

HK RFID
Awards

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Leaders in Business Excellence Creation
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Hong Kong



Hong Kong RFID Awards 2008

Presentation Ceremony at
GS1 Hong Kong Supply Chain Management Excellence Summit
10 October, 2008

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I am pleased to present to you this commemorative casebook for the inaugural Hong Kong RFID Awards. The awards scheme was established by GS1 Hong Kong to give recognition to local enterprises that have demonstrated excellence in harnessing RFID technology to improve their businesses. This casebook documents their impressive achievements.

Over the past ten years, we have seen significant changes in the way business is done due to globalization and the ever-increasing demands of customers. Enterprises have become increasingly intertwined in the tireless search for efficiency and have forged supply chains across countries and continents. Against this backdrop, enterprises have become more reliant than ever on each other for mission critical operational data and require real-time visibility of their combined operations to manage business efficiently.

GS1 Hong Kong is dedicated to helping enterprises with trading relationships communicate better with each other through the development of the Electronic Product Code™ (EPC) standards for RFID technology. These standards are vital to the success of RFID technology as a business enabler for global collaborative commerce. Since the EPC initiative was launched, GS1 Hong Kong, the local chapter of GS1, has witnessed significant growth in EPC-compliant RFID technology adoption by local enterprises.

The Hong Kong RFID Awards scheme has been created to recognize the best of these efforts to generate innovation and business value through RFID technology. GS1 Hong Kong believes the award-winning companies will serve as role models for other enterprises and demonstrate through real-world applications how RFID technology can create sustainable value for businesses. This, in turn, will accelerate the development and adoption of RFID technology in Hong Kong and the PRD region.

We were truly impressed by the standard and innovation of the entries. The participating companies, which span a wide variety of industries, showed how RFID technology can be harnessed by any company or organization to track goods and information, and thus improve efficiency and customer service.

We are honoured to have received the support of the HKSAR Government and industry in organizing the Awards, and the wisdom of leading voices in government and industry in the judging process. On behalf of GS1 Hong Kong, I would like to thank the government, the panel of judges, the participating companies and the wider business community for their generous contributions in making the Awards a success.

By sharing knowledge and experience, we hope the Awards will encourage the local business community to continue to harness the power of RFID technology and solutions providers to continue to innovate.

Ms. Anna Lin
Chief Executive
GS1 Hong Kong





RFID – Now and Beyond

RFID application has moved beyond simple bar codes and tracking freight movement. It has a major impact on various industry segments, from manufacturing to retailing, from personal healthcare to national security. It revolutionizes the human way of life in many aspects — for instance, it improves our shopping experience, enhances food safety and expedites our journey. Its applications are growing on a daily basis and the sky is the limit.

RFID is poised to completely transform the pattern of economic activities and the way we live in the next decade or so. Various developed and developing economies are keen to build up their RFID strengths, both in terms of breadth and depth, and their ability to become a trendsetter in RFID infrastructure, technology and applications. The economic benefits of being a RFID leader are just enormous.

While the HKSAR Government spares no effort in fostering RFID development, we must also count on the support and commitment from the industry and industry support organizations to steer the direction, shape the culture, nurture the talent and develop new applications. The 'Hong Kong RFID Awards', organized by GS1 Hong Kong to recognize RFID achievements, is a move in the right direction.

We would like to congratulate all the Award winners and we look forward to working closely with GS1 HK to develop Hong Kong into a regional centre of RFID excellence.

Mr. Eddy Chan, JP
Commissioner for Innovation and Technology
HKSAR Government

The Organizer

GS1 Hong Kong is a not-for-profit industry-led organization established to promote global standards, best practices and enabling technologies in the field of global value and supply chain management. As the local chapter of GS1, we are the only organization in Hong Kong authorized to issue GS1 and EPC identification numbers.

The Objectives

This is the inaugural year of the Hong Kong RFID Awards. The new awards program has been created to champion the use of EPC standards compliant RFID technology by enterprises. The mission of Hong Kong RFID Awards can be summed as follows:

- Bring recognition to pioneering enterprises that have successfully brought EPC/RFID technologies into their business operations.
- Encourage the adoption of EPC/RFID technologies by businesses in Hong Kong and the Pearl River Delta region.
- Foster the development of new EPC/RFID products and services.

The Awards

The awards has three categories. These are:

Best EPC/RFID Implementation

These honors will be awarded to enterprises that have successfully adopted EPC/RFID technologies in their business operation to deliver business value and proven return on investment through cost savings, operational efficiency gains, improved production and supply chain management, and better customer service.

Most Innovative Use of EPC/RFID

These honors will be awarded to enterprises that have employed a high degree of innovation and creativity in their application of EPC/RFID technologies to solve operational issues and meet business challenges.

Most Innovative EPC/RFID Products

These honors will be awarded to enterprises that have created RFID products which are highly innovative, easy to deploy, cost effective, addresses market needs and complies with global RFID standards, in particular EPC standards.

Message from the Judging Panel

Hong Kong has long shown itself to be a global leader in innovation and understanding of technology to support business. But it took this to a new level with RFID and related standards in showing how to implement them into real life business scenarios. Hong Kong doesn't read the book on how to do this. It simply takes the risk and goes into uncharted territory to find out how to do it. It can then write the book for others to read.



I was extremely impressed with the depth of expertise demonstrated in these applications and technology innovations. But it's the breadth of business which these applications cover which completes the story of innovation and success. Well done.

Panel Chair

Mr. Ian ROBERTSON

Global Industry Development Director / Asia Regional Director
EPCglobal Inc.

All the entries for 'The Hong Kong RFID Awards' are of excellent standard, stretching the potentials of RFID technology with a high level of creativity. In a thriving competitive global market place, these new applications of the emerging and connective RFID technology prepares Hong Kong well to capture opportunities and survive challenges. Well done!



Mr. Eddy Y. T. CHAN, JP

Commissioner for Innovation and Technology
HKSAR Government

I am delighted to see the strong participation and quality of implementations submitted to Hong Kong RFID Awards for consideration.

Innovation in the way RFID is being used is exciting and will serve us well in the future in terms of RFID and EPC, in both the supply chain and customer facing applications. I am sure the user cases and implementations shared through these awards will stimulate thought and further innovation and implementations.



Mr. Simon D. LANGFORD

Director, EPC Strategies
Wal-Mart Stores Inc.



I would like to say a big thank you to the business community of Hong Kong for their active participation in, and to the judging panel for their constructive support of, the first Hong Kong RFID Awards. This cohesive industry contribution has ensured the successful launch of the RFID Awards.

As we congratulate the winners of the Hong Kong RFID Awards, we hope that they will continue to be an invaluable business reference for the industry. More importantly, we believe that their success stories will further accelerate the development and adoption of RFID applications in Hong Kong to achieve our ultimate goal of ensuring Hong Kong stays competitive as a regional hub for commerce and logistics.

Ms. Anna LIN
Chief Executive
GS1 Hong Kong



It is exciting to see many quality cases of RFID products and solutions from the Hong Kong community. I am confident that the Hong Kong RFID Awards will continue to meet its objective of stimulating excellence in supply chain through the use of EPC/RFID for many years to come.

Prof. Chung Jen TAN
Chief Executive Officer
Hong Kong R&D Centre for Logistics and Supply Chain Management
Enabling Technologies



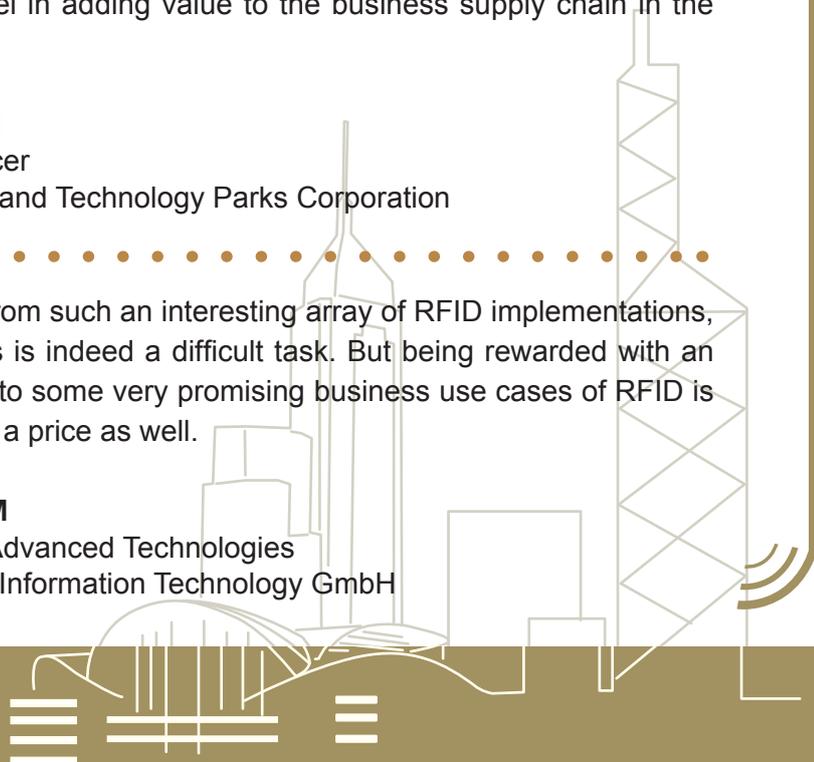
The debut of the Asia Pacific's first-ever RFID Awards in Hong Kong is a significant step forward in advancing the interest in and development of EPC/RFID technology in the region. We hope that this initiative will continue to help industry excel in adding value to the business supply chain in the years to come.

Mr. E. Anthony TAN
Chief Executive Officer
Hong Kong Science and Technology Parks Corporation



Choosing a winner from such an interesting array of RFID implementations, projects and devices is indeed a difficult task. But being rewarded with an inside perspective into some very promising business use cases of RFID is almost like receiving a prize as well.

Dr. Gerd WOLFRAM
Managing Director, Advanced Technologies
MGI METRO Group Information Technology GmbH



List of Awardees

Best EPC / RFID Implementation

- ★ Gold Award: Asia Airfreight Terminal Company Limited – RFID Truck Control System
- ★ Silver Award: CLP Power Hong Kong Limited – RFID Fleet Management
- ★ Bronze Award: Esquel Enterprises Limited – RFID Production Tracking & Monitoring

Most Innovative Use of EPC / RFID

- ★ Gold Award: Airport Authority Hong Kong – Integrated RFID Baggage Reconciliation and Management System
- ★ Silver Award: mi-tu – Smart Retail System
- ★ Bronze Award: Asia Airfreight Terminal Company Limited – RFID Truck Control System

Most Innovative EPC / RFID Products

- ★ Gold Award: Convergence Systems Limited – RFID Handheld Reader
- ★ Silver Award: NEC Hong Kong Limited – RFID Truck Control System
- ★ Bronze Award: Schmidt & Co., (Hong Kong) Limited – SCHMIDT RFID G-BOX

Certificate of Merits

- Carry Wealth Holdings Limited – RFID Production Monitoring
- Run Run Shaw Library & Wireless Communications Research Centre, City University of Hong Kong – RFID EasyCheck Library System
- Wireless Communications Research Centre, City University of Hong Kong – Mini-reading Corner System
- Hong Kong Communications Equipment Company Limited – LIBRA™ System, Library RFID Automation System
- NEC Hong Kong Limited – RFID Laundry System
- Schmidt & Co., (Hong Kong) Limited - RFRegalia System
- Sedna Systems Limited – Dataplex
- SML Group Limited – Mobile Intelligent Mirror & RFID Warehouse Management System
- Department of Computer Science & Engineering, The Hong Kong University of Science & Technology – αGate Portal



Gold Award:

RFID Truck Control System

Most Innovative EPC / RFID Products : Silver Award



Most Innovative Use of EPC / RFID : Bronze Award

Company Background

Client: Asia Airfreight Terminal Company Limited (AAT) is a cargo terminal operator based at Hong Kong International Airport. The company provides a comprehensive range of services to international airlines, from physical cargo handling to documentation processing. With 166,000 square meters of warehouse space and 230 truck bays across four levels, the company has a total handling capacity of 1.5 million tonnes of cargo per year.

Solution Provider: NEC Hong Kong Limited is the local subsidiary of the Japanese electronics giant NEC Corporation. The company designs and manufactures integrated information technology and network solutions, including RFID solutions, supported by a specialized development team.

Business Challenges

AAT manages high vehicle traffic volume at its terminal, consisting largely of trucks coming to pick up or drop off cargo. To ensure smooth traffic flow and efficient allocation of truck docks to vehicles, the company migrated from a manual process of managing access and truck docks to an automated system based on proximity

card technology in 2001. The Truck Control System required drivers to swipe assigned cards over a smart card reader in order to register their entry or exit from the facilities.

While the proximity card based access management system was significantly more efficient than manual processing, the company realized that there was still room for improvement. Because the Truck Control

System required drivers to pass their proximity card over a reader, the data recorded by the system was only as reliable as the drivers using the cards and did not reflect the real-time status of truck docks. In addition, the need for drivers to stop to register their presence using their proximity cards on the way in and out slowed down traffic flow and thus reduced utilization of facilities.



RFID Solution

The company felt that in order to achieve further efficiency gains, it needed to upgrade its Truck

Control System by switching to RFID technology to control vehicle access. In doing so, the company could ensure trucks would be promptly assigned to the right dock, thus reducing waiting time and optimizing cargo processing efficiency.



Best EPC / RFID Implementation

Winning Case Sharing

The company turned to NEC Hong Kong to design an RFID system for use in its semi open environment, where system performance could be affected by changes in environmental conditions. Particular attention was paid to details such as the installation angle of the RFID antennas and readers at the access points and truck docks, and the tags inside vehicles, in order to ensure optimal positioning of components for vehicle of varying heights and sizes.

The company installed loop detectors to ensure trucks were visible to the system even if their drivers did not park them in their assigned locations.

Results

AAT's RFID-based vehicle management system is the first of its kind installed in an air cargo terminal, and provides proof of RFID technology's capabilities and business value. The new system has been a great success in improving service quality, reducing truck queuing times from an average of 13 minutes to 8 minutes, while relieving truck drivers of the responsibility to manually input the status of their vehicle.

From the perspective of return on investment, RFID technology has helped boost income by optimizing

truck dock utilization and consequently raising cargo turnover. The smaller number of staff required to operate the new truck control system has also helped lift the company's bottom line by reducing the division's manpower requirements. All said, the project has made a significant positive business impact on the company.





Silver Award: RFID Fleet Management

Company Background

CLP Power Hong Kong Limited is the largest electricity company in Hong Kong. With an installed generation capacity of 8,888 megawatts, and a transmission and distribution network over 13,000 kilometers, the company supplies power to around 80% of Hong Kong's population and has a service coverage of 1,000 square kilometers.

Business Challenges

To support its vast vertically integrated electricity generation, transmission and distribution business, the company maintains a large fleet of cars and vans, managed by an in-house fleet operator, known as the Transport Branch.

Prior to the implementation of a RFID based, automatic carpool management system, the company's fleet of vehicles had become increasingly difficult to manage. The root of the problem was that the pool of vehicles and number of users had outgrown the department's paper-based reservation system and manual tracking process.

With more than 700 vehicles in service and 2,500 authorized users, the manual system was prone to human handling error, unable to efficiently track vehicles and subsequently could not reliably forecast vehicle availability.

RFID Solution

The company decided a change was needed in the form of an intelligent carpool management platform. It wanted to create a web-based system for users to book and check the availability of vehicles, linked an automatic vehicle access control and tracking system. After assessing various solutions, the company chose to implement an RFID-based tracking because of its advanced features, competitive pricing and compatibility with legacy systems, Kenneth Lee, Transport Manager, said.

The key technology in the new car pool management

system was the RFID tags installed in each car. The tags were scanned at gate control, allowing validation of user reservation information, real time tracking of vehicle status, and automatic capturing and logging of vehicle usage data.

Results

The new system, deployed for a pool of 70 vehicles with 1,500 authorized users, has had numerous benefits, including better service quality, reduced manpower needs, improved utilization of cars in the pool and accurate monitoring of vehicle usage, according to Mr Lee.

The web-based vehicle reservation system has received good feedback from users, who

have commented on the convenience of the online booking process and faster service response. In addition, the system has allowed the company to raise vehicle utilization rate, as it automatically notifies users of a car's availability as soon as it is returned to the carpool and makes arranging ride-sharing easier. From January 2007 to June 2008,

the system handled more than 35k transactions, with 99.9% of the bookings processed successfully.

Following the rollout of the automated carpool management system, human errors in the reservation process and vehicle assignment have been eliminated and the Transport Branch has been able to transfer manpower resources from duties related to the management of the carpool to other critical areas of operations. In addition, as the new system is paperless, the Transport Branch has greatly reduced its paper usage. The company expects the project to generate a significant return on investment, through cost savings of HK\$3.5 million over the next five years. The company is considering extending the RFID to work with Autotoll, so that fees are automatically paid each time an employee crosses a tunnel and the cost charged back to the employee's department.



Best EPC / RFID Implementation

Winning Case Sharing



ESQUEL GROUP

Bronze Award: RFID Production Tracking & Monitoring

Company Background

Esquel Group is a leading manufacturer of premium cotton shirts for some of the world's best-known fashion brands. The company is a truly vertically integrated garment manufacturer, with operations spanning cotton cultivation, yarn spinning, weaving, dyeing, garment manufacturing and packaging and even retailing. Esquel Group also has significant research and development capabilities to create new fabrics, most notably using nanotechnology.

Business Challenges

In the past Esquel Group's garment manufacturing factories mainly used barcode ticketing to keep track their manufacturing processes from the cutting and preparation of fabric through to the assembly and packaging of garments, but the company felt that the system did not provide enough visibility.

Because the system did not have real-time monitoring capabilities, managers on the shop floor could not respond quickly to problems occurring along the production line. Production data often could only be made available three hours after the fact, by which time it could be too late to formulate an appropriate response. In addition, the data lacked sufficient granularity and was error prone, making it difficult to accurately measure production cycle times or pinpoint the source of quality control problems. Esquel was keen to address these challenges as apart of its long-term goal to implement lean production across its entire operations.

RFID Solution

Esquel Group commissioned a technology company to build and implement an RFID-based tracking system that would automate the collection of production data on the shop floor to allow real-time monitoring and analysis at its factories in Malaysia, and Gaoming and Yang Mei in China.

The system replaced conventional barcode job tickets with read/write capable SmartTags. These tags were attached to bundles of cut fabric at the beginning of the production line and would be updated by every operator directly at their individual

workstations using SmartTerm RFID terminals. In this way, the SmartTag was embedded with a range of information about each bundle, including job order number, style number, color, size, bundle quantity and the workstation responsible for it.

From the RFID terminals, information about each bundle if sent to data servers for processing, giving managers a real-time view of how production is proceeding and how individual employees are performing.

The SmartTags also come in useful in the matching of cut pieces for assembly, a process previously painstakingly carried out by teams of workers through laying out the bundles in a large wide table. With RFID, subparts are organized into racks and easily located by RFID readers.

When production is completed, the RFID tags are collected for reusing to help save cost.

Results

With the RFID System in place, the company has been able to identify and solve bottlenecks in the workflow, benchmark and improve

line performance and trace defective products back to the source. At one factory, the system reduced production cycle time for cutting and assembly by 16 percent or almost two days.

As the system keeps track of each operator's attendance and productivity, workers need not waste time clocking in and out. Each worker has access to their personal performance data in real time, improving accountability and encouraging them to lift their productivity. At the same time, it allows managers to track machine downtime and the performance of individual workers, as well as automate payroll processing.

As part of its long-term goal to achieve end-to-end lean production, Esquel Group plans to expand the RFID System from the cutting and pre-assembly lines to the entire production process, including delivery.





Gold Award:

Integrated RFID Baggage Reconciliation and Management System

Company Background

Airport Authority Hong Kong is responsible for the management, operation and maintenance of Hong Kong International Airport, one of the world's leading regional and international aviation hubs. In 2007, more than 47.8 million passengers and 3.74 million tones of cargo passed through the airport, making it one of the world's busiest Airport. Since opening in 1998, the airport has also been consistently ranked among the world's best in terms of service quality, efficiency and accessibility by respected international industry surveys.

Business Challenges

The Airport Authority has a mandate to continually improve service quality, security and efficiency at Hong Kong International Airport in order to ensure passengers have a pleasant and hassle-free journey. In its quest to fulfill this responsibility, the organization identified the development of a faster, more efficient baggage handling system as one of its key long-term goals.

With barcode-based technology, the airport's baggage handling system had a read rate of as low as 70%, as barcode tags were sometimes accidentally obscured, folded or soiled. Baggage with defective tags had to be manually processed, a task which was amplified by the sheer amount of baggage passing through the airport each day.

RFID Solution

The Airport Authority began working on a Baggage Reconciliation and Management System with integrated RFID technology in 2003 and has successfully rolled out the project in phases over the past five year. The initial phase of the project, in which the airport established an RFID system in the baggage handling area, was completed in 2005. This was followed by the migration to second-

generation RFID tags, which have read/write capabilities in 2006. Lastly the Airport Authority rolled out RFID integrated bag tag printers to all airlines in 2008, bringing the RFID system into full effect.

The airport now has more than 500 RFID read points and 200 RFID readers installed in the baggage handling areas, together with wireless network infrastructure to support handheld readers at the apron and baggage hall areas. In addition, there are more than 500 RFID integrated bag tag printers at all check-in desks at the airport and at the Airport Express stations in Kowloon and Hong Kong Island.



Results

Hong Kong International Airport's RFID baggage management system has been a truly pioneering project. As the world's first RFID enabled Baggage Management System, the project has set an international benchmark.

Baggage handling at Hong Kong International Airport has speeded up and become more accurate since the switch to the integrated RFID system. The baggage read rate has improved dramatically to 96 percent by using second generation RFID tags. This has significantly improved the processing capacity and efficiency of the baggage handling system.



Most Innovative Use of EPC / RFID

Winning Case Sharing

mi - tu

Silver Award: Smart Retail System

Company Background

mi-tu is an Italian-style fashion retail brand founded in 1998, which targets trendy female shoppers aged 20 to 40 years. The fashion retailer opened its first store in 2003 and today has a chain of 21 outlets spanning Hong Kong, Macau and many major cities in mainland China, including Beijing, Shanghai and Shenyang.

Business Challenges

mi-tu recognized that in order to stay competitive, it not only had to offer a wide range of clothes and accessories to suit different budgets but also had to present its product in a way that would allow its time-starved customers to make their choices quickly and conveniently.

Two years ago, **mi-tu** aimed to increase its sales and performance by putting in place an enhanced customer service system, which would address these challenges and allow for more effective cross-selling of its products. In addition, the company wanted the customer service system to allow it to gain a better understanding of its customers' buying behavior by analyzing their patterns of purchases.

RFID Solutions

To meet these challenges, **mi-tu** became a technology pioneer, deploying the Smart Retail System at its flagship stores in Shatin and Admiralty in 2006. The system was co-developed by Schmidt & Co., (Hong Kong) Limited and the Hong Kong Polytechnic University's Institute of Textiles and Clothing, and consists of Smart Dressing Mirror and Smart Fitting Room, which are equipped with EPC-standard RFID antennas and interrogators. When a shopper approaches the dressing mirror or enters the fitting room, the system will read data from RFID tags on the items being carried by shopper and

respond with mix-and-match fashion suggestions displayed on a nearby LCD screen.

By capturing the buying preferences of individual customers, the system is able to provide personalized shopping recommendations to customers. In addition, the company issued VIP membership scheme with RFID-enabled privilege cards, which leveraged the system to provides VIP customers with personalized e-catalogues containing product suggestions and special promotional offers based on their individual tastes.



One of the other strengths of the system is its ability to record not only what items have been sold, but also how frequently individual items are being tried on, thus providing a clearer picture of how customer purchasing behavior is. In addition, the Smart Retail System helps tackle shoplifting.

Results

After implementing the new shopping experience at its shops, **mi-tu** registered a 30% increase in sales revenue. Some customers were spending twice or three times as much in one trip and 80% of customers were happy to try out suggestions made by the Smart Retail System.

"As the fashion selling cycle is getting shorter and shorter, our system definitely can speed up the response towards market trend," said **mi-tu's** Managing Director, Katherine Ho. As the project attracted coverage in the local media, the system also helped raise awareness of and build value for the mi-tu brand. Looking ahead, the company plans to introduce the system to more locations and consolidate its reputation as a pioneer in adopting technology that facilitates a better, more fun shopping experience.



Gold Award: RFID Handheld Reader

Company Background

Convergence Systems Limited (CSL) is a manufacturer of RFID equipment and components. Founded in 2000, the company designs and manufactures a broad range of RFID products, which are sold in more than 25 countries and used in a wide range of industries, including manufacturing, pharmaceuticals, transportation and retailing.

Business Challenges

In 2006, CSL spotted an opportunity to bring to the market a new class of handheld RFID reader, which would deliver the read range and read rate of fixed RFID readers but in a lightweight, mobile form factor. The company recognized that there was growing business demand for such a handheld model, as more businesses discovered that fixed readers had practical limitations.

"There are environments and business set-ups where fixed readers simply cannot provide sufficient coverage. If a company has these blind spots in its logistics trail, its track-and-trace process is inherently flawed," said Dr Albert Lai, Vice President of Product Engineering.

The loading zone at a manufacturing plant or logistics center is one such environment. With vehicles, such as forklift trucks, constantly moving around on random routes, a loading zone would require fixed RFID readers in too many different locations to make it an economically viable solution. In addition, these fixed readers would obstruct vehicles.

While a handheld, manually operated reader would be ideal in such a situation, the models available at the time had a read range of less than one meter and a typical read rate of just 10 tags per scan. CSL concluded that in many business processes, a long-range handheld RFID scanner would have greater application and business value than a comparable fixed-position model.

RFID Solution

In designing the CS101, the world's first long range handheld RFID reader, CSL had to overcome a number of significant technical obstacles relating

to its small physical dimensions. There were also customer requirements to take into account in terms of ergonomics, connectivity and durability.

While conventional handheld readers tend to consist of a number of independently designed modules – including a PDA, keypad and antenna – bolted together, CSL designed the CS101 from the ground up in one housing to meet its design goals. Dr Lai said the technological feat required the collaboration of many local engineers working in a wide variety of fields and ultimately required the implementation of new manufacturing methodologies to mass produce.



Results

The CS101 was the world's first handheld RFID reader to deliver a read range of up to 7 meters outdoors and 7 to 11 meters indoors (reading AD431 tags from Avery Dennison) and read rate of up to 150 tags/second. When it debuted in April 2008, the new RFID reader was the subject of enquiries from enterprises in a wide variety of industries – from aerospace to apparel retailing – and was immediately deployed in a number of projects, proving CSL's market intelligence that there was demand

for powerful handheld readers.

With its ability to quickly interrogate many RFID tags over a vast area, the reader will enhance supply chain efficiency, enable faster warehouse and front store inventory, and deliver greater operational visibility through near real-time tracking of goods.

Looking ahead, the company is planning to develop two peripherals to extend the device's functionality, including a GSM / GPRS + GPS module for use outdoors, and a real-time location module to track the reader's location to within one meter indoors.

These two modules will give the CS101 handheld reader the ability to provide a physical location fix on tagged goods – an important added dimension to the passive RFID tag inventory and search process. Market feedback suggests the two modules will make a similar impact to the CS101 when launched.



Most Innovative EPC / RFID Products

Winning Case Sharing



Bronze Award: SCHMIDT RFID G-BOX

Company Background

Schmidt & Co., (Hong Kong) Limited (SCHMIDT) is a subsidiary of Schmidt Electronics Group and a leading system integrator company, which was re-established in 1953. The company provides automatic identification and data capturing, RFID and wireless technologies, facilitating the creation of real-time data infrastructure and leveraging technologies in new ways. Headquartered in Hong Kong, the company has 17 offices across Asia, including major cities in mainland China.

Business Challenges

Product development in the RFID market has been somewhat pedestrian in recent years, with the bulk of solutions available to enterprises mostly made from components, which are not purpose-built to work together. According to Matthew Man, General Manager of SCHMIDT, this has led to a number of deficiencies in design and performance in many RFID solutions.

Many solutions are too bulky with excessive cabling running among the various components, such as the computer server, reader and antenna. In addition, some solutions have performance issues because they have been equipped with unstable computer servers or have not been built to withstand the harsh industrial environment.

RFID Solution

The company saw an opportunity to develop an all-in-one device to overcome these drawbacks. After conducting extensive market research, the company developed G-BOX, an integrated solution that contains a computer processor, RFID reader and embedded software and middleware.

Its small size and durability are its main advantages over similar products in the market. Intended for industrial use, G-BOX boasts a hardwearing enclosure and uses passive radiators rather than fans to keep components inside cool while protecting it from dust and moisture. In addition, the G-BOX was configured for convenience and ease of use, with plug-and-play installation and Wi-Fi to enable mobility.

As an all-in-one solution device, the G-BOX is compatible with most applications and is a cost

effective solution for a wide range of applications, including asset tracking, work-in-progress, warehouse management, product authentication, item-level inventory, and access control and payment.



Furthermore, the G-BOX complies with international RFID standards, including the EPC/RFID open standard (Class 1 Gen2) and the ISO 18000 – 6C standard.

Results

The G-BOX has made RFID economically viable to a broader range of businesses thanks to its compact, versatile and cost effective design. Since its launch, it has been deployed in a number of applications besides warehouse tracking systems. Fashion retailer mi-tu, for example, used the G-BOX to develop a retail system that can enhance customer relationship at its retail outlets. The system can track what items customers were taking to the fitting rooms and make recommendations on built-in display. Meanwhile, Vogue Laundry adopted the G-BOX as a system for managing its graduation gown rental service, including tracking, sorting, stocking and collection.



RFID Production Monitoring

Carry Wealth Holdings Limited is a Hong Kong listed apparel manufacturer. The group manufactures apparel products for internationally renowned brand names and provides a one-stop apparel manufacturing service, which includes fabric production, product design and manufacturing of knitted products. The group's wholly-owned subsidiary factory, Heshan Carry Wealth Garment Limited, began deploying an RFID production monitoring system in 2007 in order to improve management of production resources and increase productivity. Prior to installing an RFID tracking system, the factory did not have access to real-time production data, and relied on the experience and guesswork of frontline managers to adjust day-to-day allocation of resources.

The RFID tracking system has created significant value for the factory. With real-time production data, managers can respond quickly and systematically to production challenges. Since the deployment of the system, the factory has been hitting production targets more frequently and reduced staff overtime. In addition, the system has allowed the factory to measure performance and thus uncover production waste and loss. Ultimately, the RFID system has led to a significant increase in productivity and laid the foundation for continued improvement at the factory.



RFID EasyCheck Library System

EasyCheck@CityU is a joint research project by the City University of Hong Kong's Run Run Shaw Library and Wireless Communication Research Centre. The project was initiated to study how RFID technology could be leveraged to reduce queuing times at the library and thus improve user satisfaction. The library's existing

self-checking and self-returning, which used a barcode system, supported by Tattle Tape security, tended to be slow, resulting in long queues.

A pilot test at the library's semi-closed collection, which houses 8,000 related course-related short-loan items and averages around 5,000 checkouts per day, was successfully completed in 2008. Feedback from users was positive with many commenting that the pilot system was quick, efficient and convenient. Encouraged by this, the library is planning to embark on a full-scale implementation of the system, which will involve tagging around 1 million items, and installing self-checkout stations, self-return stations and security detection gates. In addition to enhancing service quality, the library expects the system to provide real-time inventory status information and rich data about library resources usage, while also reducing manpower needs.

Mini-reading Corner System

The Mini-reading Corner System was installed by the City University of Hong Kong to manage the assets of the recreational library at the Lee Shau Kee Hall residence for students. The library was set up to instill a culture of learning in the halls of residence, but did not have the financial means to hire staff to manage it. This lack of security meant books were regularly borrowed but not returned. The Mini-reading Corner System was created in January 2008 to address this problem through a self-service system. A kiosk was set up at the library, equipped with a UHF RFID reader, compliant with EPC Class 1 Generation 2 Standard. The system allowed simultaneous long-range detection of items for self-service borrowing and returning of books, security management and inventory monitoring.

Since the system was installed, the library has been able to easily gather information about its users and assets, including which books are most frequently borrowed, what is the status of inventory, and which are the most active users. This information can be used to determine which books to purchase for the library. Importantly, the lost books rate fell dramatically from 70% before the system was deployed to just 0.1% afterwards. Looking ahead, the university plans to extend the RFID-based self-service concept to self-service stores, where students can choose and pay for items unassisted, and a comic book café.



Certificate of Merit

Winning Case Sharing



LIBRA™ System, Library RFID Automation System

Hong Kong Communication and Equipment Limited is a telecommunications and networking solutions equipment supplier with a presence in Hong Kong, mainland China and Singapore. The company's self-service library system, the Library RFID Automation System (LIBRA™), is a leading RFID based automated library management system, combining RFID technology for self-service borrowing and returning of books and a JAVA-based web service platform. The system is compliant with ISO standards for contactless integrated systems and RFID item management, and EPC RFID standards,

Compared with a manual library management system, LIBRA™ is able to reduce queuing times for returning books as dramatically as from 30 minutes to less than one minute. In so doing, it can increase the number of book transactions that a library can handle by as much 10-fold per year. In addition, the system can allow a library to reduce its manpower requirements significantly. The system has been successfully deployed in libraries across mainland China, Hong Kong, Indonesia, Korea, Malaysia, Singapore, Thailand and Taiwan, with positive feedback from clients and a proven record of generating return on investment.



RFID Laundry System

NEC Hong Kong Limited is an information technology and network solutions vendor, which offers a broad range of products including RFID, business management and unified communications solutions. The company was commissioned to design and build an RFID Laundry System for the Laundry Factory and its client TWGHs Wong Tai Sin Hospital, which would allow the counting of dirty linen to be automated, accurate and efficient. Prior to implementing the system, items of dirty linens were put into collection bags to be sent to the laundry factory, where each item of linen was counted by hand. When the washed linen was returned to the hospital and counted again by hand, there were often disputes over the quantity of linen returned.

The RFID system uses RFID readers installed on collection bins to count automatically the pieces of linen, which were fitted with heat and pressure resistant RFID tags, as they were dropped into the bins. When the laundry bags in the bins were collected, data would be uploaded to the laundry factory database. After washing, items would be counted by the RFID system again and compared with the quantity registered at collection. The hospital could keep track of the status of the laundered items via the web. The system has eliminated manual counting and thus reduced the associated staffing costs. More importantly, it has improved the quality of the service the laundry factory has been able to offer.



RFRegalia System

Schmidt & Co., (Hong Kong) Limited (SCHMIDT), a leading provider of RFID, barcoding and wireless solutions and products, was commissioned by the Hong Kong University of Science and Technology to develop an RFID system to improve its graduation regalia handling process and rental service. SCHMIDT used highly durable RFID tags sewn into the regalia and its proprietary EPC-compliant, Wi-Fi-enabled RFID reader-cum-processor device, G-BOX, to track the regalia and synchronize records of rented and returned items across seven laundry outlets and the university.

The RFRegalia system designed by SCHMIDT provided full real-time visibility of the flow of items as they passed from the university's storage facilities to graduates to the laundry outlets for washing and back to the storage facilities. With the RFID system in place, stocktaking and inventory management was easier to perform, transactions were automatically and accurately processed, and the collection and verification process was greatly streamlined. The system also relieved customers of the need to fill out lengthy forms and allowed data to be collected for reviewing the whole rental scheme. Moreover, the laundry tags allowed the university to trace manufacturing details of individual items and analyze the relationship between the design and durability of regalia.



Dataplex

Sedna Systems is a RFID solutions provider, which specializes in software development, consultation work and technical support services. Founded in 2004, the company has striven to be a pioneering force in the industry, bringing out the first locally developed middleware system, purpose-built for RFID installations and fully compliant with EPC standards. Middleware is a type of software designed to allow applications to work together other over a network. Sedna's middleware engine, DATAPLEX, provides a bridge between front-end RFID data capturing devices and back-end business applications, such as supply chain management, enterprise resource planning and inventory management systems.

One of the key advantages of DATAPLEX is that it has been developed from the ground up to comply with EPC standards, including ALE Standards, and EPC tag data and tag data translation standards. In addition, DATAPLEX has been developed to function as more than just a middleware engine, with modules allowing users to conduct self-testing and read-rate evaluation to facilitate successful RFID deployments. DATAPLEX has proven its real-world value in a range of successful RFID projects, including a warehouse management system, asset tracking system and supply chain management system.



Certificate of Merit

Winning Case Sharing



Mobile Intelligent Mirror

SML Group Limited is a leading manufacturer of garment trim and product packaging with a presence in 40 locations worldwide. As part of its range of 'smart' retail solutions designed to enhance the shopping experience, the company created the Mobile Intelligent Mirror, a device that draws on RFID technology to provide personalized information to users depending on the tag they are carrying. The device is an extension of the company's Smart Mirror, a system used in fashion outlets to automate the process of cross-selling products to shoppers. The Smart Mirror scans RFID tags of clothes carried by shoppers into a fitting room and provides mix-and-match suggestions based on the results of its scan.

The Mobile Intelligent Mirror is essentially the same solution as the Smart Mirror packaged as a mobile device. Because it is built as an all-in-one, plug-and-play system, it has a wider range of applications than the Smart Mirror. For example, it could be deployed at the front of a store as a marketing tool, introducing products to customers as they walk past or it can be used at functions, such as an annual dinner, to assign guests to seats as they enter.

RFID Warehouse Management System

SML Group also wanted to leverage RFID tracking technology to replace its manual system of warehouse management at its production site in China. Among the attractions of switching to an RFID-based automated system, the company noted that it could monitor raw materials inventory and available storage space in real time, accurately track and benchmark staff performance, and eliminate some of the potential for human error from work processes.

The main focus of the project was to automate the monitoring of the company's supply of paper, one its key raw materials. By tagging pallets and shelves, the company could keep an accurate track of how much paper it had and where exactly it was being stored in the warehouse in real time. Other benefits from the introduction of the new automated warehouse management system included optimization of warehouse space usage and workflow standardization, leading to an overall improvement in operational efficiency.



αGate Portal

The αGate Portal is a measuring, testing and calibration instrument designed to take the guesswork out of building, optimizing and maintaining RFID systems. The device was designed by the Computer Science and Engineering Department at the Hong Kong University of Science and Technology to help system builders tackle the complex web of variables that determine the performance of an RFID deployment. These variables include the specifications of the tags and readers deployed, the positioning of these components, and environmental factors, such as humidity and neighboring systems.

The instrument uses a multiple-antenna framework, together with robotics and machine learning technology, to test RFID component configurations and their positioning in their actual operating environments with a level of precision and speed that would be impractical to attain manually. By automating the precise, repetitive tasks needed to identify the right mix of RFID components, and how best to position these components to suit a given application and environment, the instrument helps end-users pick the right components for, save time in, and extract the most value from their RFID deployment.

Co-organizers:



Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies
香港物流及供應鏈管理應用技術研發中心



Hong Kong 香港科技園
Science & Technology Parks

Supporting Organizations:



香港工業總會
FHKI Federation of Hong Kong Industries



German Chamber of Commerce, Hong Kong
德國商會



HONG KONG COMPUTER SOCIETY



HONG KONG FOOD CONTROL
香港食品委員會



HONG KONG GENERAL CHAMBER OF COMMERCE
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香港中華總商會
The Chinese General Chamber of Commerce



香港中華廠商聯合會
The Chinese Manufacturers' Association of Hong Kong



香港電子業商會
The Hong Kong Electronic Industries Association



THE HONG KONG EXPORTERS' ASSOCIATION
香港出口商會



THE HONG KONG EXPORTERS' ASSOCIATION



香港貨運人委員會
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 **HK RFID Awards**



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