

The technology is also becoming popular in rural areas. Cattle owners like Chitale farm near Pune have implemented RFID chips in their farms for collecting feeding data, breeding data as well as milking record, besides tracking the animals.

HUGE POTENTIAL : RFID tagging applications are vast and help businesses to improve productivity

TCS is in talks for an RFID deployment covering seven million cattle in Gujarat, the largest milk producing state in the country. Even the Union Agriculture Ministry has announced RFID pilots for cold chain management.

Realising the huge potential for RFID applications in India, Wipro Technologies, the global IT services division of Wipro Ltd, has set up an RFID-enabled concept store at its Electronic City campus. The concept store is part of the RFID centre of excellence at Wipro Technologies. It demonstrates how item level RFID tagging enables automatic check-out, intelligent shrinkage avoidance, smart stock maintenance and tracing and tracking of apparel by the store manager.

The concept store showcases RFID technology being used across different business processes in a retail store and has been launched to help customers understand the working of RFID in a real world environment.

"This is an example of our commitment to providing retailers with business-driven technology solutions that enable them to improve store productivity and enhance

WHAT IS RFID?

RFID (Radio Frequency Identification) is an automatic identification method, relying on storing and remotely retrieving data using devices called tags or transponders. An RFID tag is an object that can be attached to or incorporated into a product, animal, or person for the purpose of identification using radio waves. Chip-based RFID tags contain silicon chips and antennas.

the customer's buying experience," says Bhanu Murthy, vice-president, retail and distribution at Wipro Technologies. "We have a dedicated team of industry practitioners, who are setting up an RFID laboratory where we can better understand and leverage the physics of RFID to create solutions for our customer."

RFID technology is here to stay, and several Indian companies are developing new uses for it. In time to come, RFID would become part of daily life, and – as with cell phones today – many would wonder how they lived without help from the technology. Just like the shepherd has always wanted to keep his flock of sheep secured together, RFID technology is expected to be widely used in applications across sectors in India.

ENSURING FINANCIAL INCLUSION

NXP Semiconductors India (formerly Philips Semiconductor India), a leading Bangalore-based manufacturer of RFID chips that are used in e-passports, claims to have garnered an 80 per cent share of the market. It is also assisting financial inclusion in rural India.

The firm, which is the co-inventor of Near Field Communication (NFC) technology, and A LittleWorld, an Indian provider of the ZERO mobile platforms for inclusive banking, have rolled out the next generation of technology-enabled solutions, which will enable a micro bank to be set up in every village in India.

The breakthrough pilot project has been deployed by seven major banks in over 450 villages across four states in India. The initial pilot project has brought full featured banking services to over 45,000 rural citizens in their villages, through Customer Service Points equipped with new generation NFC-enabled mobile phones, contact less RFID smart cards and integrated biometrics.

For the participating banks, it is an important step that will eliminate the cost and effort to set up physical branches in rural areas, while providing full services for cash deposits, cash withdrawals, utility payments, money transfers, micro-insurance, and cashless payments. NFC's short-range wireless connectivity technology enables consumers to securely exchange and store all kinds of information, by bringing two devices close together. Evolving from a combination of contact-less identification and networking technologies, NFC enables convenient short-range communication between an RFID card and an NFC mobile phone.

Its intuitive operation makes it particularly easy for consumers to use, while its built-in security makes it ideal for payment and financial applications. Typically, the smartcard stores the identity of the customer such as name, address, photograph, fingerprint templates and relevant details of the savings or loan accounts held by the issuing bank. The RFID cards being used in the pilot use the same chip that is embedded in the newly issued e-Passports in more than 35 countries including the US, countries in Europe, and Singapore.

"According to Reserve Bank of India figures, about 40 per cent of Indians lack access to formal financial services and are largely 'unbanked,'" says Rajeev Mehtani, managing director, NXP Semiconductors India. "The pilot project currently being rolled out is in line with our strategy of providing customers with banking and financing solutions for all segments of the population."

INSTANT CASH : Helping the rural folk